

MANUAL BEVELLING AND DEBURRING SYSTEM B15 ELECTRA



Operation manual for the device

SUBJECT TO CHANGE

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Read the operation manual carefully prior to use

1. General information

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 B15 ELECTRA in compliance with valid 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 Machines.

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.

2. Machine description B15 ELECTRA

Machine B15 ELECTRA is designed solely for the activities below:

B15 ELECTRA is designed solely for bevelling and fetch fettling of metal materials in the workshop or in the production hall.

This includes manual and manually managed machine. The main feature of the machine is the ability to machine flat and shaped workpieces, openings, and tubes. The machining angle can be changed by replacing the milling head. B15 ELECTRA can perform also the workpiece edge rounding. This application also requires a special tool, see the text below.

Use the machine in the environment protected from rain, snow, and other adverse weather conditions.

3. Identification data and CE Declaration of Conformity

The identification data of machine B15 ELECTRA are listed on the label placed on the drive unit.

EC Declaration of Conformity

1. Name and surname of the declaration issuer: N.KO spol s.r.o.
Address of the declaration issuer: Tábořská 398/22
CRN: 2616109

2. Subject matter of the declaration:
Name: HAND HELD BEVELLING MACHINE
Type: B15 ELECTRA
Manufacturer: N.KO, spol. s r.o.

3. Intended use: Edge bevelling of sheets as preparation for welding
4. The above-stated subject matter of the declaration complies with requirements of the following documents:

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

Directive 2014/30/EU: Electromagnetic Compatibility

Directive 2011/65/EU: Absence of hazardous substances

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

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

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

EN 60204-1: Safety of machinery – Electrical equipment of machines

EN 60745-2-17: Hand held electromechanic machinery – safety – Part1.: General requirements

EN 50581:2012 Technical documentation for assessment of electrical and electronic products in terms of reduction of hazardous substances

EN 61000-3-2 Electromagnetic-compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions-(device with input phase current ≤ 16 A)

EN 61000-3-3 Electromagnetic-compatibility (EMC) part of the furnace 6-3: Generic standards - Emission standard for residential, commercial and light industry

5. Data on accredited / notified person:
Date and place of issue: 1. February 2017, Mladá Boleslav
Name and position of the authorized person: Milan Ríchnr – managing director

Signature of the authorized person:



4. Tests

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

During that test, the correct function of bevelling sheets and profiles by different types and sizes, are tested.

5. Warranties

The B15 ELECTRA is provided by the seller with a guarantee that the article shall not feature any material and production defects for a period of 12 months following the delivery date.

The machine is provided with a 12-months' 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 manufacturer considers the guarantee invalid if:

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

6. Safety regulations



Attention :

In order to prevent the injury observe the below instructions

Inspect the machine for mechanical and other damage prior to bevelling.

Commission the machine solely if the electricity supply cable is not damaged.

Check the supply cord regularly. In case of damage have it replaced in an authorised service shop authorised to perform the such repairs. Contact your supplier.

Personal protection from injury

During the work use safety goggles, solid work footwear, hearing protection, suitable head cover, e.g. safety helmet.

- Connect the machine in electrical network solely if the machine is in off position.
- Prior to each use, check the device and electricity supply cord for damage. Do not use the machine in case of any damage.
- Do not use the machine in humid environment and protect from high moisture.
- Ensure good lighting at the workplace to prevent the risk of potential injury or eyesight damage.
- Caution, the tool (milling machine) is sharp with the risk of injury. During the replacement use safety gloves, **never touch the miller which moves.**
- The machined material must always be fastened and horizontal. Optimum workpiece height is 900 mm above ground.
- During work pay attention to the electricity supply cable; it should be loosely placed on the ground outside the worked material and other sharp objects.
- After work, disconnect equipment from the electricity supply.
- Do not overload the machine motor. The machine operates better if not overloaded.
- During work, hold the device by both hands.
- Attention is drawn to the injury hazard with hot metal shavings.



Important:

In case of damage have the machine repaired in an authorised service shop authorised to perform the repairs. For more information on, contact your supplier.

7. Technical specifications

Bevel angle	Replacement head 30°, 37,5°, 45°, 50°, 60° other angles upon request
Bevel width	0 to 15 mm < 400N/mm ² - 0 to 8 mm > 400N/mm ²
Rounding	R 2,5 mm / R 3.5 mm / R 4 mm
Motor	electric
Motor power	2500W/50Hz, 2000W/60Hz
Revolutions	6600 rpm
Weight	7.5 kg
Number of indexable inserts	6 pcs (milling head for rounding edges 3pcs)

7.1. Beveling holes and openings – minimum dimensions

Bevel angle α°	Minimal diameter of the hole in mm	
	Type PREMIUM	Type ECO
30°	30 mm (*33 mm)	Ø 34 mm
37,5°	26 mm (*31 mm)	Ø 28 mm
45°	26 mm (*31 mm)	Ø 28 mm
50°	26 mm (*31 mm)	Ø 28 mm
60°	19 mm (*25,5 mm)	Ø 27 mm
R 2,5mm	-	Ø 41 mm
R 3,5/4mm	-	Ø 40 mm

8. Machine equipment

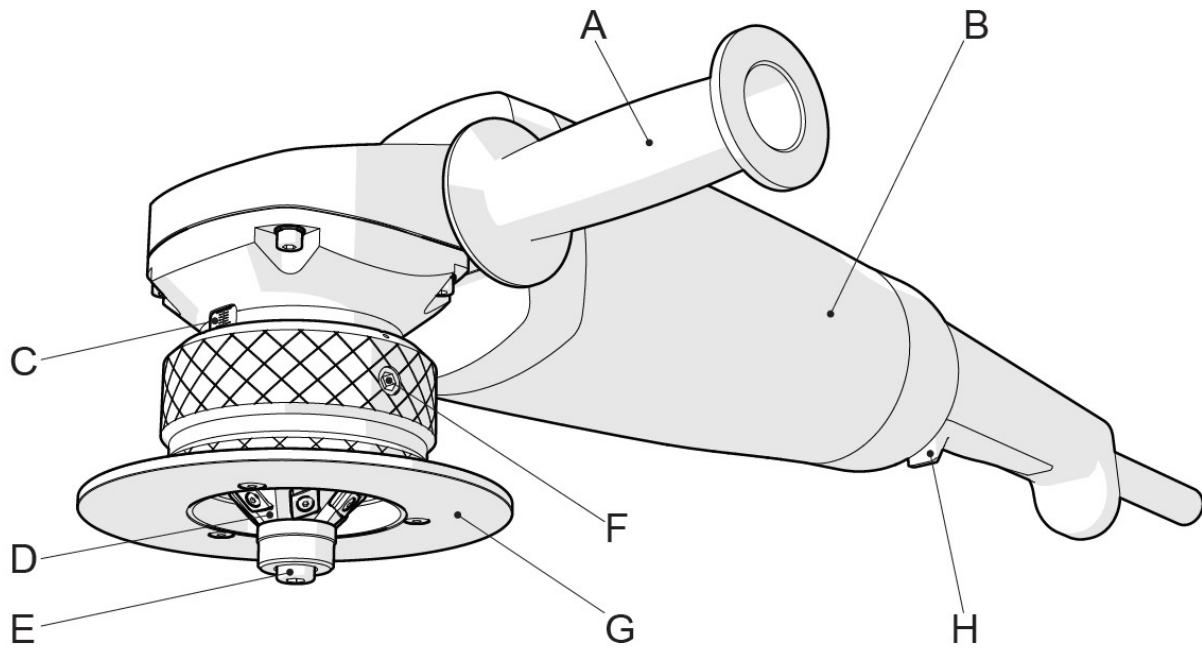
Unpack the machine from the cardboard box and check if the machine is ok and free from damage. If necessary contact the seller.

