Machine for beveling pipe and tube edges

NKO MACHINES

Stinger 120E

Instructions for use and maintenance

CE

Contents:

1. General information

1.1. Home

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

This manual contains all instructions for the installation, adjustment, operation and maintenance of the Stinger 120E in accordance with current safety standards.

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

Never perform any operation 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.

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

 **Caution:**
Essential information for the personal safety of the operator.

 **Important:**
Instructions that must be followed to ensure proper machine operation.

1.2. Tests

The edge shrinking machine is tested in our technical testing room.
During this test, the correct functioning of the machine is tested.

1.3. Warranty

The seller warrants the Stinger 120E beveling system to be free from defects in materials and workmanship for a period of 1 year from the date of delivery.

The goods and the materials used are warranted to be free from defects for a period of 1 year from the date of delivery.

The Seller undertakes to ensure that any defects covered by the guarantee are rectified free of charge and without undue delay so that the Buyer can use the goods properly. If the Buyer exercises rights under liability for defects not covered by the warranty, the Buyer shall reimburse the Seller for the costs involved.

The warranty period does not run from the date on which the Buyer has notified the Seller of the existence of a defect covered by the warranty for which the Buyer cannot use the goods and has exercised its rights under 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 provided or the instructions for use. The warranty also applies

does not cover defects caused by overloading of the machine and defects caused by unprofessional intervention in the machine or unprofessional repair or modification of the machine. Unprofessional tampering, repair or modification means any tampering, repair or modification which has been carried out in contravention of the training and documentation provided, or has been carried out by a person other than the Seller or a person authorised or approved by the Seller.

Liability rights under the warranty provided must be asserted 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 be extinguished.

In order to exercise the rights of liability for defects under the warranty, the warranty certificate or proof of purchase must be presented. Otherwise, the buyer cannot be granted these rights.

The Seller shall not be liable for defects covered by the warranty if these defects are caused by external events. External events include, in particular, natural disasters, acts of God or the conduct of third parties.

N.KO considers the guarantee to be void if:
- improper use of the machine
- use contrary to national or international standards
- incorrect installation of the machine
- defective electrical power supply
- serious deficiencies and maintenance faults
- unauthorised modifications or interventions
- use of non-original or incorrect spare parts and accessories for the model concerned
- complete or partial non-compliance with the instructions in the manual
- exceptional events, natural disasters or other.

3. Identification data

The identification data of the bevel bevelling machine is shown on the aluminium CE label attached to the machine body.

4. Reference standards (CE declaration of conformity)

EC Declaration of Conformity

pursuant to Section 13(2) of Act No. 22/1997 Coll., as amended

We,
N.KO spol. s r.o.
Táborská 398/22, 29301 Mladá Boleslav, ICO: 26161109

Product - trade name:
We declare under our sole responsibility that
Stinger 120E bevelling system

Type:
Stinger 120E

is primarily intended for the beveling and deburring of the parts to which this declaration applies, is under conditions of normal
use is safe and complies with the following technical regulations:

Standards
CSN EN 60204-1 ed. 3:19, CSN EN ISO 12100:11, CSN EN 31010:11, SN EN ISO 14120:01/17 +01:08/17, CSN EN ISO 16090-1:19, CSN EN 50370-1:05, CSN EN 50370-2:03 all as amended

NV 176/2008 Sb. As amended	2006/42/EU including amendments
NV 117/2016 Sb.	2014/30/EU including amendments
NV 481/2012 Sb. As amended	2011/65/EU including amendments

And these government regulations, as amended (NV) and EU directive numbers:
Person in charge of completing the technical documentation:
The machinery complies with all relevant provisions of Directive 2006/42/EC, as amended.

The machinery complies with all relevant provisions of Directives 2014/30/EU, 2014/35/EU and 2011/65/EU, all as amended.

Conformity assessment was carried out in accordance with the procedure according to § 12, paragraph 3 letter a) of the Act 22/1997 Coll., as amended.

Issued in Ml. Boleslav on
02.07.2025

CEO - Milan Richtr

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www.nko.cz www.beveler.cz

2. SAFETY

1. Safety recommendations

Warning:
Familiarize yourself thoroughly with the following instructions to prevent personal injury or property damage.

- Never attempt to operate the machine until you have thoroughly familiarised yourself with the way it operates. If you are still in doubt after carefully and completely reading this manual, contact N.KO.
- Ensure that all technicians who are to use and maintain the machine are sufficiently familiar with all relevant safety recommendations.
- The machine must only be transported and installed by designated 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 fitted.
- Never use the machine for purposes other than those specified in this manual. Never process products or workpieces other than those specified.
- Contact N.KO for permission before using the machine for purposes other than those listed.
- The voltage values used to power the machine are dangerous: make sure all connections are made correctly. Never carry out maintenance on the machine or replace parts when the machine is connected to a power source and never make any taps on electrical connections.
- Replace parts considered defective with others recommended by the manufacturer. Never replace with non-original spare parts.
- Never wear clothing or any jewels that could get caught in moving parts. It is advisable to wear safety clothing: shoes with non-slip soles, ear defenders and safety glasses.

Important:
If during the lifetime of the machine any faults arise that cannot be repaired according to this manual, it is essential that you contact your supplier or the manufacturer, N.KO, to resolve the problem as soon as possible.

2. Safety stickers

Safety stickers are affixed to the bevel bevelling machine to protect the operator.

