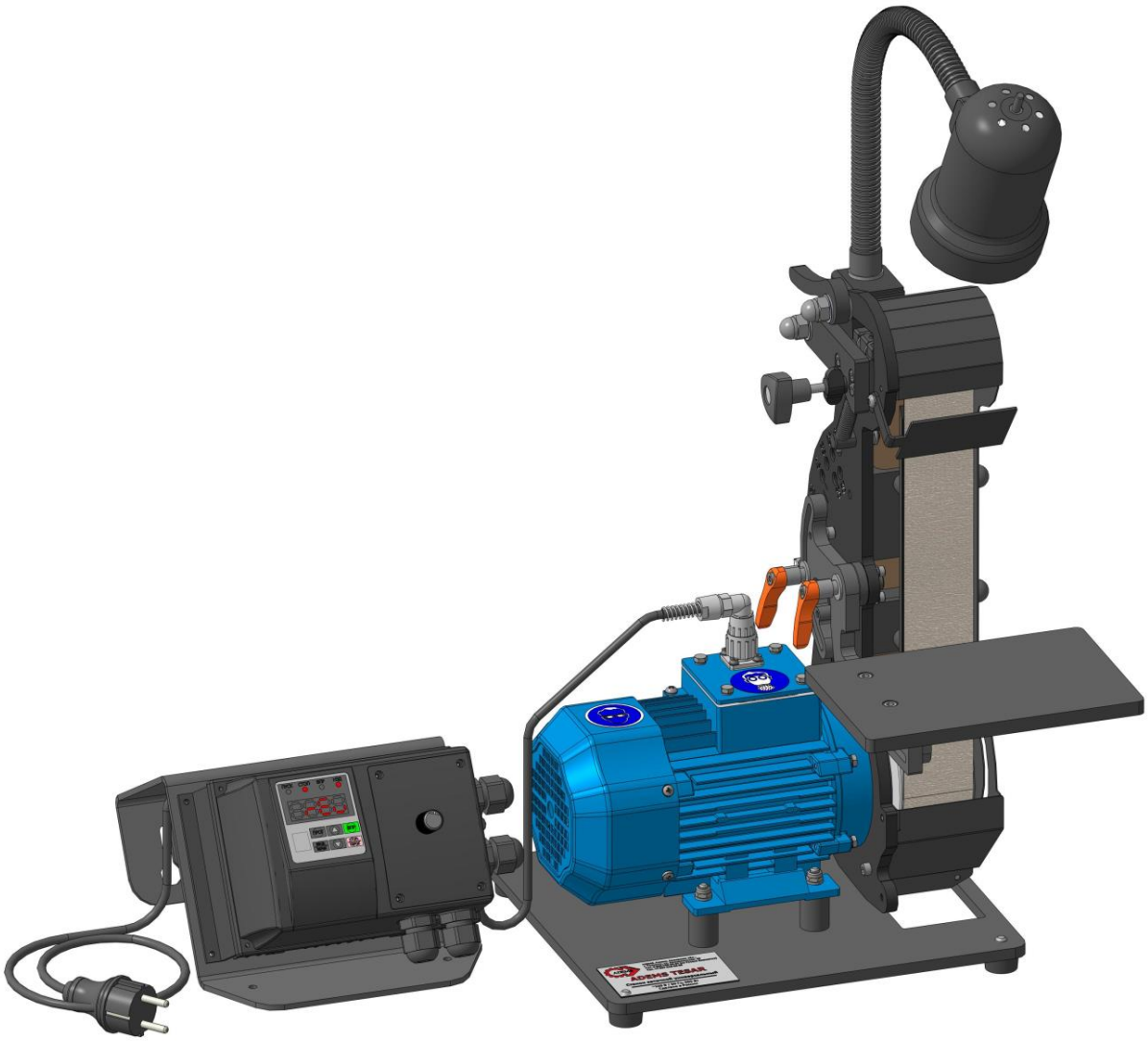
BELT GRINDING MACHINE

ADEMS Tesar

USER MANUAL



CONTENTS

1. PURPOSE AND SCOPE OF APPLICATION

The ADEMS Tesar Belt Sander is designed for deburring, removing grinding burrs, finishing coarse weld seams, performing flat grinding, and for the professional sharpening of woodworking, garden, and kitchen tools. It is capable of grinding not only metal but also wood, plastic, and rubber.

2. DELIVERY SET

The delivery set for the ADEMS Tesar L915 Inv includes:

- ADEMS Tesar belt sander – 1 unit;
- Stand with frequency converter – 1 unit;
- Work table (installed on the machine) – 1 unit;
- Protective screen (installed on the machine) – 1 unit;
- T-shaped hex key #4 – 1 unit;
- Bracket-mounted lamp – 1 unit;
- Abrasive belt P80 50x915 (installed on the machine) – 1 unit;
- Abrasive belt P600 50x915 – 1 unit;
- Abrasive belt P240 50x915 – 1 unit;
- Self-adhesive Teflon sheet 220x150 mm – 1 unit;
- Rubber foot – 4 units;
- Warranty card – 1 unit.

The delivery set for the ADEMS Tesar LX-R Inv includes:

- ADEMS Tesar belt sander – 1 unit;
- Stand with frequency converter – 1 unit;
- Work table (installed on the machine) – 1 unit;
- Work table with groove and locking screw – 1 unit;
- Protective screen (installed on the machine) – 1 unit;
- Hex key #3 – 1 unit;
- Hex key #4 – 1 unit;
- T-shaped hex key #4 – 1 unit;
- Bracket-mounted lamp – 1 unit;
- ADEMS Tesar knife sharpening holder – 1 unit;
- Knife sharpening stop – 1 unit;
- Straight chisel sharpening attachment – 1 unit;
- Skew chisel sharpening attachment – 1 unit;
- Gouge chisel sharpening attachment – 1 unit;
- Plane blade sharpening attachment – 1 unit;
- Abrasive belt P40 50x915 (installed on the machine) – 1 unit;
- Abrasive belt P80 50x915 – 1 unit;
- Abrasive belt P240 50x915 – 1 unit;
- Self-adhesive Teflon sheet 220x150 mm – 1 unit;
- Self-adhesive Teflon sheet 220x120 mm – 1 unit;
- Rubber foot – 4 units;
- Warranty card – 1 unit.

3. TECHNICAL CHARACTERISTICS

Types of Sharpened Tools: Indicates the range of tools the machine is designed to sharpen.	✓ Straight chisels* ✓ Beveled chisels* ✓ Half-round chisels* ✓ Knives* ✓ Planing knives*
Sharpening Methods: Specifies the grinding or honing techniques the machine supports.	✓ Roughing ✓ Finishing ✓ Polishing
Machine Power Supply Voltage, V:	220
Lighting Power Supply Voltage, V:	220
Rated Motor Power Consumption, W, max:	550
Belt Speed, adjustable, m/s:	0…18
Knife Sharpening Angle, degrees:	12…45*
Abrasive Belt Size, mm:	50x915
Standard Sharpening Angles, deg:	15, 20, 25, 30, 35, 45, 60, 80, 90
Device Dimensions, mm: (Length x Width x Height).	420x355x345
Net Weight, kg: The weight of the machine itself.	25
Gross Weight (packaged), kg:	30

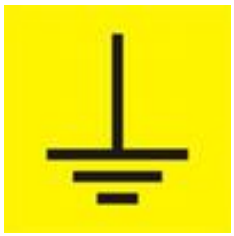
*The sharpening attachment for this tool is only included with the ADEMS Tesar LX-R Inv.

The specifications above are current at the time of publication of this manual. As our company's policy is to continually develop and improve our equipment, the manufacturer reserves the right to change specifications at any time without prior notice to the consumer, without incurring any obligations.

4. SAFETY PRECAUTIONS

CAUTION

Before starting operation, inspect the machine for any visible damage to the power cord or moving parts. Do not switch on the machine if any such issues are detected. Operation may only be resumed after these issues have been completely resolved.



It is recommended to connect the machine only to a power outlet with a grounding terminal.

Always wear safety goggles and a respirator mask during operation. The goggles provide protection only against suspended dust and abrasive particles; they do not protect against flying fragments or larger debris.

