

Variable angle bevelling machine with automatic feed

UZ100 Bold



**Instruction manual and maintenance
guide**



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1. General information

1.1. Introduction

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

This manual contains all the instructions for installing, adjusting, operating, and maintaining the machine.

UZ100 Bold.

in accordance with applicable safety standards.

The information and data in this manual are subject to change as a result of further improvements to the machines. For the avoidance of doubt, please contact N.KO if you find any discrepancies.

Never perform any operations on the machine before reading and understanding the instructions in the manual. A large proportion of accidents that occur in the workplace are caused by failure to follow the instructions and recommendations contained in the manual.

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



Caution:

Important information for the personal safety of the operator.



Important:

Instruction that must be followed to ensure proper operation of the machine.

1.2. Testing

The edge bevelling machine is tested in our technical testing laboratory.

During this test, the correct functioning of the electrical system and the correct functioning of the chamfering of sheets and profiles of various types and sizes are tested.

1.3. Warranty

The seller provides a warranty for the UZ100 Bold chamfering system that the goods will be free of material and manufacturing defects for a period of 12 months from the date of delivery.

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

The seller undertakes to ensure the removal of any defects covered by the warranty free of charge and without undue delay so that the buyer can use the goods properly. If the buyer exercises their rights arising from liability for defects not covered by the warranty, they shall reimburse the seller for the costs associated with this.

The warranty period does not run from the date on which the buyer reported to the seller the existence of a defect covered by the warranty and for which the buyer cannot use the goods and exercised their rights arising from liability for defects under the warranty provided, until the date of its removal by the seller.

The warranty does not cover natural and normal wear and tear of the goods and defects caused by improper use of the goods contrary to the training and documentation provided. Furthermore, the warranty does not cover defects caused by overloading the goods, nor defects caused by unprofessional intervention in the goods or unprofessional repair or modification of the goods. Improper intervention, repair, or modification means any intervention, repair, or modification that was performed contrary to the training and documentation provided, or was performed by a person other than the seller or a person authorized or approved by the seller.

Rights arising from liability for defects under the warranty must be exercised with the seller without undue delay after the buyer discovers the defect, but no later than the end of the warranty period, otherwise these rights shall expire.

To exercise rights arising from liability for defects under the warranty provided, the warranty certificate must be presented. Otherwise, these rights cannot be granted to the buyer.

The seller's liability for defects covered by the warranty does not arise if these defects were caused by external events after the transfer of the risk of damage to the goods. External events are understood to mean, in particular, natural disasters, force majeure, or the behavior 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 maintenance deficiencies;
- unauthorized modifications and/or interventions;
- use of non-original or incorrect spare parts and accessories for the model in question;
- complete or partial failure to follow instructions;
- exceptional events, natural disasters, or other events.

1.4. Identification data

The identification data of the edge beveling machine are indicated on the aluminum CE label affixed to the bearing housing at the top.

1.5. Reference standards (CE declaration of conformity)

EU Prohlášení o shodě

(EU Declaration of Conformity)

Výrobce / Manufacturer:

N.KO spol. s r.o.

Adresa: Tábořská 398/22, 29301 Mladá Boleslav, Czech Republic

IČ: 26161109

Výrobek:

Název stroje / Model: Mobilní obráběcí stroj pro ~~úkosování~~ plechů

Typ / Model: UZ100 Bold

Výrobní číslo: viz výrobní štítek stroje

Prohlašujeme, že uvedený výrobek je v souladu s ustanoveními následujících směrnic EU:

- 2006/42/ES – Směrnice o strojních zařízeních (Machinery Directive)
- 2014/30/EU – Směrnice o elektromagnetické kompatibilitě (EMC Directive)
- 2014/35/EU – Směrnice o nízkém napětí (Low Voltage Directive)

Harmonizované normy:

- EN ISO 12100:2010 – Bezpečnost strojních zařízení, obecné zásady návrhu
- EN 60204-1:2018 – Elektrická zařízení strojů
- EN ISO 13849-1:2015 – Bezpečnost strojních zařízení – Řídicí systémy související s bezpečností
- EN 55014-1 a EN 55014-2 – EMC normy pro stroje s elektromotorem

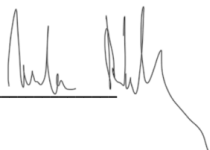
Místo a datum vydání:

Mladá Boleslav 12. 8. 2025

Jméno a funkce odpovědné osoby:

Milan Richtr CEO

Podpis: _____



2. SAFETY

2.1 Safety recommendations



Caution:

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

- Never attempt to operate the machine until you are thoroughly familiar with how it works. If you still have doubts after carefully and thoroughly reading this manual, contact N.KO.
- Ensure that all technical personnel who are to use and maintain the machine are fully familiar with all relevant safety recommendations.
- The machine must only be transported and installed by specialized personnel in accordance with the instructions in this manual.
- Before starting the machine, the operator must ensure that all safety devices are functional and that all safety guards are in place.
- Never use the machine for purposes other than those specified in the manual. Never process products other than those specified.
- Contact N.KO before using the machine for purposes other than those specified and request permission.
- The voltage values used to power the machine are dangerous: make sure that all connections are made correctly, never perform maintenance or replace parts on the machine when it is connected to a power source, and never make any branches on electrical connections.
- Replace parts considered defective with others recommended by the manufacturer. Never replace with parts other than original parts.
- Never wear clothing or jewelry that could get caught in moving parts. It is advisable to wear safety clothing: shoes with non-slip soles, ear protectors, and safety glasses.



Important:

If any faults occur during the machine's service life that cannot be repaired according to this manual, it is advisable to contact N.KO so that the problem can be resolved as quickly as possible.

2.2. Safety stickers

Safety stickers are affixed to the chamfering machine to protect the operator.

Meaning of the stickers:

This sticker is affixed to the electrical panel of the edge beveling machine and indicates the presence of high voltage.



Do not remove this sticker from the machine.

2.3. Operator qualifications and protection

The employer is obliged to inform the operator about safety standards and, in addition, to ensure that they are observed and to make sure that the work area is sufficiently large and well lit.

The term "operator" refers to a person who installs, operates, adjusts, maintains, cleans, and repairs the machine.



Caution:

Before starting work, operators must be familiar with the characteristics of the machine and must have read this entire manual.



Caution:

The operator must always:

1. Ensure that all safety guards are in place and that safety devices are functioning before starting the machine.
2. Avoid wearing clothing or jewelry that could get caught in moving parts.
3. Wear approved safety clothing, such as shoes with non-slip soles, ear protectors, and safety glasses.
4. Apply safety standards, ensure that they are always followed, and if in doubt, refer to this manual before taking any action.
5. Contact the machine supplier if you cannot remedy faults that cause the machine to malfunction, if the faults relate to faulty parts or irregularities in operation.

2.4. Safety devices

The machine is equipped with safety guards to isolate areas that could be dangerous to the operator. These guards are bolted or screwed to the machine structure. They can be removed using the appropriate wrenches. This operation may be necessary for certain maintenance activities.



Caution:

The cover must always be removed when the machine is at rest with the power plug disconnected. Never use the machine without the safety covers in place.

The machine is equipped with an emergency button for quickly shutting down the machine. It is red in color and will immediately stop the machine, taking precedence over all other operations (position B in Fig. 2.4.1).

This emergency button is used:

- in case of immediate danger or mechanical accident;
- for short interventions when the machine is already at a standstill, in order to perform maintenance in this state.

Fig. 2.4.1



2.5. Residual risks

The machine has been designed and manufactured with all the devices and equipment necessary to ensure the health and safety of the operator.

The machine is completely covered to minimize the risk of contact with moving parts.

However, there is one remaining risk:

As mentioned above, the working area is protected as much as possible, but it must remain partially open so that material can be inserted for edge trimming.

It is therefore possible that the operator could insert their fingers into this zone, where both the cutting tool and the workpiece holder are located.



Caution:

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



Caution:

Always apply the safety regulations contained in the manual and ensure that they are observed and that all remaining risks are eliminated.

3. TECHNICAL SPECIFICATIONS

3.1. Machine description

One of the main features of the UZ100 Bold machine is its ability to adjust the bevel angle and automatically feed the material.

The machine is equipped with a milling cutting tool, a sturdy workpiece holder, a direct reading scale used to set values (bevel size and machining angle), and a special guide that facilitates material insertion.

These features allow for easy adjustment of the working angle without replacing any parts and precise control of the bevel size.

The UZ100 Bold chamfering machine is reliable and requires minimal maintenance.

3.2 Technical data

Tool drive

Motor power	2 x 3 kW
Motor speed	1445 rpm
Spindle speed	Variable
Tool diameter	112 mm
Max width of the bevel	100 mm

Feed

Motor power	0.4 kW
Feed range	0-1.5 m/min (depending on cutting conditions)
Sheet thickness	8 ÷ 100 mm
Clamping	Automatic
Angle range	0°-90° (continuous)
Total power consumption	6.4 kW
Weight	450 kg
Dimensions	See Fig. 3.2.1.

Max capacity UZ100 Bold

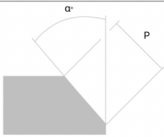
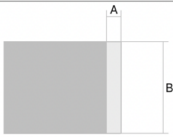
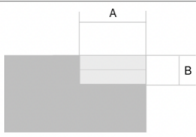

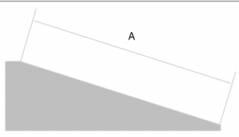
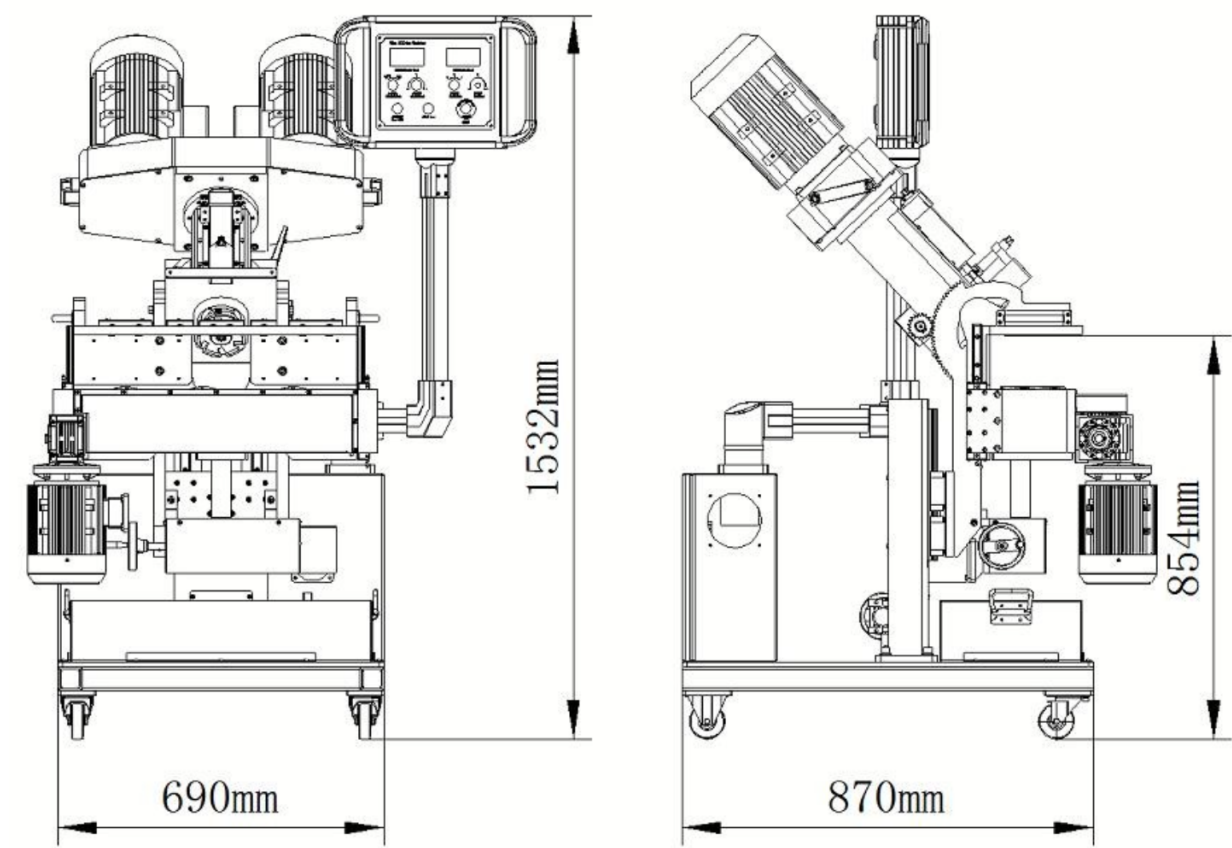
				