Do not remove any stickers from the machine

3. Operator qualification and protection

The employer is obliged to inform the operator of the safety standards and, in addition, to ensure that they are complied with and to make sure that the work area is large enough and well lit. The machine may only be operated and operated by a designated person, the machine operator.

The term 'operator' means the person who installs, operates, adjusts, maintains, cleans and repairs the machine. This person must be fully familiar with this manual and trained by the supplier. If this is not the case, ask your supplier to correct it. Otherwise, the manufacturer disclaims any liability for damages or injuries incurred.

⚠ Caution:
Before starting work, make sure that the operator has read and understood the contents of this manual.

⚠ Caution:
The operator must always:

- Ensure that all safety guards are fitted and that safety devices are operational before starting the machine.
- Avoid wearing the type of clothing or any jewels that could get caught in the moving parts.
- Wear approved safety clothing such as shoes with non-slip soles, ear muffs and safety glasses.
- Apply safety standards, see that they are followed at all times and refer back to this manual if in doubt.
- Contact the machine supplier when defects that cause the machine to malfunction cannot be rectified, when the defects relate to malfunctioning parts or irregular operation.

4. Remaining risks

The machine is built with operator safety in mind. However,

there is one remaining risk:

As mentioned above, the work zone is protected as much as possible, but must remain partially open to allow monitoring of the machining progress.

It is therefore possible that the operator could insert his fingers into this zone, in which both the cutting tool and the workpiece holder.

⚠ Caution:
Always keep your hands and other body parts as far away from the cutting zone as possible.

⚠ Caution:
Always apply the safety regulations contained in the manual and ensure that they are followed and that any remaining hazards are eliminated.

3. TECHNICAL SPECIFICATIONS

3.1. Machine description

The Stinger 120E pipe and tube edge trimming machine is developed for bevelling and aligning tubes and pipes made of structural and stainless steel.

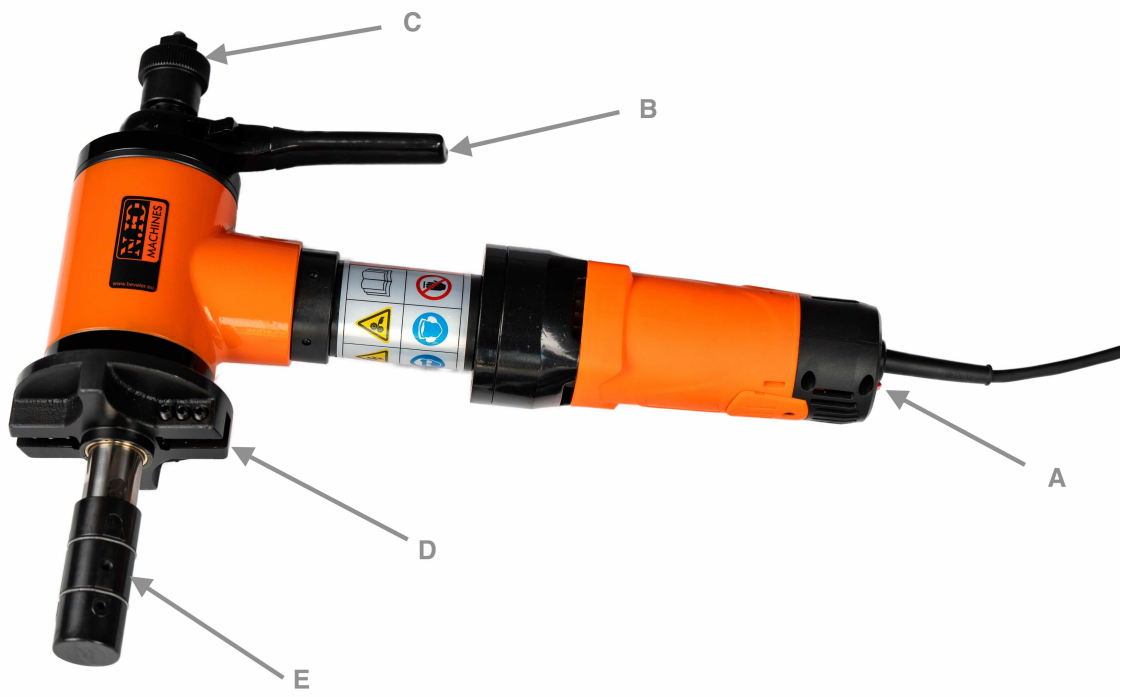
One of its main features is that it is portable and can perform multiple operations simultaneously. These are barrel alignment, pipe alignment, bevelling of edges and internal recessing (calibration), alignment of internal diameters of pipes and tubes.

The machine is equipped with a powerful motor, robust clamping mandrel and cutting tool holders. The Stinger 120E is developed for use directly on machined tubes.

The Stinger 120E consists of a motor, gearbox, clamping mandrels and accessories.

The Stinger 120E bevel bevel edger is reliable and requires only minimal maintenance.

Fig. 3.1.1.