Machine B15 ELECTRA is supplied with required tools for the operation without the tool.

Purchase the tools. The review of tools is defined in chapter 8. Accessories or in the catalogue of N.KO Machines and contact your supplier.

9. Control elements B15 ELECTRA

Fig.10.0.1



- A. Handle
- B. Motor body
- C. Scale for reading the bevel size setting
- D. The miller unit with indexable inserts
- E. Guiding, stop miller roller and roller screw
- F. The arresting screws of the thrust plate sleeve – The set removal provision
- G. The thrust plate with sleeve
- H. Main switch

10. Use

Important:

The device can be used solely if it is fitted with the original indexable inserts supplied by our supplier, i.e. the device manufacturer. It includes four-sided indexable inserts. The device can be fitted with 6 pieces of indexable inserts. It is prohibited to use other than original inserts.

11.1 Setting the removal size

Attention :

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

- Disconnect the machine from electricity supply.
- Release the setting arresting screws (fig.10.0.1 position F)
- Turn the guiding plate (fig.10.0.1 position G) for setting the reduction size. You can read the setting on the scale (fig.10.0.1 position C). Stupnice je pouze orientační a výsledný úběr může být jiný při použití různých úhlů frézovacích hlav.
- After setting, fasten both screws (fig.10.0.1 position F).

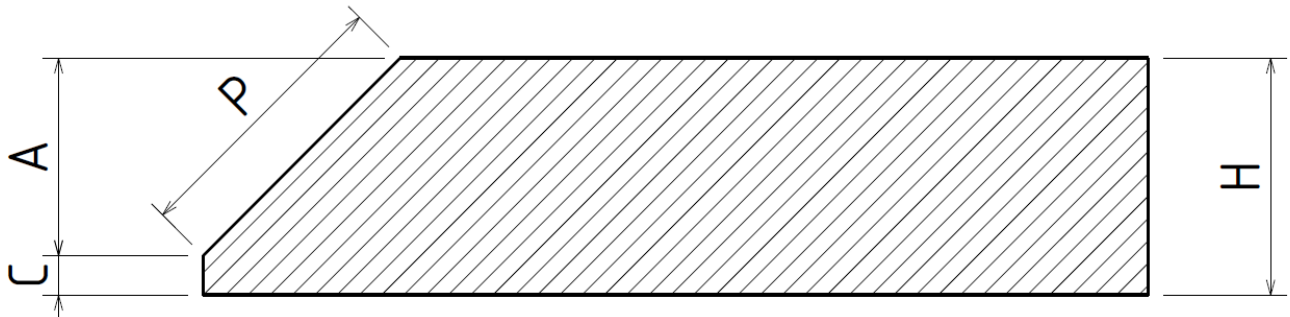
Important:

Maximum reduction is 15mm of bevel width (dimension P fig.11.1.1). The reduction can be achieved in more steps. It depends on the material solidity. We recommend performing the test.

Start with lower reduction and gradually increase the value until the work with the machine is comfortable and the plates can achieve gradually reduction without increased vibrations. For orientation setting, use the tables below.

We recommend administering the work log for recording the measured value and the machining procedure.

Fig. 11.1.1



For orientation setting of the reduction size and the independent machining process, use the setting tables for individual bevel angles.

Important:

The values in the table are calculated from point 0. Point is the point when the miller touches the material edge for the first time. This point can be set by gradual turning of the thrust plate (fig.10.0.1 position G) and placing to the material edge.

45° - For full bevel (P=15mm) is required, turn the thrust plate by 5,2 revolutions

Chip no.	Hypotenuse P	Bevel height A	Number of rpm of the thrust
I.	5mm	3.5mm	2 Revolutions
II.	11mm	7.8mm	+ 2 Revolutions
III.	15mm	10.6mm	+ 1.2

See fig.11.1.1.

30° - For full bevel (P=15mm) is required, turn the thrust plate by 6.2 revolutions

Chip no.	Hypotenuse P	Bevel height A	Number of rpm of the thrust
I.	5mm	4.3mm	2 Revolutions
II.	10mm	8.6mm	+ 2 Revolutions
III.	15mm	13mm	+ 2.2

See fig.11.1.1.

 **Important:**

The machine was constructed for the preparation of welded surfaces. Machining accuracy is within limit

+/-1mm. The condition for reaching the satisfactory results is a perfect preparation of the material edges. Unfortunately the material is often burned or cut. The inaccuracy shall be reflected on the resulting machining.

 **Important:**

If it is difficult to machine the bevel within the recommended number of steps, we recommend dividing the process to more chips. The reason can be the wear of the cutting inserts or worse machining properties of material.

11.2 Beveling

- Connect the device in electricity distribution
- After careful setting of the first reduction, see clause 11.1, hold the device with both hands and use the main switch to switch on the device.
- Fit the machine on material in such way the thrust/contact plate (fig. 10.0.1 position G) was in contact with material at maximum possible surface.
- Slowly move the machine to the material until you feel the milling machine is in reduction. CAUTION!!! The rebound is possible at this moment, be careful.
- Press the machine in the direction into the material until the miller is embedded in the material in the full profile of the set chip. Contact roller (fig. 10.0.1 position E) must now touch the workpiece edge. The thrust plate (fig. 10.0.1 position G) must be placed with the surface on material.
- Now, you can start the machining from the left to the right. Shift the machine constantly; using only such speed the milling machine was able to remove material in the set chip profile. Otherwise, the milling machine will be pushed out from the material and the bevel will be unequal.

 **Attention:**

During work, wear gloves and other personal protective equipment.

The maintenance operations must be carried out on the machine at rest and after disconnecting from the power supply.

 **Important:**

The shift during machining is always from left to the right.

⚠ Attention :

The device operators must hold the device with both hands.