5. PREPARATION FOR WORK

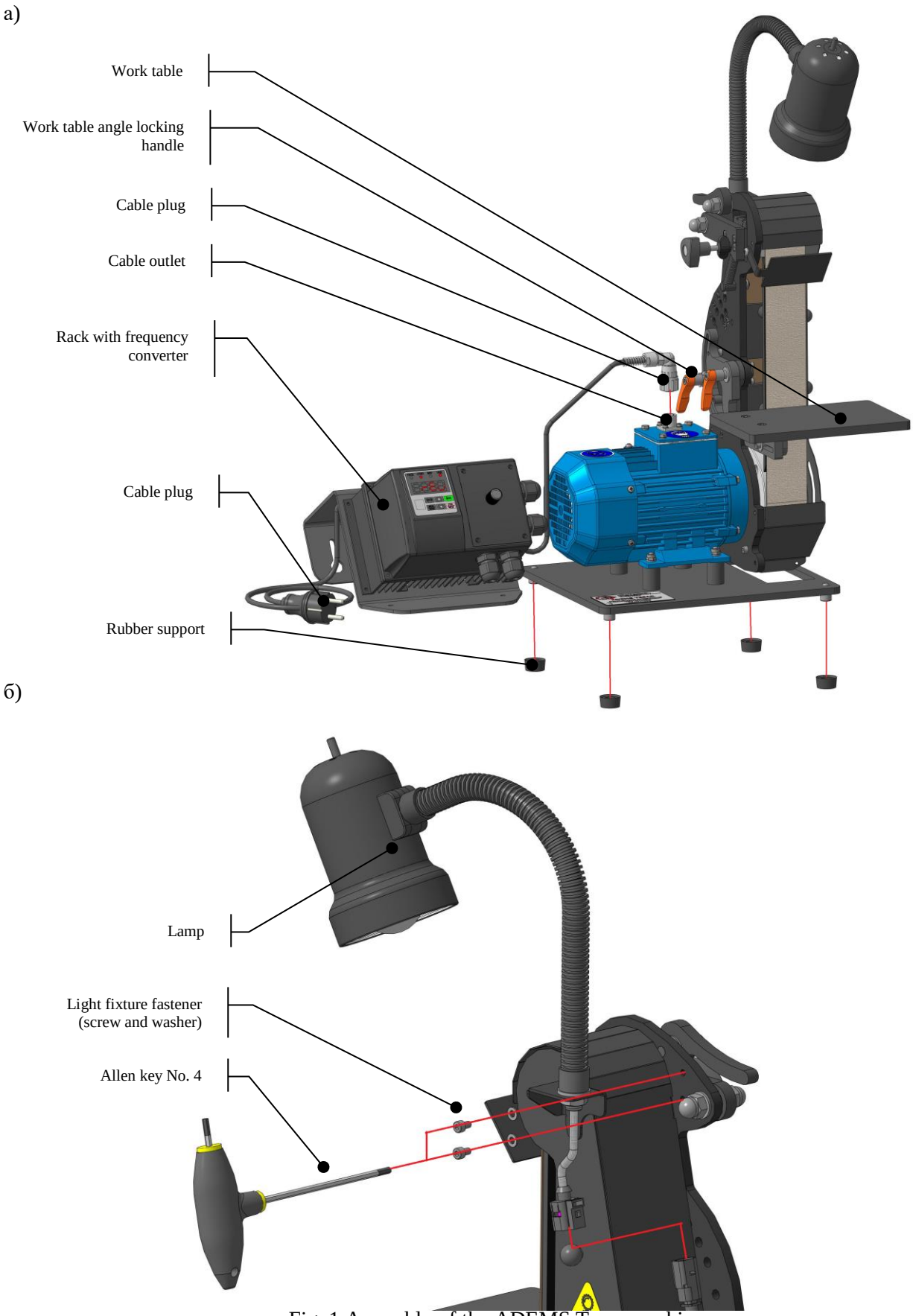


Fig. 1 Assembly of the ADEMS Tesar machine
a) Connecting the machine; b) Installing the lighting fixture

Remove the machine from the packaging and place it in its designated work area in close proximity to a power source. Connect the frequency converter's cable plug to the cable socket on the electric motor. Position the stand with the frequency converter in any convenient location. The power cord should not be taut: 20% of its length should lie loosely on the workbench.

ATTENTION

For convenience, the stand with the frequency converter can be mounted on a wall by hanging it on pre-installed screws.

Insert the rubber feet onto the screw heads under the base plate—the machine rests on these rubber feet. If necessary, the machine can be secured to a workbench.

Loosen, but do not unscrew, the handle that locks the angle of the worktable. Set the worktable to the working position as shown in Fig. 1a. Secure the table position by tightening the worktable angle lock handle.

Mount the bracket with the lamp onto the machine according to Fig. 1b, securing it with screws using the hex key №4 from the supplied toolkit.

ATTENTION

The fasteners for the lamp (screws and washers) are already threaded into the lamp mounting holes.

ATTENTION

If the machine is brought into a heated room from outside or from a cold environment during winter, do not unpack or turn it on for 8 hours. The machine must acclimate to the ambient temperature. Otherwise, it may malfunction upon startup due to moisture condensation on the electric motor components.

ATTENTION

The abrasive belt of the machine should rotate freely by hand. Ensure that nothing obstructs its rotation.

ATTENTION

To preserve the appearance of the work surface and improve sliding during operation, it is recommended to apply self-adhesive Teflon tape to the surface of the worktable.

6. The design

The design and operating principle are described based on Fig. 2.

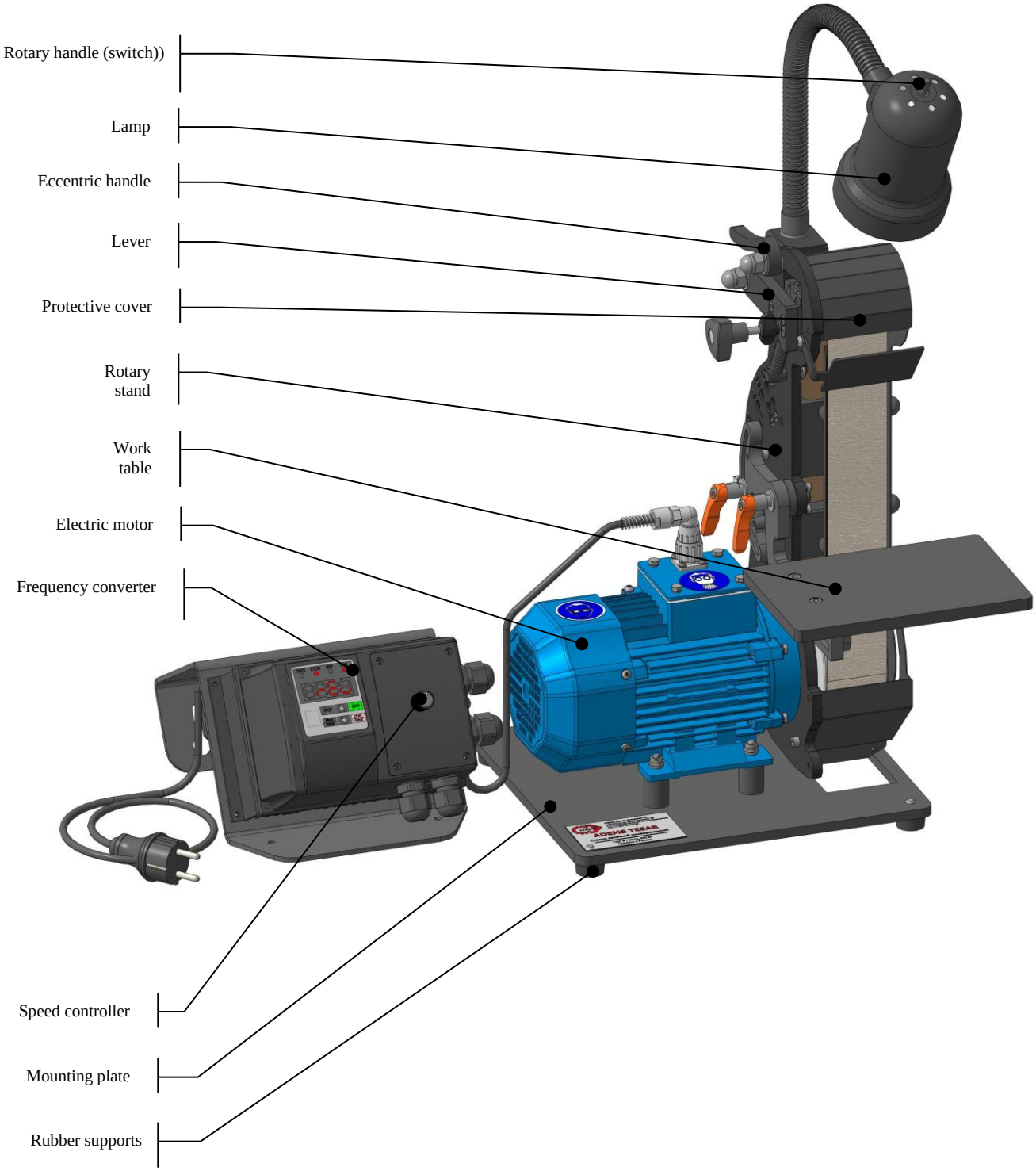
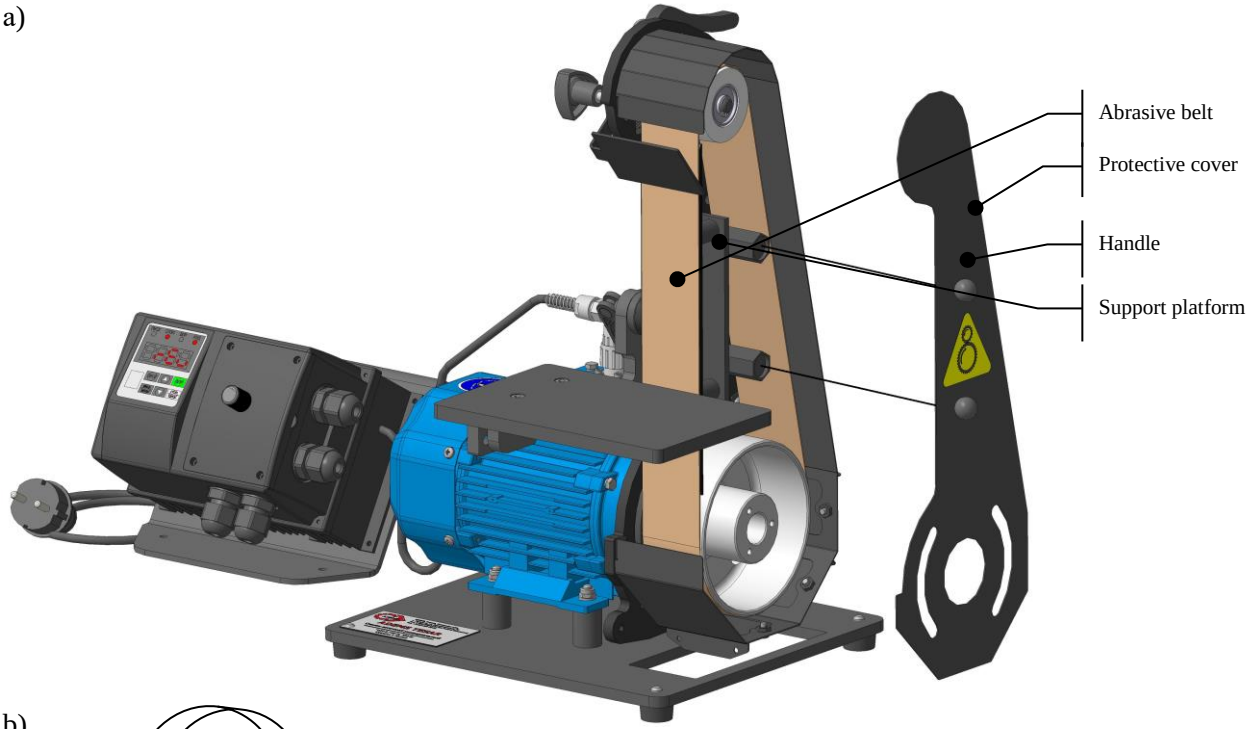