A.	Main switch
B.	Cutting control lever
C.	Machine clamping screw
D.	Cutting tool holder plate
E.	Centering and clamping mandrel

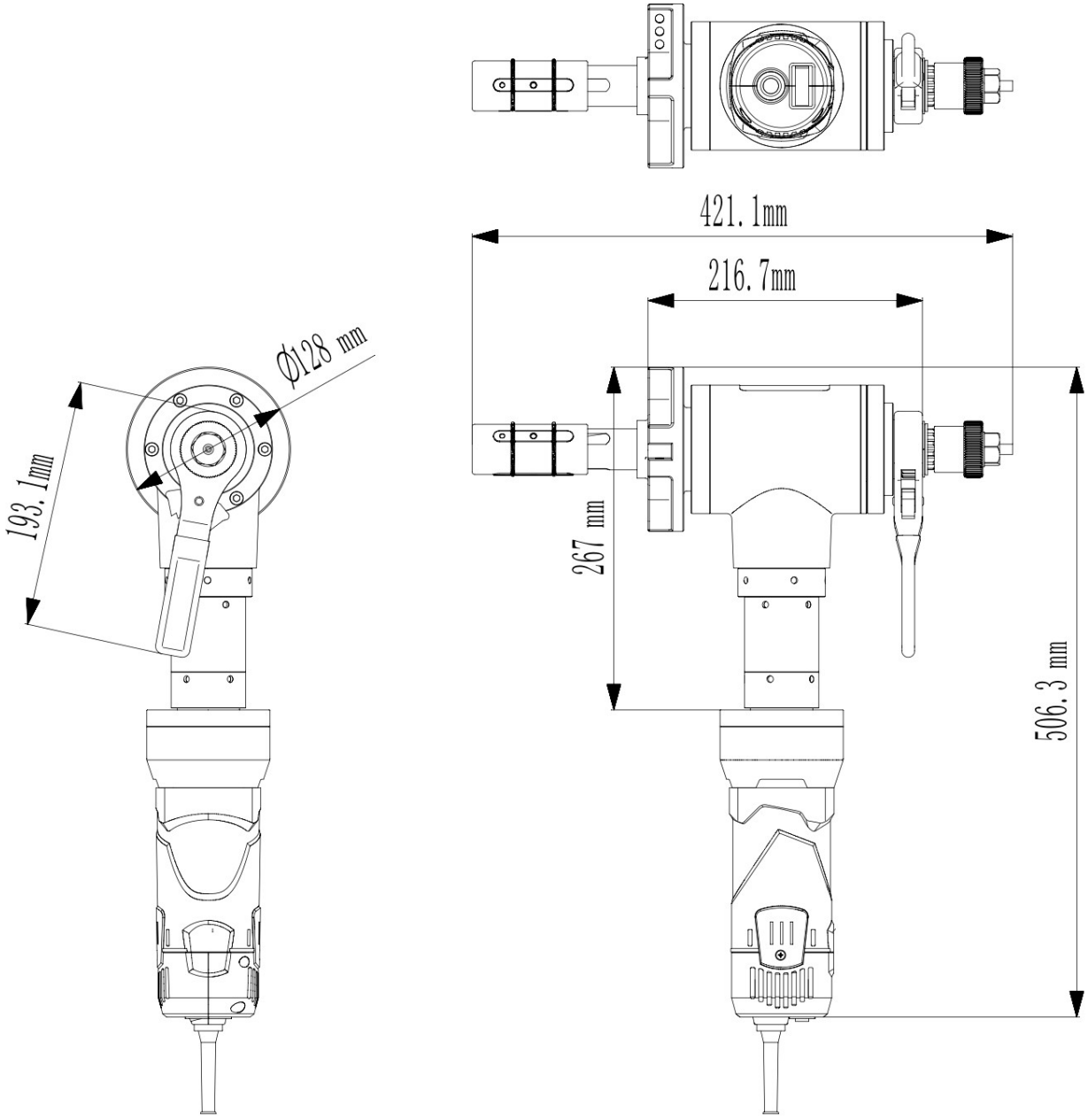
3.2 Technical data

Drive unit / motor:	
Voltage:	230 or 120V (single phase)*
Frequency:	50/60 Hz*
Motor input power :	1500W
Machining ranges:	
Max. machinable thickness Pipe wall thickness:	15 mm (0.59"), (steel Rm< 400Mpa)
Minimum and maximum diameter Pipe:	ID - OD: 40-120mm/1.57" - 4.72"
Bevel Angle Range:	Depends on the tool used (standard 0°/15°/30°/37.5°)
Feed to cut/lift:	Manual
Weight:	18Kg/ 39Lb

(*) Specific voltage and frequency values are listed on the machine's motor identification plate.

3.3 Noise level

The machine has been designed and manufactured to keep the noise it makes to a minimum.
Measurements taken from the operator's position, with the machine running in automatic cycle mode, produced the following values:
- **74.9 dB** during cutting
- **64.5 dB** during no-load operation


421.1mm
216.7mm
Φ128 mm
193.1mm
267 mm
506.3 mm

3.4 Working environment conditions

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

Temperature:	0º C - 50º C (32º F - 122º F)
Humidity.	10% - 90% (uncondensed)

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

Working environment conditions other than those mentioned above could cause serious damage to the machine or injury (especially electric shock).

When not in operation, the machine may be stored in a location where the temperature fluctuates between: -10º C and 70º C (14º F - 158º F).
all other values remain unchanged.

4. INSTALLATION

1. Transport and lifting

Important:
Only qualified personnel must perform the activities described in this section.

When the machine is delivered to its destination, make sure (while still in the presence of the transport company) that it conforms to the specifications in the order and that it has not suffered any damage during transport. Immediately inform the supplier and the transport company in detail if damage is found or if parts are missing.

Warning:
Follow the following instructions to ensure that the machine is safe to handle:

- The Stinger 120E can be handled manually.
- Wear protective clothing such as work gloves, non-slip soled shoes and a helmet when handling and using the machine.
- When disposing of additional transport packaging, dispose of it in accordance with the applicable waste disposal laws of the country concerned.