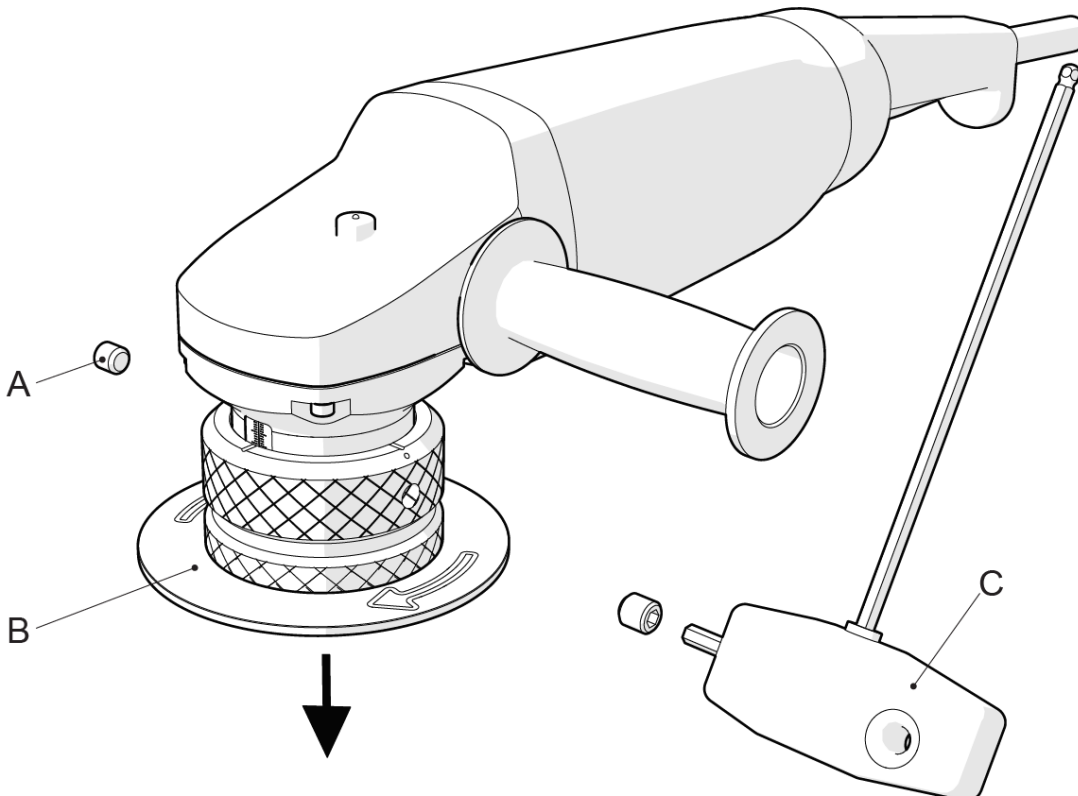
11.3 Bevel angle and shape change. Milling head replacement – Type ECO

Machine B15 ELECTRA is constructed for the use of more milling heads.

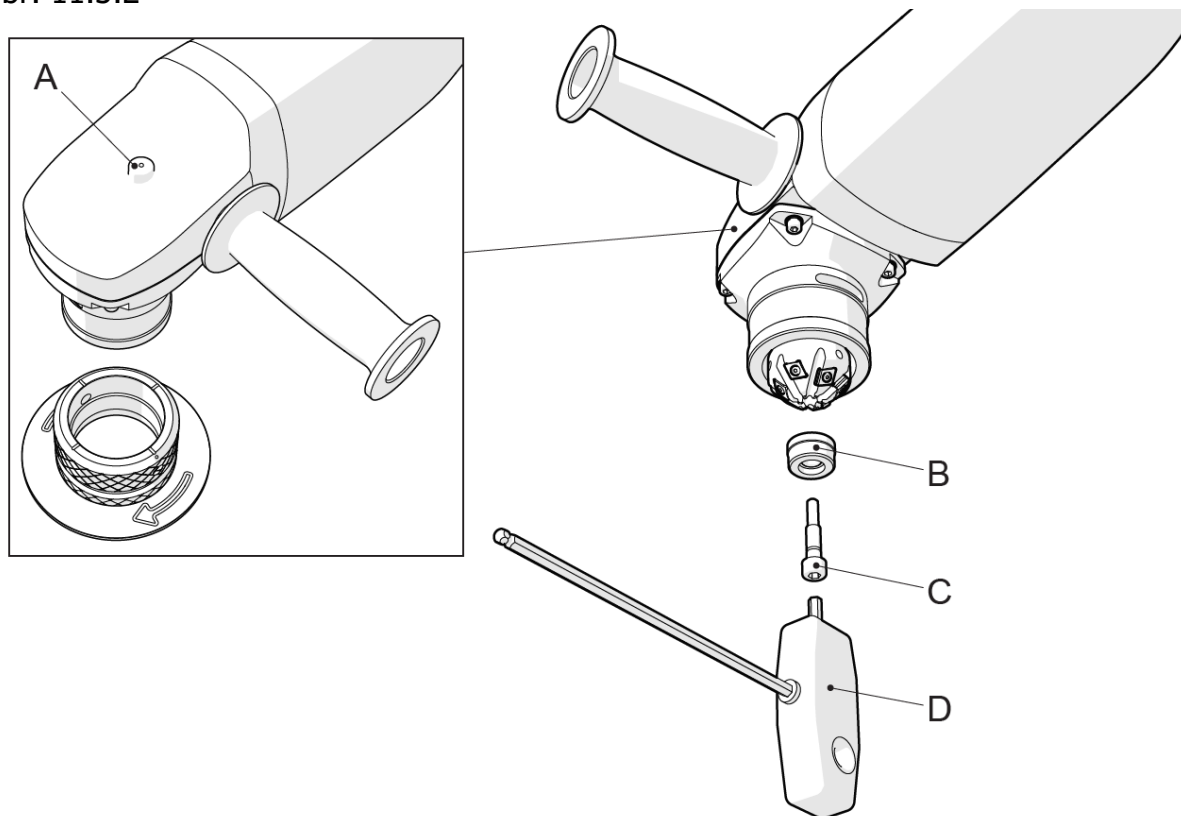
For the head replacement, proceed as follows.

- Disconnect the machine from electricity supply.
- Release the setting arresting screws (fig.11.3.1 position A) by the enclosed allen key (fig. 11.3.1 position C)
- Turn the guiding plate (fig.11.3.1 position B) for complete disassembly from the machine
- Secure the spindle against turning with the button, which is located on the top side of the gearbox (fig 11.3.2 position A) or by using the enclosed mandrel (fig. 10.3.3 position A)
- Use the allen key (fig.11.3.2 position D), release and disassemble the roller screw (fig. 11.3.2 position C) and roller (fig.11.3.2 position B)
- Now disassemble the milling head by enclosed special tube, double-sided spanner (fig.11.3.3 position B plus C)
- Use the same process to assemble new head and reassemble the machine.
- All connections must be appropriately fastened.