V - Bevel	Facing	Cladding Removal	J - Bevel	Tapering
α° : 0° - 90° P max: 100 mm, (3.93")	A: 0 - 3 mm B max: 100 mm, (3.93")	A max: 100 mm, (3.93") B max: 18 mm, (1.77")	α° : 0° - 90° R6 mm, (R .23"), R8 mm, (R .31") R10 mm (R .39")	α° : 0° - 90° A max: 100 mm, (3.93")

Fig. 3.2.1.



3.3. Noise level

The machine has been designed and manufactured to minimize noise emissions.

The continuous acoustic noise level, as measured in some cases and operating conditions, exceeded 85 dBA. The operator must wear hearing protection.

3.4. Working environment conditions

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

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

The machine must be placed in a covered location and must not be exposed to rain.

Working conditions other than those listed above could cause serious damage to the machine, especially the electrical equipment.

When the machine is not in use, it can be stored in a location where the temperature fluctuates between:

-10°C and 70°C

all other values remain unchanged.

4. INSTALLATION

4.1 Transport and lifting



Important:

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

Suitable unloading and positioning equipment (cranes, forklifts, etc.) must be available at the destination.

When the machine is delivered to the destination, make sure (while the carrier is still present) that it complies with the specifications in the order and that it has not suffered any damage during transport. Immediately inform N.KO and the carrier in detail if damage is found or if parts are missing.



Caution:

Follow these instructions to ensure safe handling of the machine:

- Keep a safe distance from suspended loads and ensure that lifting equipment and tools are in perfect working order and suitable for the weights specified in section 3.2.
- Wear protective clothing such as work gloves, non-slip shoes, and a helmet when handling the machine.
- If the machine is in transport packaging, remove and dispose of it in accordance with the applicable laws of the country concerned.
- If you are lifting the machine with a crane, use suitable textile or chain lifting equipment. The machine is supplied with lifting eyes for easier transport. The eyes are located in the tool box and are mounted in the prepared threaded holes in each corner of the machine base casting.

4.2. Installation and connection



Important:

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

If the machine is used for machining small workpieces, it must be set up on a flat surface and secured against movement by the brakes on the transport wheels.

If the machine is used for machining large workpieces, it must be placed on the workpiece itself and must be able to move freely on the workpiece during operation.

Proceed as follows when connecting the machine to the power supply:

The machine is equipped with a 16A plug (220V/480V version - 32A), 5-pin, installed on the body of the electrical switchboard. The machine is equipped with a 16A (220V/480V version - 32A), 5-pin plug. Use it as the end piece of your power cord if necessary.

4.3. Checks before commissioning



Important:

Never start the UZ100 Bold without performing the checks described in this section.

Before starting the machine, make sure that it is in good working order by performing the following inspections and checks to achieve maximum efficiency and comply with safety regulations:

- make sure that no screws or other parts are loose;
- Make sure that all electrical connections have been made correctly and that the electrical cable is held in place by a cable gland.

To start the machine, proceed as follows:

- Unlock the machine with the red emergency lockable button (position B in Fig. 5.2.1.).
- Turn on the machine using the rotary main switch located on the side of the machine next to the power cord plug.
- **Check that the phases are connected correctly. Press the automatic clamping button (positions I and H, Fig. 5.2.1.). The feed unit must work in accordance with the CLAMPING and RELEASE buttons. When the clamping button is pressed, the feed unit must move upwards and vice versa, when the release button is pressed, the feed unit must move downwards. If the opposite is true, swap the phase wires in the power cord plug.**

4.4. Destruction and disposal

When disposing of the UZ100 Bold machine, keep in mind that the materials from which it is made are not hazardous and mainly include:

- painted or plated ferritic steel;
- 300/400 series stainless steel;
- various types of plastic material;
- gear oil;
- electric motor;
- electrical cables and associated sheaths;
- electrical monitoring and excitation devices.

Follow this procedure:

- Comply with the applicable laws of your country relating to workplace safety;
- Disconnect the machine from the power supply;
- dismantle the machine and sort the components into groups according to their chemical nature;
- Scrap the machine parts in accordance with the applicable laws of your country.
- Strictly observe applicable occupational safety regulations during the dismantling phases.

5. USE

5.1. Proper use

The UZ100 Bold chamfering machine has been designed, manufactured, and sold for the purpose of chamfering metal workpieces of the following types: **iron, steel, stainless steel**, brass, copper, and aluminum. These are primarily sheets, rods, and profiles made of the above-mentioned materials.

The UZ100 Bold is designed for machining common steel, stainless steel, abrasion-resistant materials, and other alloys.

Possible machining applications:

- Chamfering - Preparation of weld surfaces.
- Beveling of leads. Operations for the purpose of unifying two different sheet thicknesses.
- J bevel - specific weld edge profile, used mainly as preparation of weld surfaces for thicker materials.
- Cladding removal - Removal of a layer of material of a certain width and depth from the edge of the sheet.
- Facing - Removal of a layer of material from the edge of the workpiece at a zero angle.

The sheet metal must be placed at a height of +/- 830 mm. When processing smaller workpieces, the material is inserted directly into the machine by hand. The minimum length of the machined sheet metal must be at least 300 mm.

Any other uses differing from those described above are considered inappropriate. More specifically, it is prohibited to:

- process products other than those for which the machine is manufactured and sold;
- modify the operation of the machine;
- replace parts with non-original ones;
- modify electrical connections and thereby bypass internal safety devices;
- remove or modify protective covers;
- use the machine in locations with aggressive atmospheres.



Caution:

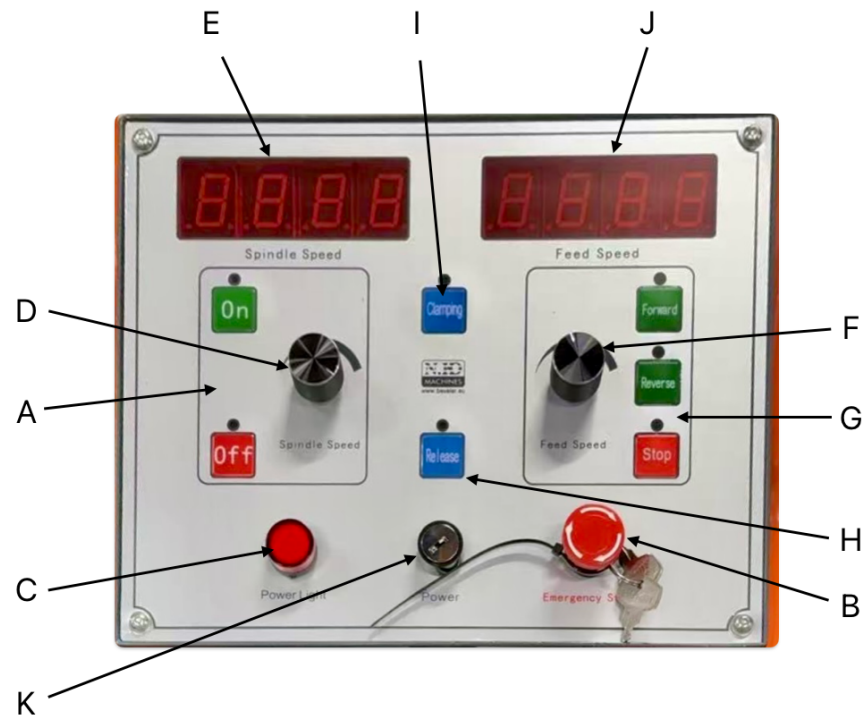
It is strictly forbidden to chamfer edges on materials other than those specified, as their processing could pose a risk to the operator and damage the machine.

Before making any modifications, it is necessary to contact N.KO for approval. If this is not done, N.KO declines all responsibility for any damage that may occur.

5.2. Description of controls

The UZ100 Bold edge chamfering machine is controlled using controls located on the distribution box, control panel, and other locations throughout the machine.

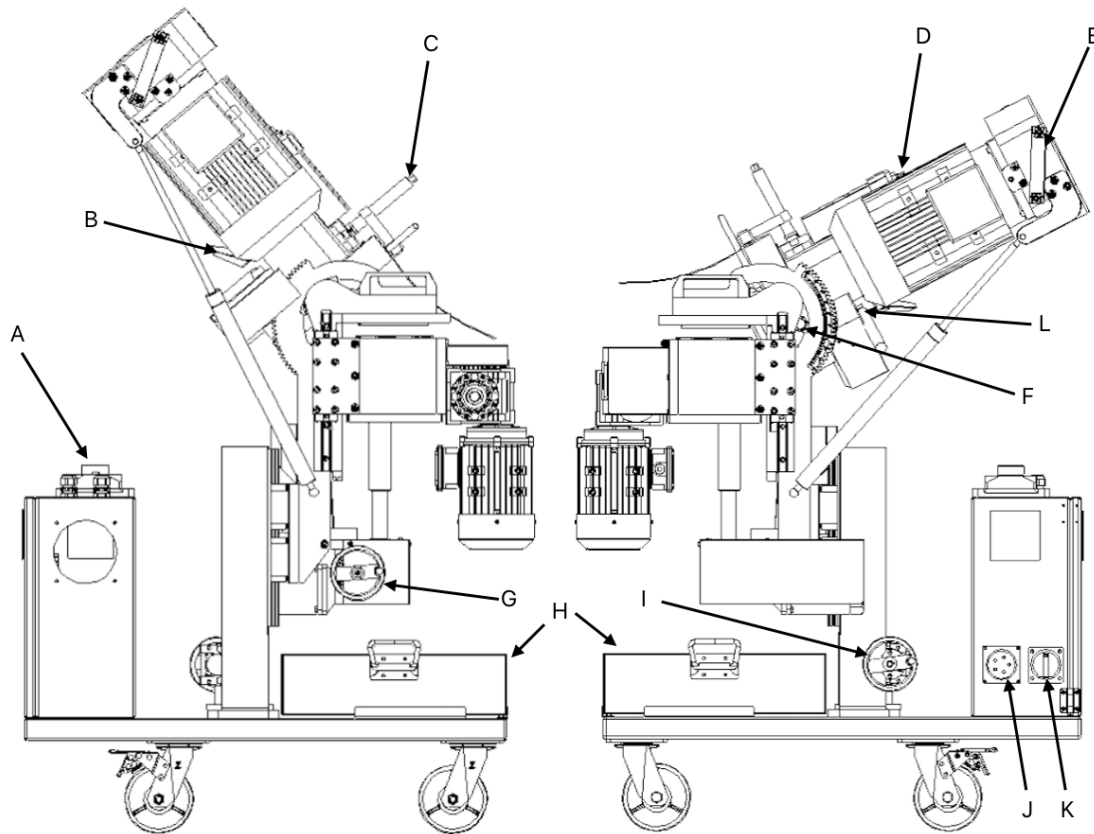
Fig. 5.2.1.