Fig. 2 ADEMS Tesar Belt Grinding Machine

7. OPERATING PRINCIPLE

STEP 1. Installation and Replacement of the Abrasive Belt.

a)



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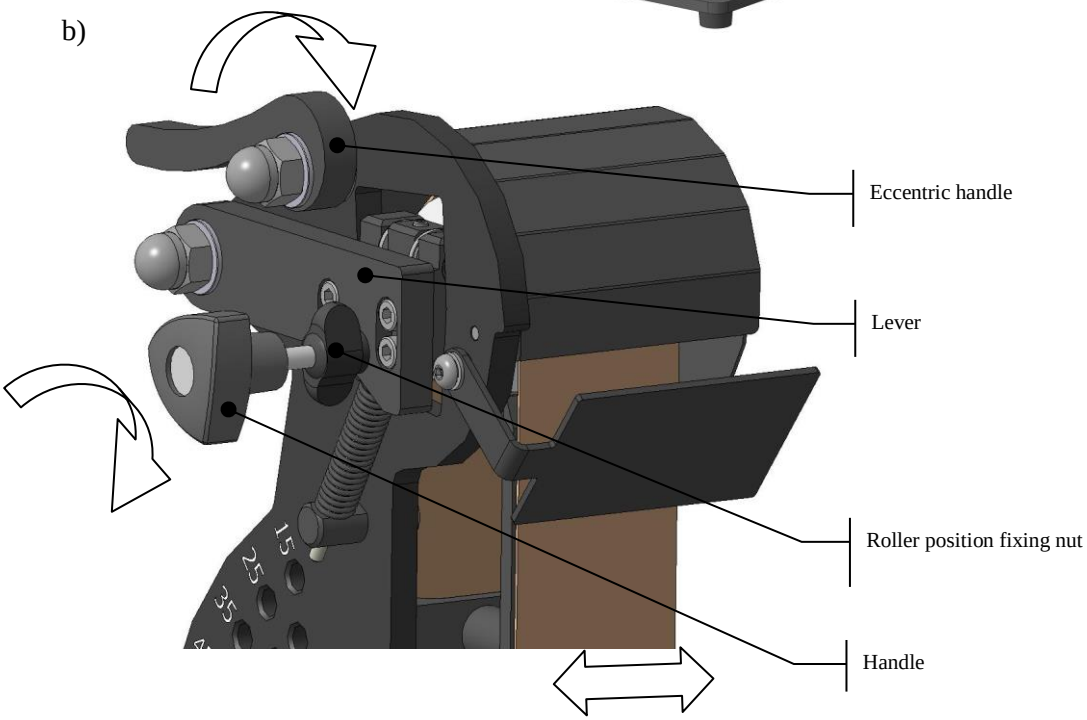


Fig. 3 Installing the Abrasive Belt

a) Removing the protective cover; b) Adjusting the abrasive belt position;

Pull on the handles of the protective cover. Remove the protective cover.

Turn the eccentric handle as shown in Fig. 3 b). The eccentric will press against the lever and lock the tension roller in the lower position, loosening the tension of the abrasive belt.

Loop the selected abrasive belt over all engaged wheels.

ATTENTION

Return the eccentric handle to its original position, and the abrasive belt will become taut.

Before operating the machine, the tracking of the abrasive belt must be properly adjusted. Tracking adjustment involves setting the position of the abrasive belt relative to the edge of the backing plate (the edge of the abrasive belt and the backing plate should be aligned).

Briefly turn on the machine at low speed and ensure the belt edge aligns with the edge of the backing plate. If the belt drifts to one side relative to the backing plate, perform the adjustment.

To do this, loosen the nut that secures the roller position.

By turning the handle in one direction or the other, the abrasive belt will begin to shift relative to the center of the rollers to one side. Once the desired belt position is selected, secure the tension roller by tightening the roller position locking nut.

STEP 2. Selecting and Setting the Worktable Tilt Angle.

To change the tilt angle of the worktable, perform a few simple steps.

Loosen, but do not unscrew, the worktable angle lock handles.

Select the required worktable tilt angle by aligning the angle control face with the corresponding mark on the swivel column.

Lock the selected angle by tightening the worktable angular locking handles.

ATTENTION

The worktable swivel angle is 45 degrees in each direction.

For ease of operation, the table can be shifted relative to the backing plate (closer to or farther from the abrasive belt). To do this, loosen, but do not unscrew, the table locking screw using the T-handle hex key №4 from the supplied toolkit. Move the table towards or away from the backing plate. Secure it by tightening the screw.

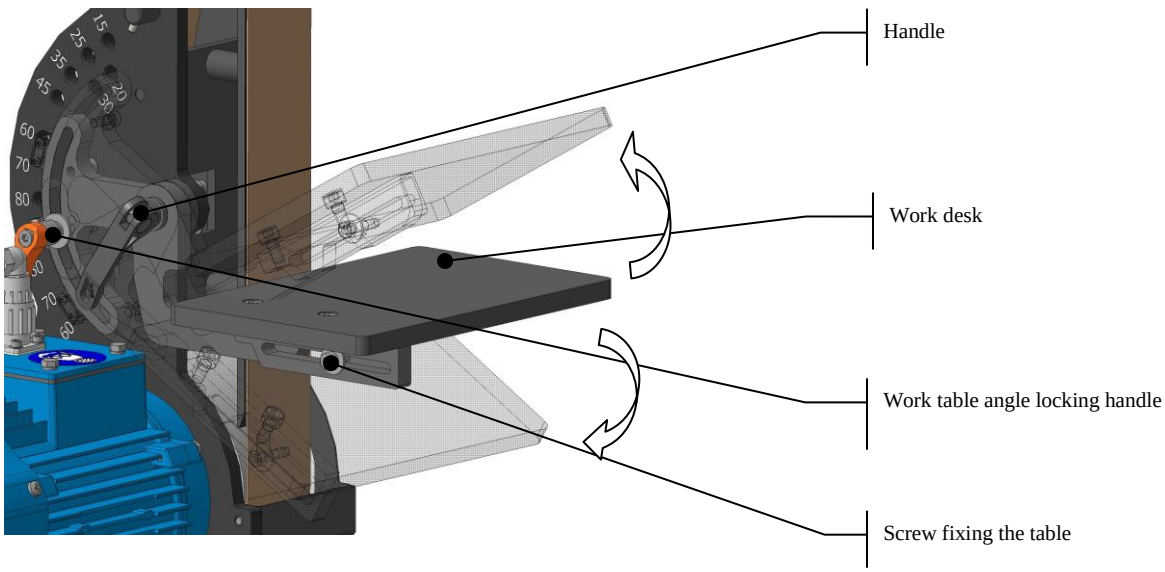


Fig. 4 Changing the angle of the work table

STEP 3. Setting the Working Position of the Swivel Column.