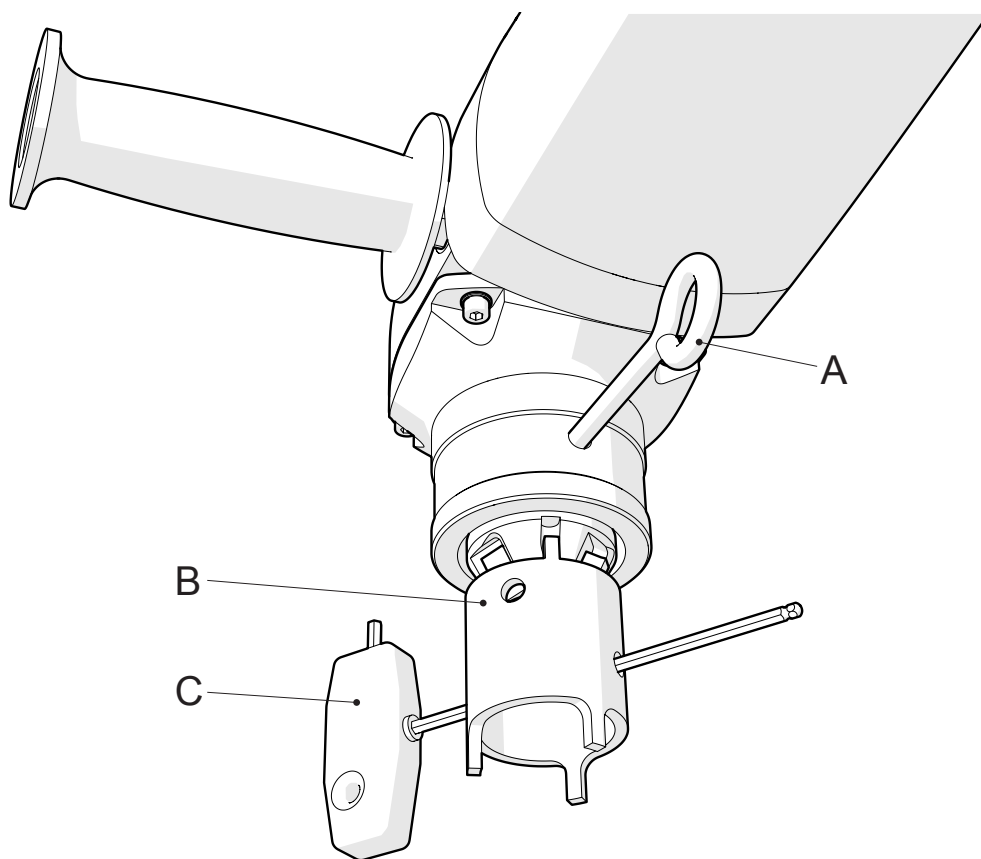
Obr. 11.3.1



Obr. 11.3.2



Obr. 11.3.3



Important:

Always, when the milling head is replaced, treat the head thread and the screw with copper-containing grease (copper paste). This paste prevents the thread of the milling head from being jamed / sealed and facilitates future loosening.

Attention :

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

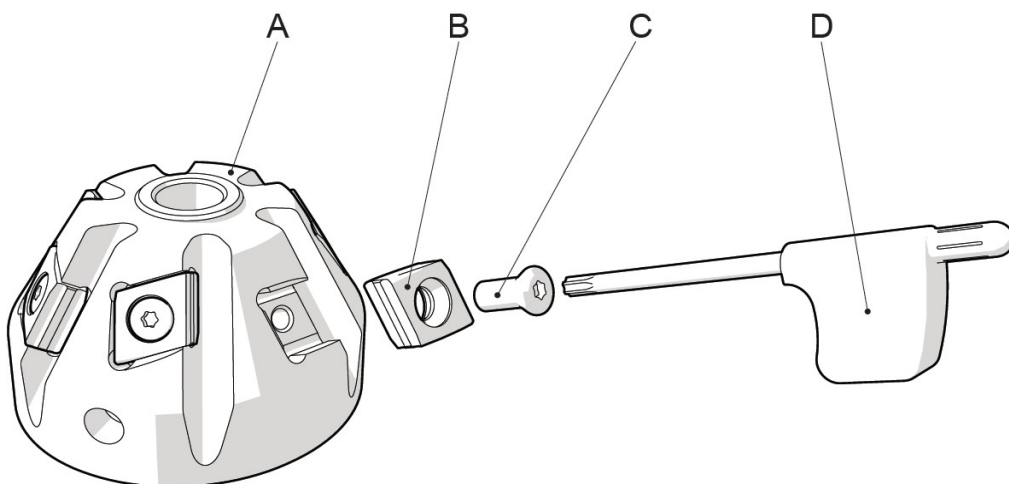
11.4 Replacement of indexable inserts - ECO

Important:

Work solely with sharp and not damaged indexable inserts. It prevents the machine damage. If the cutting inserts are worn or damaged or cracked, they must be replaced.

- Attach the wrench (fig. 11.4.1 position D) release the screws used for fastening the indexable inserts (fig. 11.4.1 position C)
- Indexable inserts (fig. 11.4.1 position B) replace with new, different, or just turn them to use all cutting edges.. Attention! Considering the specific shape, focus on this operation.
- Indexable inserts must be appropriately fastened (fig. 11.4.1 position C).
- Assemble the guiding plate set according to chapter 11.3

