

**Machine for bevelling of edges with automatic feed**

***NKO MACHINES***

***UZ 29 Speeder***



**Operation & Maintenance Manual**



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## General information

### 1.1 Introduction

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

This guide provides instructions for the installation, adjustment, operation and maintenance of the machine

UZ 29 Speeder (UZ29 hereinafter ) in accordance with the applicable safety standards.

**The information and data contained in this document subject to changes due to further improvement of machinery. To eliminate any doubts, when differences are detected, please contact N.KO.**

Never perform any operation on the machine before you read the instructions in the manual and understand them. Major part of accidents that happen in the workplace are due to the fact that the guidelines and recommendations contained in the manual are not complied with.

The graphic symbols used in the manual are intended to emphasize the important information regarding the safety and operation of the machine.



Attention :

Information important for the personal safety of the operating staff.



**Important:**

**Instruction that needs to be observed to ensure the proper function of the machine.**

### 1.2 Tests

The machine for edges bevelling is tested in our test room.

During that test, the correct function of the electrical system, as well as the right function of bevelling sheets and profiles by different types and sizes, are tested.

### 1.3 Warranty

**The bevelling system UZ29 Speeder (UZ29 hereinafter) is provided by the seller with a guarantee that the article shall not feature any material and production defects for a period of 1 year following the delivery date.**

**The machine is provided with a 1 year guarantee from the delivery date for the faultless function of the article and the materials used.**

The seller undertakes to make sure that any potential warranty defects are removed free of charge and without undue delay so that the buyer is able to use the article the way they desire. Should the buyer claim liability for warranty-unrelated defects, it shall reimburse the seller for any expenses associated with that.

The warranty period does not run from the date the buyer reports to the seller the existence of a defect covered by the warranty, which does not allow the buyer to use the article and assert its rights from liability for defects of the provided guarantee up to the date of its removal by the seller.

The warranty does not cover natural and normal wear and tear and defects caused by improper use of the article in violation with the provided training and documentation. This guarantee does not further cover defects caused by overloading of the machine, or defects occurred after any improper interference with the machine, or improper repair or modification of the machine.

**Tampering, repair or modification means any intervention, repair or modification that was made in contradiction with the provided training and documentation, or was made by a person other than the seller, or a person authorised or approved by the seller.**

Any rights from liability for defects from the provided warranty must be filed at the seller without undue delay after the buyer discovers a defect, but no later than by the end of the warranty period, otherwise the rights will expire.

To exercise the rights from liability for defects of the provided warranty the buyer must submit the warranty certificate; otherwise the purchaser is not entitled to any rights.

The Seller's liability for defects covered by the guarantee does not arise if these defects were caused after the risk of damage to the article due external events was transferred. External events are, in particular, natural disaster, force majeure event, or conduct of third parties.

N.KO considers the guarantee invalid if:

- the machine is improperly used
- used in conflict with national or international standards
- improper installation of the machine
- defective power supply
- severe shortcomings and failures in maintenance
- unauthorised modifications or interventions
- other than the original or wrong spare parts and accessories are used for that model
- full or partial failure to follow the instructions in this manual
- extraordinary events, natural disasters or the like.

#### **1.4 Identification data**

The identification data on machines for edge bevelling are listed on the CE aluminium plate affixed to the motor cabinet.

#### **1.5 Reference standards (CE Declaration of Conformity)**

# ES PROHLÁŠENÍ O SHODĚ

## EC Declaration of Conformity

podle § 13 odst. 2 zákona č. 22/1997 Sb., v platném znění

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

Táborská 398/22, 29301 Mladá Boleslav, IČO: 26161109

prohlašujeme na svou výlučnou odpovědnost, že

**výrobek – obchodní název: Úkosovací systém**

**typ: UZ 29 Speeder**

je primárně určen pro úkosování a odjehlování dílců, na který se toto prohlášení vztahuje, je za podmínek obvyklého použití bezpečný a je ve shodě s následujícími technickými předpisy:

### České normy

ČSN EN 60204-1 ed. 3:19, ČSN EN ISO 12100 :11, ČSN EN 31010:11, ČSN EN ISO 14120 :01/17 +01:08/17, ČSN EN ISO 16090-1:19, ČSN EN 50370-1:05, ČSN EN 50370-2:03, všechny v platném znění

a těmito nařízeními vlády, ve znění pozdějších předpisů (NV) a čísla směrnic EU:

NV 176/2008 Sb., v platném znění	2006/42/EU – including amendments
NV 117/2016 Sb.	2014/30/EU – including amendments
NV 481/2012 Sb., v platném znění	2011/65/EU – including amendments

Osoba pověřená kompletací technické dokumentace:

Strojní zařízení splňuje všechna příslušná ustanovení směrnice 2006/42/ES, v platném znění.  
Strojní zařízení splňuje všechna příslušná ustanovení směrnic 2014/30/EU, 2014/35/EU a 2011/65/EU, vše v platném znění.

Posuzování shody bylo provedeno postupem podle § 12, odst. 3 písm. a) zákona č. 22/1997 Sb., v platném znění.

Vydáno v Ml. Boleslavi dne 1.6.2019

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## SAFETY

### 2.1 Safety tips



#### **Attention :**

**Get thoroughly familiar with the following instructions to prevent personal injuries or damage to property.**

- Never attempt to work with the machine unless you have become fully familiar with the way it works. Should you have any doubts even after you have carefully and completely read this manual, please contact N.KO.

Make sure that all technical workers that are supposed to use the machine and perform its maintenance are fully familiar with all the relevant safety recommendations.

- The machine must be transported and installed only by specialised workers and in accordance with the instructions contained in this manual.

- Prior to starting up the machine, the operating staff must make sure that all safety devices are functional, and all safety covers mounted.

- Never use the machine for another purpose than the one specified in the manual. Never process other than the defined products or workpieces.

- Before you start using the machine for another purpose than the one described in this manual, please contact N.KO.

- The values of voltage used to power the machine are dangerous: Make sure all connections are correct. Never perform maintenance or replace parts on the machine when the machine is connected to a power supply, and never make any turns on the electrical connections.

- Parts considered defective replace with other parts recommended by the manufacturer. Never replace parts with other than original spare parts.

- Never wear clothing or jewellery that might get caught in moving parts. It is advisable to wear safety clothing: shoes with non-slip soles, ear muffs and goggles.



#### **Important:**

**If any defects occur during the service life of the machine that cannot be repaired according to this guide, it is advisable to contact your supplier or manufacturer, the company N.KO to resolve the problem as soon as possible.**

## 2.2 Safety stickers

Safety stickers are glued on the edge chamfering machine to protect the operating staff.

Meaning of stickers:

**This sticker sticks to the electrical panel of the edge bevelling machine and indicates the presence of high voltage.**



**Do not remove this sticker from the machine**

## 2.3 Qualification and protection of operating staff

Employer is obliged to inform the operating staff on safety standards and also ensure that those are respected, and make sure that the working area is large enough and well lit.

The term "operating staff" means a person who installs, operates, adjusts, performs maintenance, cleans and repairs the machine. The person must be fully acquainted with this manual and trained by the supplier. If it is not the case, request the supplier for remedy. Otherwise the manufacturer has no liability for the resulting damages or injury.



**Attention :**

**Prior to the commencement of works, the operating staff must be familiarised with the operation manual.**



**Attention :**

**The operating staff shall always make sure that:**

1. That all safety covers are mounted, and that all safety devices are functional before they start up the machine.
2. Refrain from wearing clothing or jewellery that might get caught in the moving parts.
3. Wear the approved safety clothing, such as shoes with non-slip soles, ear muffs and goggles.
4. Apply safety standards, make sure that they are always observed and if in doubt, look again into this manual.
5. Contact the machine supplier when any defects that cause malfunction of the machine cannot be removed when the defects relate to faulty parts or irregular operation.

## 2.4 Safety equipment

The machine is equipped with safety elements to isolate zones that could be dangerous for the operating staff. These elements are bolted to the frame or screwed together with the machine structure. They can be removed using suitable wrenches. This operation may be required for specific activities during maintenance. Upper holding bar is assembled in front of the cutting tool (position A fig. 2.4.1). It protects the hands of the operators during bevelling work.



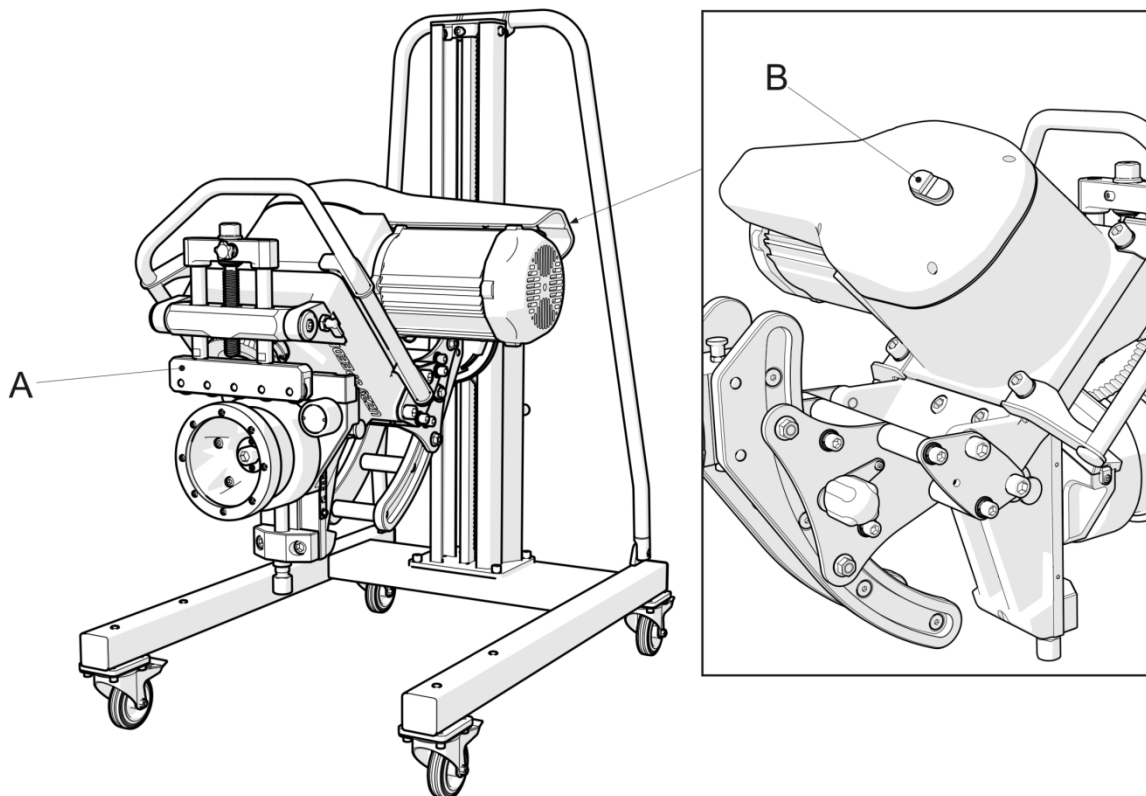
### Attention :

**Removing the above defined safety elements must always be carried out when the machine is at rest and the electrical supply line plug pulled out. Never use the machine without the mounted safety elements.**

The machine is equipped with an emergency mushroom button. It is red in colour and in priority to all other operations, it immediately stops the machine (position A or B Fig.). 2.4.1).

This emergency button is used in the case of imminent danger or mechanical accident;

Fig. 2.4.1





## 2.5 Residual risks

The machine was designed and constructed with all devices and equipment to ensure the health and safety of the operating staff.

The machine is partially enclosed, so that the risk of contact with the moving parts was prevented to the utmost extent.

However, there is one remaining risk:

As mentioned above, the working zone is protected as much as possible, but must remain partially open in order to insert the material for machining.

It is therefore possible that the operating staff may put their fingers into the zone in which both the cutting tool and the workpiece holder are located.



**Attention :**

**Keep your hands as far away as possible from the cutting zone.**



**Attention :**

**Always apply the safety procedures contained in the manual and make sure they are observed, and all remaining risks have been eliminated.**

## TECHNICAL SPECIFICATION

### 3.1 Machine description

**The bevelling machine, model UZ29 Speeder (hereinafter UZ29) includes medium dimensions. One of its main features is that the angle and of the bevel can be adjusted, and the material feed is automatic.**

**The machine is equipped with a cutting tool, robust workpiece holder, graduated scale for direct reading that is used to set values (the size of the bevel and the angle), and a special guide that facilitates loading of the material.**

**Machine UZ29 can be used in three methods.**

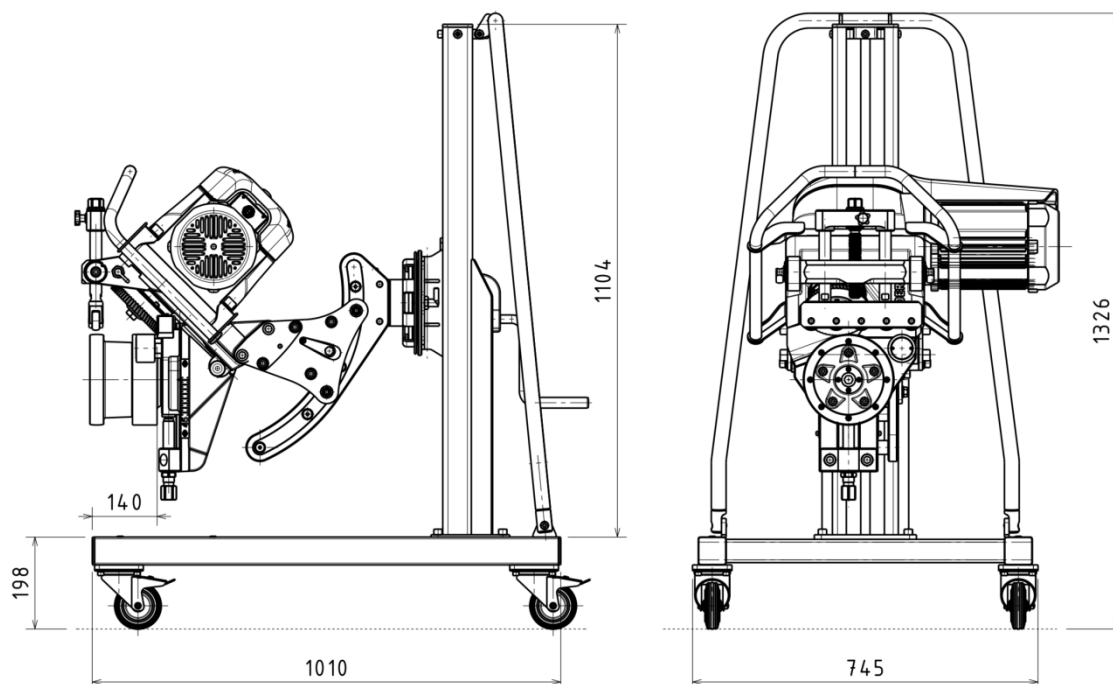
- 1. The mode when the machine independently moves alongside the machined material, fixed on suitable supports or worktops.**
- 2. Mode identical with the above defined but with the worktop turned around its axis with the head down. It is a bevel machining mode K or X. This mode enables the sheet metal machining on both sides without the necessity of the workpiece handling.**
- 3. The mode of the stationary machine use. In this mode 3D handler fulfils the function of the work station and the operators place smaller workpieces manually to the machine. Driving wheels of 3D handler must be secured against movement.**

**The UZ29 chamfering machine is reliable and requires only minimal maintenance.**

### 3.2 Technical data

<b>Voltage</b>	<b>400/480/220 V*</b>
<b>Frequency</b>	<b>50/60 Hz*</b>
<b>Engine input</b>	<b>1500W</b>
<b>Sheet metal thickness</b>	<b>8 ÷ 60 mm</b>
<b>Max bevel size (steel Rm &lt; 400Mpa)</b>	<b>29 mm (20 x 20 mm / 45°)</b>
<b>Max bevel size (steel Rm &gt; 400Mpa)</b>	<b>25 mm (17.5 x 17.5 mm / 45°)</b>
<b>Maximum solidity of the machine material</b>	<b>Rm - 700 Mpa</b>
<b>Bevel angle range</b>	<b>30° / 45° ( 22,5° / 37,5° / 50° Upon request)</b>
<b>Feed speed</b>	<b>1,8 bm/min</b>
<b>Weight</b>	<b>205 kg</b>

(\* ) Accurate values of voltage and frequency on the identification plate of the motor.