Control panel - Description

- A. Cutter motor start and stop button
- B. Emergency stop switch
- C. Indicator light
- D. Tool speed control. Press the control while turning to quickly change the values.
- E. Display showing tool speed values
- F. Machine feed speed control. To quickly change values, press the regulator while turning.
- G. Start and stop machine feed + reverse feed option (service mode)
- H. Deactivation of automatic workpiece clamping
- I. Activation of automatic workpiece clamping
- J. Machine feed rate display
- K. Control panel lock

Fig. 5.2.2.



Machine - description of controls

- A. Distribution box
- B. Machining tool position locking lever (cutting depth) + scale.
- C. Cross feed control
- D. Cutting depth adjustment.
- E. Control handle
- F. Bevel angle adjustment locking screws
- G. Manual feed unit pressure control
- H. Chip collection tray.
- I. Adjustment of the working height of the machining unit.
- J. Connection socket
- K. Main switch
- L. Bevel angle adjustment screw

5.3. Preliminary settings for UZ100 Bold

(Applies to all available applications and methods of use)



Caution:

Wear work gloves when adjusting. Operations must be performed on a machine that is stationary and disconnected from the power supply.

Before starting work, it will be necessary to make the following adjustments:

5.3.1. Material preparation

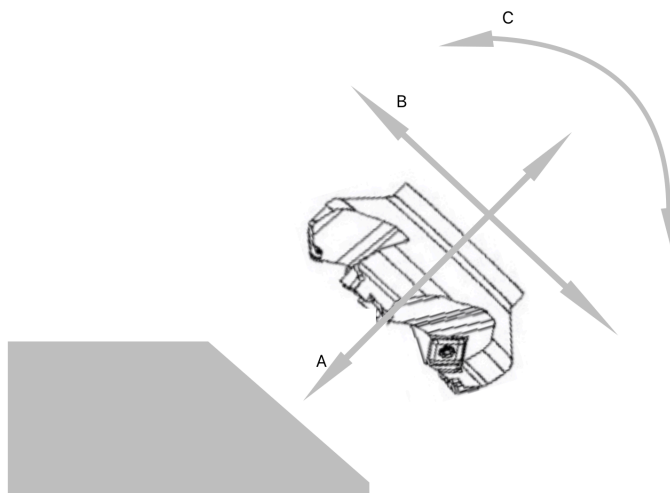
The material being machined must be placed on a suitable work table or supports so that the edge of the sheet is positioned at the required distance from the table or supports, so that the feed unit does not come into conflict with the legs of the work table.

5.3.2 Work axis adjustment options

The UZ100 Bold machine allows the tool position to be adjusted in 3 axes, see Figure 5.3.1.

Fig. 5.3.1.

Position	Name
A	Material removal adjustment
B	Tool cross feed
C	Machining angle setting



5.3.3. Adjusting the bevel angle

The machining angle can range from 0° to 90°.

Proceed as follows when adjusting:

- Loosen the locking screws (position F, Fig. 5.2.2.) located on both sides of the machine near the bevel angle adjustment scale.
- Turn the shaft of the working angle adjustment mechanism (position L in Fig. 5.2.2.). Occasionally, it is necessary to gently push the unit in the direction of the desired tilt angle adjustment with your hand. In other words, relieve the machining unit.
- You can read the set angle value on the scale located on the left side of the machine. Right next to the locking screws.
- Once the desired value has been reached, tighten the locking screws on the sides (position F, Fig. 5.2.2.).



Important:

If the angle adjustment mechanism cannot be manipulated smoothly, the screws may not be sufficiently loosened (position F in Fig. 5.2.2.), or there may be dirt clogging the adjustment mechanism. In this case, clean the mechanism with compressed air or a suitable brush.

5.3.4. Setting the zero value:

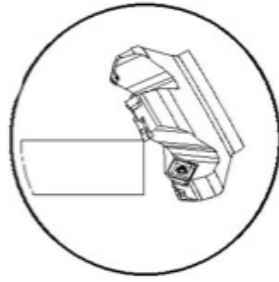
To set the correct feed rate, it is always necessary to set the so-called zero point (the point where the cutter first touches the material) before starting machining.

This zero point will be our reference point for further setting of the cutting depth.

Proceed as follows:

- Set the desired machining angle (see section 5.3.3.).
- Loosen the screw lever, securing the feed setting (position B, Fig. 5.2.2.).
- Use the feed adjustment mechanism (position D, Fig. 5.2.2.) to move the cutting tool completely out of the machining area. The tool must not be in contact with the material being machined when you position the machine correctly on the edge of the material.
- Use the workpiece auto-clamping deactivation button (position H, Fig. 5.2.1) to set the feed unit to a position that allows the workpiece to be inserted into the machine. Or, conversely, to allow the machine to be placed on the clamped workpiece.
- Position the machine on the sheet metal to be machined anywhere along the length of the material so that the vertical and horizontal rulers are flush with the edge of the material to be machined along their entire length.
- Turn on the milling motor (position A, Fig. 5.2.1.).
- Loosen the screw lever, securing the removal setting (position B, Fig. 5.2.2.).
- Using the feed adjustment mechanism (position D, Fig. 5.2.2.), gradually move the milling cutter towards the material until it comes into contact with the material. You will hear the typical sound of the milling cutter catching on the material. At this point, the zero point for the given angle is set (Fig. 5.3.2.).
- Finally, tighten the screw lever to secure the feed adjustment (position B in Fig. 5.2.2.).

Fig. 5.3.2.



6. Application

6.1. CHAMFERING - preparation of weld surfaces

The most common application in the preparation of weld surfaces. The typical range of angles for chamfering is 15° to 50° . To adjust, proceed as follows:

6.1.1. Setting the bevel angle

To set the bevel angle, proceed as described in section 5.3.3.

6.1.2. Setting the zero value

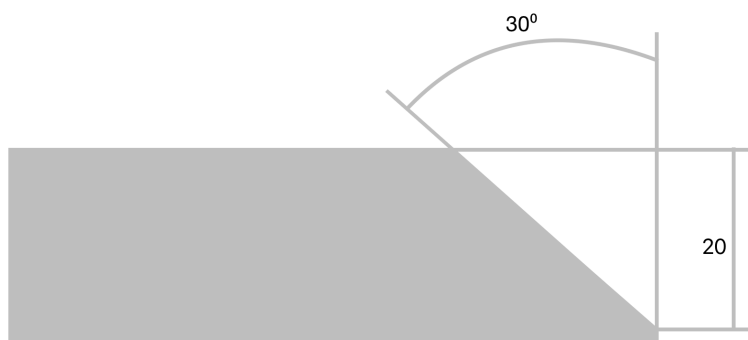
To set the zero point, proceed as described in chapter 5.3.4.

6.1.3. Calculating the cutting plan and settings

It is always necessary to refer to the drawings and apply the bevel values to the machine setting processes.

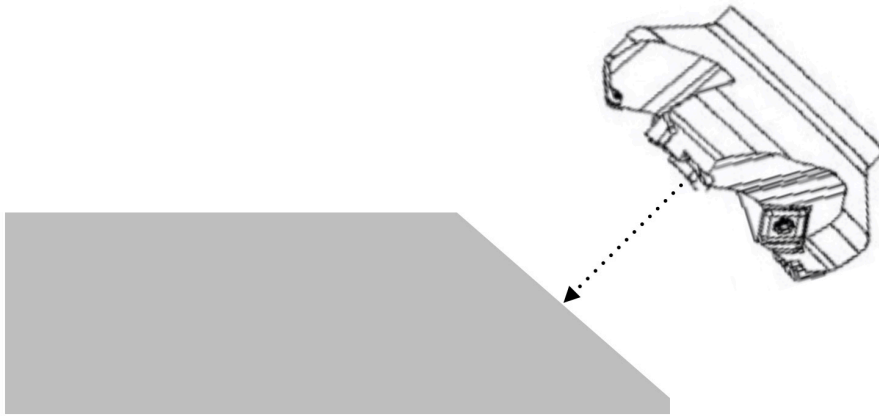
The height and angle of the bevel can usually be obtained from the drawings that are most often available for the planned bevel.

Fig. 6.1.4.a



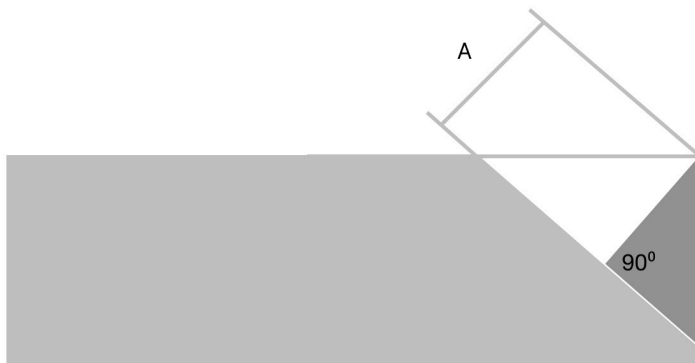
The machine has a scale showing the extension of the cutting tool in millimeters (Fig. 6.1.4.b.). In other words, it shows the penetration of the milling cutter into the material in an axis perpendicular to the desired chamfer angle (dimension A, Fig. 6.1.4.c.). The scale is located on the spindle body, in the middle between the machine motors (position D, Fig. 5.2.2.).

Fig. 6.1.4.b.



For correct adjustment, it is necessary to calculate how many mm we need to extend the cutter, in other words, what will be the depth of removal (dimension A, Fig. 6.1.4.c.) relative to the zero point in order to achieve the required chamfer size.

Fig. 6.1.4.c.



Important: To calculate the machining process, we recommend using the Beveling Solver device (see figure below), which can be purchased separately for the UZ47 Skillmaster Art.Nr. 1900 machine, or we can use freely available applications for calculating triangles using a smartphone and apply the calculation manually.



For Android



For iOS



After calculating the example in Figure 6.1.4.a, we find that the removal height is 10 mm. See Figure 6.1.4.d. The UZ100 Bold machine is capable of removing approximately 3-5 mm in a single cut.