Fig. 11.4.1



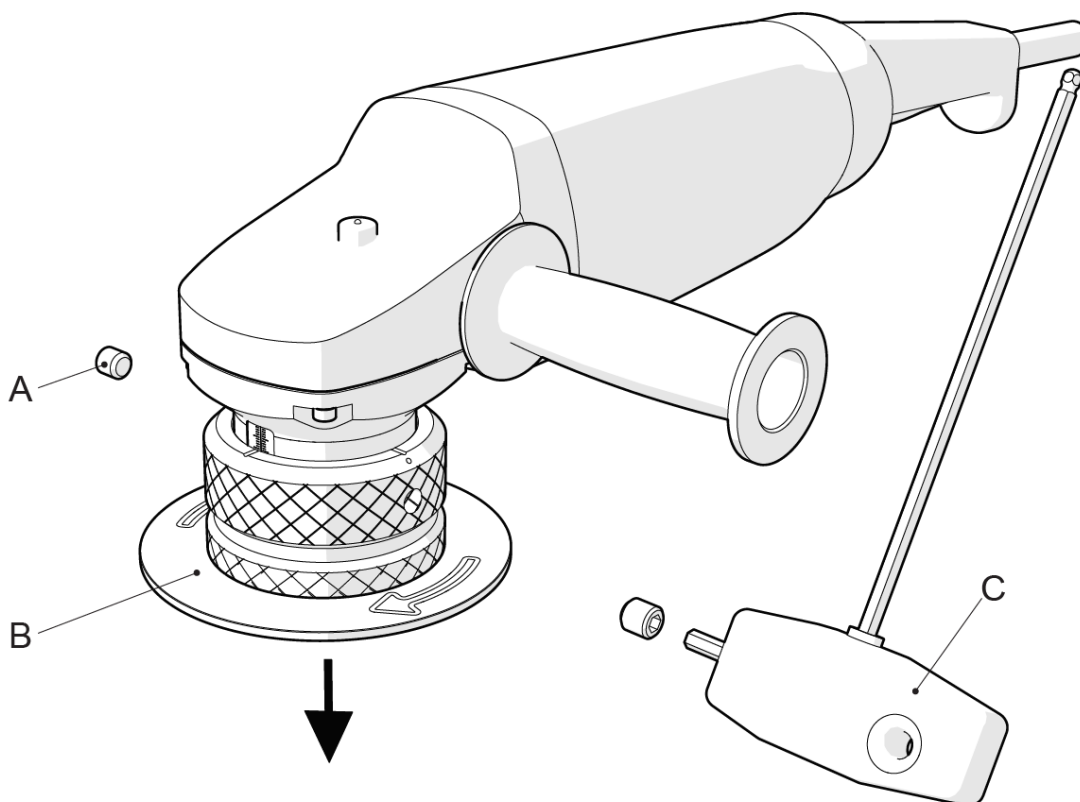
11.5 Bevel angle and shape change. Milling head replacement – Type PREMIUM

Machine B15 ELECTRA is constructed for the use of more milling heads.

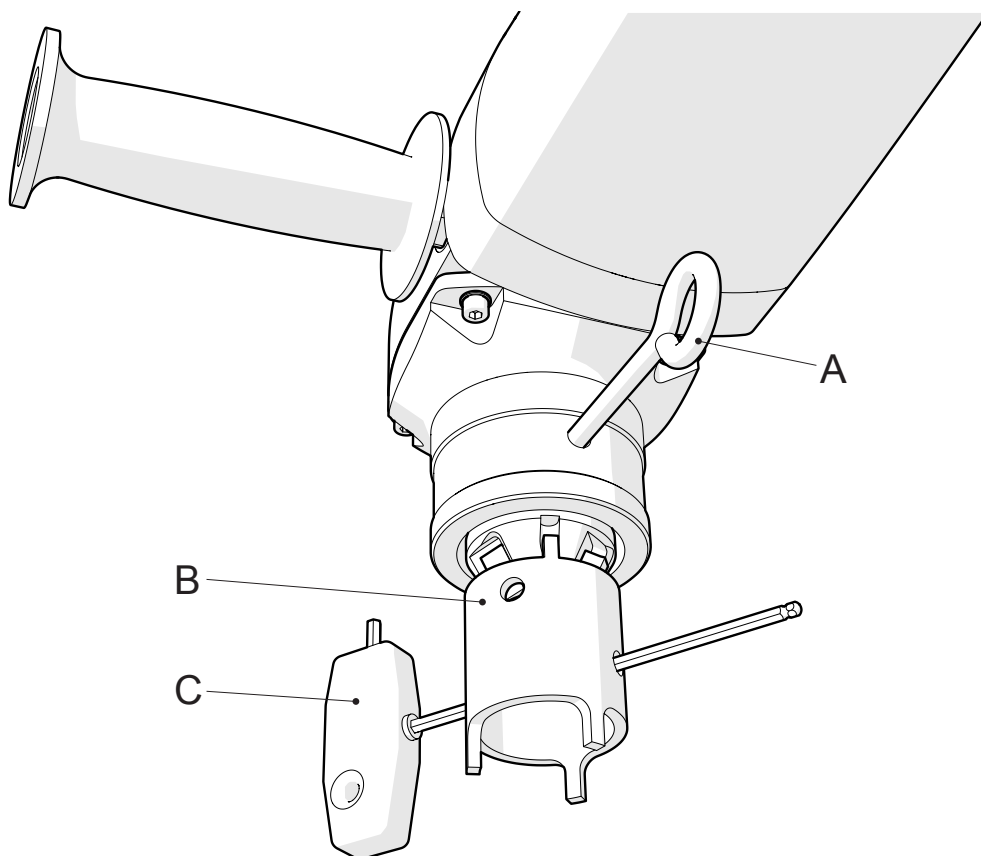
For the head replacement, proceed as follows.

- Disconnect the machine from electricity supply.
- Release the setting arresting screws (fig.11.5.1 position A) by the enclosed allen key (fig. 11.5.1 position C)
- Turn the guiding plate (fig.11.5.1 position B) for complete disassembly from the machine
- Secure the spindle against turning with the button, which is located on the top side of the gearbox (fig 11.3.2 position A) or by using the enclosed mandrel (fig. 10.5.2 position A)
- Now disassemble the milling head by enclosed special tube, double-sided spanner (fig.11.5.2 position B plus C)
- Use the same process to assemble new head and reassemble the machine.
- All connections must be appropriately fastened.

Obr. 11.5.1



Obr. 11.5.2



Important:

Always, when the milling head is replaced, treat the head thread and the screw with copper-containing grease (copper paste). This paste prevents the thread of the milling head from being jamed / sealed and facilitates future loosening.

Attention :

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

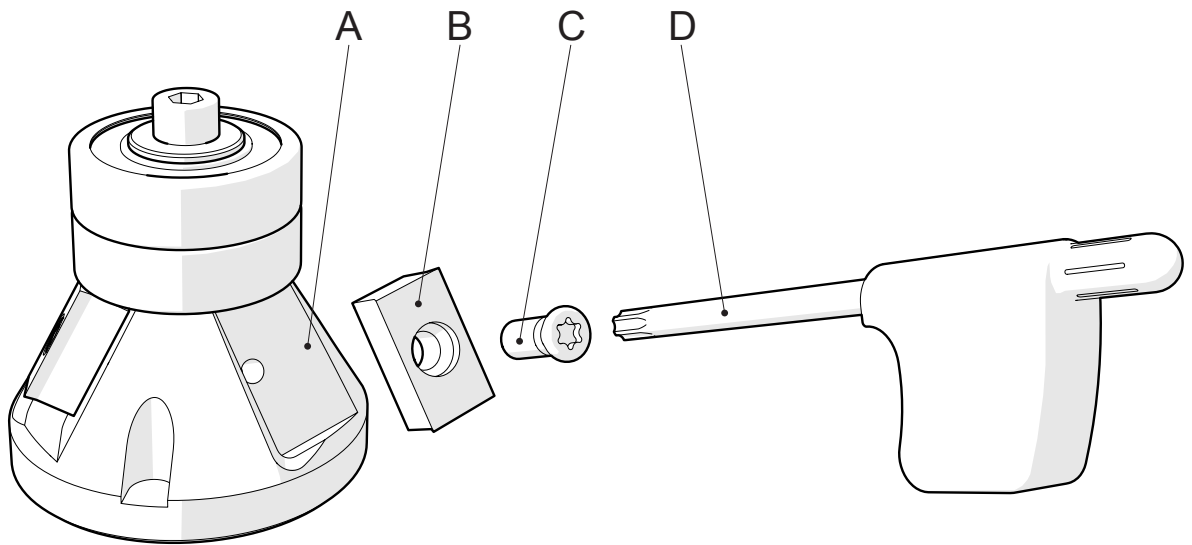
11.6 Replacement of indexable inserts - PREMIUM