### 3.3. Noise level

The machine was designed and manufactured so that the noise that it emits is minimized. .  
Measuring completed from the operation location when the motor runs in the automatic cycle mode showed the values:

- during cutting **74.9 dB**
- during operation without load **64.5 dB**
- 

### 3.4 Conditions of work environment

The environment in which the machine operates must comply with the following values:

**Temperature:** 0° C - 50° C  
**Moisture.** 10% - 90% (uncondensed)

**The machine must be placed under cover and not be exposed to rain.**

**Any conditions of the working environment other than the above may cause serious damage to the machine or injury (especially electrical equipment).**

**If the machine does not work, it may be stored in a dry place where the temperature fluctuates between: -10° C and 70° C**

**all other values remain unchanged.**

## **INSTALLATION**

### **4.1 Transport and lifting**



**Important:**

**The operations described in this section shall be performed by qualified personnel only.**

**Suitable unloading and establishing means (cranes, forklifts etc.) must be available at the destination.**

**When the machine is delivered to the place of destination, make sure (yet in the presence of the carrier) that it meets the specifications in the order and that it suffered no damage during transport. Inform N.KO and the carrier in detail immediately should any damage or missing parts be detected.**

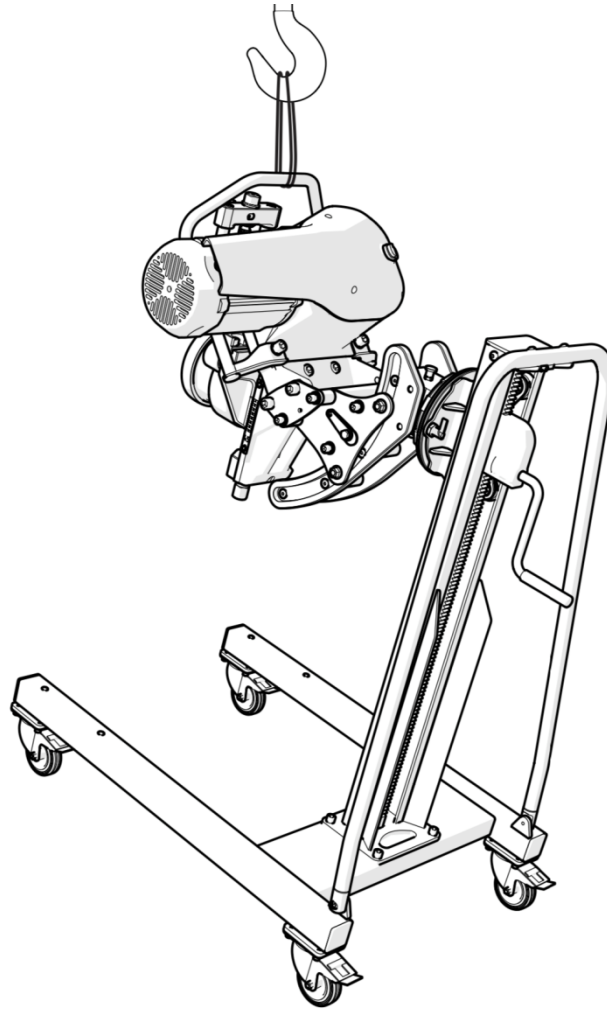


**Attention :**

**Please observe the following instructions and ensure that handling the machine is safe:**

- **Keep safe distance from hanging burdens and make sure that the lifting equipment and related tools are in perfect order and are suitable for the device weight defined in paragraph 3.2.**
- **Wear protective clothing, such as work gloves, shoes with non-slip soles and a helmet during handling the machine.**
- **If the machine is in a carrying case, remove it and dispose of it in accordance with the applicable laws on waste disposal in the country.**
- **Lift the machine for bevelling of edges. Use the belt placed on the upper handle. Displayed on figure 4.1.1.**

Fig. 4.1.1



## 4.2 Installation and connection



### **Important:**

The operations described in this section shall be performed by qualified personnel only.

**When doing the wiring, follow these steps:**

- check the frequency and voltage values on the identification plate of the engine;
- Fit the end of electrical supply cable with the plug as per your local electricity distribution.

### 4.3 Inspection before use



#### **Important:**

**Never run UZ29 Speeder without performing the checks described in this paragraph.**

Before starting the machine make sure that the machine is ready for operation by the following controls and inspections, in order to achieve the highest possible efficiency, and meet the safety procedures:

- **Make sure that no screws or other parts are loose;**
- make sure that all electrical connections have been correctly fixed and fastened, and that the power cable is held in place with cable bushing free from damage.

To start the machine, proceed as follows:

**Green button** (figure 2.4.1). **Press the button to switch on the motor. PAY ATTENTION to the machine rotation direction. The operation direction is solely clockwise.**

To switch off the machine, proceed as follows:

**Red button** (position B figure 2.4.1). Pressing the button disconnects the source of electricity. When this button is pressed the machine stops immediately before any other instructions.

### 4.4 Destruction and disposal

When destroying the UZ29 Speeder machine, keep in mind that the materials it is made of are not of dangerous nature, and that they include mainly:

- lacquered or metallised ferritic steel
- series 300/400 stainless steel
- plastic material of different nature
- hydraulic oil
- electrical motor
- electric cables and the corresponding shells
- electrical monitoring and excitation equipment.

Follow this procedure:

- follow the applicable laws of the country relating to the safety of the work and waste disposal
- unplug the machine from the electrical supply
- demount machine components and sort into groups according to their chemical nature and composition
- scrap machine parts in accordance with the applicable laws on waste disposal in your country
- during the disassembly stages, observe strictly the applicable work safety regulations.

## USE

### 5.1 Proper use

The machine model UZ29 Speeder for edge bevelling was designed, manufactured and sold for bevelling of metal parts edges and rolling of the following metal types:

**Iron, steel up to max. Rm = 700Mpa**, stainless steel max. Rm - 700Mpa, brass, copper, and aluminium.

Maximum dimensions of bevel and the thickness of the machined material are detailed in Chapter 3, Section 3.2 "Technical specifications".

Other uses differing from the above described are considered improper. Specifically, it is forbidden:

- process any products differing from those that the machine is manufactured and sold for;
- modify the construction and the machine operation;
- replace parts with other than original;
- modify the electrical connections, thus bypassing the internal security devices;
- remove or modify protective guards;
- use the machine in places with aggressive environment and with the risk of parts etching.

**Machine UZ29 can be used in three methods.**

- 1. The mode when the machine independently moves alongside the machined material, fixed on suitable supports or worktops.**
- 2. Mode identical with the above defined but with the worktop turned around its axis with the head down. The bevel machining modes for welds K or X. This mode enables the sheet metal machining on both sides without the necessity of the workpiece handling.**
- 3. The mode of the stationary machine use. In this mode 3D handler fulfils the function of the work station and the operators place smaller workpieces manually to the machine. Driving wheels of 3D handler must be secured against movement.**



**Attention :**

**It is strictly forbidden to perform bevel chamfering on materials differing from the listed ones, because their processing could become a risk for the operating staff, and may damage the machine.**

The company N.KO must be notified before making any modifications, to issue an adequate approval. Otherwise, N.K.O. refuses any responsibility for the machine damage or injury of the operators.

### 5.2 Description of controls

The bevel chamfering machine is controlled using the controls located on the control cabinet (pos B fig. 2.4.1)

- **Green button. Press the button to switch on the motor. PAY ATTENTION to the machine rotation direction. The operation direction is solely clockwise.**
- **Red button.** Pressing the button disconnects the source of electricity. When this button is pressed the machine stops immediately before any other instructions.

## 5.3 Presetting



### **Attention :**

**During the adjustment operation, wear gloves. The operations must be carried out on the machine at rest and after disconnecting from the power supply.**

Before starting work, you will need to perform some of the following settings as per the material thickness and the bevel angle:

### **Bevel angle change**

Machine UZ29 Speeder is supplied commonly with two KITS / shoulders (30° a 45°) defining the bevel angle.

Kits / shoulders can be purchased independently as accessories

order no.: 1966 - KIT 22,5°

order no.: 1964 - KIT 30°

order no.: 1967 - KIT 37.5°

order no.: 1965 - KIT 45°

order no.: 1968 - KIT 50°

(If you require a special angle, contact your supplier or the device manufacturer N.KO Machines)

To change the bevel angle, proceed as follows:



**ATTENTION perform works with two people present. The parts to be replaced are quite heavy and there is a risk of parts falling causing an injury.**

- Open the upper holder of workpiece (fig. 5.3.7.) to prevent access to the bevel angle shoulder. It is performed by releasing the screws (pos C and D fig. 5.3.7.), releasing the bayonet safety device of the holder tilt (pos A and B fig. 5.3.7.) and performing a change of the holder tilt by fastening away from the cutting tool.
- Dismantle the whole set of the lower rollers (pos A fig. 5.3.1.). It is performed by releasing and completely unscrewing central screw of the main roller (pos F fig. 6.3.1.). Attention, the roller set is very heavy and it may result in injury. Always hold the set using one hand to keep it in place.
- Dismantle the whole bracket of the lower setting screw (pos C fig. 5.3.2.).
- Dismantle the shoulder of the bevel angle setting. It is performed by releasing and completely unscrewing four screws (pos A fig. 5.3.2.). After releasing and unscrewing the screws, the shoulder remains safely suspended on the machine body UZ29. After completing the shoulder dismantling, release the bayonet safety pins (pos B fig. 5.3.2.) and remove the shoulder from the machine UZ29.
- Attention! The shoulder includes the holding nuts of central screw. The nut is inserted in the shoulder and it must be installed in the respective grooves before the assembly of new shoulder.
- The assembly of new selected shoulder is performed identically but in reversed order.
- Pay attention to correct setting of the support roller set on the lock of the setting screw (pos A and B fig. 5.3.3.).

Fig. 5.3.1.

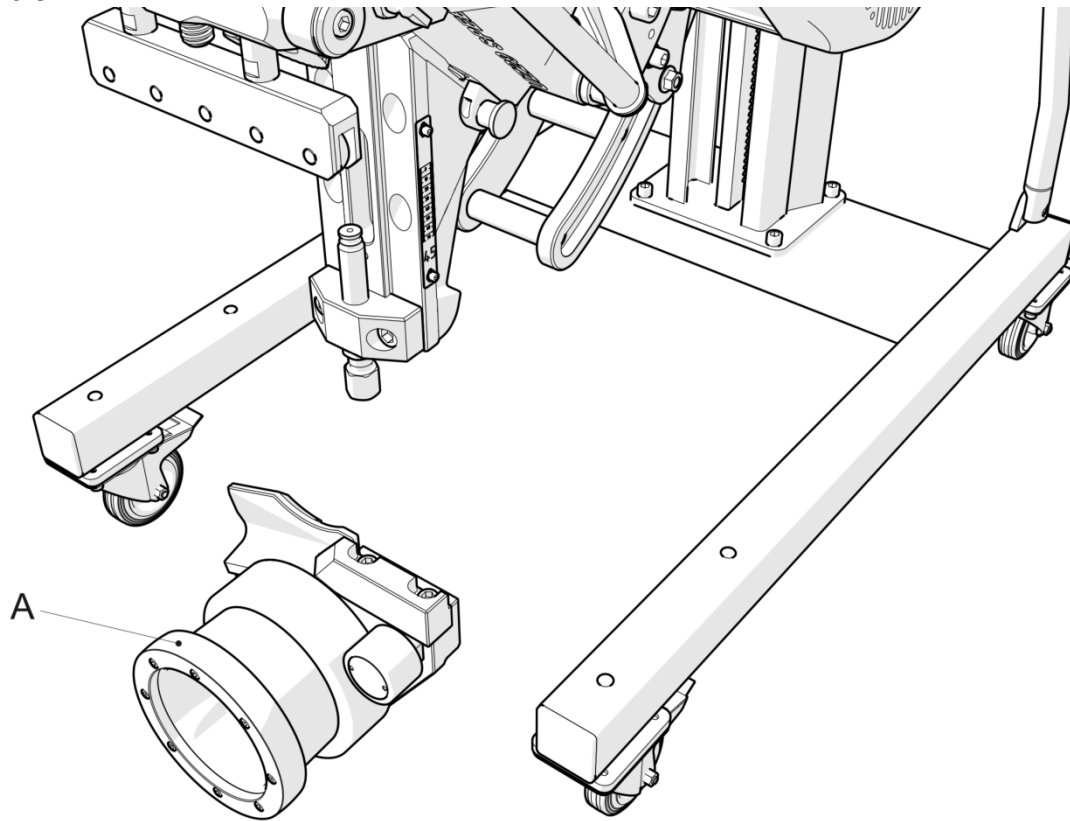


Fig. 5.3.2.