2. Set-up and connection

Important:
The operations described in this paragraph must only be carried out by qualified personnel.

When making electrical connections, proceed as follows:

- Check the frequency and voltage readings on the motor identification plate and compare them with your mains electricity supply at the point of use.

3. Setting up the Stinger 120E and checks before use

Important:
Never start the Stinger 120E without performing the procedures described in this section.

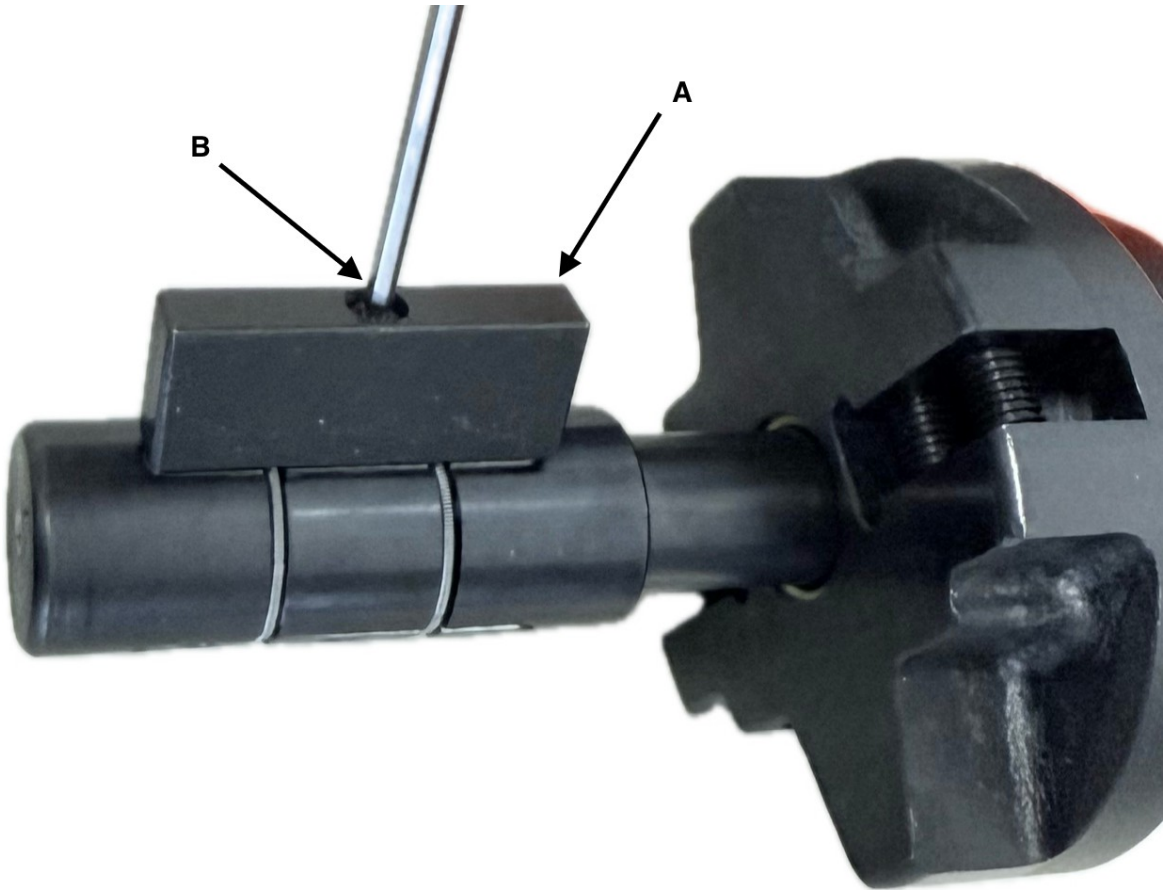
As mentioned above, the Stinger consists of multiple components and must be assembled and prepared for specific applications in advance.

Compensating jaws - correct selection and installation

- Prepare the correct compensation jaws supplied with the machine. If the jaw range is not indicated directly on the jaw itself, use the table below.
- You will always need three of the same jaws per fitting (pos. A fig. 4.3.1.).
- Tighten the compensation jaws on the clamping mandrel properly using the built-in screws (pos. B Fig. 4.3.1.).

Clamping jaw table	
Inner diameter of the pipe	Compensation jaw assembly
40-49 mm (1.57" - 1.92")	Base mandrel without compensating jaw
49 - 58 mm (1.92" - 2.28")	No. 01
58 - 67 mm (2.28" - 2.63")	No. 02
67 - 76 mm (2.63" - 2.99")	No 03
76 - 85 mm (2.99" - 3.34")	No 04
85 - 94 mm (3.34" - 3.70")	No 05
94 - 103 mm (3.70" - 4.05")	No. 06
103 - 112 mm (4.05" - 4.40")	No 07
112 - 121 mm (4.40" - 4.76")	No 08