Important:

Work solely with sharp and not damaged indexable inserts. It prevents the machine damage. If the cutting inserts are worn or damaged or cracked, they must be replaced.

- Attach the wrench (fig. 11.6.1 position D) release the screws used for fastening the indexable inserts (fig. 11.6.1 position C)
- Indexable inserts (fig. 11.6.1 position B) replace with new, different, or just turn them to use all cutting edges.. Attention! Considering the specific shape, focus on this operation.
- Indexable inserts must be appropriately fastened (fig. 11.6.1 position C).
- Assemble the guiding plate set according to chapter 11.5

Fig. 11.6.1



12. Maintenance and operation

Maintenance of machine B15 ELECTRA does not require any special tools and it is very simple. Keep the machine clean and replace the lubrication grease in the machine gearbox every 1000 working hours. This operation must be performed solely in authorised service N.KO Machines.

Regularly check the supply power cable. In case of damage have it replaced in an authorised service shop authorised to perform the such repairs. Contact your supplier.



Important:

The moving parts, threads, and mechanical connections must be gradually cleaned using compressed, and must be preserved (greased).



Attention :

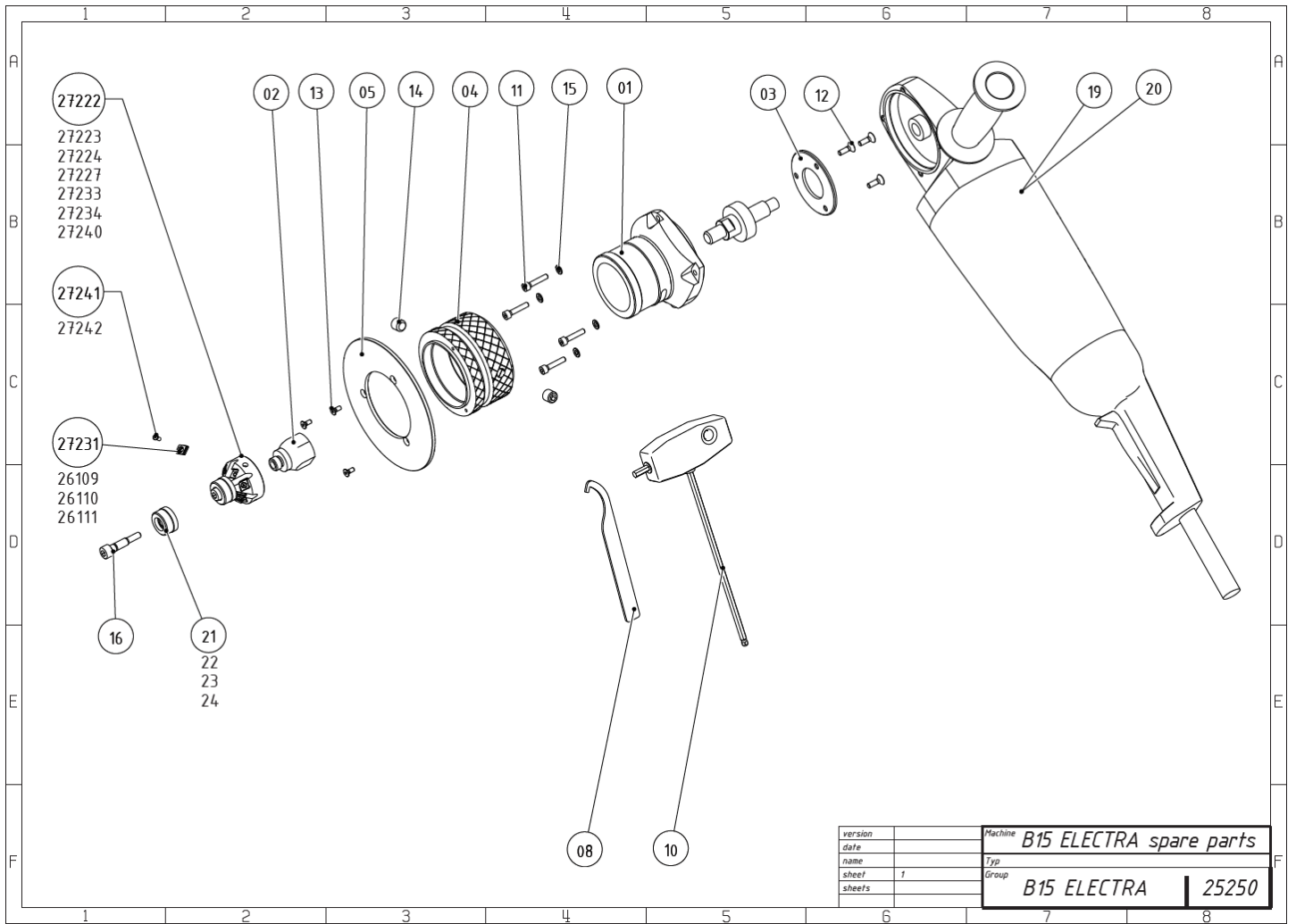
When using compressed air for cleaning, wear safety goggles and never use a pressure exceeding 2 bar.