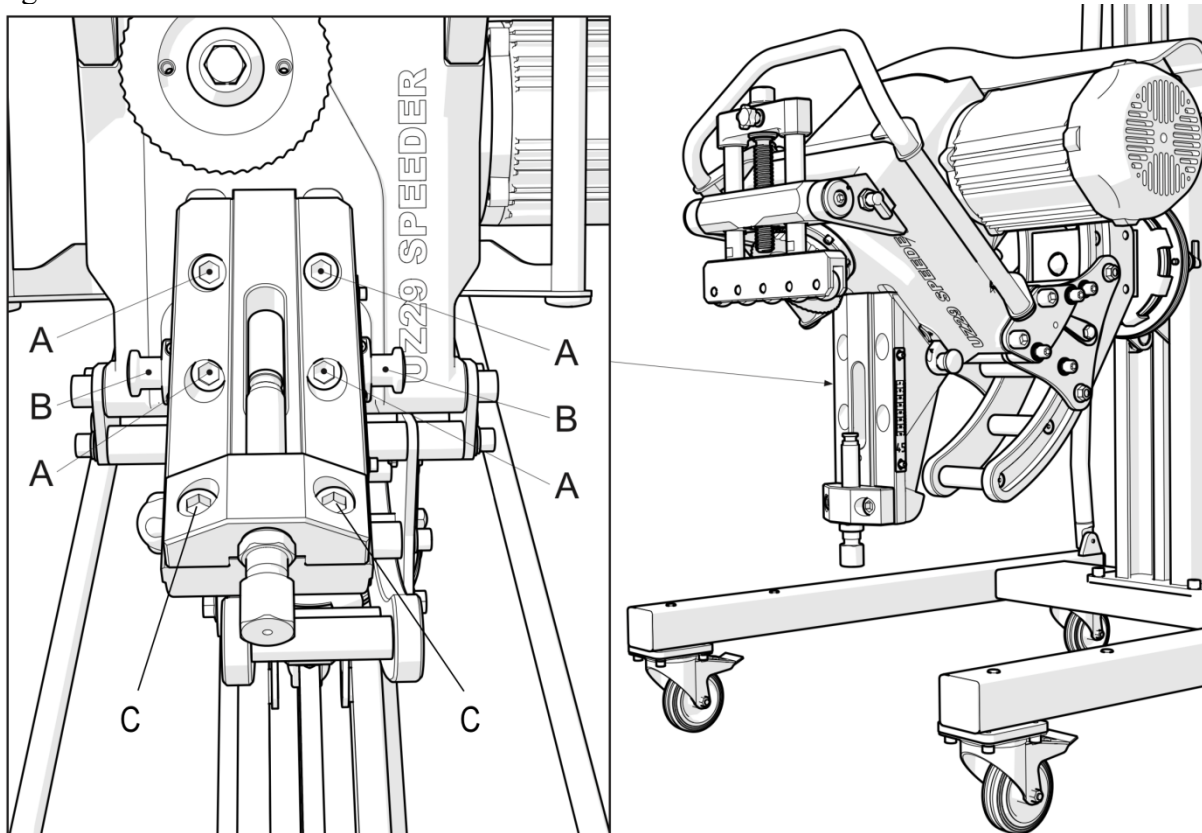
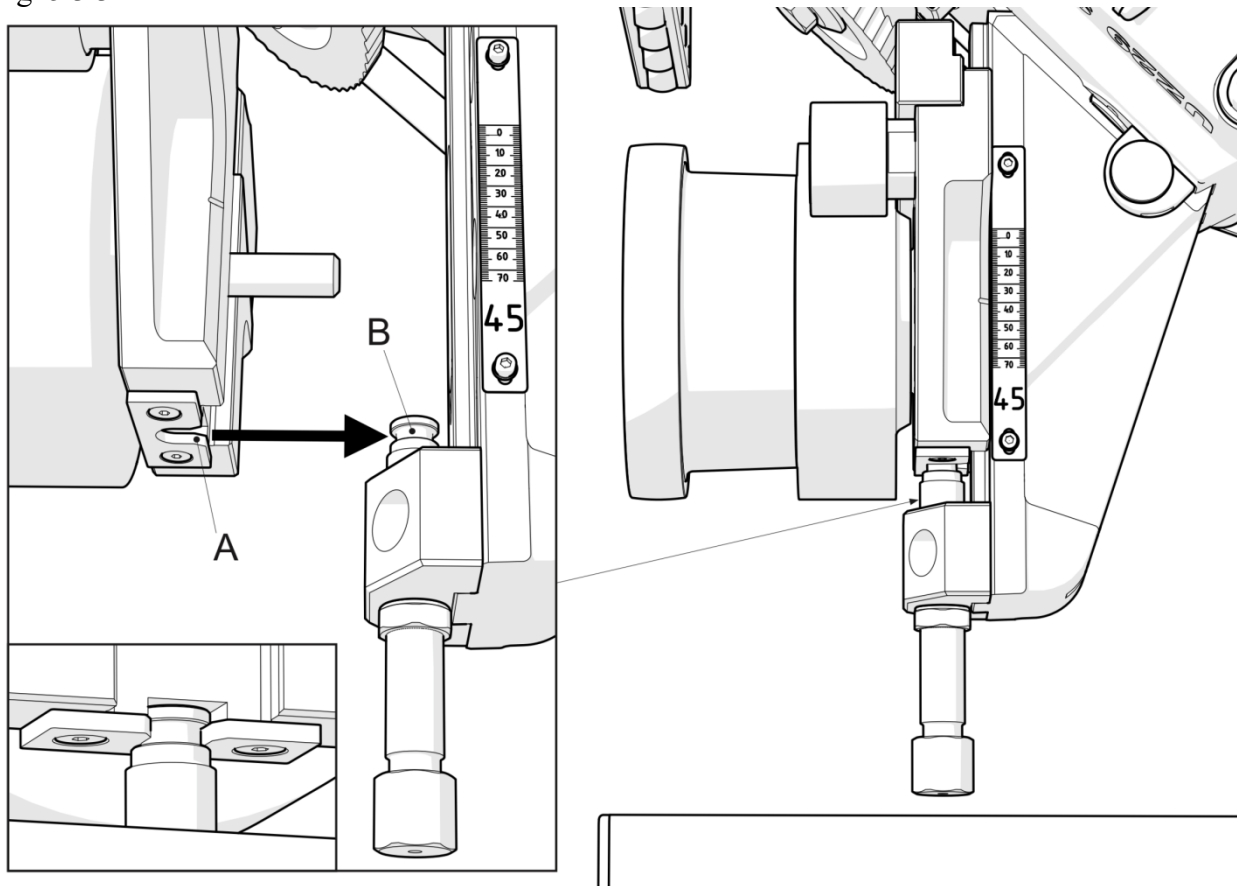




Fig. 5.3.3.



### Adjustment of lower support roller:

Adjustment of the lower support roller sets the size/ height of the bevel.  
Follow these steps:

- Sufficiently release the central screw of the support roller (pos F fig. 6.3.1.).
- Complete the setting using lower setting screw (pos C fig. 6.3.1.). The turning enables to drop and lift the whole set of the lower support roller as per the required bevel size, see the setting table fig. 5.3.5.
- Lower setting screw (pos C fig. 6.3.1.). is equipped with counter-nut. Before changing the setting it is necessary to release the counter-nut. The counter-nut must secure the bevel setting value.
- The values can be read on the scale on the shoulder side (fig. 5.3.4.).
- Fasten the set using central screw of the support roller (pos F fig. 6.3.1.).
- Finally make sure the main support roller is free and can be turned. Otherwise it is necessary to clean the area behind the roller or replace the roller bearings.



### Important:

The values read on the scale (fig. 5.3.4.) Comply with the difference between the bevel height (dimension A on fig. 5.3.6.) and total material thickness.

Set the blunting, tongue, peripheral land on the scale. (dimension C on fig. 5.3.6).

The setting of bevel size 8x8x45° on material thickness 10 mm. Requires the setting of 2 mm on the scale.

It is necessary to be aware that the tongue height setting must exclude the value when the length of the bevel hypotenuse (dimension P on fig 5.3.6). would exceed 29 (resp. 25) mm. (max. machine performance). This may be checked in table (fig. 5.3.5).

Fig.5.3.4.

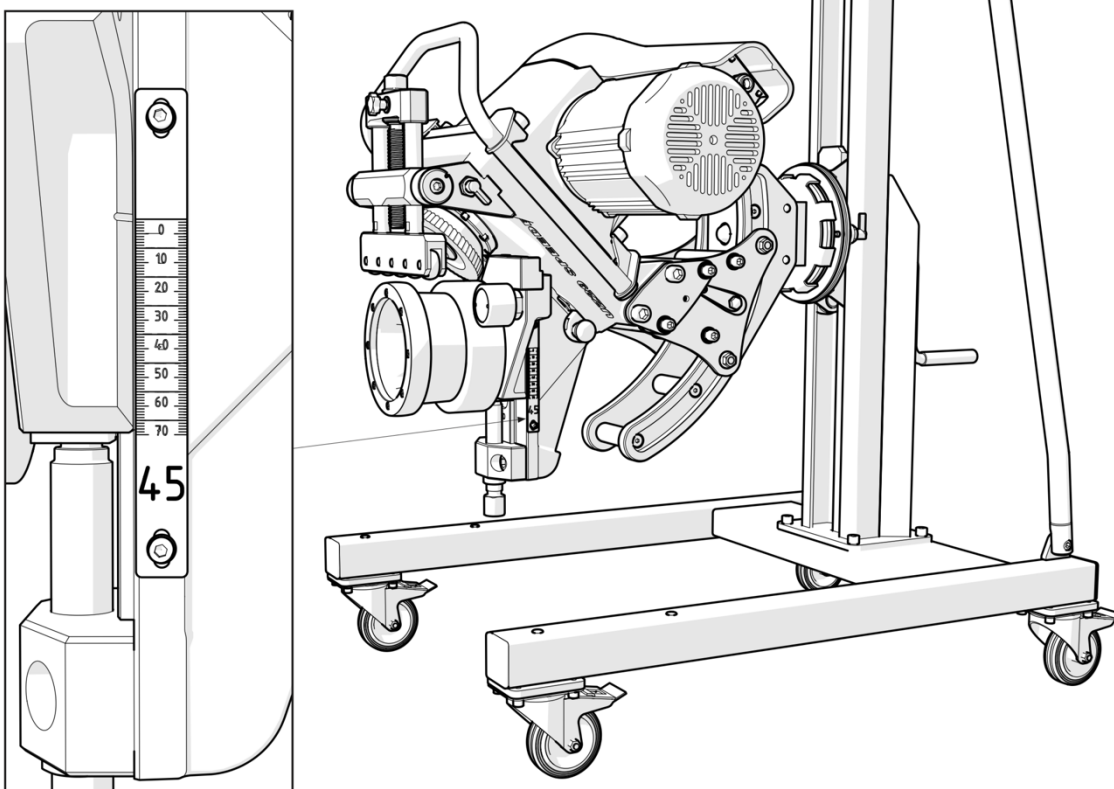
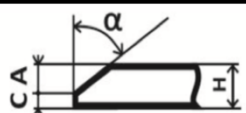

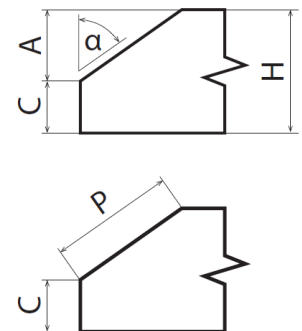


Fig.5.3.5.

Fig.5.3.6.

		<b>UZ29 Speeder</b> C = H - A				
Chart for bevel setting 30° - A Max 25 mm ( Rm > 400 Mpa / 58 015 PSI = Max A 22 mm)						
	A mm	C - 1. pass	C - 2. pass	C - 3. pass	C - 4. pass	
	0 - 15 mm	C + 0 mm				
	16 - 18 mm	C + 5 mm	C + 0 mm			
Rm > 400 Mpa / 58 015 PSI	19 - 22 mm	C + 9 mm	C + 5 mm	C + 0 mm		
Rm < 400 Mpa / 58 015 PSI	23 - 25 mm	C + 11 mm	C + 5 mm	C + 3 mm	C + 0 mm	
Chart for bevel setting 45° - A Max 20 mm ( Rm > 400 Mpa / 58 015 PSI = Max A 17 mm)						
	A mm	C - 1. pass	C - 2. pass	C - 3. pass	C - 4. pass	
	0 - 12 mm	C + 0 mm				
Rm > 400 Mpa / 58 015 PSI	13 - 17 mm	C + 6 mm	C + 0 mm			
Rm < 400 Mpa / 58 015 PSI	18 mm	C + 8 mm	C + 4 mm	C + 0 mm		
	19 mm	C + 9 mm	C + 4 mm	C + 0 mm		
	20 mm	C + 10 mm	C + 6 mm	C + 3 mm	C + 0 mm	



## Correct use of the table setting:

Every work angle of the bevel includes its setting table. The label with the table is installed on the machine and it displays table for 30° and 45° (fig. 5.3.5.). The setting tables for other supplied angle shoulders are supplied together with the respective KIT / shoulder.

1. At first count or check the height of the required bevel A on the production drawing (see fig. 5.3.6.).
2. It is then necessary to check the height of the required bevel A (see fig. 5.3.6.). never exceed the maximum machine capacity depending on material solidity Rm, which can be used for processing in the machine (see 1. and 2. table column).
3. Depending on the bevel A, it is necessary to define the number of cuts to reach the planned bevelling (see 3 to 6. table column).
4. Now count the value C by deducting the bevelling height from the thickness of the bevelled material.
5. Create the machining plan and the sizes of individual chips/ cuts. Add the constants to value C as defined in table (see 3 to 6. table column).
6. The final values must be set gradually on the scale of the respective shoulder (fig. 5.3.4.).



### Important:

Maximum thickness of the machined material is 60 mm.

## Examples of the machine setting:

### Example 1.

Can we create bevelling 20x20x45°, on material thickness 25 mm (Rm 380Mpa)?

The bevelling height in this case is A = 20 mm. Table for angle 45° shows that required bevelling can be created in 3 chips / steps.

Value C in our case is 5 mm. The machining plan is as follows:

- 1. chip – C (5 mm) + 9 mm = 14 mm. Scale C (fig. 5.3.4.) **set 14 mm.**
- 2. chip – C (5 mm) + 5 mm = 10 mm. Scale C (fig. 5.3.4.) **set 10 mm.**
- 3. chip – C (5 mm) + 0 mm = 5 mm. Scale C (fig. 5.3.4.) **set 5 mm.**

Bevelling will be completed in three chips/ steps at full height setting of the defined values on the scale (fig. 5.3.4.).

## Adjustment of the workpiece upper holder rollers

The workpiece holder reels must be in the right angle with the workpiece. The holder mechanism is equipped with vertical compensation of the holder tilt. This mechanism compensates the change of horizontal position of the machined material whilst using various shoulders of the bevelling angle.