From the above, we can therefore compile a cutting plan to create a sample example:

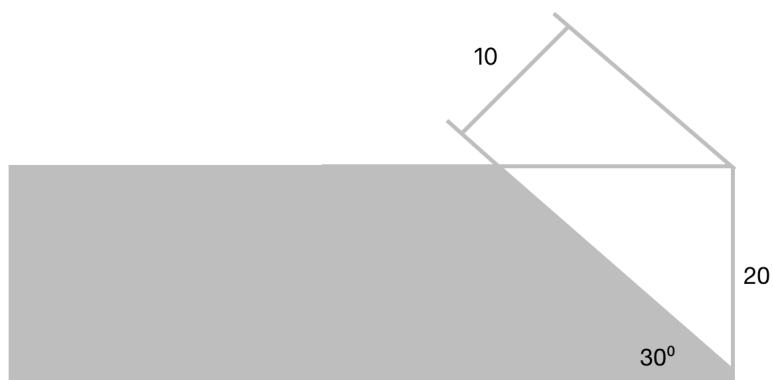
Step	Removal
------	---------


1.	5 mm
----	------


2.	5mm
----	-----


In this particular case, we can therefore achieve the required bevel in two steps.

Fig. 6.1.4.d.



 **Important:** The recommended maximum removal is 3-5 mm. This value depends on many factors, such as the strength and hardness of the machined material, the wear of the cutting inserts, and the feed rate. It will not always be possible to set the maximum 5 mm. Always proceed with caution and take into account the current conditions!

 **Important:** It may be necessary to change the cross feed setting. For more information on cross feed, see sections 5.3.2. or 6.3.3.

 **Important:** The correct setting of the removal rate requires the prior determination of the zero point. Without this presetting, there is a risk of incorrect adjustment of the removal rate and damage to the cutter.

6.2. FACING - Machining the front edge of a sheet metal

When using the Facing application, we only machine the front edge of the workpiece at a zero bevel angle. This application is useful, for example, if you need to create a right angle on the edge of the workpiece or remove slag after burning the edge, for example, when preparing for future surface treatment of the edge or other processing. Typically, with this application, we remove material with a thickness of only 0.5-3 mm.

6.2.1. Setting the working angle


A working angle of 0° is required for facing. To set the working angle, proceed as described in section 5.3.3.


6.2.2. Setting the zero value


To set the zero point, proceed as described in chapter 5.3.4.

6.2.3. Calculating the cutting plan and settings

When facing, set the desired removal directly on the cutting tool extension scale in millimeters. The scale is located on the spindle body, in the middle between the machine motors (position D in Fig. 5.2.2.).

 **Important:** The recommended maximum removal is 3-5 mm. This value depends on many factors, such as the strength and hardness of the machined material, the wear of the cutting inserts, and the feed rate. It will not always be possible to set the maximum 5 mm. Always proceed with caution and take into account the current conditions!

 **Important:** It may be necessary to change the cross feed setting. For more information on cross feed, see sections 5.3.2. or 6.3.3.

 **Important:** The correct setting of the removal requires the prior determination of the zero point. Without this presetting, there is a risk of incorrect adjustment of the removal and damage to the cutter.

6.3. CLADDING REMOVAL - material removal from the top side of the sheet.

Cladding Removal is mainly used when welding clad sheets, where it is necessary to remove the top layer (typically stainless steel) in order to expose and subsequently bevel the bottom layer (typically ordinary steel) and weld it into a single unit. The removed top layer of the workpiece material is then welded back on.

When applying Cladding Removal, it is necessary to use a special milling tool designed for use with rectangular cutting inserts, order no. 1006.

6.3.1. Setting the bevel angle

A working angle of 90° is required for the Cladding Removal application. To set the working angle, proceed as described in section 5.3.3.

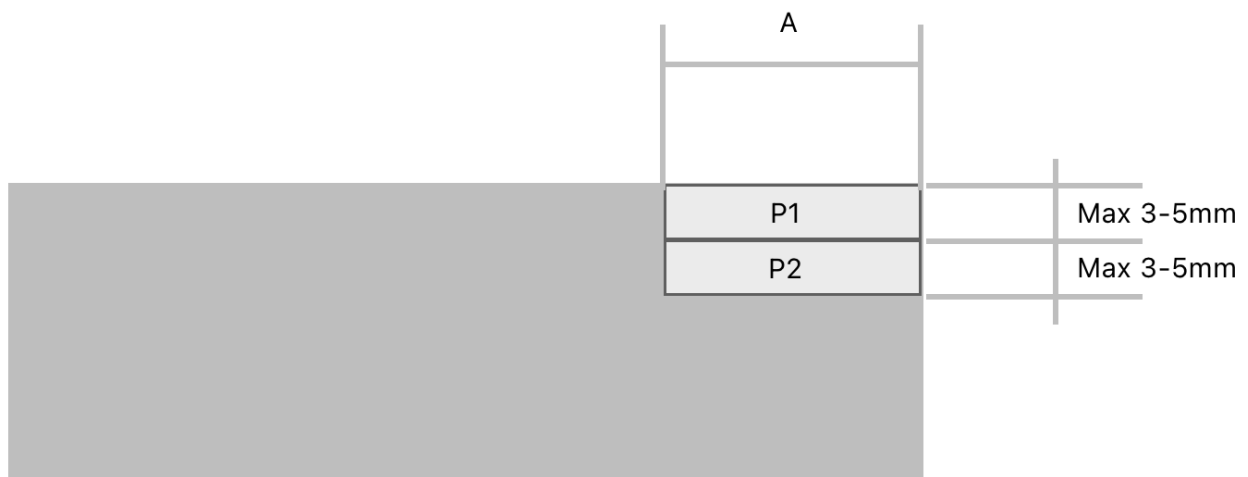
6.3.2. Setting the zero value

To set the zero point, proceed as described in section 5.3.4.

6.3.3. Setting the transverse feed


The UZ100 Bold machine allows you to set the position of the tool in the transverse direction. The control screw is located on the machine (position C, Fig. 5.2.2.). This function is mainly used in the Cladding Removal application to set the A value, see Fig. 6.3.3.1, and also in the J-Bevel application.


Fig. 6.3.3.1.



6.3.4. Calculation of the cutting plan and settings

When using the Cladding Removal application, set the desired removal directly on the cutting tool extension scale in millimeters. The scale is located on the spindle body, in the middle between the machine motors (position D, Fig. 5.2.2.).

 **Important:** The prerequisite for correct removal setting is the prior determination of the zero point. Without this presetting, there is a risk of incorrect removal adjustment and damage to the milling cutter.

 **Important:** The recommended maximum feed rate is 3-5 mm. This value depends on many factors, such as the strength and hardness of the machined material, the wear of the VBD cutting inserts, and the feed rate. It will not always be possible to set the maximum 5 mm. Always proceed with caution and take into account the current conditions!

6.4. RUNNING-IN - Unifying different sheet metal thicknesses

Bevels are mainly used to unify different sheet metal thicknesses, typically in the manufacture of bridge structures. Bevels contribute to the strength properties of the structure and eliminate the risk of fatigue damage at the joint.

6.4.1. Setting the bevel angle


When applying bevels, a working angle of 70°+ is usually required. To set the working angle, proceed as described in chapter 5.3.3.

6.4.2. Setting the zero value

To set the zero point, proceed as described in chapter 5.3.4.

6.4.3. Calculating the cutting plan and settings

The application of bevels is almost identical to the application of chamfers. Proceed as described in chapter 6.1.3.

 **Important:** It is likely that you will need to change the cross feed settings. For more information on cross feed, see Chapter 5.3.2. or 6.3.3.

6.5. J-BEVEL - special bevel profile shape.

J-Bevel bevels are mainly used for welding thick-walled sheets. They allow easier access with the welding nozzle to the root of the weld. They also significantly reduce the amount of welding material required compared to a standard V-bevel. Last but not least, it contributes to reducing the risk of fatigue cracks. J-Bevel allows the use of automated welding methods.

When applying J-Bevel, it is necessary to use a special milling tool designed for circular cutting inserts of the required radius (dimension R, Fig. 6.5.3.1.).

Fr. Head for R6mm - order no. 1008

Milling head for R8 mm - order no. 1010

Milling head for R10mm - order no. 1012

6.5.1. Setting the bevel angle

When using J-Bevel, a working angle of 15° is usually required. To set the working angle, proceed as described in chapter 5.3.3.

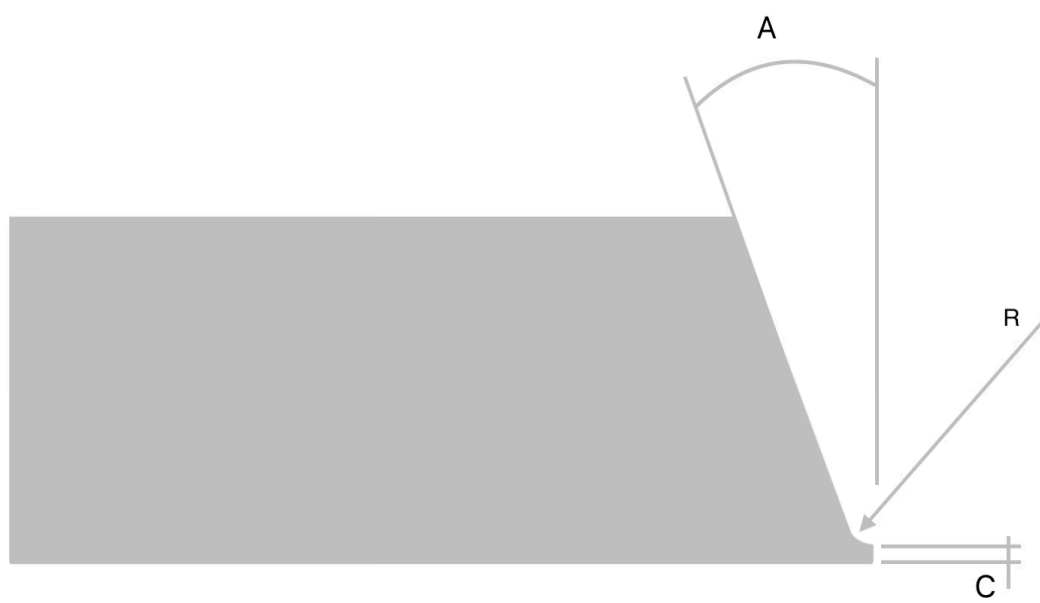
6.5.2. Setting the zero value

To set the zero point, proceed as described in chapter 5.3.4.

6.5.3. Setting the transverse feed

The UZ100 Bold machine allows you to adjust the position of the tool in the transverse direction. The control screw is located on the machine (position C, Fig. 5.2.2.). This function is essential for the J-Bevel application. The transverse feed allows you to adjust the height of the pen (position C, Fig. 6.5.3.1.). We recommend performing a test bevel on a sample with the same material thickness as the final workpiece. Gradually achieve the desired pen height and bevel shape and record the values of the transverse feed scale position and depth of cut setting.

Fig. 6.5.3.1.



6.5.4. Calculation of the cutting plan and settings

The J-bevel application is almost identical to the beveling application. Proceed as described in section 6.1.3.

If the bevel can be made in one step, secure the settings achieved during the test on the sample and then proceed to bevel the final piece.

If the bevel requires the process to be divided into several steps, proceed in accordance with the maximum bevel depth per cut (3 mm - 5 mm) and end the process when the recorded values are reached.



Important: The correct setting of the removal rate requires the prior determination of the zero point. Without this presetting, there is a risk of incorrect adjustment of the removal rate and damage to the cutter.



Important: The recommended maximum removal is 3-5 mm. This value depends on many factors, such as the strength and hardness of the machined material, the wear of the cutting inserts, and the feed rate. It will not always be possible to set the maximum 5 mm. Always proceed with caution and take into account the current conditions!