When selecting a small sharpening angle for a tool, it may happen that the tool being sharpened hits the workbench on which the machine is placed. For this case, base rotation is provided. With your left hand, hold the frame steady. With your right hand, using the T-handle hex key №4, loosen (but do not unscrew) the two screws securing the base to the electric motor flange. Rotate the frame to the required angle and tighten the screws.

ATTENTION

To access the screws, rotate the drive wheel until the holes in the wheel align with the screws.

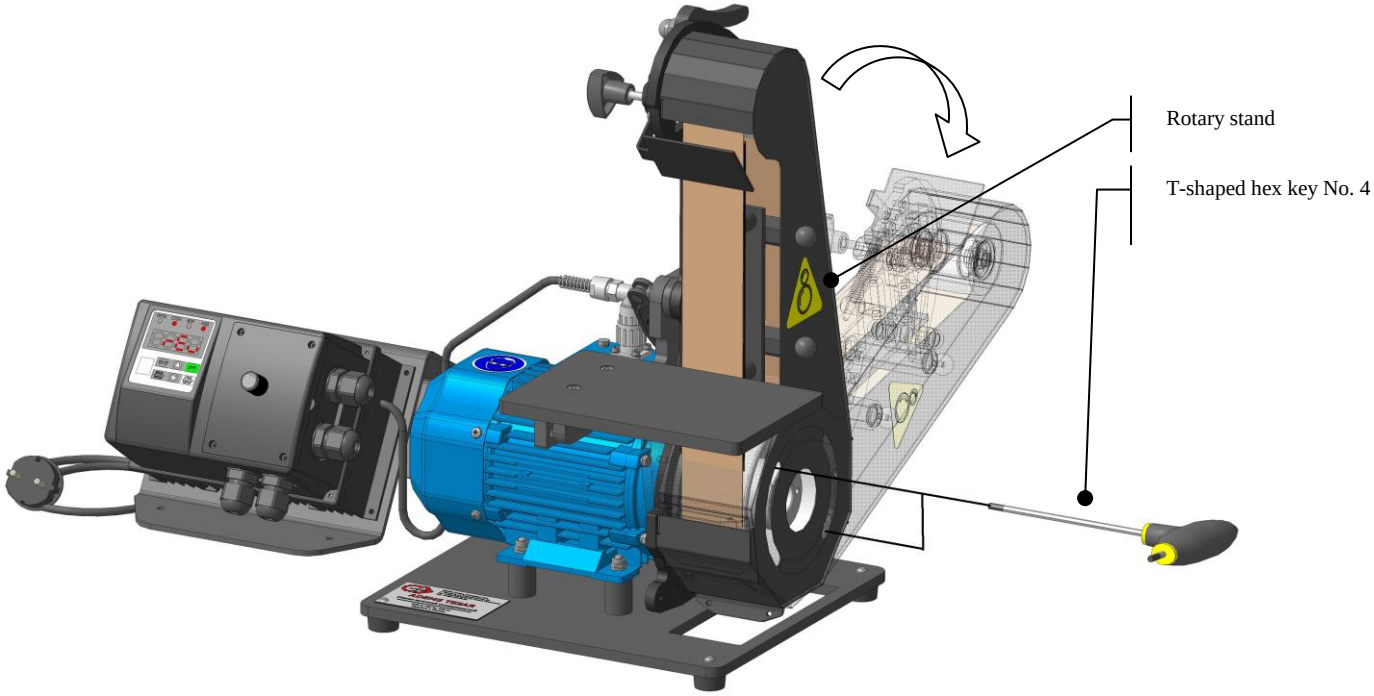


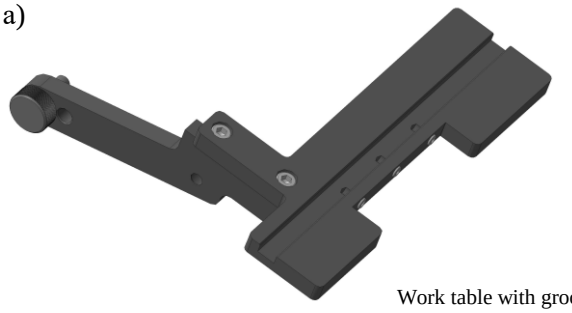
Fig. 5 Changing the working position of the machine

TOOL SHARPENING RULES

CHISEL SHARPENING

STEP 1. Changing the work table.

a)



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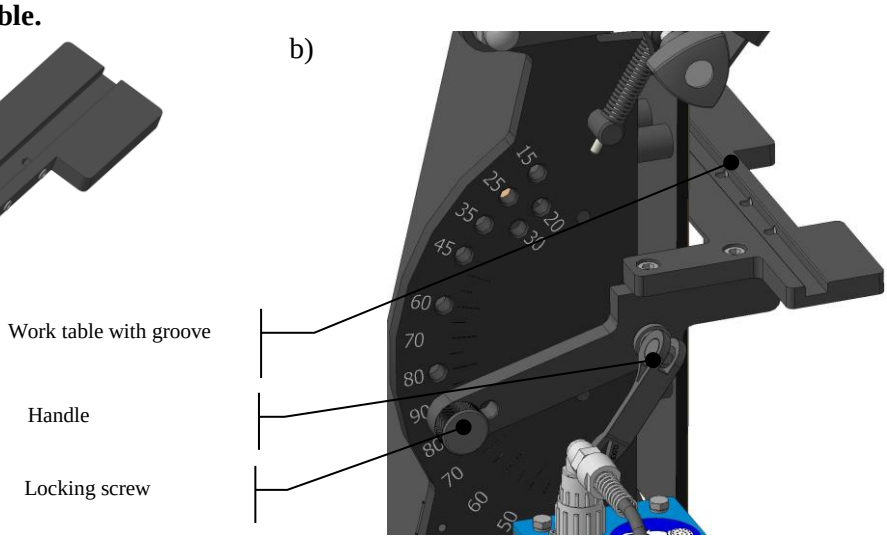


Fig. 6. Tool sharpening work table

a) General view; b) Mounted on the machine

Remove the work table by unscrewing the corner locking handles. Install the grooved work table in its place by tightening the handle.

STEP 2. Selecting and Setting the Tool Sharpening Angle.

For convenience and quick selection of sharpening angles, standard sharpening angles are already marked on the swivel column.

To change the sharpening angle, perform a few simple steps.

Turn the eccentric handle; the table mount will loosen.

Loosen, but do not unscrew, the locking screw (disengage it from the swivel column).

Select the required sharpening angle from the standard values.

Rotate the worktable to the desired angle and screw the locking screw into the corresponding hole.

Turn the eccentric handle back in the opposite direction; the table will lock into place.

ATTENTION

To set the sharpening angle to "20" and "30" degrees, use the locking screw with the adjacent hole on the lever.