In order to ensure correct machine operation, the workpiece holder rollers must develop light pressure on the workpiece. During the adjustment, proceed as follows:

**Important: At first complete the setting of the lower support roller – stroke size is defined in chapter above.**

- Release the setting screws of the holder upper workpiece (pos C a D fig. 5.3.7.).
- Gradually repeatedly release the right and left bayonet safety device of the holder tilt (pos A and B fig. 5.3.7.) and move the holder in such way the holder reels and the lower support holder are in right angle.
- Again fasten the setting screws of the holder upper workpiece (pos C a D fig. 5.3.7.), release the safety screw (pos F fig. 5.3.7.) and screw (pos E fig. 5.3.7.) unscrew the holder to the upper position
- Now place the sample of the same material thickness designed for machining or directly material designed for machining in the machine operating area UZ29. The machine must be off and disconnected from power supply. The workpiece must touch the lower support roller so the workpiece surface touches the support roller at its full width (fig. 5.3.8.).
- Release the safety screw (pos F fig. 5.3.7.).
- Now set the required height of the holder reel by rotating the screw (pos E fig. 5.3.7.). Optimum height of the reels is approx 2 mm above the surface of the machined material and the material must evenly touch the reel of the lower support roller (lower side of material) at its full width (fig. 5.3.8.).
- Again fasten the safety screw (pos F fig. 5.3.7.)
- Some models UZ29 have added scale A on the holder column. If the machine has the scale available, it is possible to calculate the holder position with material thickness  $H - C = A - 2\text{mm}$ . Set the holder to the resulting value on the holder column.

Fig. 5.3.7.

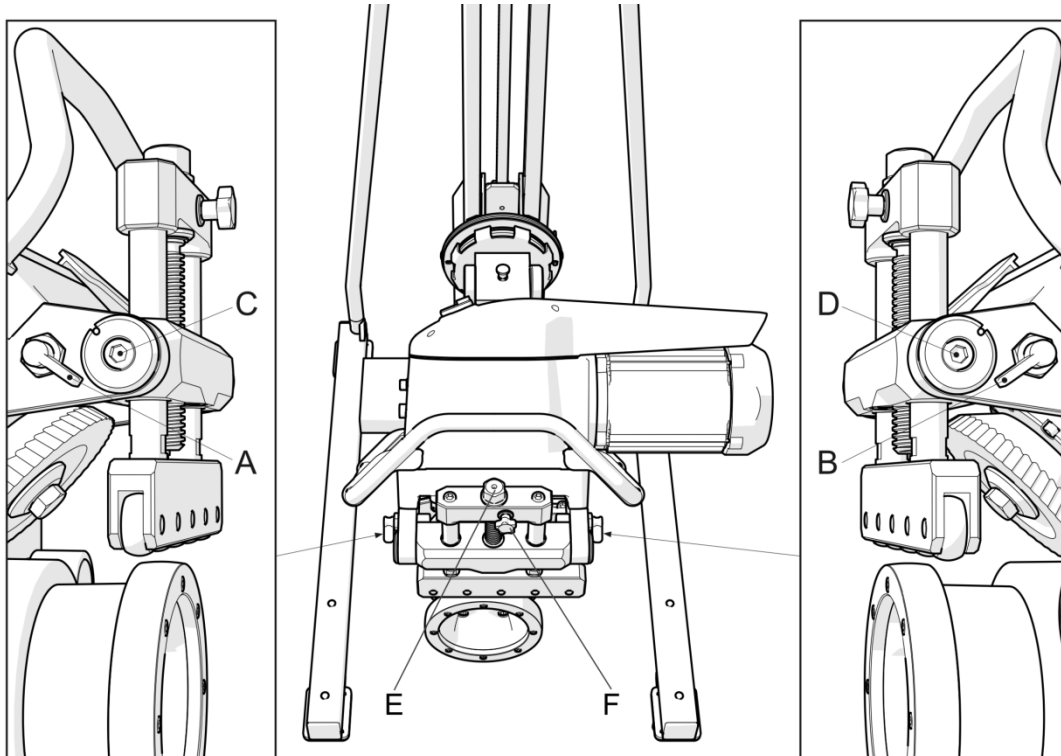
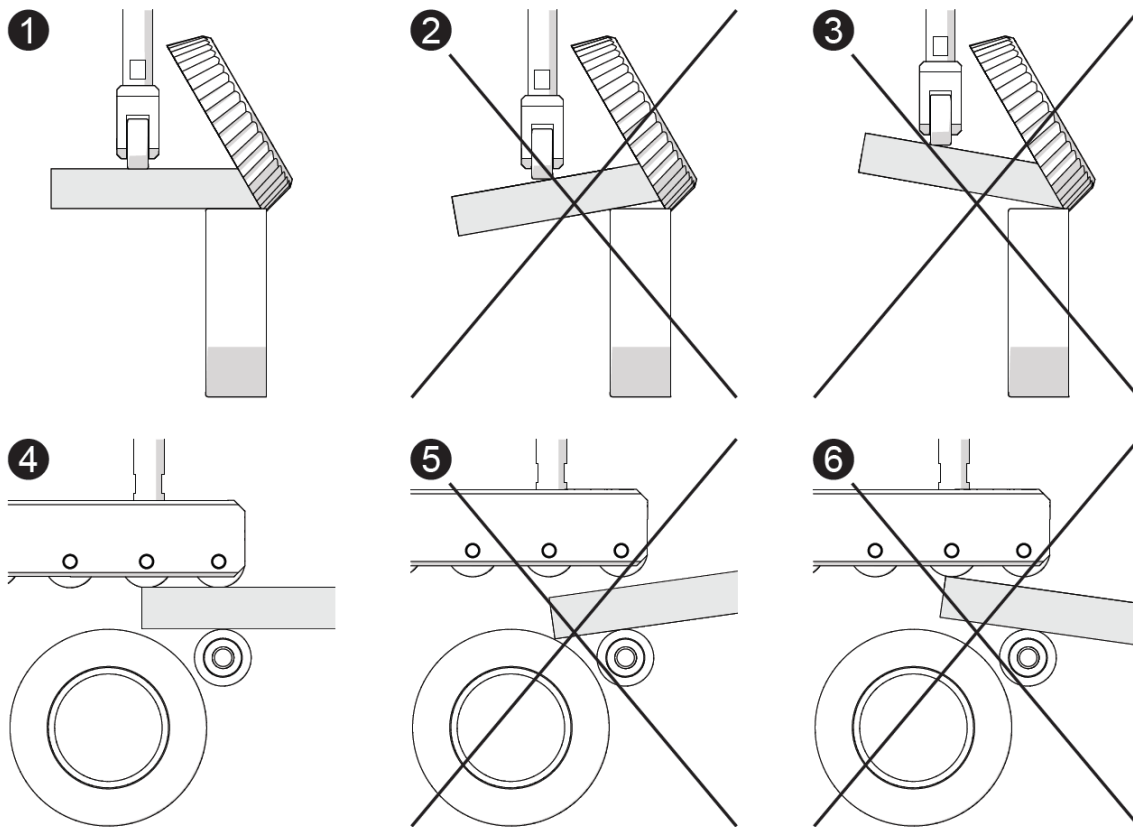


Fig. 5.3.8.



#### 5.4 Setting the inlet ruler position

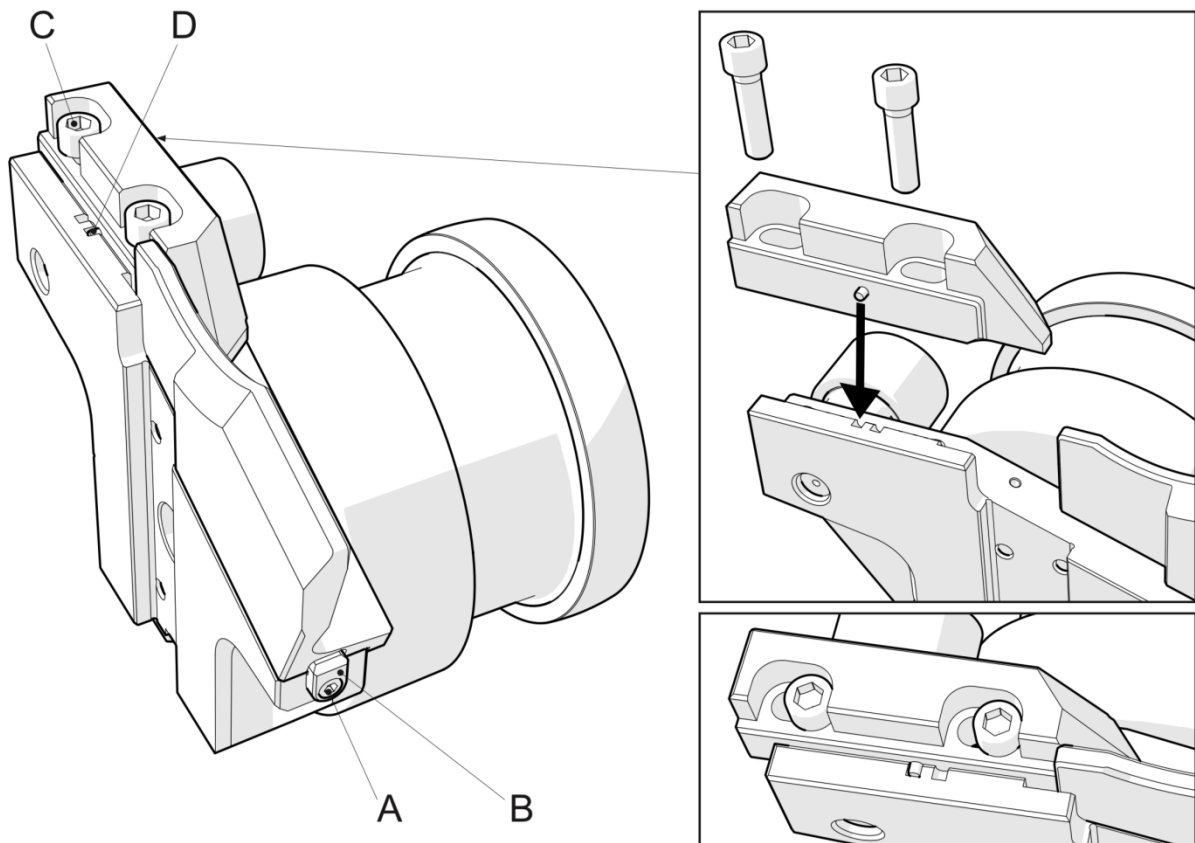
Machine UZ29 includes the setting options for the inlet ruler in two positions. Change of the position depends on the workpiece size and the type of machined material.

It generally applies that if the machine is used within the limit values of maximum performance (3. and 4. chip), it is necessary to set the ruler position further from the cutting tool. In case of using UZ29 solely for smaller bevelling (1. and 2. chip), we recommend the first position of the ruler. The ruler position closer to the cutting tool. In practise, it is often required to adapt the position individually as per the current circumstances.

To change the ruler position, proceed as follows:

- Release the inlet ruler screws (pos C fig. 5.3.9.)
- Set the ruler to the respective position so the pin (pos D fig. 5.3.9.) fits in the groove in the support roller body (figure 5.3.9.).
- Again fasten the screws of the inlet ruler (pos C fig. 5.3.9.)

Fig. 5.3.9.



## 5.4. Machining

### ● Important:

The activities defined in this chapter must be performed solely after the adjustment as per the former chapters.

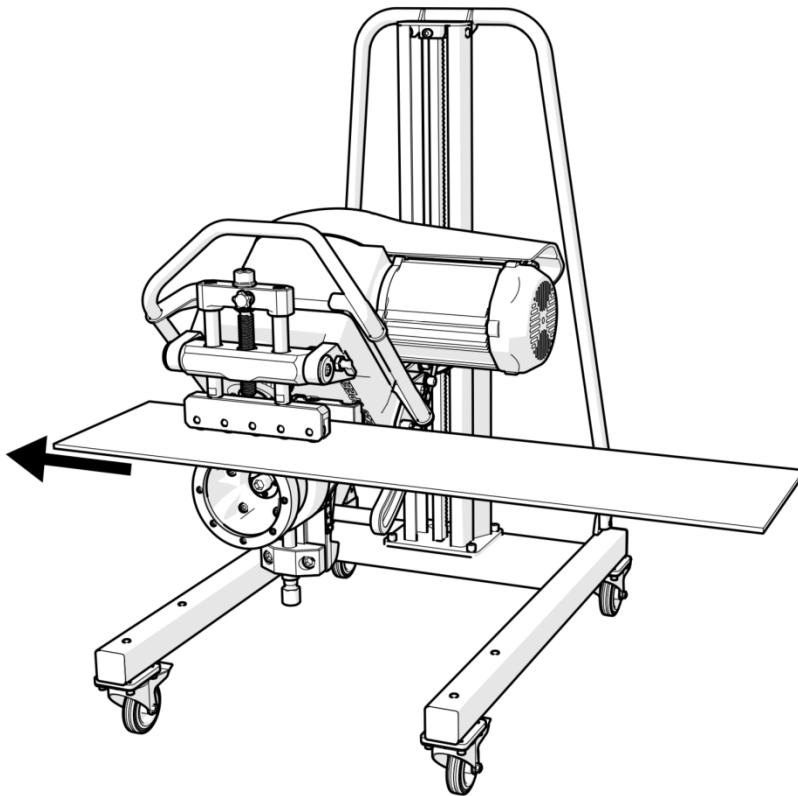
If the workpieces have smaller dimensions, the machine is used as stationary as per chapter 5.1. In that case, the workpieces during processing move and the machine stands (figure 5.4.1).

After the adjustment and switching on the machine, press the workpiece in all impacts from the right to the left to enable catching by the cutting tool.

● Important: When the workpiece leaves the machine, protect it from falling on the ground by holding it with both hands and pressing towards the rear side of the machine to prevent its forwards movement.

⚠ PAY ATTENTION to the machine rotation direction.  
The correct direction of the machine rotation is solely clockwise.

Fig. 5.4.1.



If you plan to cut the bevelling on large and heavy workpieces, the workpieces must be placed and fixed at minimum height 500 mm above the floor. Minimum sheet metal overlap or the worktop must be 150 mm.

Set the machine using lifting mechanism to the workpiece height and place it on the right end of the workpiece (figure 5.4.2).

In case of performing both sided bevelling, the machine must be upside down for the lower bevelling, and at the end of the workpiece (fig. 5.4.4).

**Important:** Correct height and position of the machine is when the workpiece fully touches the support roller and inlet ruler.

Fig. 5.4.2.