Important: When using J-Bevel, you will need to change the cross feed settings. For more information on cross feed, see sections 5.3.2, 6.3.3, and 6.5.3.


7. Machining

Proceed as follows:

- Set up the machine for the given application, see previous chapters.
- Set the first cut by loosening the screw lever, securing the cut setting (position B, Fig. 5.2.2.), set the desired removal amount using the control screw (position D in Fig. 5.2.2.), and retighten the screw lever and the removal setting lock (position B in Fig. 5.2.2.).
- Position the machine at the beginning of the sheet metal. The machining direction is from left to right in the standard position. Adjust the optimum height of the machining unit relative to the workpiece using the control wheel (position I, Fig. 5.2.2.).
- Use the auto-clamping deactivation button (position H, Fig. 5.2.1) to set the feed unit to a position where the machine can be freely guided onto the clamped workpiece. The feed unit wheels should not clamp the workpiece at this point.
- Guide the machine onto the material until you reach a position where the beginning (edge) of the workpiece is still in front of and outside the milling cutter and at the same time the vertical and horizontal guide rulers touch the edge of the workpiece and are in line with the edge of the sheet metal being machined. Now press the auto-clamping button (position I, Fig. 5.2.1) and wait until the sheet is completely and properly clamped.
- Turn on the milling cutter and feed motors (positions A and G, Fig. 5.2.1) and set the feed speed to approximately 1/4 - 1/2 of the maximum feed speed.
- Slowly move the machine onto the workpiece and, if necessary, adjust the position of the machine by pulling the appropriate handles until the machine is fully positioned on the workpiece with the entire length of the guide rulers and all feed rollers. The machine must move onto the sheet metal with the guide rules in a straight line with the edge of the workpiece, and these rules must be in constant contact with it.
- Once the machine is fully aligned with the workpiece, the feed speed can be increased. The feed speed is not fixed and must be adjusted according to the condition of the cutting inserts, the quality of the material, and the size of the cut.
- Before reaching the end of the machined sheet and before moving the machine off the workpiece, we recommend reducing the feed rate. It always depends on the current situation.
- In the case of machining with repeated material removal, move the machine back to the beginning of the sheet after leaving it, adjust the settings for the next cut (according to the previous chapters and the specific application), and continue machining until you achieve the desired result.


 **Important:** During chamfering, a situation may arise where the machine does not move smoothly over the workpiece or tends to slide off the workpiece. This happens when the machined sheet metal is poorly positioned on the supports or when the floors in the workplace are in poor condition. It is necessary to level the sheet metal against the floor in the workplace. Complications can also arise when there are obstacles on the machined material. For example, in the form of weld residues or residues from cutting the edges of the workpiece by burning. In this case, it is necessary to clean the material first with a suitable tool.

 **Important:** Depending on the application and the amount of material removal, there may be an increased tendency for the machine and mechanical parts to become clogged with chips from machining. This situation must be prevented. It is necessary to continuously remove chips with a suitable tool or compressed air (a hook for removing chips is supplied with the machine). Otherwise, there is a risk of blocking the machining unit, overloading the machine, and damaging some of its parts.

 **Important:** If the machining unit becomes blocked despite these precautions, switch off the machine and remove it from the material without changing the cutting depth setting. Clean the relevant parts of the machine of chips, loosen the mechanical parts, and then reinstall the machine on the workpiece at the point where work was interrupted. If you have done everything correctly, it will be possible to continue working without restriction.

8. MAINTENANCE AND ADJUSTMENT


8.1. Recommendations

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

Never work on moving parts of the machine, even with tools or other objects.

It is strictly forbidden to remove, modify, or tamper with the safety devices on the machine. The manufacturer accepts no responsibility for the safety of the machine if this is done.

Always use original spare parts (see Chapter 10. Spare Parts).

 **Caution:**
Always wear work gloves when performing maintenance on the machine. Perform maintenance operations on the machine when it is at a standstill and disconnected from the power supply.

Before each work shift and then as needed during the shift, clean the machine, tools, and moving parts with compressed air.



Caution:

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



Caution:

Use the tools supplied with the machine for adjustment and maintenance operations.

8.2. Removing the cutter and replacing the cutting blades



Caution:

Wear work gloves when replacing tools.

The UZ100 Bold uses its own design of end mills with square, rectangular, and circular cutting blades for machining. We strongly recommend using only original milling heads and cutting blades manufactured by N.KO Machines. If tools other than the original ones are used, the manufacturer is not liable for any injury or damage to the machine.

To make full use of the cutting inserts, it is necessary to rotate the cutting insert when it becomes blunt. A total of up to 4 cutting sides are available on each insert. In the case of circular inserts, you can only rotate the inserts.

The condition of the cutting inserts must be checked regularly and, if worn, they must be rotated or replaced in good time.

8.2.3. Removing the milling head

- Disconnect the machine from the power supply
- Using the bevel angle and depth adjustment mechanisms, adjust the milling head to a position where you have the best access to it and enough space to remove it from the machine.
- Secure the spindle against rotation. The milling heads are equipped with a hole on the circumference of the tool body. The set of tools supplied with the machine includes a steel pin that fits into the hole on the side of the tool. Use this pin to lock the head against rotation when loosening the milling head mounting screw.
- Remove the screw and pull the milling head off the spindle by hand.

8.2.4. Replacing or rotating the cutting blades

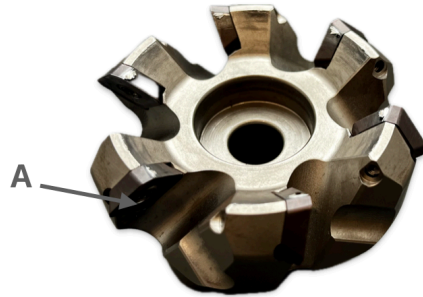
- Place the milling head on a suitable surface.
- Use the supplied wrench to loosen the cutting insert screw (Fig. 8.2.4.2. pos. A) and rotate or replace it.
- Reinstall the milling cutter.



Important: Keep all parts of the milling head (inserts, insert screws, cutter screw) and the spindle clean.

Otherwise, there is a risk of incorrect seating of the cutting blades and their reduced service life or blockage of the milling head on the spindle and subsequent difficulties during the next disassembly.

Fig. 8.2.4.2.



8.3. Replacing and tensioning the drive belt

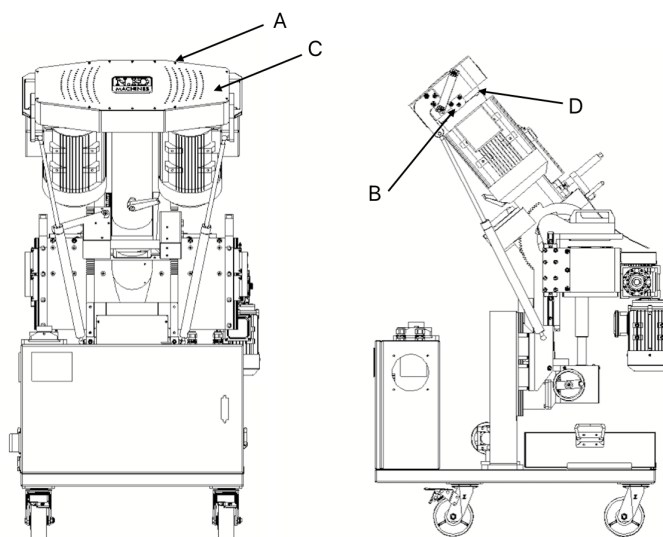
The UZ100 Bold machine is equipped with a belt to transfer power from the motor to the spindle. This belt also serves as a safety device in case of machine overload.

In practice, a situation may arise where this belt breaks.

When replacing the belt, proceed as follows:

- Disconnect the machine from the power supply
- Loosen and remove the screws on the belt cover and remove the cover (Fig. 8.3.1, items A + C).
- Loosen the motor flange screws (Fig. 8.3.1, item D).
- Loosen the belt tensioning screws (on both sides of the belt housing) (Fig. 8.3.1, item B).
- Replace the drive belt with a new one.
- Tension the belt using the tensioning screw (Fig. 8.3.1, item B).
- Reassemble the machine in reverse order, see above, and tighten the screws.
- Check the functionality of the machine.

Fig. 8.3.1.



When operating the machine in areas with particularly hazardous influences AD and above, it is necessary to provide increased protection of the machine against electric shock!

Electrical energy - in the event of a malfunction, the electrical energy must be switched off immediately.

Work on the electrical equipment of the machine may only be carried out by an electrical specialist or persons subordinate to him who are supervised by this specialist to ensure that the work is carried out in accordance with electrical regulations.



Všechny díly, na kterých se provádí údržba a opravy nesmí být pod napětím. Tyto odpojené díly se musí dvoupólovým měřicím přístrojem zkontrolovat, že nejsou pod napětím, pak tyto díly uzemnit a vedlejší díly, které jsou pod napětím izolovat!

Vypnutí napětí provést hlavním vypínačem v poloze „0“, odpojení stroje od napětí.



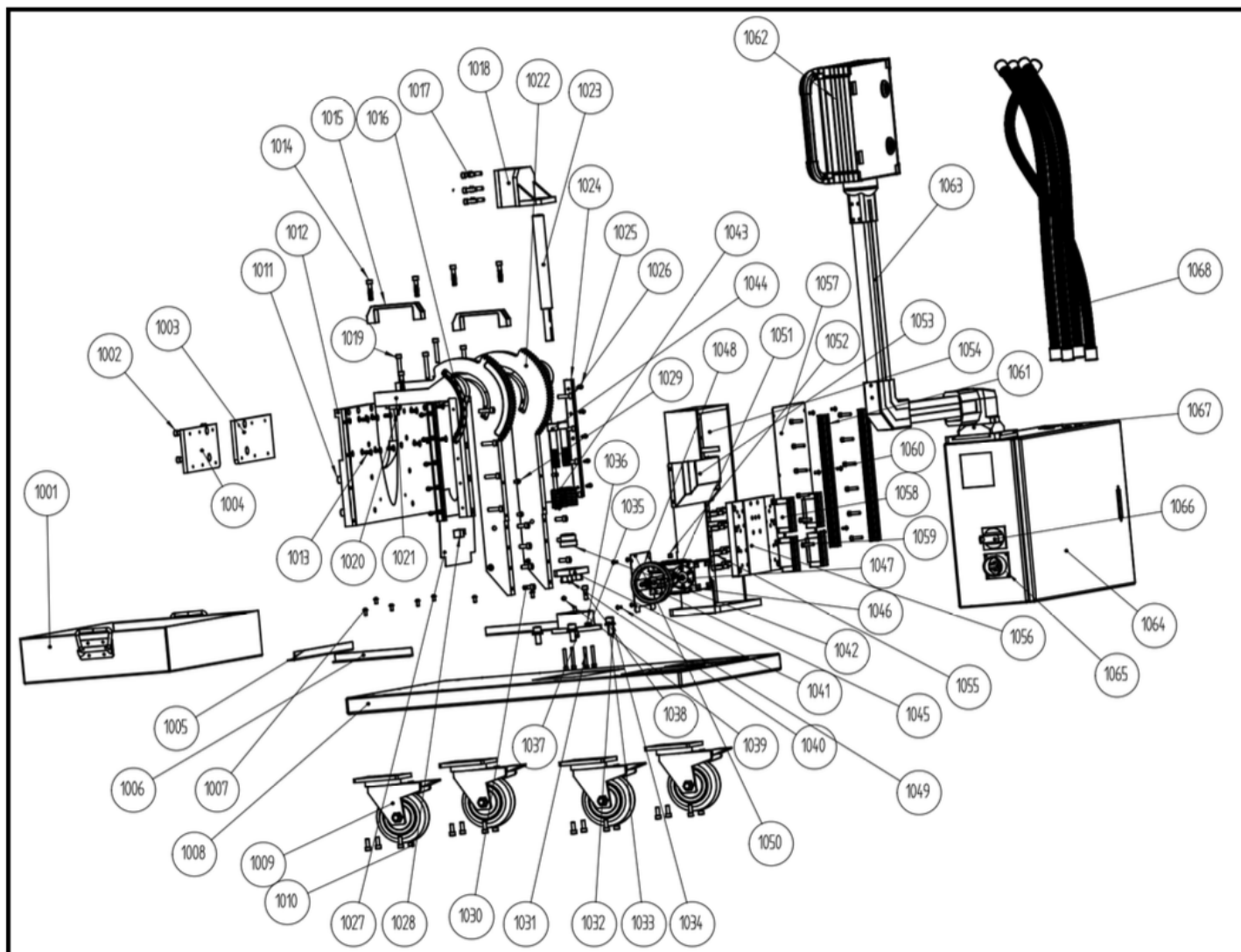
Elektrické vybavení je nutno pravidelně kontrolovat popřípadě přezkoušet. Nedostatky, volné spoje, přiškvařené kabely se musí okamžitě vyměnit.