13. Spare parts

Orders of spare parts shall contain the following information:

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

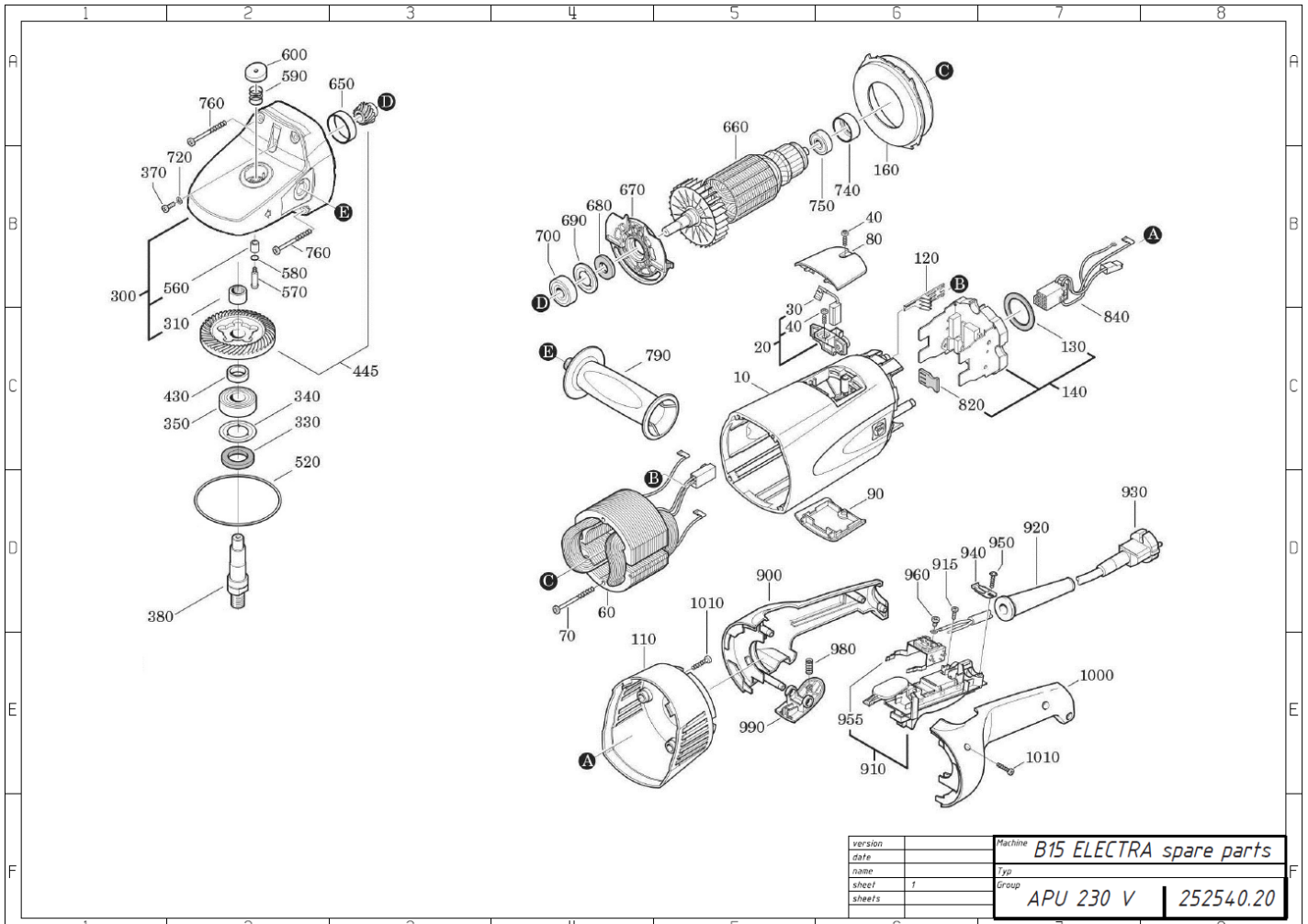
13.1 List of spare parts



B15 ELECTRA SPARE PARTS

drawing no. 25250 B15 ELECTRA

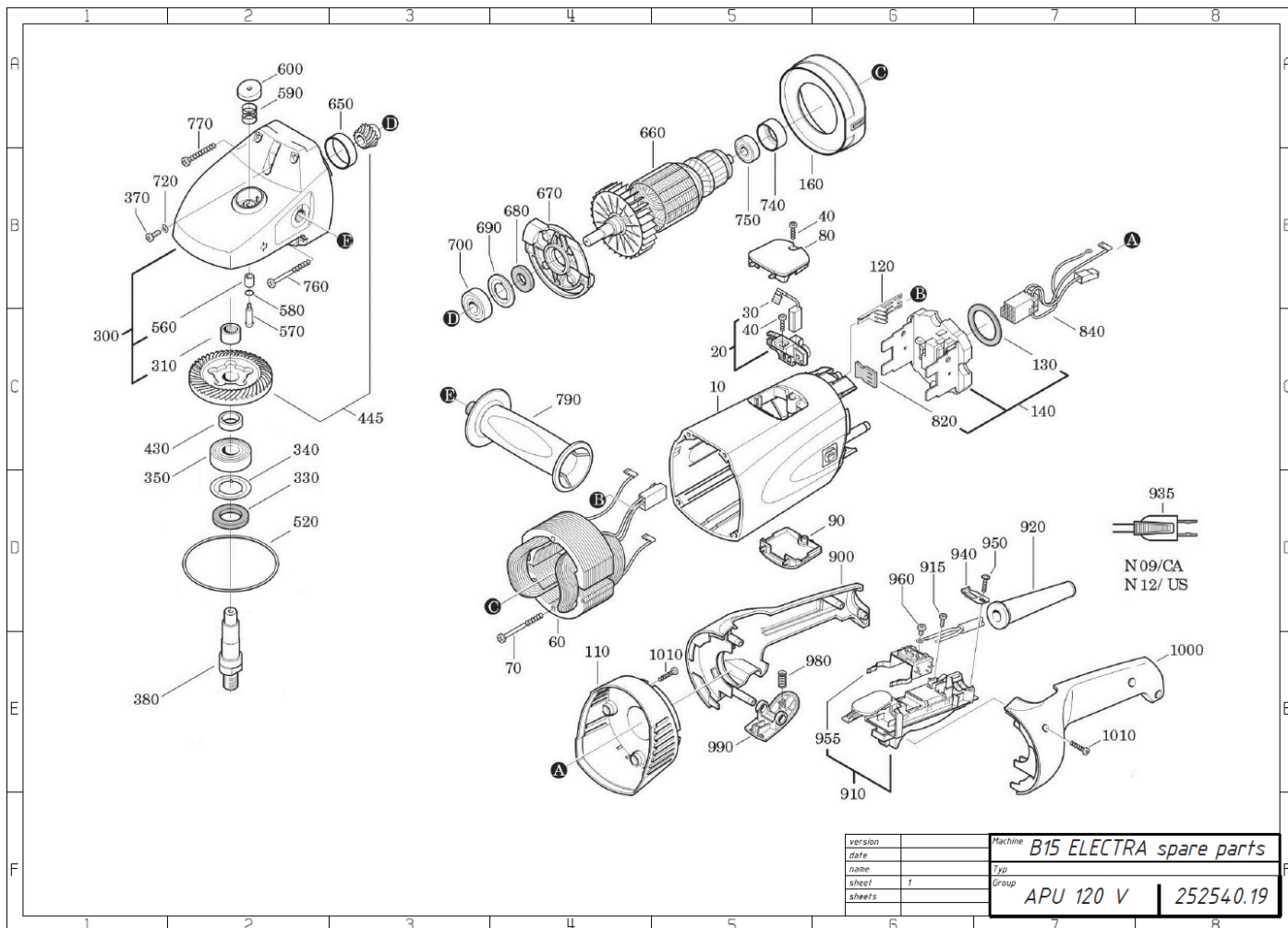
Number	Fig	Part name	Note	Pcs
27222	27222	milling head	vertex angle 45° (complete head incl. inserts, all screws and impeller)	1
27223	27223	milling head	vertex angle 30° (complete head incl. inserts, all screws and impeller)	1
27224	27224	milling head	vertex angle 50° (complete head incl. inserts, all screws and impeller)	1
27227	27227	milling head	vertex angle 37,5° (complete head incl. inserts, all screws and impeller)	1
27231	27231	insert	standard for beveling only (10 pcs)	6
27233	27233	milling head	radius R3,5 mm (complete head incl. inserts, all screws and impeller)	1
27234	27234	milling head	radius R2,5 mm (complete head incl. inserts, all screws and impeller)	1
27240	27240	milling head	vertex angle 60° (complete head incl. inserts, all screws and impeller)	1
27241	27241	screw	for standard insert	6
27242	27242	screw	for radius insert	3
26109	26109	insert	R2,5 mm (10 pcs)	3
26110	26110	insert	R3,5 mm (10 pcs)	3
26111	26111	insert	R4 mm (10 pcs)	3
25250.01	01	neck		1
25250.02	02	adapter		1
25250.03	03	disk		1
27220.50	04	backstop		1
27220.51	05	disk		1
27220.53	08	wrench		1
27220.54	10	key		1
25250.11	11	screw		4
25250.12	12	screw		3
27220.58	13	screw		3
27220.57	14	screw		2
25250.15	15	washer		4
25250.16	16	screw		1
25250.19	19	assembled power unit 120 V	see assembly list 25250.19 APU 120 V	1
25250.20	20	assembled power unit 230 V	see assembly list 25250.20 APU 230 V	1
27220.61	21	bearing roller	for milling head 37,5° no: 27227, 45° no: 27222, 50° no: 27224, 60° no: 27240	1
27220.62	22	bearing roller	for milling head 30° no: 27223	1
27220.63	23	bearing roller	for radius milling head R3,5 no: 27233	1
27220.64	24	bearing roller	for radius milling head R2,5 no: 27234	1