STEP 3. Sharpening chisels.

a) b) c)

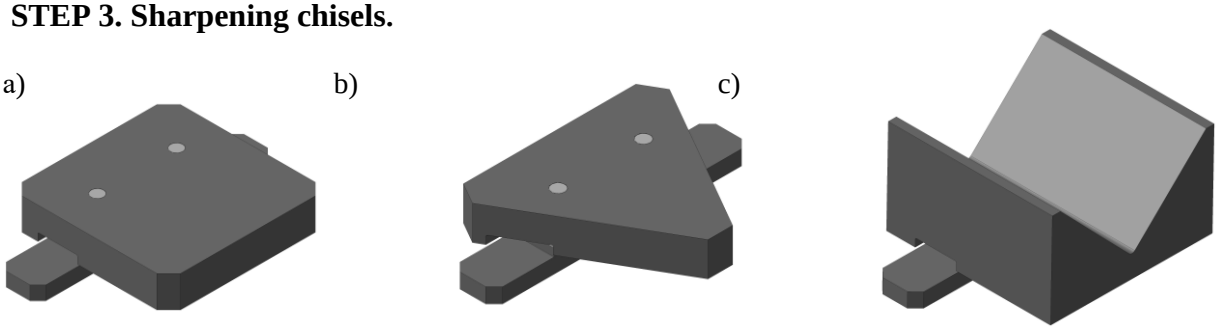
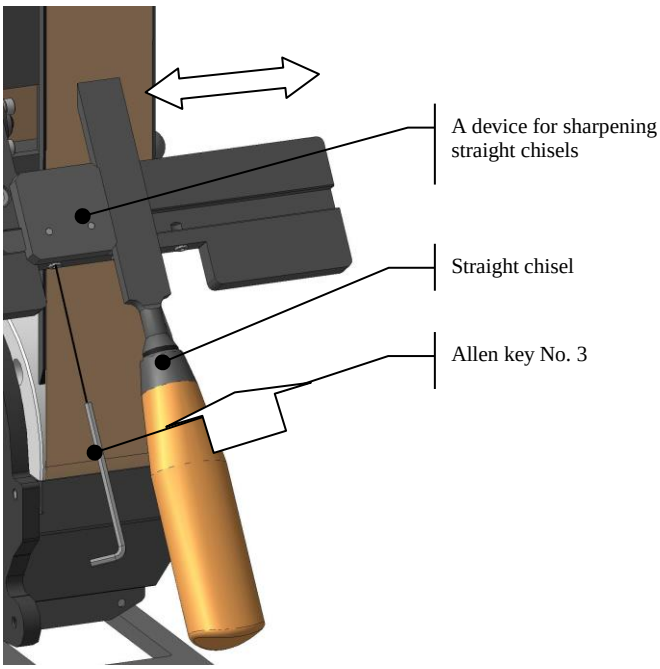


Fig. 7. Devices for sharpening chisels
a) straight; b) oblique; c) semicircular

ATTENTION

Chisel sharpening attachments are included only with the ADEMS Tesar LX-R Inv.

a)



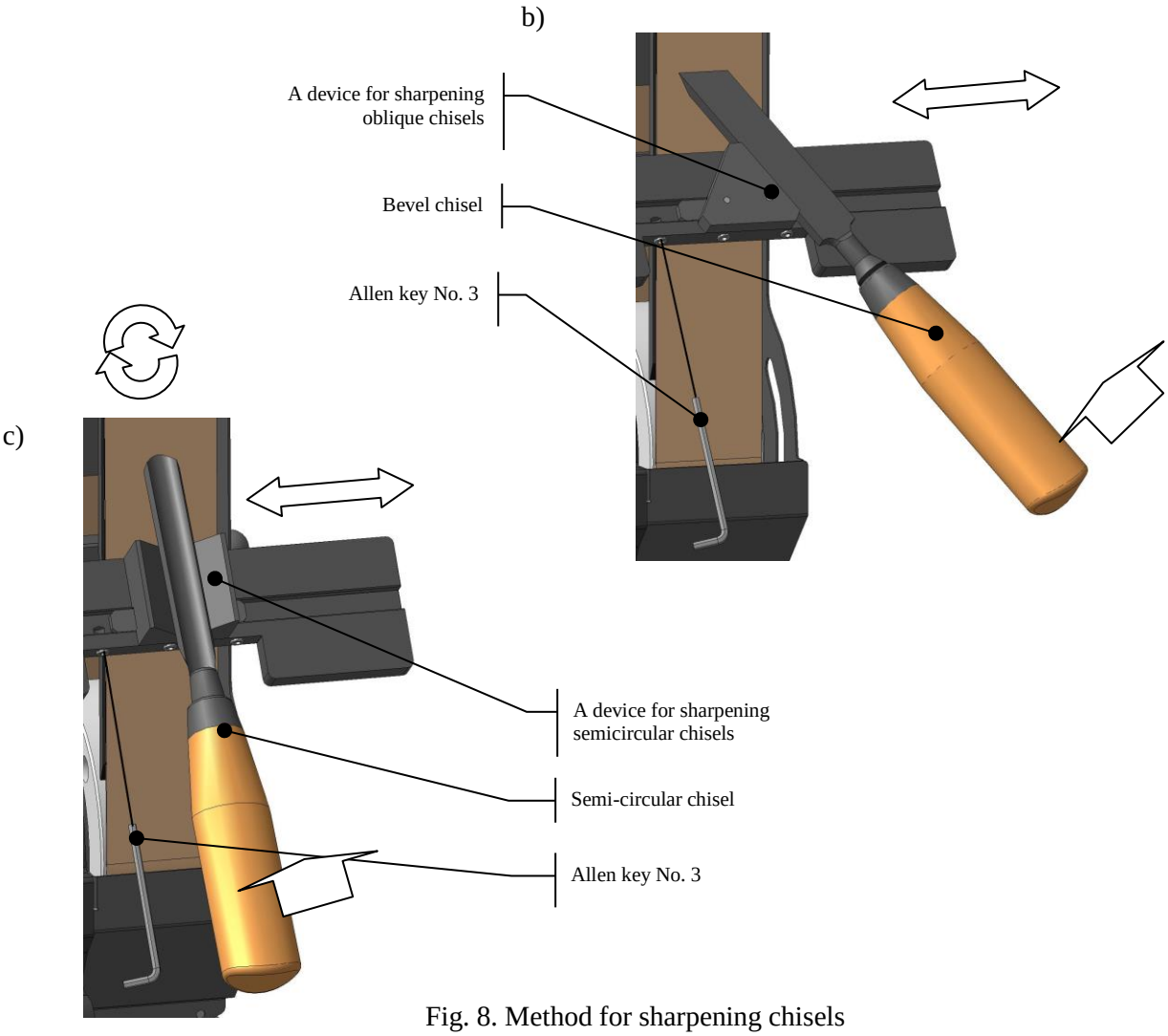


Fig. 8. Method for sharpening chisels
a) Straight; b) Oblique; c) Semi-circular

Sharpening various chisels on the machine follows the same basic procedure with minor differences.

Select the chisel you need to sharpen and the corresponding accessory from the supplied kit.

The selected sharpening angle for the tool is set (see Selecting and Setting the Tool Sharpening Angle).

Install the chosen accessory into the slot on the worktable as shown in Fig. 8.

Place the chisel on the accessory, leaning it against the abrasive belt.

For convenience, a straight chisel can be positioned to the left or right of the accessory. The positioning of a skew chisel depends on its bevel angle.

Adjust the chisel's position relative to the belt center by moving the accessory along the slot in the worktable.

For convenience during sharpening on the machine, the accessories can be secured to the table.

Using hex key №3, tighten one of the three screws from the end of the table, thereby securing the accessory in place.

A distinctive feature of sharpening gouges (semi-circular chisels) is that during sharpening you must rotate the tool within the accessory's prism along its entire surface.

KNIFE SHARPENING

STEP 1. Preparing the machine.