9. SPARE PARTS

9.1. How to order spare parts

Spare parts orders must include the following information:

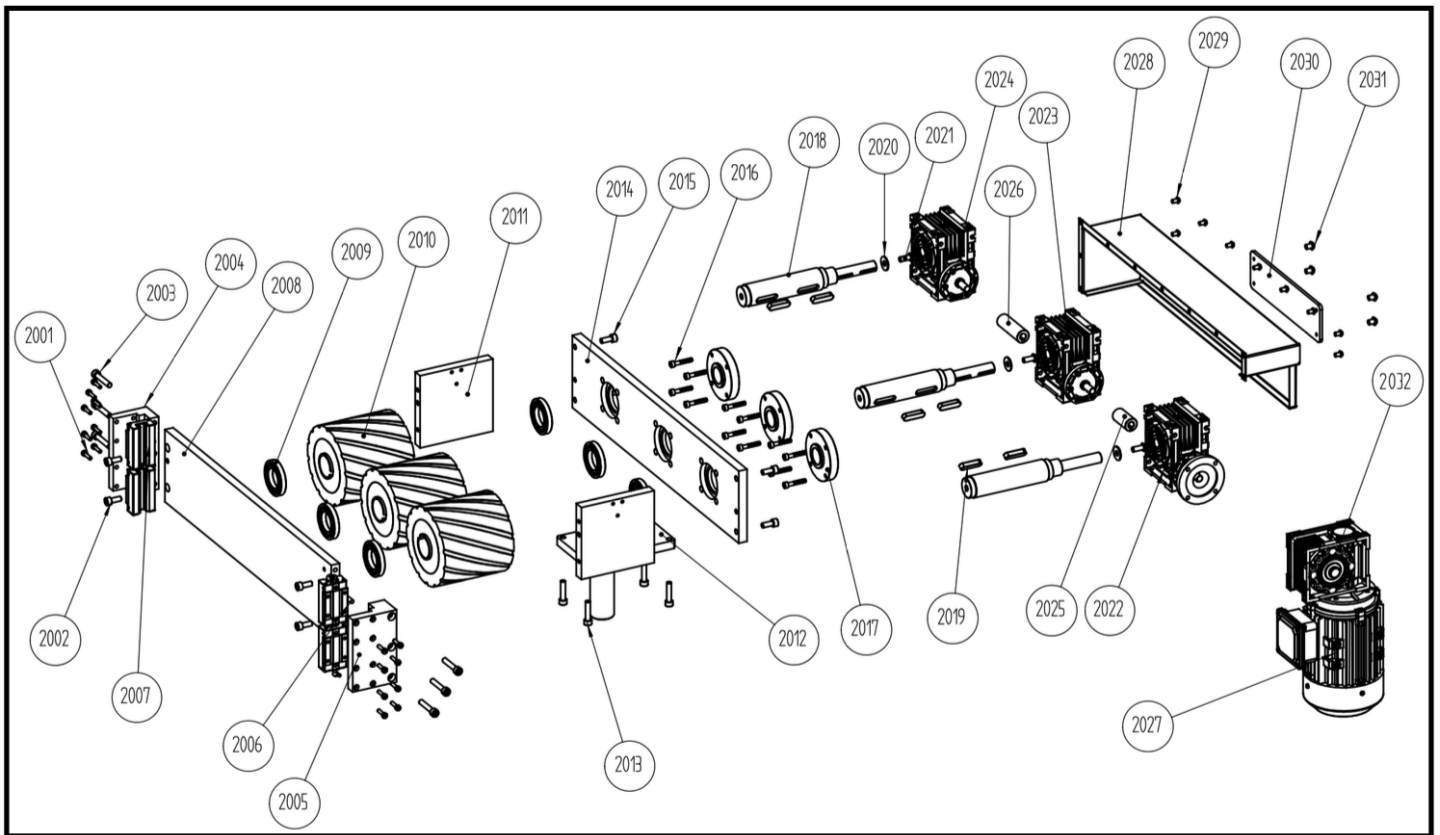
- Machine type.
- Serial number.
- Photo of the required part and a brief description.
- Quantity.



UZ100 Bold

1000 Base Part

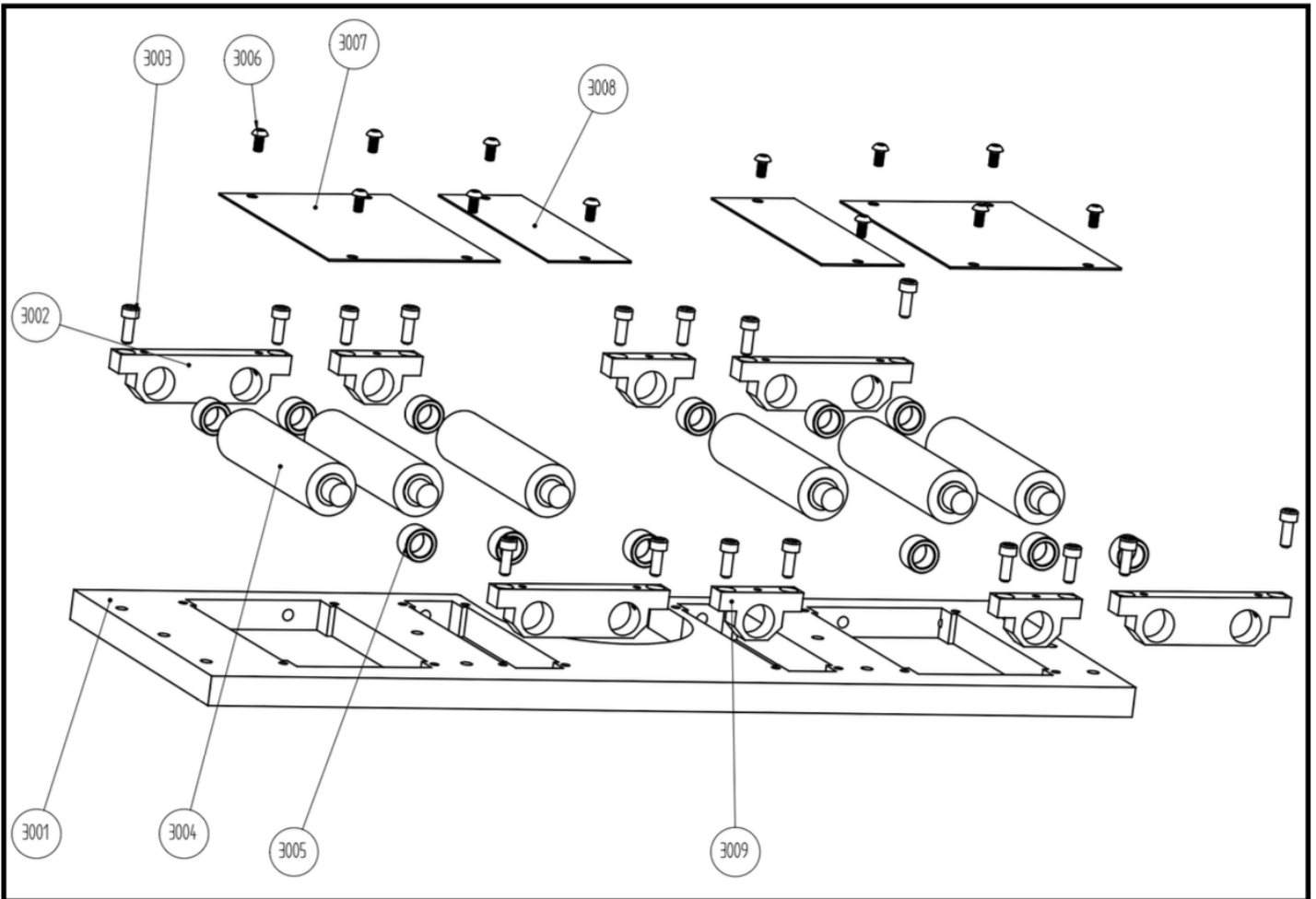
Number	Fig	Part Name	Pcs		Number	Fig	Part Name	Pcs
1000,1001	1001	Chips Box	1		1000,1036	1036	Spring washer	4
1000,1002	1002	Screw	4		1000,1037	1037	Screw	1
1000,1003	1003	Wear-resistant panel	1		1000,1038	1038	Screw	4
1000,1004	1004	Wear-resistant panel	1		1000,1039	1039	Screw	1
1000,1005	1005	Front check rails	1		1000,1040	1040	Lock nut	2
1000,1006	1006	Side check rails	2		1000,1041	1041	Lift plate	1
1000,1007	1007	Screw	7		1000,1042	1042	Lift nut	1
1000,1008	1008	Base	1		1000,1043	1043	Spring	2
1000,1009	1009	Wheel	4		1000,1044	1044	Screw	2
1000,1010	1010	Screw	16		1000,1045	1045	Screw	1
1000,1011	1011	Screw	4		1000,1046	1046	Spacer	1
1000,1012	1012	Main rail plate	1		1000,1047	1047	Baffle plate	1
1000,1013	1013	Screw	12		1000,1048	1048	Handwheel	1
1000,1014	1014	Screw	6		1000,1049	1049	Screw	4
1000,1015	1015	Handle	2		1000,1050	1050	Fron plate	1
1000,1016	1016	Angle scale	1		1000,1051	1051	Handwheel shaft	1
1000,1017	1017	Screw	6		1000,1052	1052	Screw	2
1000,1018	1018	Connection frame	1		1000,1053	1053	Back plate	1
1000,1019	1019	Screw	4		1000,1054	1054	Main support frame	1
1000,1020	1020	Screw	6		1000,1055	1055	Screw	16
1000,1021	1021	Right support plate	1		1000,1056	1056	Guide rail plate	1
1000,1022	1022	Left support plate	1		1000,1057	1057	Plate	1
1000,1023	1023	Main lifting lead screw	1		1000,1058	1058	Sliding block	4
1000,1024	1024	Slide rail	2		1000,1059	1059	Screw	12
1000,1025	1025	Screw	10		1000,1060	1060	Screw	6
1000,1026	1026	Screw	8		1000,1061	1061	Guide rail	2
1000,1027	1027	Dam-board	1		1000,1062	1062	Dashboard	1
1000,1028	1028	Limiting stopper	1		1000,1063	1063	Connector	1
1000,1029	1029	Screw	4		1000,1064	1064	Electro cabinet	1
1000,1030	1030	Screw	8		1000,1065	1065	Aviation plug	1
1000,1031	1031	Screw	4		1000,1066	1066	Switch	1
1000,1032	1032	Spacer	4		1000,1067	1067	Indicator light	1
1000,1033	1033	Spring washer	4		1000,1068	1068	Cable	4
1000,1034	1034	Screw	4					
1000,1035	1035	Spacer	4					