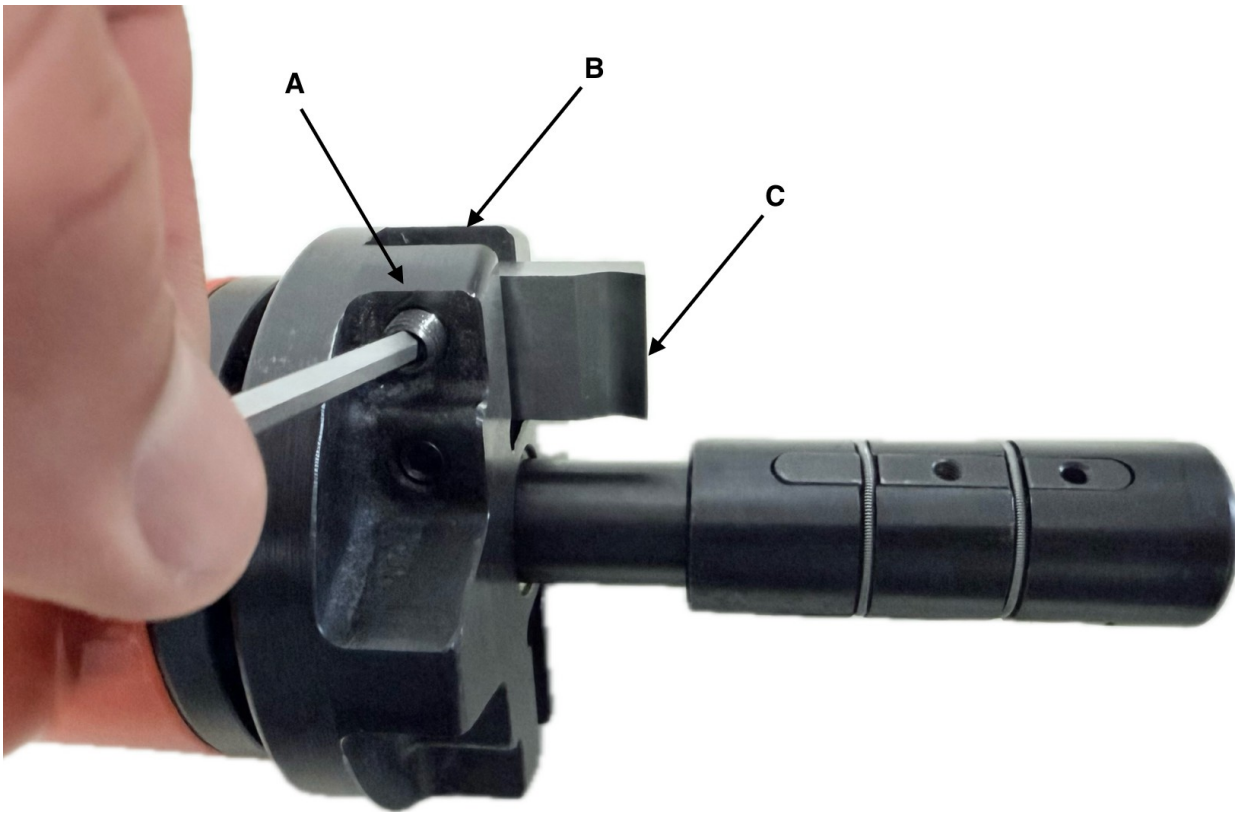
Fig. 4.3.1.



Cutting tool holders

The cutting tool holders are fully integrated on the machine from the factory
(Position B - clamping groove and Position A - tool clamping screw, Fig. 4.3.2.).
Depending on the exact type of machine, there are 2 - 4 holders per machine.
In this way they can perform two or more machining operations at the same time. For example, bevelling and alignment of the pipe/tube face.

Fig. 4.3.2.



Final check before first use of the machine

- Make sure that no screws or other parts are loose.
- Make sure that the electrical supply cable is intact throughout its length and fitted with the correct connector.

4. Destruction and disposal

When disposing of the Stinger 120E, keep in mind that the materials of which it is made are not hazardous and include the following barrels:

- Painted or plated ferritic steel
- 300/400 series stainless steel
- Plastic material of various nature
- Lubricants
- Electric motor
- Electrical cables and wires
- Electrical monitoring and excitation devices.

Follow this procedure:
- Follow the applicable laws in your country relating to occupational safety and waste disposal
- Disconnect the machine from the power supply
- Dismantle the machine and sort the components into groups according to their chemical nature and composition
- Scrap the machine parts in accordance with the applicable waste disposal laws of your country
- Strictly observe the applicable occupational safety regulations during the disassembly phases.

5. USE

1. Correct use

The bevel bevelling machine, model Stinger 120E was designed, manufactured and sold for the purpose of preparing welding surfaces (bevelling) of metal parts and rolled metals of the following types:
iron, steel, stainless steel, brass, copper and aluminium.
The maximum pipe dimensions and wall thicknesses of machined pipes are detailed in chapter 3, paragraph 3.2 Technical data.

Other applications differing from those described above are considered unsuitable. More specifically, it is prohibited:

- To process products different from those for which the machine is manufactured and sold.
- Modify the design and operation of the machine.
- Replace parts with non-original parts.
- Modify electrical connections and thereby circumvent integrated safety devices.
- Remove or modify protective covers.
- Do not use the machine in places where the environment is aggressive and where there is a risk of sticking parts.

⚠ Caution:
It is strictly forbidden to carry out bevel beveling on materials different from those specified, as their processing could become a hazard to the operator and damage the machine.

N.KO must be contacted for approval before any modifications are made. Otherwise, N.KO disclaims any liability for damage to the machine or injury to the operator.

2. Preliminary settings

⚠ Attention:

Wear work gloves when making adjustments. Operations must be carried out on the machine at rest and after disconnection from the power source.

Installation of the Stinger 120E on the pipe to be machined.

⚠ ATTENTION Work with maximum concentration. The machine is quite heavy and there is a risk of injury. If desired, use a crane.