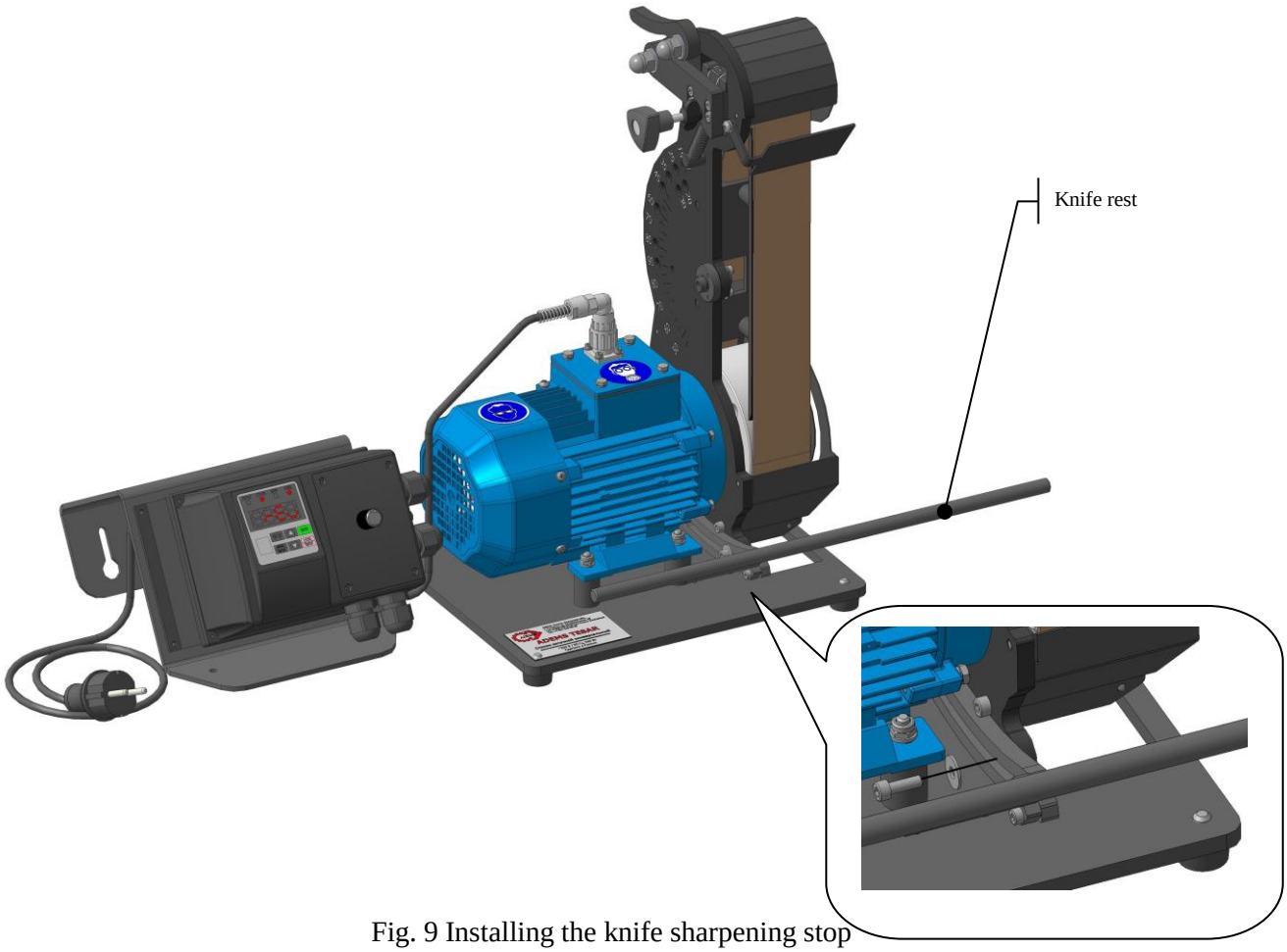


Fig. 9 Installing the knife sharpening stop

Remove the worktable from the machine.
Install the knife guide as shown in Fig. 9.
Secure the guide by tightening the screw.

STEP 2. Installing the knife into the jig

Using hex key №4, loosen (but do not unscrew) the two clamping screws on the knife sharpening jig.
Insert the knife to be sharpened into the resulting gap between the jaws.
Tighten the two clamping screws to secure the knife in the jig.

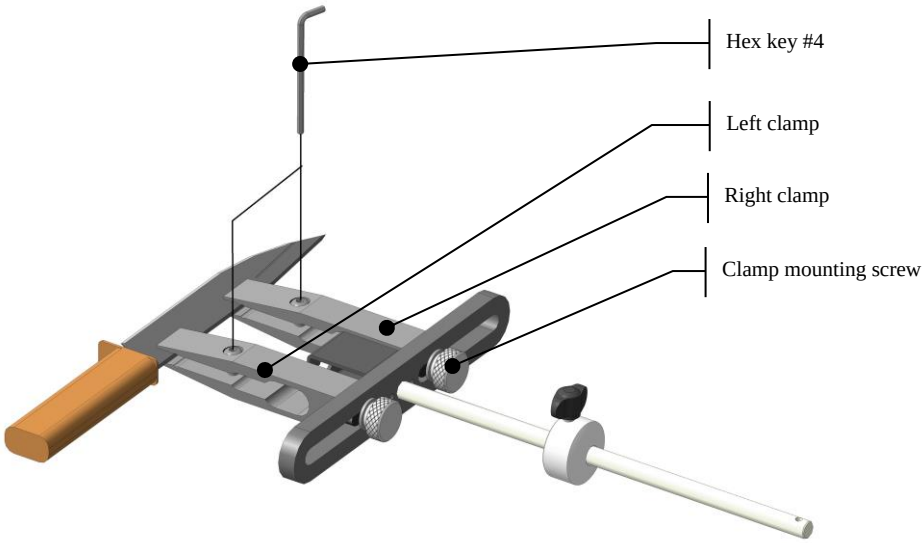


Fig. 10 Clamping the knife in the fixture

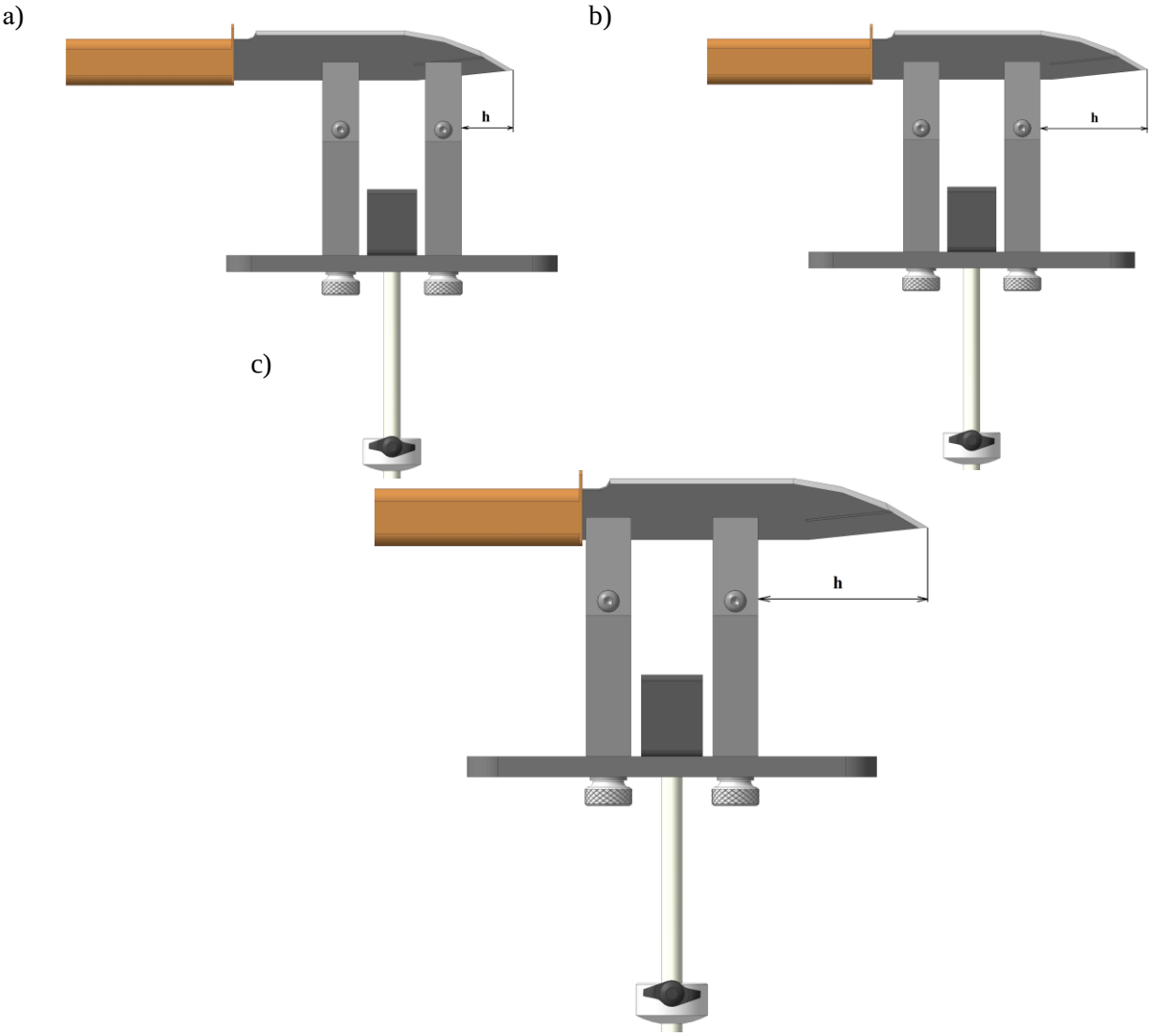


Fig. 11. Edge angle shape during sharpening
a) large radius; b) normal radius; c) small radius

The bevel angle at the tip of the knife depends on the clamp's mounting position (h). If the clamp is mounted closer to the knife tip, the bevel angle at the tip increases. If the clamp is mounted closer to the knife handle, the bevel angle at the tip decreases. Correct clamping of the knife ensures a consistent bevel and edge angle along the entire blade.

ATTENTION

The distance from the clamping jaws to the blade tip is chosen independently by the sharpener.

STEP 3. Setting the Sharpening Angle.

Install the jig with the knife onto the machine as shown in Fig. 12. The spherical part of the bushing must rest against the axis of the knife guide, and the knife must contact the abrasive belt.
Place the electronic angle gauge on the jig's platform.