UZ100 Bold

2000 Lower Roller Frame Part

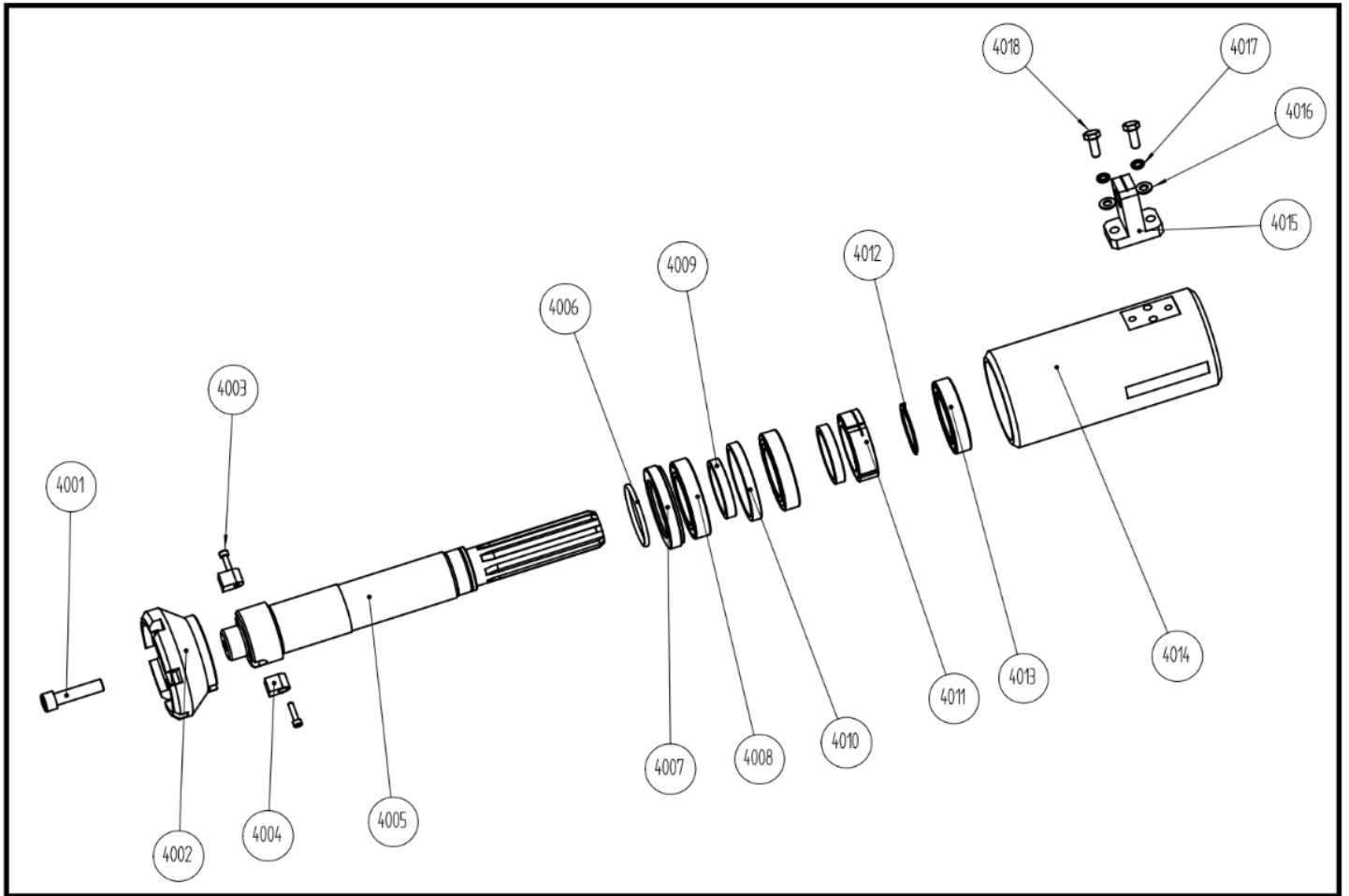
Number	Fig	Part Name	Pcs		Number	Fig	Part Name	Pcs
1000,2001	2001	Screw	16		1000,2019	2019	Pin	6
1000,2002	2002	Screw	4		1000,2020	2020	Spacer	3
1000,2003	2003	Screw	6		1000,2021	2021	Screw	3
1000,2004	2004	Guide rail slider	1		1000,2022	2022	Reducer	1
1000,2005	2005	Guide rail slider	1		1000,2023	2023	Reducer	1
1000,2006	2006	Pin	4		1000,2024	2024	Reducer	1
1000,2007	2007	Sliding block	4		1000,2025	2025	Shaft	1
1000,2008	2008	Plate	1		1000,2026	2026	Shaft	1
1000,2009	2009	Bearing	6		1000,2027	2027	Motor	1
1000,2010	2010	Big Roller	3		1000,2028	2028	Plate	1
1000,2011	2011	Side baffle	2		1000,2029	2029	Screw	10
1000,2012	2012	Nut	1		1000,2030	2030	Label	1
1000,2013	2013	Screw	4		1000,2031	2031	Screw	4
1000,2014	2014	Plate	1		1000,2032	2032	Turbine	1
1000,2015	2015	Screw	4					
1000,2016	2016	Screw	12					
1000,2017	2017	Reducer gasket	3					
1000,2018	2018	Gear drive shaft	3					



UZ100 Bold

3000 Upper Roller Frame Part

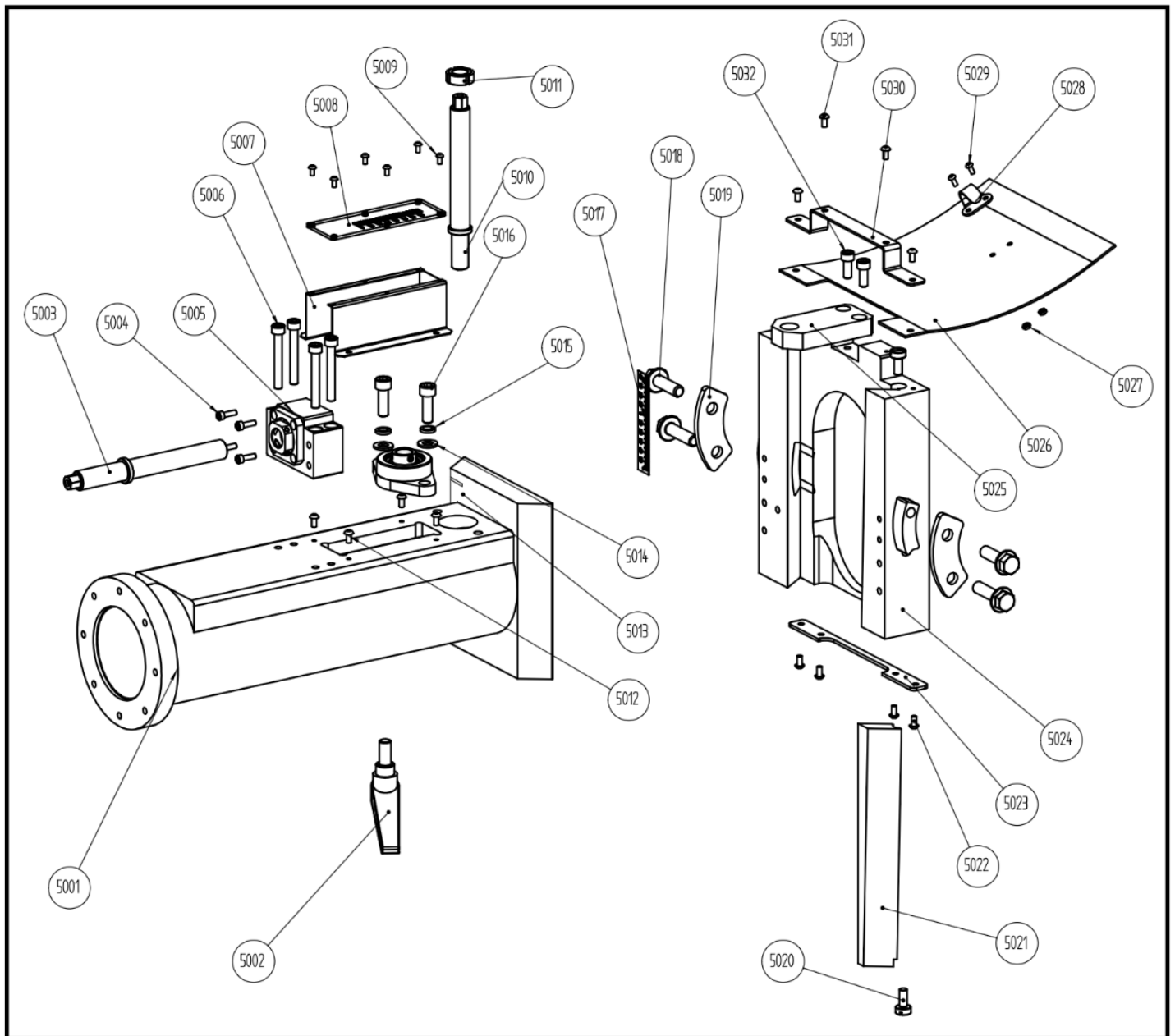
Number	Fig	Part Name	Pcs
1000,3001	3001	Plate	1
1000,3002	3002	Bracket	4
1000,3003	3003	Screw	16
1000,3004	3004	Roller	6
1000,3005	3005	Copper sleeve	12
1000,3006	3006	Screw	12
1000,3007	3007	Plate	2
1000,3008	3008	Plate	2
1000,3009	3009	Bracket	4