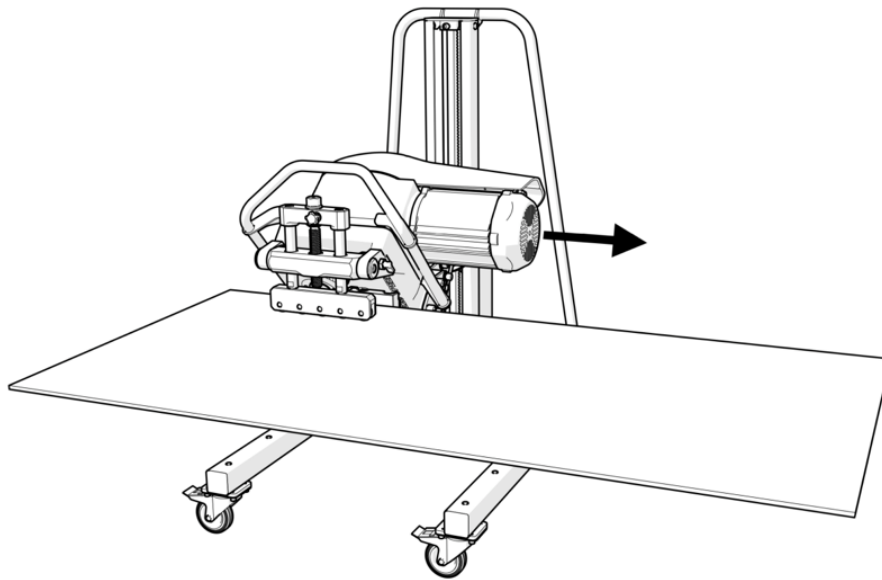
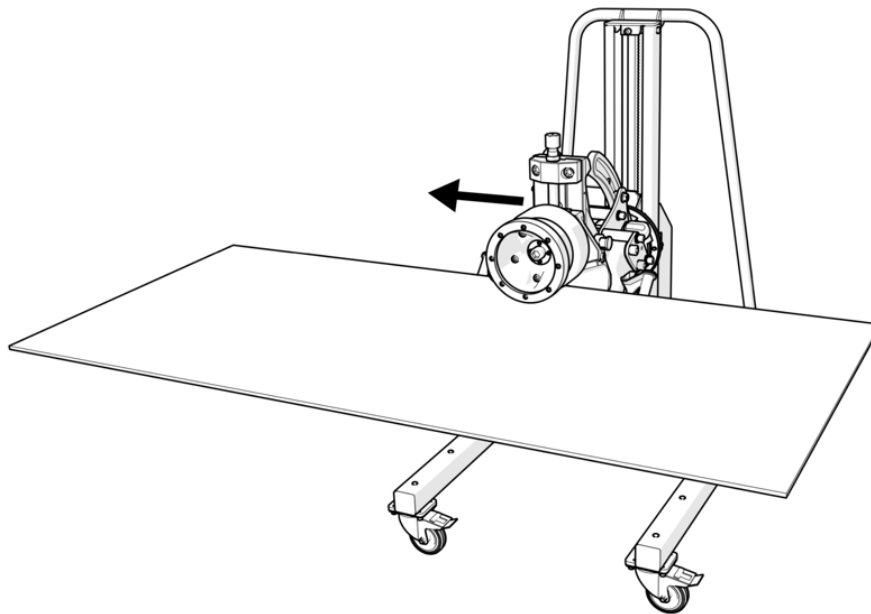


Fig. 5.4.4.




**Attention :**

**The machine moves automatically during work on the workpiece. The operators must be present during work and prepared to stop the machining process at any time using red STOP button (pos B figure 2.4.1)**

**During the performance of the above defined operations, use the specified work footwear and protective goggles.**



 **Important:** The first time any angular KIT / arm is used, it must be calibrated. We recommend performing a bevel test on a suitable sample. Set a small bevel size. Perform the machining according to the above chapters and compare the values of A and C (Fig. 5.3.6.) with the result of machining on the sample. If the values are different, adjust the scale position C (Fig. 5.3.4.) According to the actual machining on the test sample.

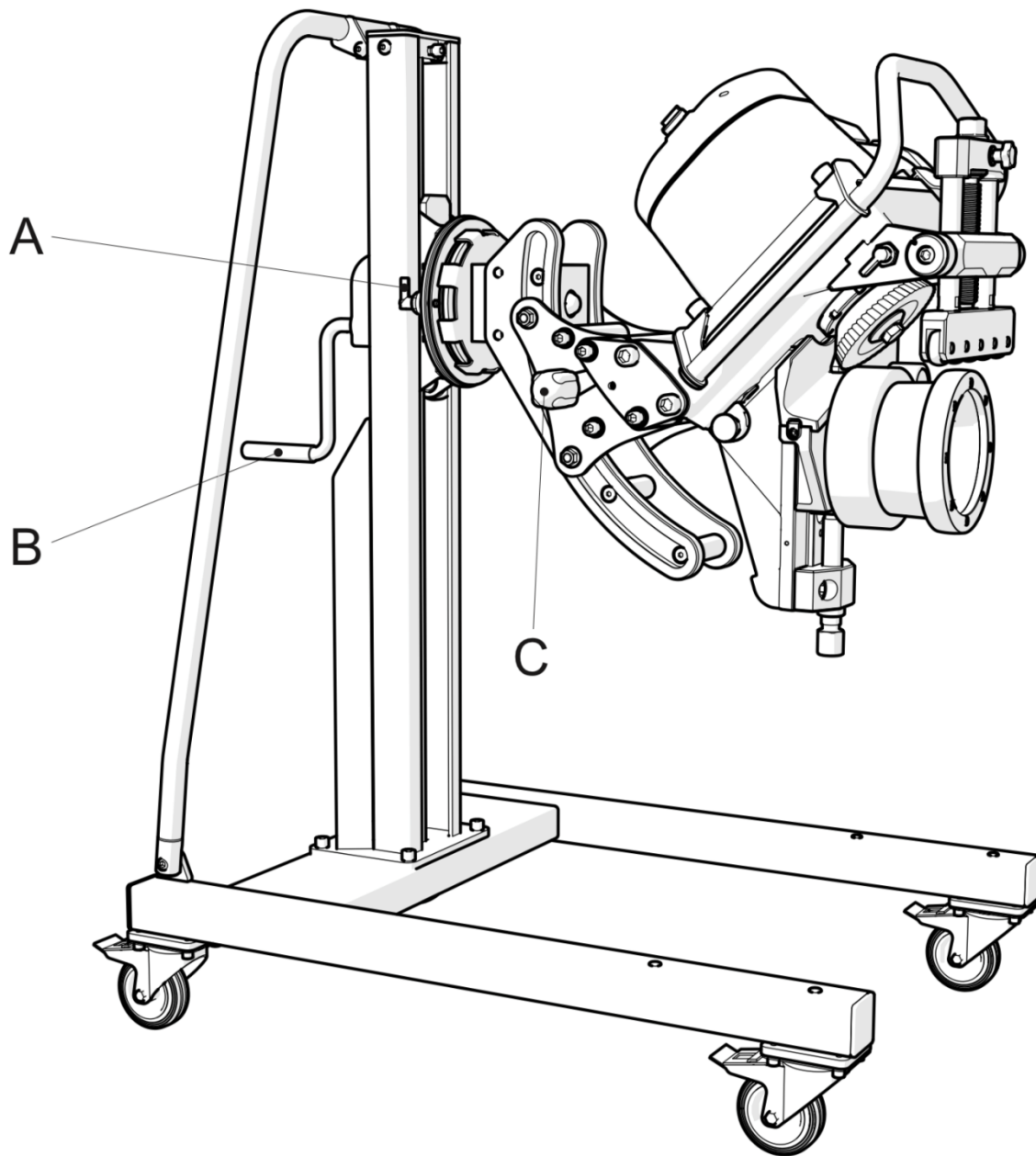
### Setting and use of 3D handler

UZ29 is equipped with the last generation of 3D handler used for problem-free handling of UZ29 within the workplace and also for correct setting of suitable work position. Unique technology of 3D adaptability allows UZ29 to adapt its current work position to the situation at the workplace and potential imbalances of the workpiece or the floor. Special turn of 3D handler enables the turning of UZ29 with head down and machining with both sided bevelling.

### 3D handler description and its functions see figure 5.4.5.

- |   |                                      |   |
|---|--------------------------------------|---|
| A | Turn lock UZ29                       | After releasing it enables the turning of unit UZ29 around its axis with the head down and form both sided bevelling. The lock should be unlocked even in case the machine operates with deformed material or during the bevelling process passes on non-reinforced or uneven surface.  |
| B | Handle of the lifting mechanism UZ29 | The lifting mechanism enables the setting of the full work height of UZ29 as per the workpiece height. In case the machine operates with deformed material or during the bevelling process passes on non-reinforced or uneven surface, it is necessary to set the lifting mechanism to lower level when the machine is in gear. In such case, the machine remains hanging on the material and has a space for auto-levelling. |
| C | Setting lock for tilting UZ29        | After the release it enables the tilt change of the whole unit UZ29 and enables the tilting of the actual workpiece position. The lock should be unlocked even in case the machine operates with deformed material or during the bevelling process passes on non-reinforced or uneven surface.  |

Fig.5.4.5.



## MAINTENANCE & ADJUSTMENT

### 6.1 Tips

**Important:**  
**Maintenance workers must be qualified technicians.**

Never work on the moving parts of the machine, not even using tools or other objects.  
It is strictly forbidden to remove the safety equipment, modify it, or handle the safety covers on the machine. If such conduct occurs, the manufacturer denies any liability for the machine safety.

Always use solely original spare parts (see chapter 8 "Spare parts").



**Attention :**

**Always wear gloves when performing maintenance on the machine. The maintenance works must be carried out on switched off machine and after disconnecting from the power supply.**

Before each work shift and then as needed during the shift clean machine, rollers, and the support ruler with compressed air.



**Attention :**

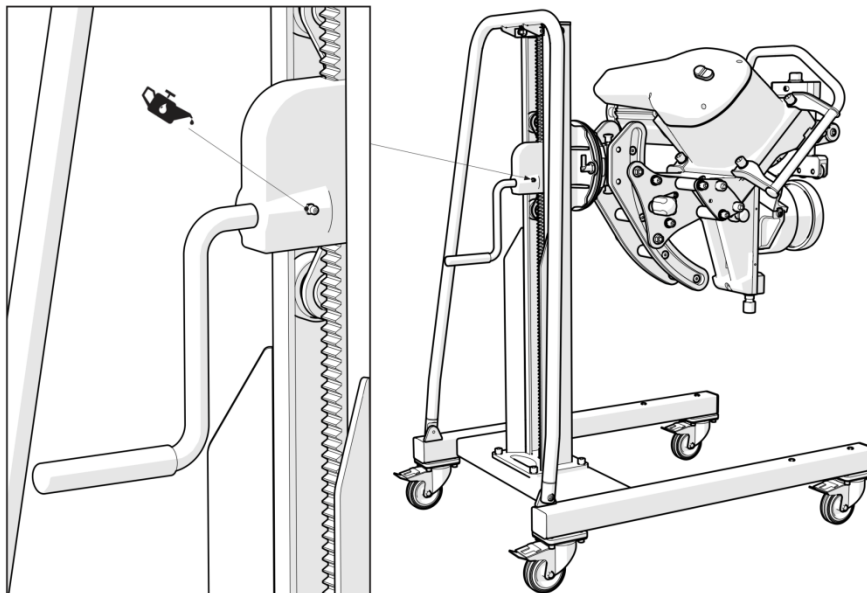
**When using compressed air for cleaning, wear safety goggles and never use a pressure exceeding 2 bar.**

For adjustment and maintenance operations use the tools supplied with the machine.

## 6.2 Lubrication

In order to ensure correct machine operation UZ29, it is necessary to regularly grease the 3D handler mechanism. For greasing use fat FUCHS Renolit EP2. Greasing should be carried out every at least once a year or after 700 hours working hours.

### 6.2.1.



### 6.3 Replacement of cutting tools



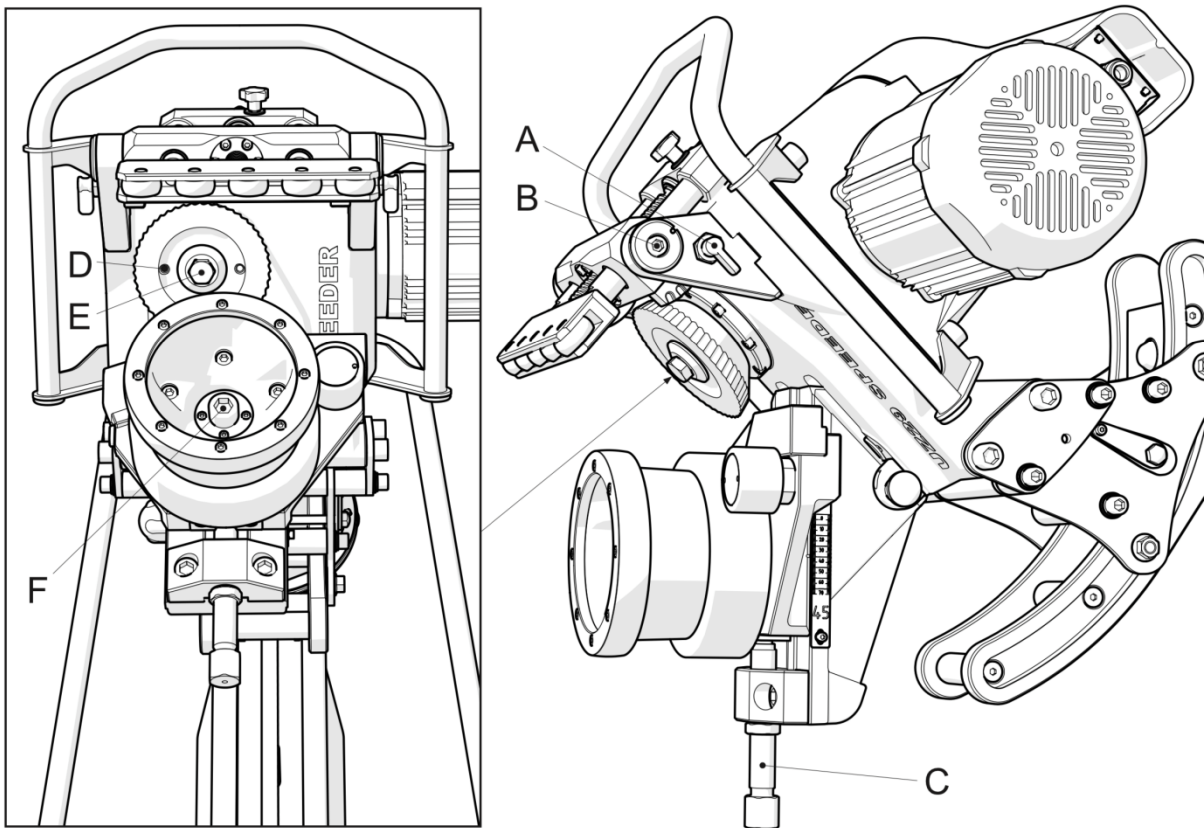
**Attention :**

**When replacing the tools wear work gloves and protective goggles.**

**During the tool replacement, proceed as follows:**

- Open the upper holder of workpiece (fig. 5.3.7.) to prevent access to the cutting tool. It is performed by releasing the screws (pos C and D fig. 5.3.7.), releasing the bayonet safety device of the holder tilt (pos A and B fig. 5.3.7.) and performing a change of the holder tilt by fastening away from the cutting tool as per figure 6.3.1.
- Sufficiently release the central screw of the support roller (pos F fig. 6.3.1.).
- Turn screw (pos C fig. 6.3.1.) Shift the support roller to the lower position to prevent the obstacle during the cutting tool disassembly.
- Release and completely unscrew the cutting tool screw (pos E fig. 6.3.1.) and remove the tool from the shaft.
- If the tool cannot be removed from the shaft by hand, use suitable screw M8 and use prepared threaded openings in the cutting tool body openings, remove the tool from the shaft.
- The assembly of new cutting tool is performed identically but in reversed order.