ATTENTION

The electronic angle gauge is not included in the standard delivery package and must be purchased separately by the customer.
The position of the bushing relative to the jig's axis and the knife guide relative to the swivel column determines the knife sharpening angle.

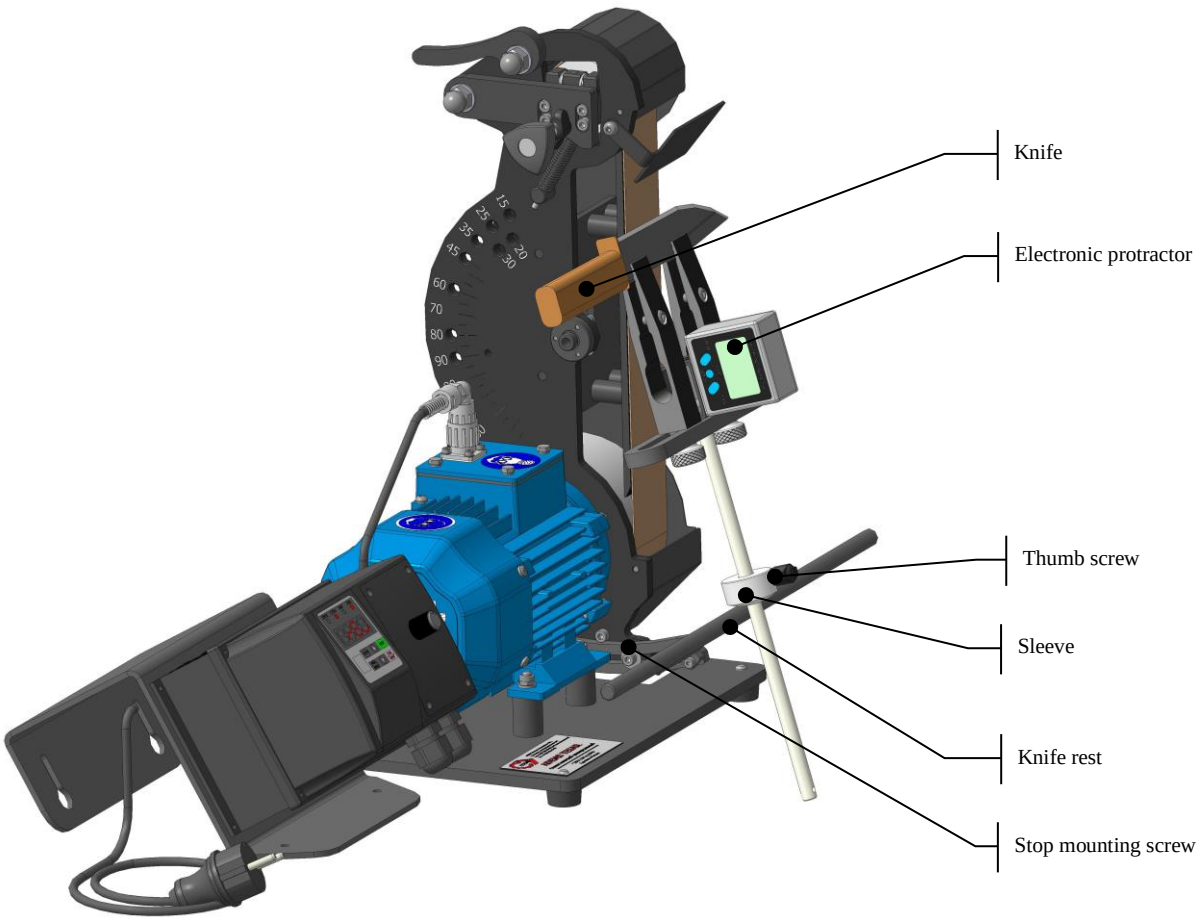


Fig. 12 Adjusting the sharpening angle

STEP 4. Sharpening Technique.
Sharpening the knife is performed starting from the handle: the straight section of the cutting edge, followed by the curved section (belly) of the cutting edge.
Sharpening the straight section of the cutting edge is done by moving the jig along the axis of the knife guide until the beginning of the curve.
Then, when sharpening the curved section, add a rotational movement to the longitudinal movement.
After sharpening the cutting edge on one side, proceed to sharpen the opposite side by flipping the jig with the knife over.
The procedure for sharpening the cutting edge on the opposite side is the same.

ATTENTION

During the sharpening process, the bushing must always remain in contact with the axis of the knife guide.

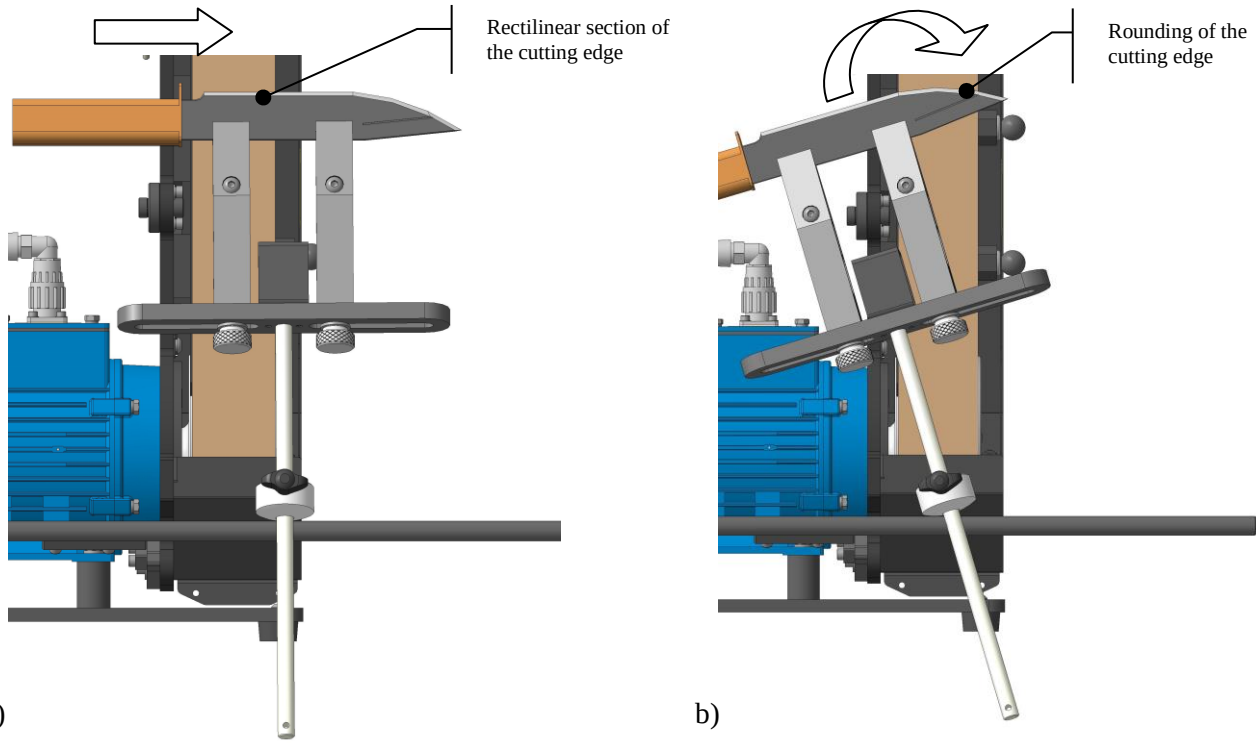


Fig. 13 Knife sharpening technique
a) Sharpening a straight section of the cutting edge; b) Sharpening a rounded section of the cutting edge.

ATTENTION

To prevent wear on a specific area of the abrasive belt, do not process the tool in one spot for too long. Utilize the entire width of the abrasive belt for processing.
Frequently check the geometry of the tool being sharpened to ensure an even shape. Continue sharpening the areas of the tool where the shape needs to be altered. The initial shaping of the tool is only required once. Shaping may take 10-20 minutes, depending on the tool's initial shape and the amount of steel that needs to be removed.