UZ100 Bold

4000 Main Shaft Part

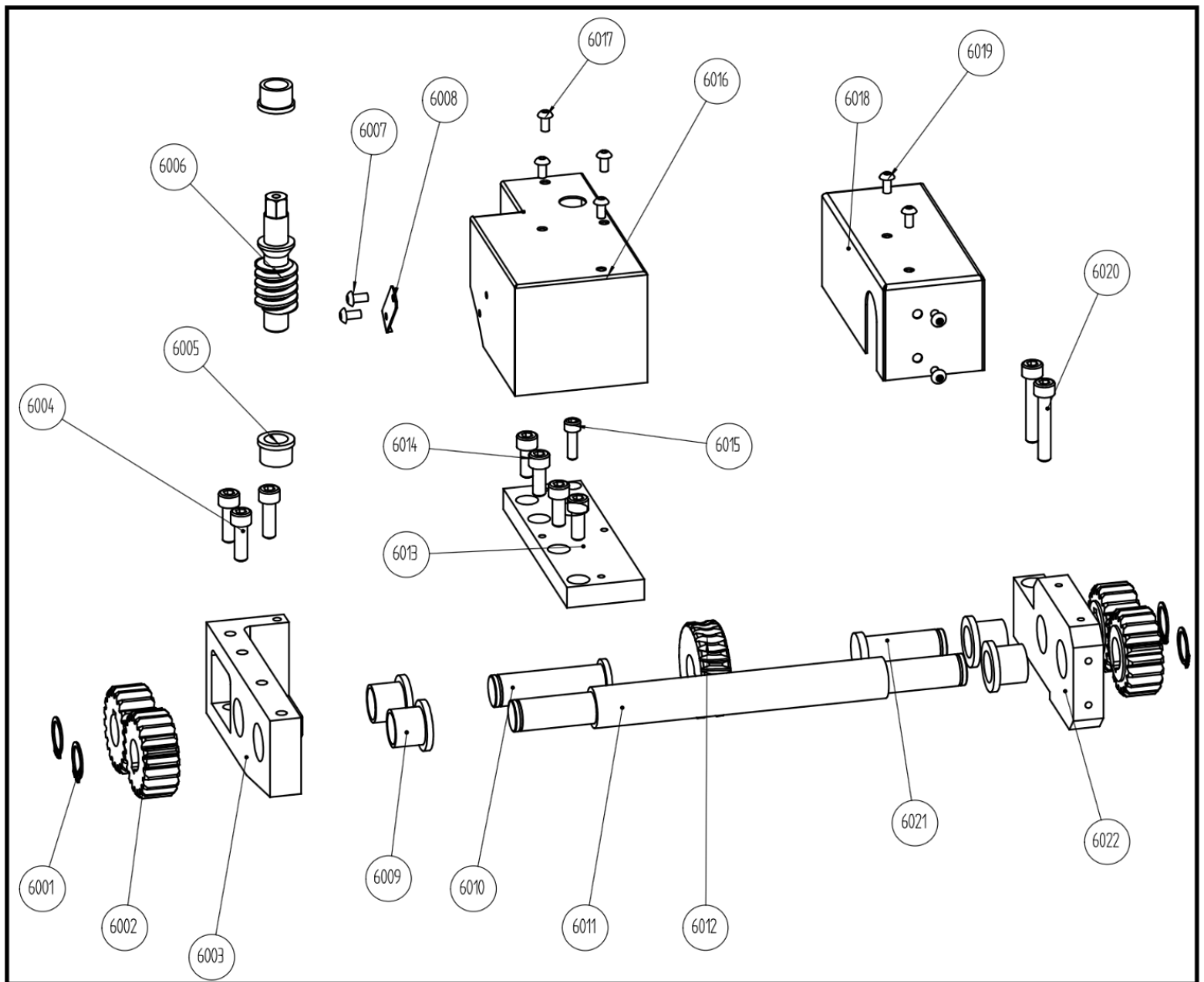
Number	Fig	Part Name	Pcs
1000,4001	4001	Screw	1
1000,4002	4002	Milling Head	1
1000,4003	4003	Screw	2
1000,4004	4004	Block	2
1000,4005	4005	Shaft	1
1000,4006	4006	O ring	1
1000,4007	4007	Cap	1
1000,4008	4008	Bearing (need buy a pair(2pcs)	2
1000,4009	4009	Spacer circle	2
1000,4010	4010	Spacer circle	1
1000,4011	4011	Cap	1
1000,4012	4012	Ring	1
1000,4013	4013	Bearing	1
1000,4014	4014	Main Shaft Cover	1
1000,4015	4015	Fixed seat	1
1000,4016	4016	Spacer	2
1000,4017	4017	Spring washer	2
1000,4018	4018	Screw	2



UZ100 Bold

5000 Main shaft mechanism Part

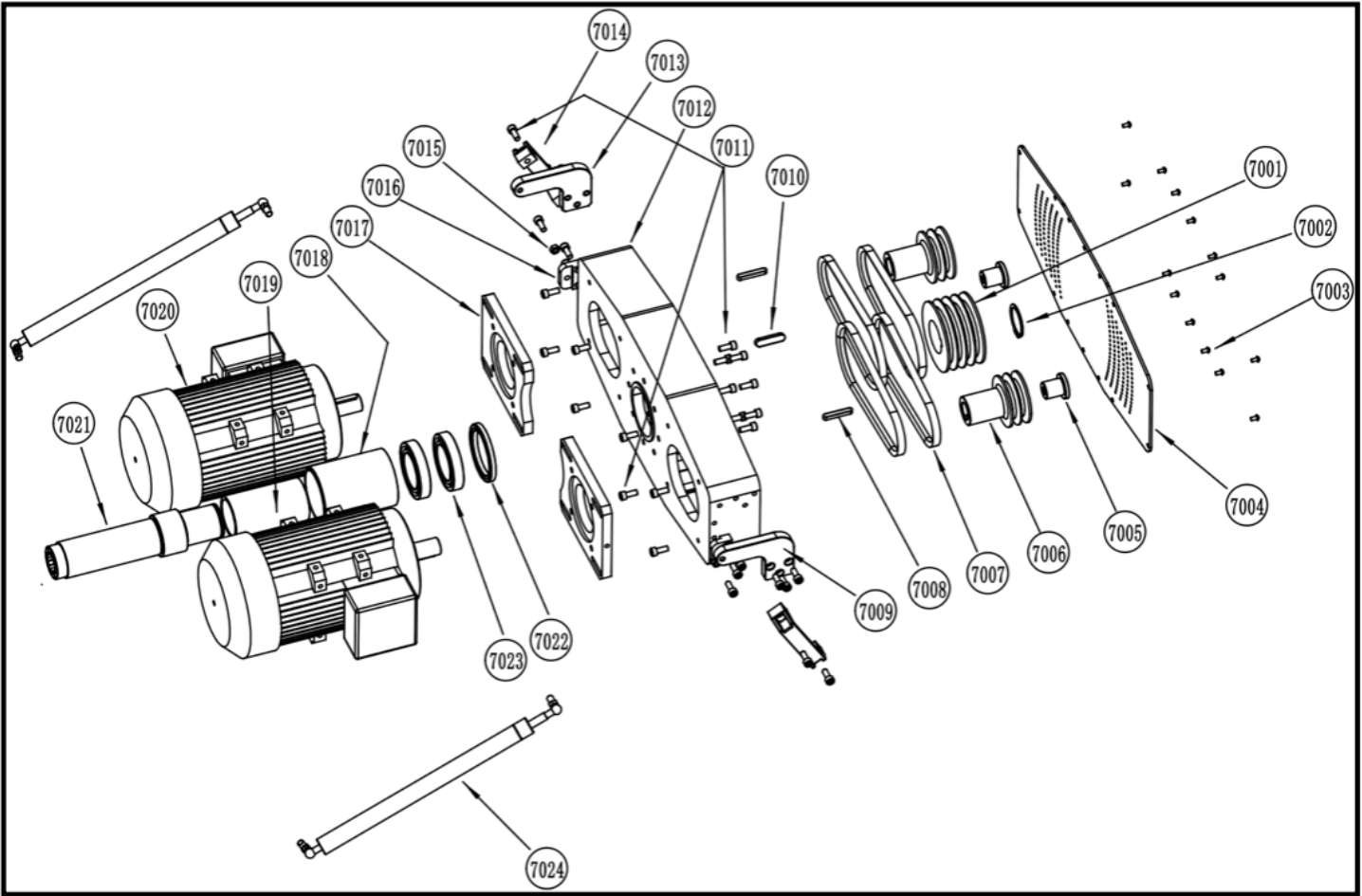
Number	Fig	Part Name	Pcs		Number	Fig	Part Name	Pcs
1000,5001	5001	Main shaft cover	1		1000,5019	5019	Spacer	2
1000,5002	5002	Hand shank	1		1000,5020	5020	Screw	2
1000,5003	5003	Lead screw	1		1000,5021	5021	Block	1
1000,5004	5004	Screw	4		1000,5022	5022	Screw	4
1000,5005	5005	Bearing housing	1		1000,5023	5023	Pressing plate	1
1000,5006	5006	Screw	4		1000,5024	5024	Main support plate	1
1000,5007	5007	Cover	1		1000,5025	5025	Nut block	1
1000,5008	5008	Scale	1		1000,5026	5026	Rubber curtain	1
1000,5009	5009	Screw	6		1000,5027	5027	Nut	2
1000,5010	5010	Lead screw	1		1000,5028	5028	Hook	1
1000,5011	5011	Lock nut	1		1000,5029	5029	Screw	2
1000,5012	5012	Screw	4		1000,5030	5030	Pressing plate	1
1000,5013	5013	Bearing housing	1		1000,5031	5031	Screw	4
1000,5014	5014	Spacer	2		1000,5032	5032	Screw	2
1000,5015	5015	Spring washer	2					
1000,5016	5016	Screw	2					
1000,5017	5017	Scale	1					
1000,5018	5018	Screw	4					



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6000 Gear Transmission Mechanism Part

Number	Fig	Part Name	Pcs		Number	Fig	Part Name	Pcs
1000,6001	6001	Ring	4		1000,6019	6019	Screw	4
1000,6002	6002	Gear	4		1000,6020	6020	Screw	2
1000,6003	6003	Bracket	1		1000,6021	6021	Gear drive shaft	1
1000,6004	6004	Screw	3		1000,6022	6022	Bracket	1
1000,6005	6005	Copper sleeve	2					
1000,6006	6006	Worm gear	1					
1000,6007	6007	Screw	2					
1000,6008	6008	Pointer	1					
1000,6009	6009	Copper sleeve	4					
1000,6010	6010	Gear drive shaft	1					
1000,6011	6011	Gear drive shaft	1					
1000,6012	6012	Turbine	1					
1000,6013	6013	Pressing Cover	1					
1000,6014	6014	Screw	4					
1000,6015	6015	Screw	1					
1000,6016	6016	Cover	1					
1000,6017	6017	Screw	4					
1000,6018	6018	Cover	1					



UZ100 Bold

7000 Motor Part

Number	Fig	Part Name	Pcs
1000,7001	7001	Pulley	1
1000,7002	7002	Ring	1
1000,7003	7003	Screw	14
1000,7004	7004	Plate	1
1000,7005	7005	Lock	2
1000,7006	7006	Pulley	2
1000,7007	7007	Belt	4
1000,7008	7008	Pin	2
1000,7009	7009	Support plate	1
1000,7010	7010	Pin	1
1000,7011	7011	Screw	32
1000,7012	7012	Belt cabinet	1
1000,7013	7013	Support plate	1
1000,7014	7014	Hand shank	2
1000,7015	7015	Screw	2
1000,7016	7016	Block	2
1000,7017	7017	Plate	2
1000,7018	7018	Spacer ring	1
1000,7019	7019	Spacer ring	1
1000,7020	7020	Motor	2
1000,7021	7021	Connecting shaft	1
1000,7022	7022	Threaded cap	1
1000,7023	7023	Bearing	2
1000,7024	7024	Support rod	2

A copy of this manual is supplied with every UZ100 Bold machine.

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