B15 ELECTRA SPARE PARTS

drawing no. 252540.20 Assembled Power Unit 230 V

Number	Fig	Part name	Number	Fig	Part name
31903210002	10	motor housing	32416103006	670	plate
30712090019	20	brush holder 220-230V,50/60Hz	30601050002	680	felt ring
30711137006	30	carbon brush 220-230V,50/60Hz	32411083001	690	disc
43070027000	40	screw	41701213096	700	grooved ball bearing
51275005230	60	stator	42443003043	720	circlip M4
43072001009	70	screw	30507168003	740	bush
32427113009	80	cover	41701207033	750	grooved ball bearing
32427115001	90	cover	43070029002	760	screw
31207242002	110	housing	32119032002	790	side handle
31428132004	120	base plate	31415089009	820	pressure piece
31415092003	130	pressure piece	30719595013	840	connecting cable
30762276990	140	electronics	31204167000	900	handle half shell
31428133008	160	air guide ring	30701278010	910	switch
31206134030	300	gearbox housing	43041001994	915	fillister head screw M3,5X10
41706030007	310	needle bearing	31413094007	920	cable grommet
30601110005	330	felt ring	30707387012	930	cable with plug
32411084009	340	disc	32431042008	940	cable clamping piece
41701224024	350	grooved ball bearing	43070035002	950	screw
43064002043	370	fillister head screw	30717203014	955	connecting piece
33406289002	380	shaft	43041016042	960	fillister head screw
32601273006	430	ring	30901343007	980	spiral spring
33809233010	445	bevel gear Z=12/53	32816057007	990	switch pushbutton
32624118022	520	disc	31204168008	1000	handle half shell
30507230009	560	bush	43070031003	1010	screw
30217335005	570	bolt			
40612137008	580	sealing ring			
30901354004	590	spiral spring			
32805180004	600	pushbutton			
30507169007	650	bush			
53275001231	660	armature			



B15 ELECTRA SPARE PARTS

drawing no. 252540.19 Assembled Power Unit 120 V

Number	Fig	Part name	Number	Fig	Part name
31903214006	10	motor housing	32416106001	670	plate
30712090040	20	brush holder Set 110V-120V,50/60Hz	30601050002	680	felt ring
30711153000	30	carbon brush 110V-120V,50/60Hz	32411083001	690	disc
43070027000	40	screw	41701213096	700	grooved ball bearing
51275003362	60	stator	42443003043	720	circlip M4
43072011008	70	screw	30507168003	740	bush
32427117008	80	cover	41701207033	750	grooved ball bearing
32427118006	90	cover	43070029002	760	screw
31207251008	110	housing	43070030004	770	screw
31428144005	120	base plate	32119032002	790	side handle
31415092003	130	pressure piece	31415089009	820	pressure piece
30762254995	140	electronics	30719613012	840	connecting cable
31428141000	160	air guide ring	31204167000	900	handle half shell
31206114031	300	gearbox housing	30701278010	910	switch
41706030007	310	needle bearing	43041001994	915	fillister head screw M3,5X10
30601110005	330	felt ring	31413094007	920	cable grommet
32411084009	340	disc	30707398019	935	cable with plug
41701224024	350	grooved ball bearing	32431042008	940	cable clamping piece
43064002043	370	fillister head screw	43070035002	950	screw
33406291003	380	shaft	30717203014	955	connecting piece
32601273006	430	ring	43041016042	960	fillister head screw
33809233010	445	bevel gear Z=12/53	30901343007	980	spiral spring
32624118022	520	disc	32816057007	990	switch pushbutton
30507230009	560	bush	31204168008	1000	handle half shell
30217335005	570	bolt	43070031003	1010	screw
40612137008	580	sealing ring			
30901354004	590	spiral spring			
32805180004	600	pushbutton			
30507169007	650	bush			
53275002360	660	armature			

A copy of this manual is supplied with every
machine B15 ELECTRA

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N.KO.

Manufacturer's and Distributor's Address:

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Czech Republic – Europe Union
Phone: +420 326 772 001 fax: +420 326 774 279
email:nko@nko.cz

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Pittsburgh, PA 15205

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email:service@bevelerusa.com