- Before installing the Stinger 120E into the pipe to be machined, the clamping mandrel extension must be adjusted so that once it is installed and fixed inside the pipe to be machined, sufficient space is left for the cutting tools themselves and also for their working stroke. So that the intended size of machining can be carried out. The arbor extension is adjusted by turning the ratchet of the machine's cutting control (pos. B fig. 3.1.1.).
- The opening of the mandrel jaws must be set so that the mandrel with the jaws can be freely into the pipe to be machined. Ideally set the jaw spread diameter 5mm less than the inside diameter of the pipe to be machined. Adjustment is made by turning the machine clamping screw (pos. C fig. 3.1.1.).
- Now insert the entire prepared machine into the pipe to be machined with the mandrel forward and use the clamping machine screw (pos. A Fig. 3.1.1.), centre the machine in the axis of the machined pipe and secure it by tightening the machine clamping screw (pos. A Fig. 3.1.1.).

Installation and adjustment of cutting tools

The clamped and centred Stinger machine must be fitted with cutting tools according to the operation to be performed. This means chamfering, face alignment or internal countersinking and calibration.

Important: It is always better to perform operations on opposite tool holders at the same time. In pairs. The forces required to perform the operation are better distributed and the machine is not overloaded. This means, for example, fitting one toolholder with a beveling tool and the other with a pipe face alignment tool. Or, for example, if you only want to align the pipe face, fit both holders with the same tool!!

Proceed as follows:

- Clamp the respective cutting tool in the tool holder so that its cutting edge is in the same position as the machined edge of the pipe face.
- Tighten the carefully seated cutting tool in the jaw of the tool holder with the screw (pos. A Fig. 4.3.2.)
- Follow the same procedure for the second tool.
- See chapter 5.4 Machining for more information on the correct machining procedure.

5.4 Machining

Important:

The operations described in this chapter must only be carried out after setting up and preparing the Stinger 120E according to the previous chapters.

As already mentioned, the Stinger can perform up to three operations at the same time. These are edge alignment, beveling and internal countersinking - calibration of the inner diameter of the tube.

Alignment of the pipe face
Use the 0º cutting tool.

- Install the 0º cutting tool into any tool holder (pos. D fig. 3.1.1.) for the alignment of the face.
- Switch on the machine and rotate the ratchet of the machine cutting control (pos. B Fig. 3.1.1.) to move the cutting tool to the edge to be machined.
- If the edge of the pipe is not square, the cutting tool will only touch the edge of the machined pipe in some places. By successive machining, you will then achieve a situation where the cutting tool works around the entire circumference of the pipe edge. At this point the machining is complete and the edge of the pipe is aligned.
- If the pipe needs to be trimmed further, continue machining until the pipe is at the desired machining level.
- It is recommended to use two alignment knives in opposite holders for the tube face alignment operation. This makes the load on the machine and drive more even and eliminates the risk of one-sided overloading of the machine.

Creating a bevel
Use a cutting tool according to the desired bevel angle of 30º or 37.5º (or a custom tool).

- Install the cutting tool of the desired bevel angle into any tool holder (pos. D Fig. 3.1.1.).
- Switch on the machine and move the cutting tool to the edge to be machined by turning the ratchet of the cutting control (pos. B Fig. 3.1.1.).
- If the edge of the pipe is not square, the cutting tool will only touch the edge of the pipe to be machined in some places. By successive machining, you will then achieve a situation where the cutting tool works around the entire circumference of the pipe edge. Continue in this way until the complete edge of the pipe is machined.

A bevel made in this way is machined without the so-called blunting (root). This means that the chamfer is made all the way to the very edge of the pipe. If you want to leave a part of the pipe edge without the bevel, i.e. with a blunt, proceed as follows:

- Disassemble the bevelling blade completely, or just slide it slightly outside the pipe, within the tool holder itself.
- Install the alignment knife 0º in the second tool holder (pos. D Fig. 3.1.1.) and work the desired bluntness.
- This completes the chamfer. If at this point you install the bevelling knife again, close to the machined edge, the Stinger 120E will be adjusted for repetitive operation. Each subsequent bevel will be machined in this way with the same parameters without having to repeat the first setting above! Attention is only valid for repeated machining of tubes of the same dimensions!
- Now loosen the mandrel clamping slightly, with the screw (pos. C fig. 3.1.1.) and remove the machine from the pipe to be machined. This completes the operation.
- Also for the bevelling operation it is recommended to use two bevelling knives in opposite holders. The load on the machine and drive is thus more even, eliminating the risk of one-sided overloading of the machine.

Internal countersinking / calibration Use a knife for internal countersinking of 15º.

- Install the cutting tool into any tool holder (pos. D Fig. 3.1.1.) so that the cutting edge is inside the pipe and the tip of the tool is almost touching the inside edge of the pipe.
- Switch on the machine and turn the ratchet of the machine cutting control (pos. B Fig. 3.1.1.) to bring the cutting tool to the cutting edge.
- If the inside of the tube is not ideally symmetrical, the cutting tool will only touch the edge of the tube in some places. By successive machining, you will then achieve a situation where the cutting tool works around the entire circumference of the pipe edge. Continue in this way until the complete edge of the tube is machined.

Cooling of cutting tools
We strongly recommend cooling/lubricating cutting tools during machining. This prevents overloading of the machine, increases the quality of the machined surface and considerably prolongs the life of the cutting tools. For cooling or lubrication, we recommend the use of conventional chip-machining coolants, or cutting oils in spray or applied by other means.