Fig. 6.3.1



## TIP:

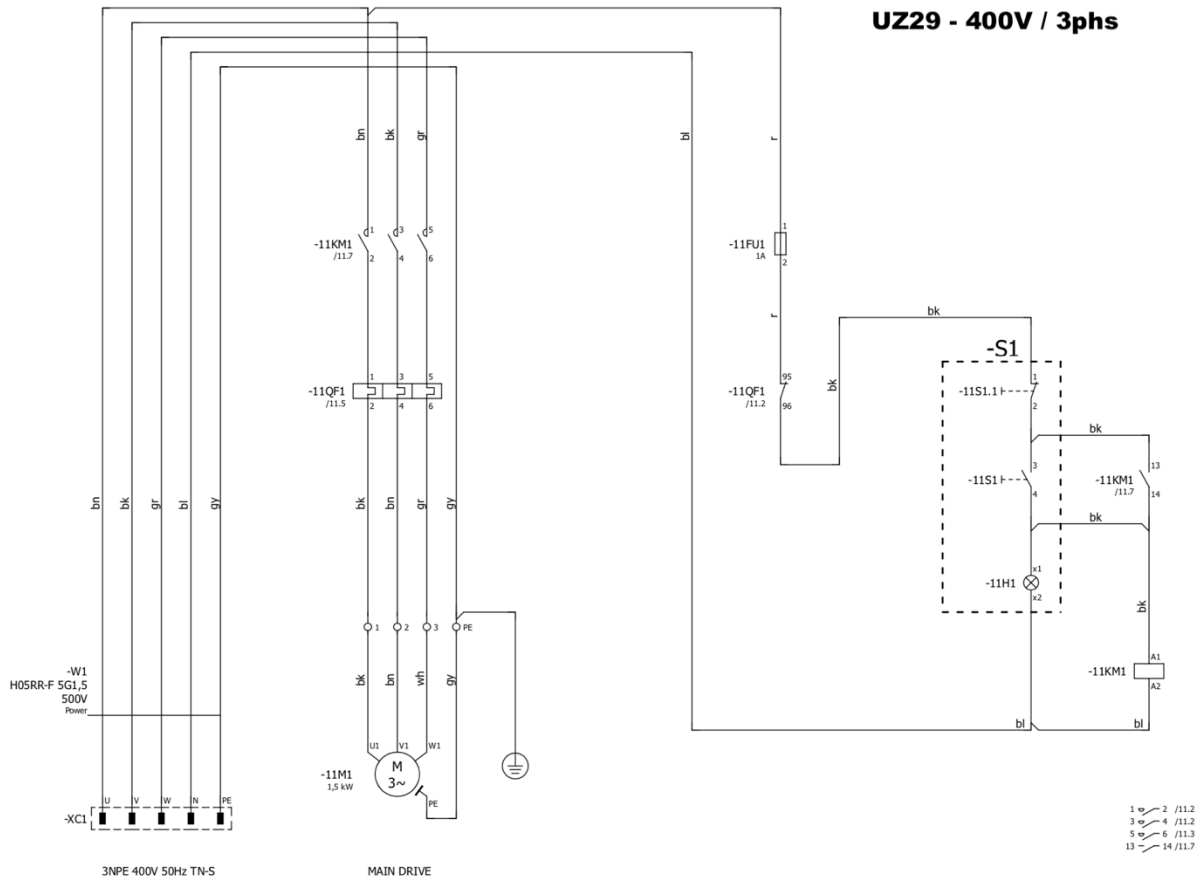
- The machine can be abraded for the maximum use of the tool. Abrasion is performed on magnetic level grinder from the tool front until reaching the sharpness of pressed and blunt sides.
- The blunt tool is noticeable visually. The tool edges are pressed, round. It is time for abrasion.
- If you continue working with the blunt tool, there is a risk of breaking of blunt teeth deep in the tool.  
Such damaged tool must be grinded until the broken teeth disappear. This results in losing many precious meters of potential bevelling.  
Extra piece for grinding is approx 5 mm.
- The machine correct function requires to line suitably grinded tool with the grinded material. For lining use original washers 0,5/1/2mm. or their combination.  
**(set of compensation (0,5 / 1 / 2mm) washers can be requested at the supplier Ord.Nr. 1976). New tool thickness is 38 mm.**  
It is necessary to consider its conic shape. Even with correct tool lining the machine will not be able to reach maximum possible bevelling at the end of the cutting tool service life (hypotenuse 29mm). This fact is shown on the part scale of lower roller setting (fig. 5.3.4.), and the scale must not comply with the formed bevelling.

## IMPORTANT:

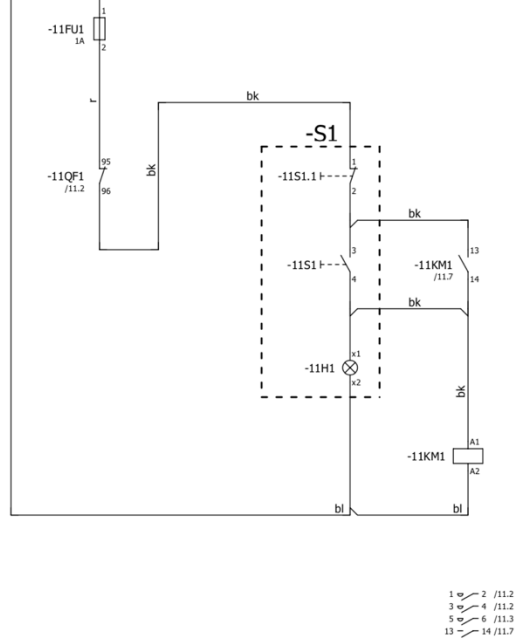
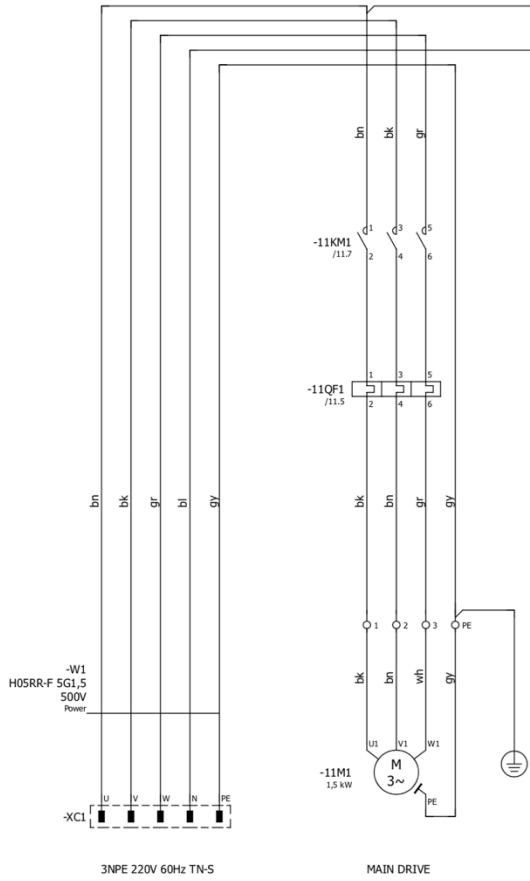
Cutting tool lining must not exceed (when adding actual Milling device thickness) 38 mm.  
If the machine does not function properly and there is impending tool or machine destruction.

# TECHNOLOGICAL SCHEMES

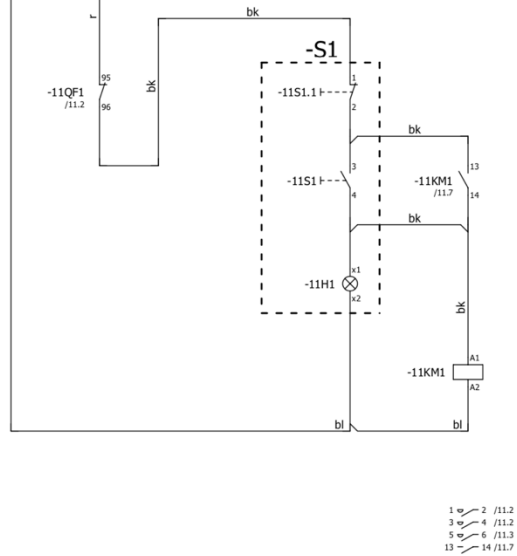
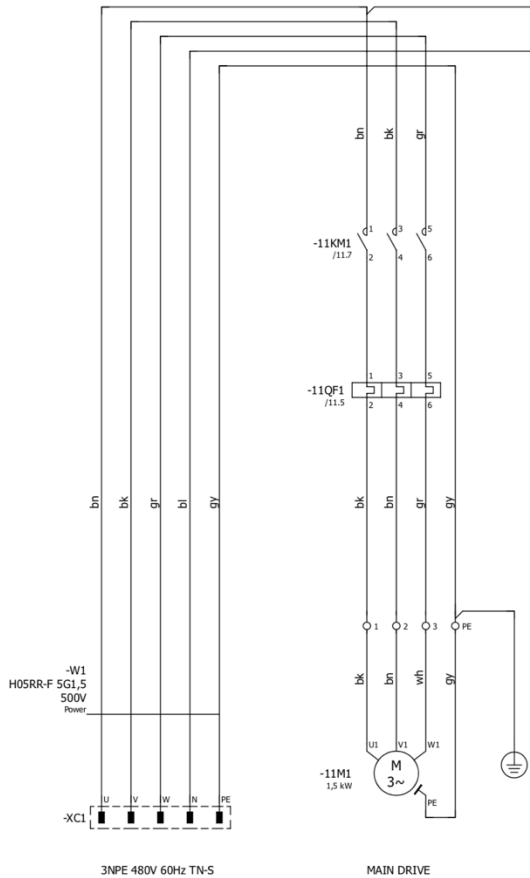
## 7.1. Wiring scheme




### UZ29 - 220V / 3phs



### UZ29 - 480V / 3phs



 **Attention: When operating the machine in areas with particularly dangerous effects of AD and more, it is necessary to increase the protection of the machine against electrical shock!**

If failures occur, electrical power needs to be turned off immediately. Works on electrical equipment may only be performed by electrician - specialist or his subordinates supervised by this expert t make sure that these works were carried out according to valid regulations.

 **Attention :**

All parts that maintenance and repairs are performed on must never be energized. These disconnected parts must be checked by a two-pole meter to make sure that no voltage is applied, and then these parts must be grounded and side parts that are energized to isolated! Switching off the voltage must be performed by the main switch in position "0", disconnecting the machine from the power.

Electrical equipment in the switchboard needs to be checked regularly or tested, if needed. Any deficiencies, loose connections, or burnt cables, must be replaced immediately.

## **SPARE PARTS**

### **8.1 How to order spare parts**

**Orders of spare parts shall contain the following information:**

- **Machine type;**
- **Serial number;**
- **Description of required part and its number**
- **Quantity.**

### **8.2. Most worn out parts:**

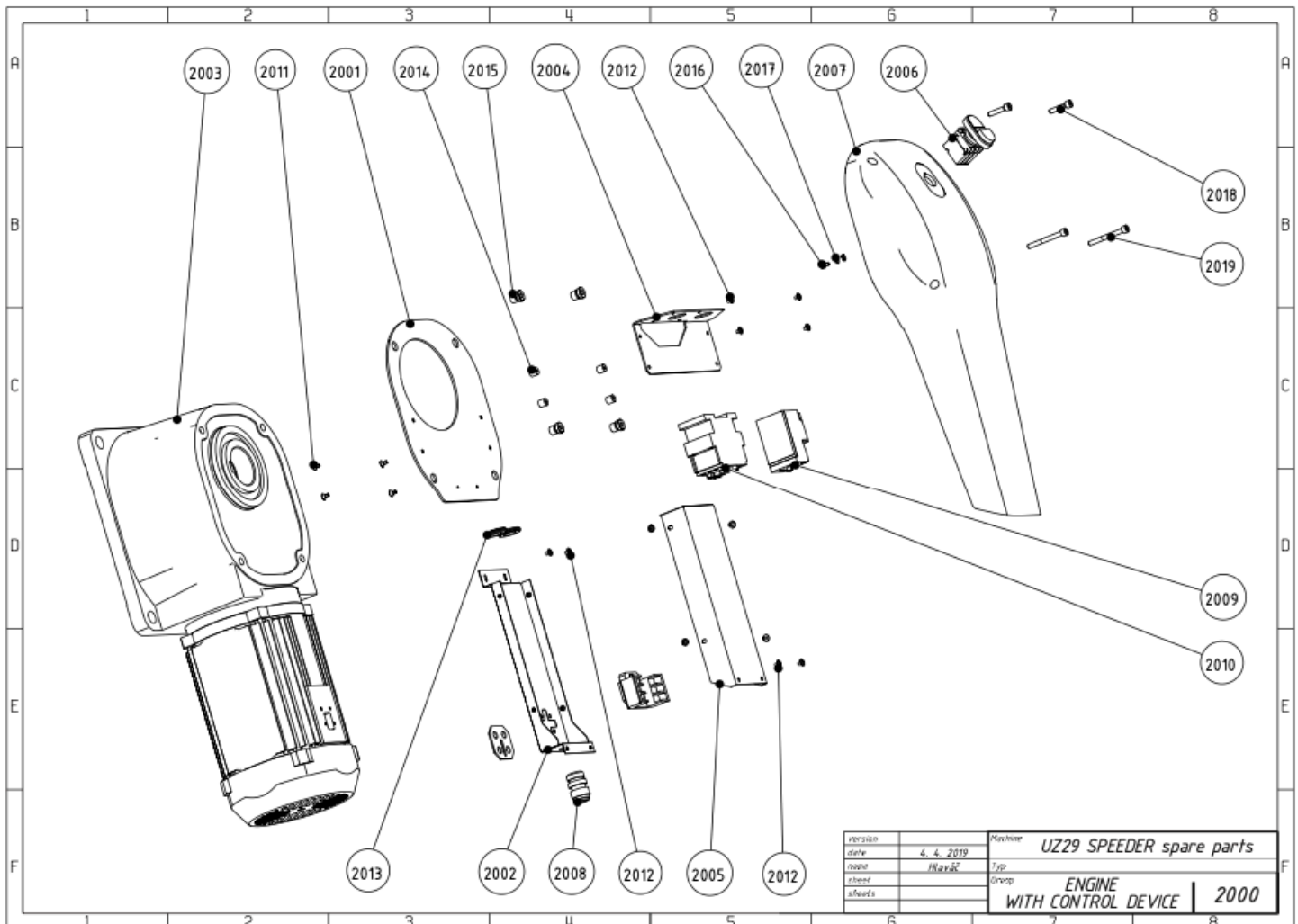
- **Cutting tool (can be grinded) order no. 1970 or 1971**
- **Support bar order no. 1962.4004**
- **Waste channel 1962.4003**
- **Secondary support roller 1962.4006**

 **TIP:**

Support bar 1962.4004 and waste channel 1962.4003 see the list of spare parts, loads material to the machine. The bevelling material is in contact with these parts. It is necessary to consider the wear of the bar and the channel in time.