Important:
Avoid overloading the machine. The reason for overloading may be:

- **Unsharp or damaged cutting tools.**
- **excessive strength of the material being machined**
- **too much pressure on the cutting tool.**
- **too great a wall thickness of the tube**

6. ACCESSORIES

Cutting tools

Beveling	Face alignment	Internal recessing
30º, 37.5º	0º	15º
30º, 37.5º	0º	-

Cutting tools are available for the Stinger in HSS or with replaceable inserts.

	Notes
HSS	HSS blades can be easily modified for other bevel shapes and angles by yourself. For example, the J bevel
VBD (HM)	

Contact your supplier for further information, or consult the catalogue or manufacturer's website.

7. MAINTENANCE

7.1. 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 safety devices, modify them or tamper with safety devices on the machine. The manufacturer disclaims all liability for the safety of the machine in the event of such action.

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

Attention:
Always wear work gloves when carrying out maintenance on the machine. Only carry out maintenance operations on a machine that is switched off and disconnected from the power supply.

Clean the clamping mandrel, cutting tool holder mechanism and compensating jaws with compressed air after and before each work shift and then as necessary during the shift.

Caution:
Wear safety glasses when using compressed air for cleaning purposes and never use pressures exceeding 2 bar.

Use the operator's tool supplied with the machine for adjustment operations and maintenance.

7.2. Lubrication

To ensure proper operation, the cutting tool holder mechanism and the arbor clamping mechanism must be lubricated regularly. Use a suitable lubricant and preservative spray for lubrication.
Lubrication and preservation must be carried out at least once a week.

8. TECHNICAL DIAGRAMS

8.1. Electrical wiring diagram

Caution:When operating the machine in areas with special and hazardous influences of AD or more, increased protection of the machine against electric shock must be carried out!

In case of faults, the electrical power must be switched off immediately.
Work on the electrical equipment of the machine may only be carried out by an electrical expert or by persons under the supervision of such an expert to ensure that the work is carried out in accordance with the applicable regulations.

⚠ Caution:
None of the parts on which maintenance and repairs are carried out must be live. These disconnected parts must be checked with a two-pole, measuring device that they are not live, then ground these parts and isolate the parts that are live!
Ensure de-energisation by de-energising the machine.

9. REPLACEMENT PARTS

1. How to order spare parts

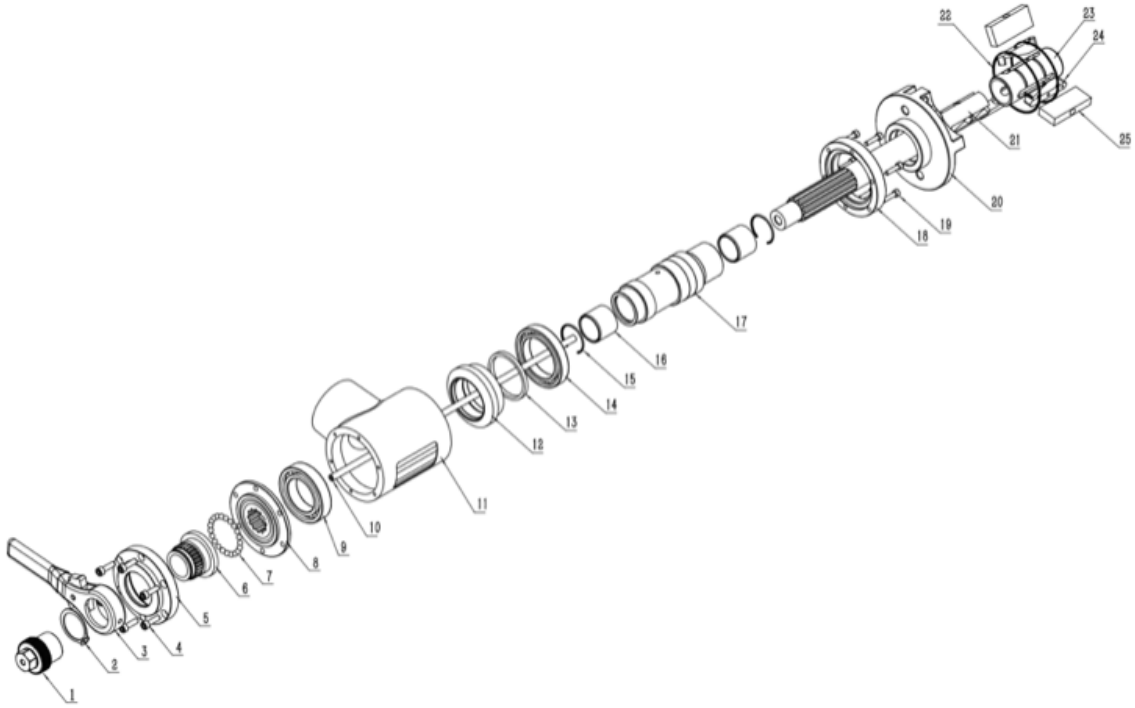
Spare parts orders must include the following information:

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

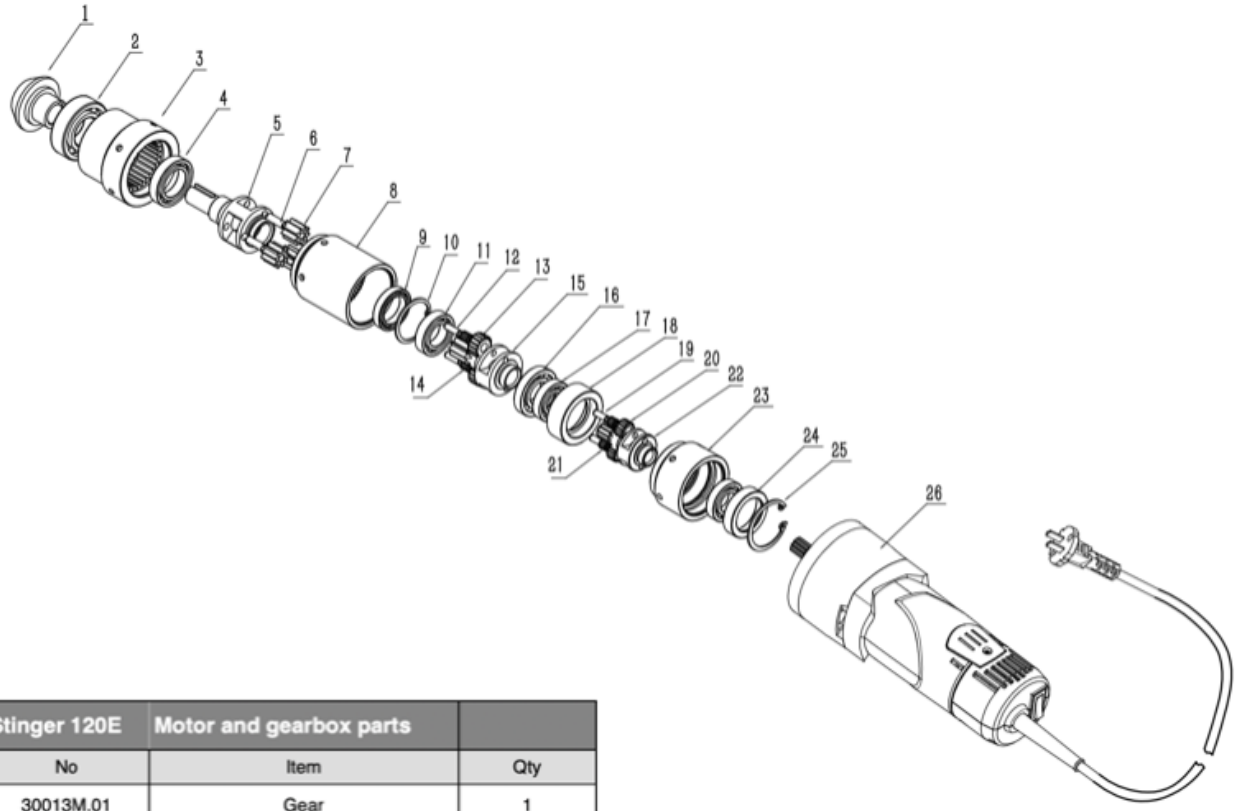
9.2 Parts most subject to wear:

- Cutting tool (can be ground)
- Compensating jaws

9.3 Spare parts list



Stinger 120E		Main Body Part			
No	Item	Qty	No	Item	Qty
30013B.01	Expanding nt	1	30013B.25.01	Expanding block 49-58	3
30013B.02	Spacer ring	1	30013B.25.02	Expanding block 58-67	3
30013B.03	Ratchet wrench	1	30013B.25.03	Expanding block 67-76	3
30013B.04	Screw	6	30013B.25.04	Expanding block 76-85	3
30013B.05	Upper cover	1	30013B.25.05	Expanding block 85-94	3
30013B.06	Threaded sleeve	1	30013B.25.06	Expanding block 94-103	3
30013B.07	Bearing	1	30013B.25.07	Expanding block 103-112	3
30013B.08	Spline sleeve	1	30013B.25.08	Expanding block 112-121	3
30013B.09	Bearing	1			
30013B.10	Shaft	1			
30013B.11	Casing	1			
30013B.12	Gear	1			
30013B.13	Washer	1			
30013B.14	Bearing	1			
30013B.15	Spacer ring	2			
30013B.16	Copper sleeve	2			
30013B.17	Spindle sleeve	1			
30013B.18	Lower Cover	1			
30013B.19	Screw	6			
30013B.20	Tool slide	1			
30013B.21	Spline shaft	1			
30013B.22	Spring	2			
30013B.23	Expansion sleeve	1			
30013B.24	Wedge	3			



Stinger 120E	Motor and gearbox parts	
No	Item	Qty
30013M.01	Gear	1
30013M.02	Bearing	1
30013M.03	Gear ring	1
30013M.04	Bearing	1
30013M.05	Third level bearing carrier	1
30013M.06	Pin	3
30013M.07	Third level gear	3
30013M.08	Gear ring	1
30013M.09	Bearing	1
30013M.10	Spacer ring	1
30013M.11	Bearing	1
30013M.12	Pin	2
30013M.13	Second level gear	2
30013M.14	Rolling needle	13
30013M.15	Second level bearing carrier	1
30013M.16	Bearing	1
30013M.17	Bearing	2
30013M.18	Bushing	1
30013M.19	Pin	2
30013M.20	Firstlevel gear	2
30013M.21	Rolling needle	13
30013M.22	First level bearing carrier	1
30013M.23	Gear ring	1
30013M.24	Bushing	1
30013M.25	Spacer ring	1
30013M.26	Motor	1

A copy of this manual is supplied with each Stinger 300.

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