If it occurs, the bar must be replaced. Otherwise, the machine can be damaged or tool destroyed.

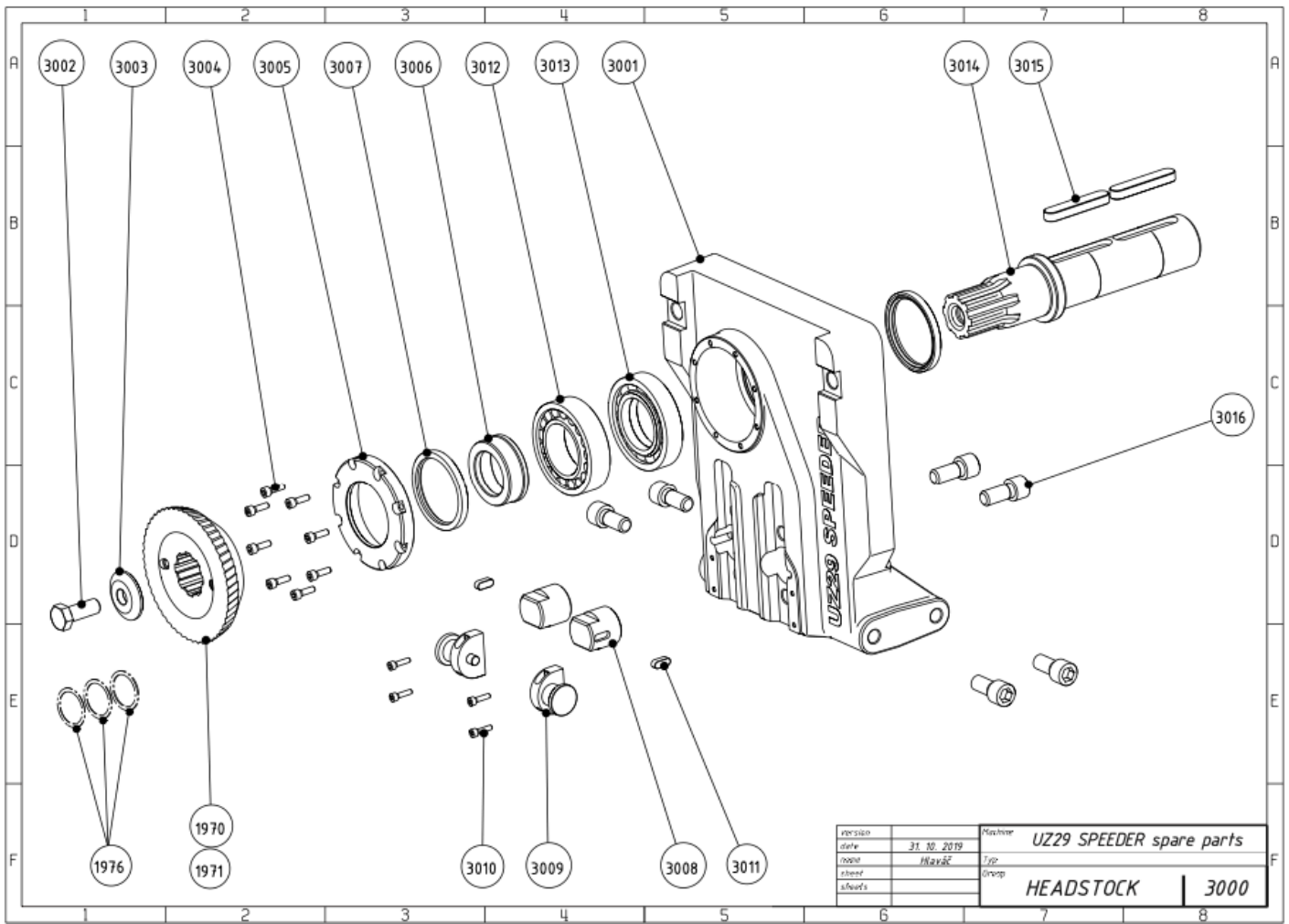




## UZ29 SPEEDER SPARE PARTS

drawing no. 2000 Engine with Control Device

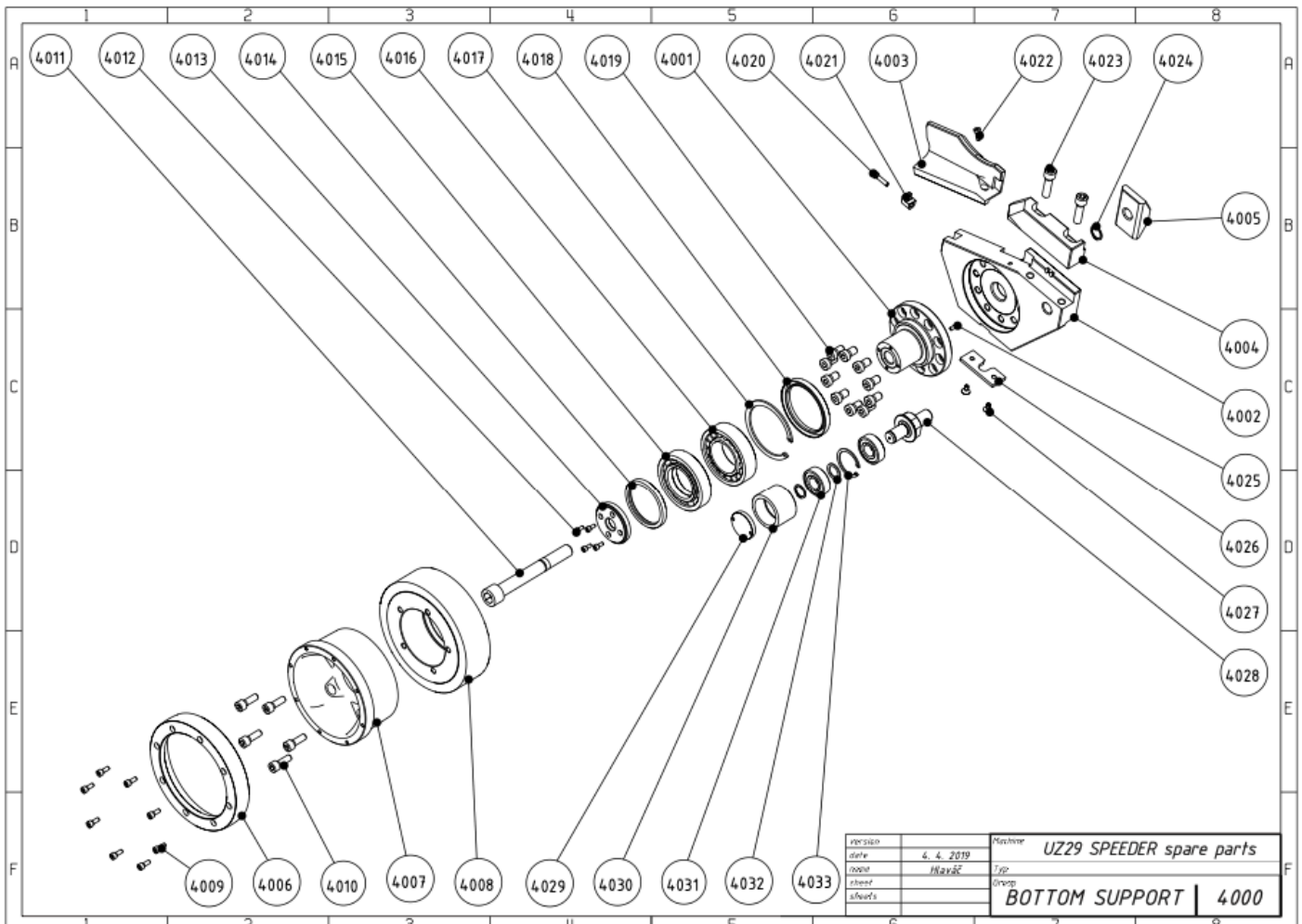
Number	Fig	Part name	Note	Pcs
1962.2001	2001	sheet metal		1
1962.2002	2002	sheet metal holder		1
1962.2003A	2003A	engine	400V/50Hz	1
1962.2003B	2003B	engine	480V/60Hz	1
1962.2003C	2003C	engine	3x220V/60Hz	1
1962.2004	2004	sheet metal holder		1
1962.2005	2005	sheet metal cover		1
1962.2006A	2006A	switch	400V/50Hz	1
1962.2006B	2006B	switch	480V/60Hz	1
1962.2006C	2006C	switch	3x220V/60Hz	1
1962.2007	2007	cover		1
1962.2008	2008	cable grommet		1
1962.2009A	2009A	thermal protection	400V/50Hz	1
1962.2009B	2009B	thermal protection	480V/60Hz	1
1962.2009C	2009C	thermal protection	3x220V/60Hz	1
1962.2010A	2010A	contactor	400V/50Hz	1
1962.2010B	2010B	contactor	480V/60Hz	1
1962.2010C	2010C	contactor	3x220V/60Hz	1
1962.2011	2011	screw		4
1962.2012	2012	screw		12
1962.2013	2013	cable grommet		2
1962.2014	2014	rubber silent block		4
1962.2015	2015	special screw		4
1962.2016	2016	screw		1
1962.2017	2017	washer		2
1962.2018	2018	screw		2
1962.2019	2019	screw		2



## UZ29 SPEEDER SPARE PARTS

drawing no. 3000 Headstock

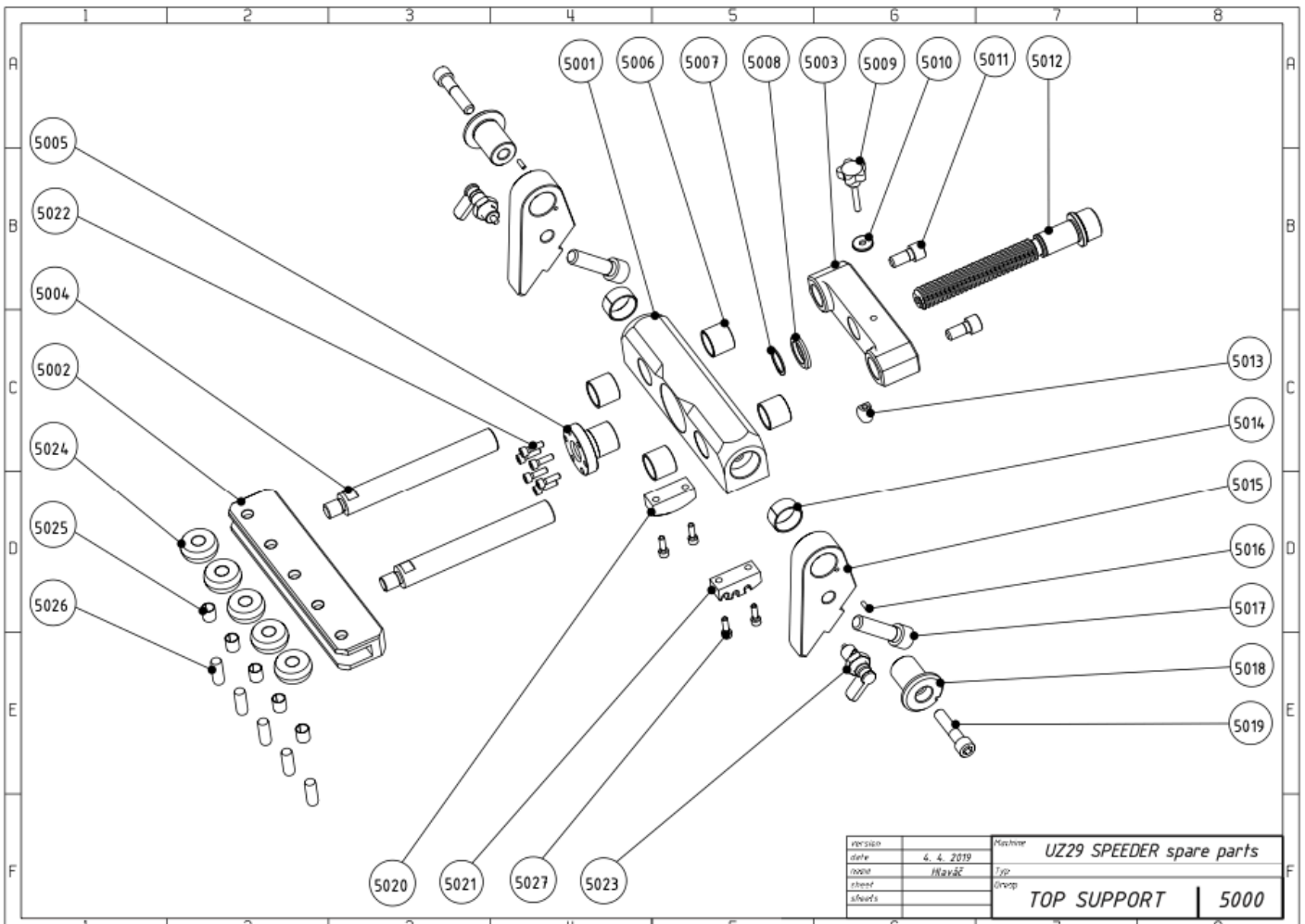
Number	Fig	Part name	Note	Pcs
1970	1970	ECO tool		1
1971	1971	PVD tool		1
1976	1976	washer kit		1
1962.3001	3001	spindle body		1
1962.3002	3002	screw		1
1962.3003	3003	washer		1
1962.3004	3004	screw		8
1962.3005	3005	ring		1
1962.3006	3006	ring		1
1962.3007	3007	shaft seal		2
1962.3008	3008	peg		2
1962.3009	3009	spring piston		2
1962.3010	3010	screw		4
1962.3011	3011	key		2
1962.3012	3012	roller bearing		1
1962.3013	3013	ball bearing		1
1962.3014	3014	shaft		1
1962.3015	3015	key		2
1962.3016	3016	screw		6



## UZ29 SPEEDER SPARE PARTS

drawing no. 4000 Bottom Support

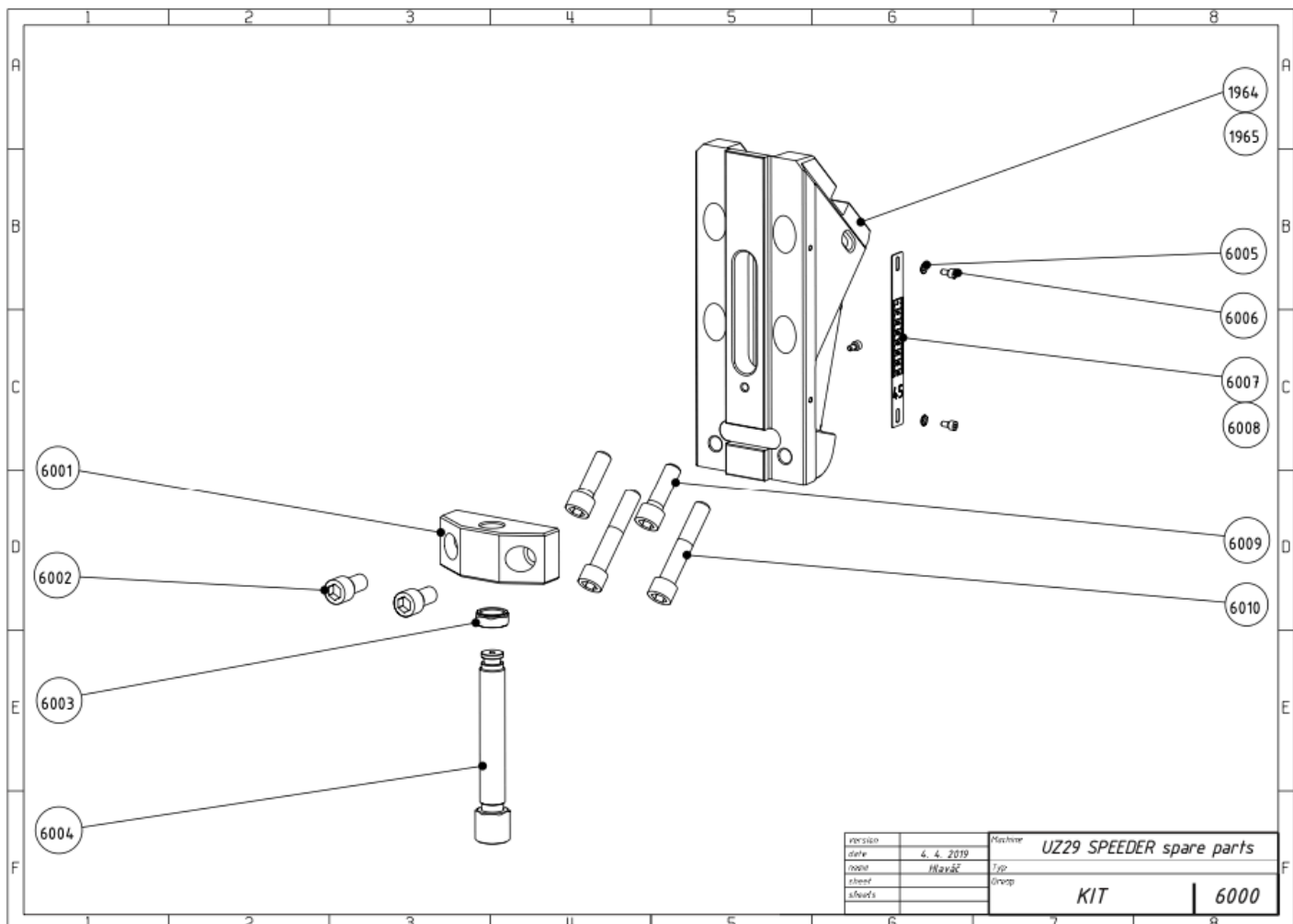
Number	Fig	Part name	Pcs	Number	Fig	Part name	Pcs
1962.4001	4001	body	1	1962.4031	4031	ball bearing	2
1962.4002	4002	support body	1	1962.4032	4032	ring	1
1962.4003	4003	chip breaker	1	1962.4033	4033	lock ring	1
1962.4004	4004	ruler	1				
1962.4005	4005	nut	1				
1962.4006	4006	roller thread	1				
1962.4007	4007	roller body	1				
1962.4008	4008	pulley	1				
1962.4009	4009	screw	8				
1962.4010	4010	screw	5				
1962.4011	4011	screw	1				
1962.4012	4012	screw	4				
1962.4013	4013	ring	1				
1962.4014	4014	seal	1				
1962.4015	4015	ball bearing	1				
1962.4016	4016	roller bearing	1				
1962.4017	4017	lock ring	1				
1962.4018	4018	seal	1				
1962.4019	4019	screw	10				
1962.4020	4020	screw	1				
1962.4021	4021	clamp	1				
1962.4022	4022	screw	1				
1962.4023	4023	screw	2				
1962.4024	4024	lock ring	2				
1962.4025	4025	pin	1				
1962.4026	4026	sheet metal	1				
1962.4027	4027	screw	2				
1962.4028	4028	shaft	1				
1962.4029	4029	cap	1				
1962.4030	4030	roller	1				



## UZ29 SPEEDER SPARE PARTS

drawing no. 5000 Top Support

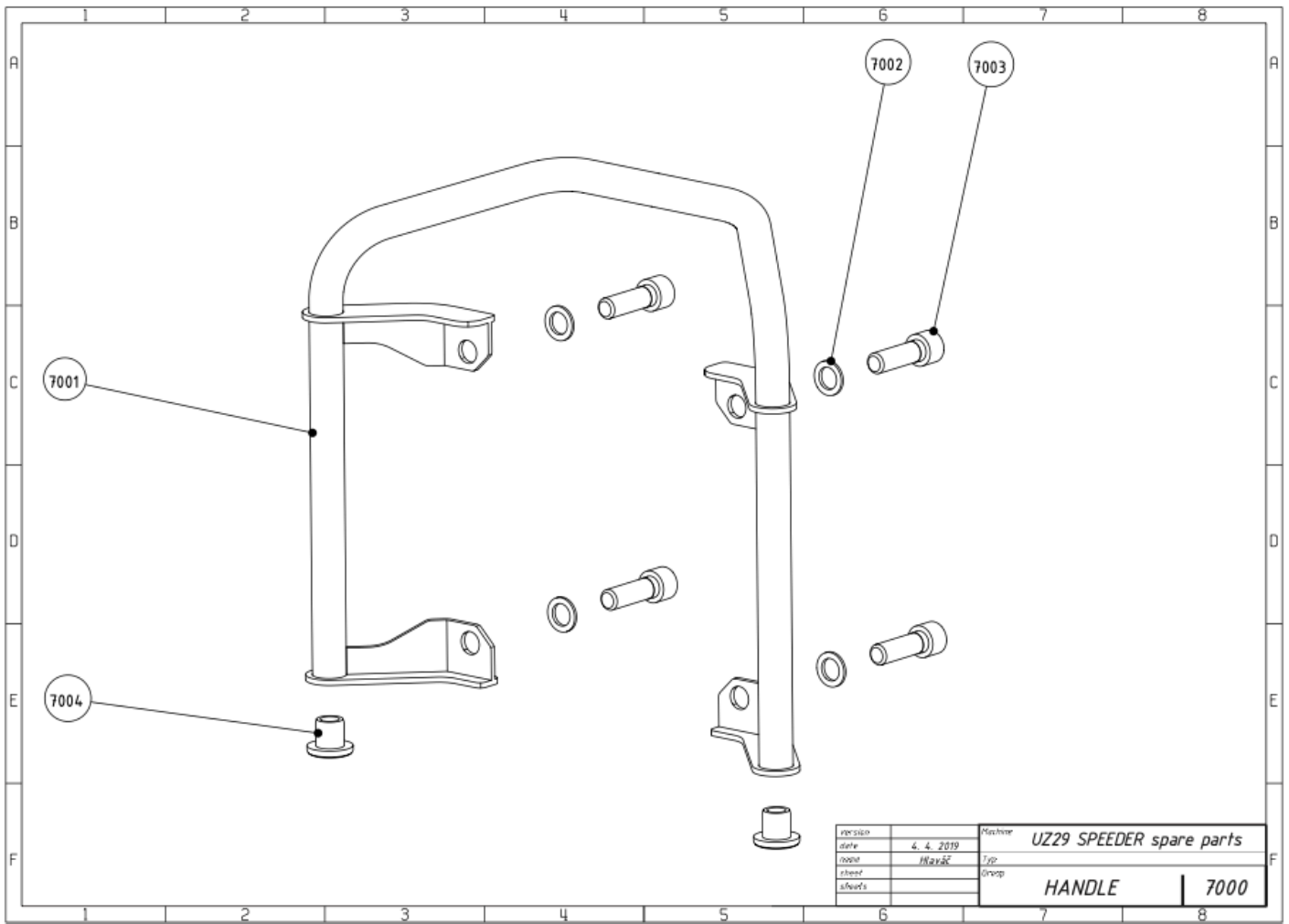
Number	Fig	Part name	Note	Pcs
1962.5001	5001	axis		1
1962.5002	5002	body		1
1962.5003	5003	head		1
1962.5004	5004	column		2
1962.5005	5005	nut		1
1962.5006	5006	housing		4
1962.5007	5007	lock ring		1
1962.5008	5008	washer		1
1962.5009	5009	hand wheel		1
1962.5010	5010	washer		1
1962.5011	5011	screw		2
1962.5012	5012	screw		1
1962.5013	5013	wedge		1
1962.5014	5014	housing		2
1962.5015	5015	console		2
1962.5016	5016	pin		2
1962.5017	5017	screw		2
1962.5018	5018	peg		2
1962.5019	5019	screw		2
1962.5020	5020	lock		1
1962.5021	5021	lock		1
1962.5022	5022	screw		6
1962.5023	5023	indexing plunger		2
1962.5024	5024	pulley		5
1962.5025	5025	housing		5
1962.5026	5026	pin		5
1962.5027	5027	screw		4



## UZ29 SPEEDER SPARE PARTS

drawing no. 6000 Kit

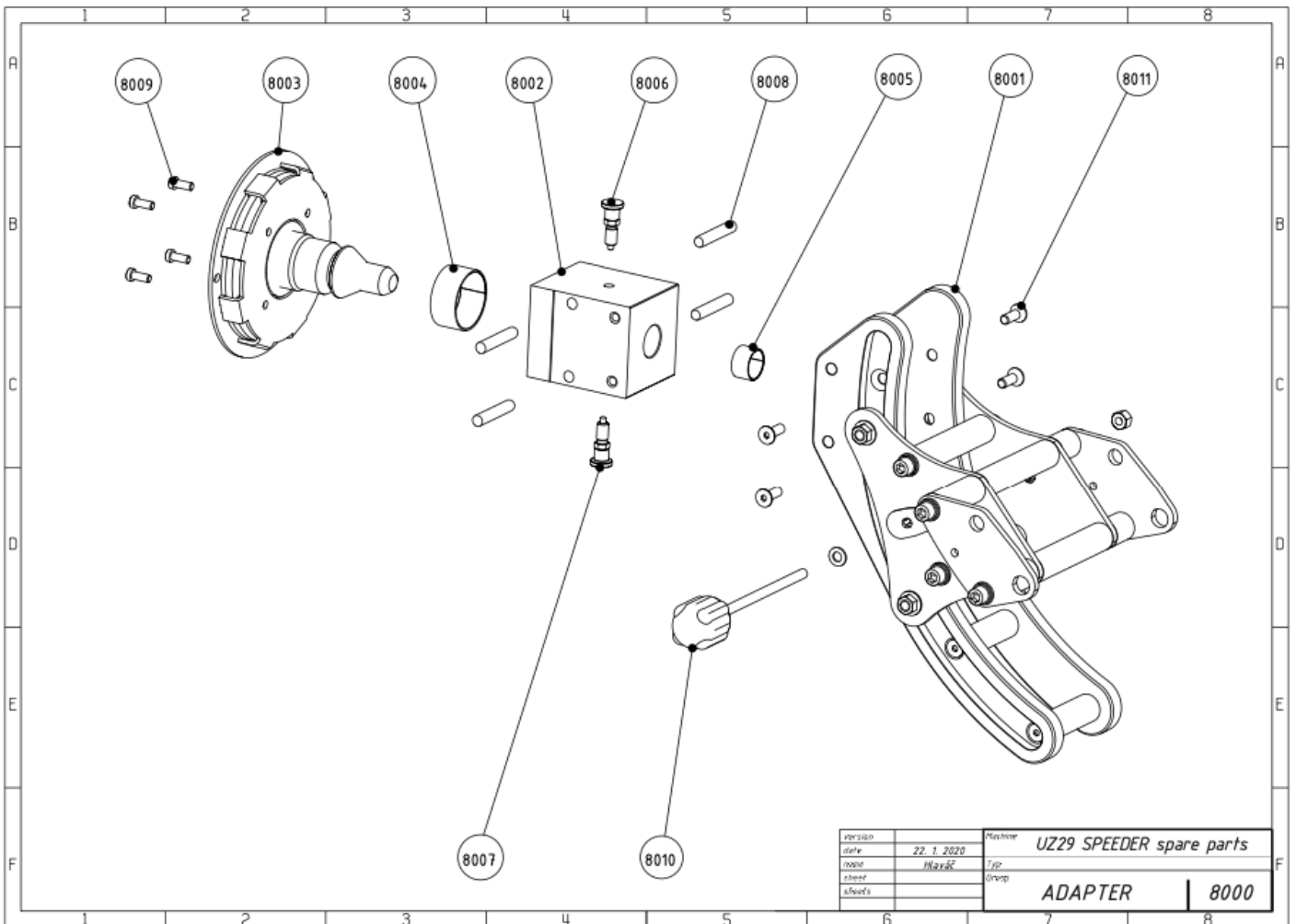
Number	Fig	Part name	Note	Pcs
1964	1964	kit 30°		1
1965	1965	kit 45°		1
1962.6001	6001	nut		1
1962.6002	6002	screw		2
1962.6003	6003	nut		1
1962.6004	6004	screw		1
1962.6005	6005	washer		2
1962.6006	6006	screw		3
1962.6007	6007	ruler 30°		1
1962.6008	6008	ruler 45°		1
1962.6009	6009	screw		2
1962.6010	6010	screw		2



version		Machine	UZ29 SPEEDER spare parts
date	4. 4. 2019	Type	
author	Mavřec	Group	
sheet			
sheet's			
		<b>HANDLE</b>	<b>7000</b>

**UZ29 SPEEDER SPARE PARTS** drawing no. **7000 Handle**

Number	Fig	Part name	Note	Pcs
1962.7001	7001	handrail		1
1962.7002	7002	washer		4
1962.7003	7003	screw		4
1962.7004	7004	plug		2



## UZ29 SPEEDER SPARE PARTS

drawing no. 8000 Adapter

Number	Fig	Part name	Note	Pcs
1962.8001	8001	adapter body		1
1962.8002	8002	block		1
1962.8003	8003	pivot		1
1962.8004	8004	plain bearing		1
1962.8005	8005	plain bearing		1
1962.8006	8006	spring piston		1
1962.8007	8007	spring piston		1
1962.8008	8008	pin		4
1962.8009	8009	screw		4
1962.8010	8010	screw w/ washer and nut		1
1962.8011	8011	screw		4

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