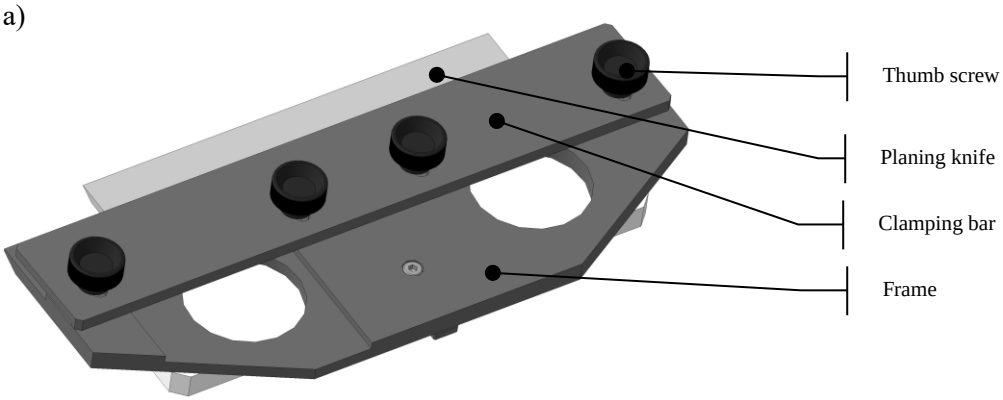
ATTENTION

If you apply some force while pressing the tool during sharpening, the sharpening pressure depends on the area of contact with the grinding belt. Reducing the contact area increases the sharpening pressure. This is an important factor to consider, as the sharpening pressure determines the intensity of the tool sharpening and, consequently, the risk of overheating (burning) the cutting edge.
You must ensure that the tool being sharpened is not pressed too firmly, especially when sharpening small, delicate tools with a rounded edge. Otherwise, the sharpening pressure will be very high and may lead to excessively rapid material removal.

SHARPENING PLANER KNIVES

STEP 1. Preparing for sharpening.

a)



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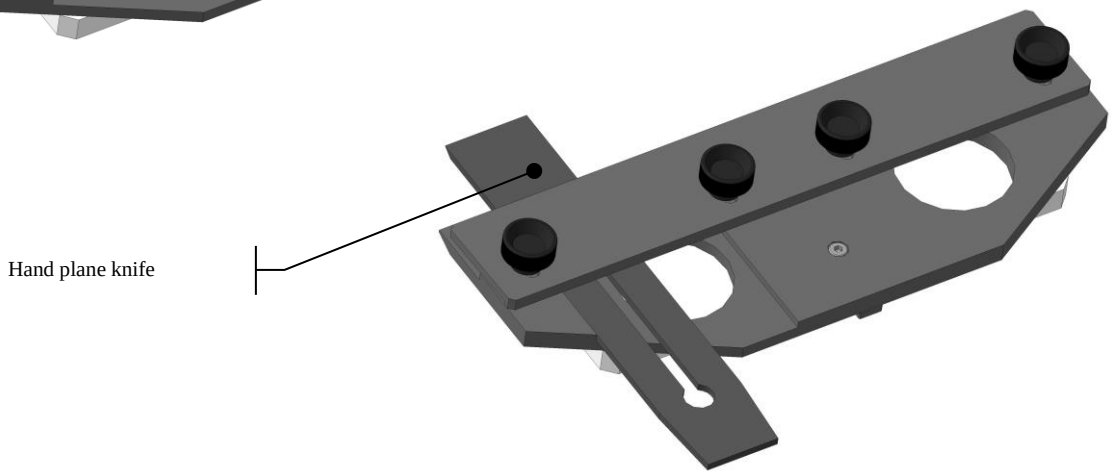


Fig. 14. Sharpening fixture
a) Planer knife installed; b) Hand plane knife installed.

Loosen, but do not unscrew, the wing screws on the jig. Insert the planer knife into the resulting gap between the clamping bar and the jig body until it rests against the shoulder.

If the width of the planer knife is insufficient and its cutting edge is recessed when installed flush against the shoulder, screw in the counter-sunk set screws to change the knife's support surface.

ATTENTION

The hex key №2 for screwing in the set screws is not included in the delivery package and must be purchased separately by the customer.

After placing the planer knife on the jig body, tighten the wing screws. The jig with the knife is ready for use.

ATTENTION

The maximum length of the planer knife is 250 mm.

STEP 2. Sharpening.

Insert the protrusion of the jig into the slot of the worktable. With a smooth motion, bring the knife with the upper part of the jig towards the abrasive belt. By performing back-and-forth movements along the slot, sharpen the knife.

ATTENTION

When bringing the knife to the abrasive belt and during the back-and-forth movements, the knife must always remain in contact with the abrasive belt to avoid damaging the belt.

a)

b)

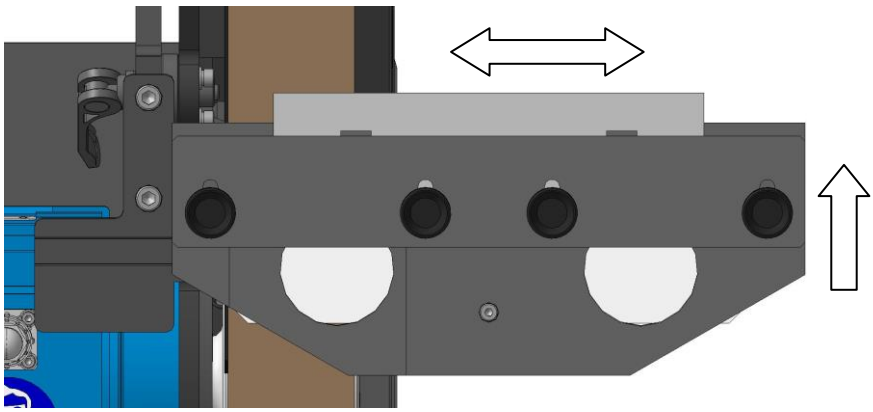


Fig. 15. Method of sharpening planing knives
a) Position of the stand; b) Tool feed

CAUTION

For easier sharpening, rotate the abrasive belt stand so that the planer knife is parallel to the table..

8. ADJUSTMENT, SETUP, LUBRICATION

ATTENTION

Remember that intensive sharpening generates heat, so you will need to have a water container nearby. This will keep the tool being sharpened cool enough to handle with your hands.

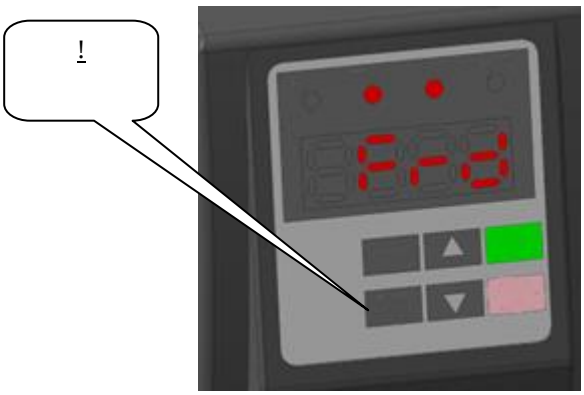
The grinding process produces sparks, therefore it is necessary to have personal protective equipment, such as eye protection. Perform periodic and regular inspections of the machine to ensure it is properly set up, all mounting screws are tightened, and the abrasive belt is in good condition. Maintain cleanliness and prevent corrosion on surfaces. After each use, thoroughly wipe down the machine with a cloth to remove abrasive dust, preventing it from entering moving parts. This will prevent premature wear of components.

When installing the frequency converter, it requires reconfiguration for reverse operation.
To reconfigure the frequency converter, perform the following steps:

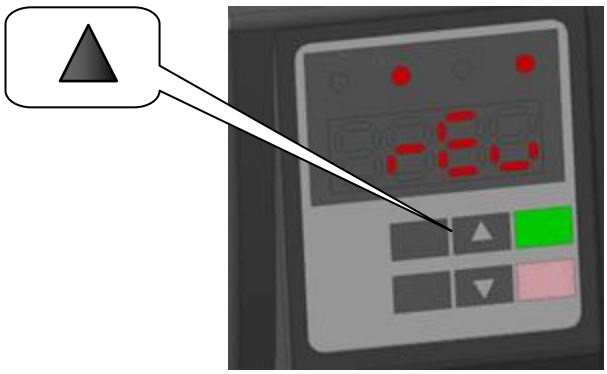
When the machine is turned on, the electronic display looks like this.

ATTENTION

During normal driving, the indicator lights up.



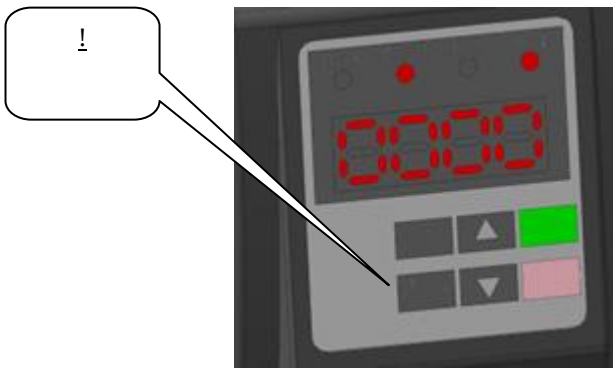
Press the "!" button until the following message appears on the screen: «Frd».



Press the button « ▲ before the following message appears on the electronic board: «rEv».

ATTENTION

When reversing, indicator lights up.



Press the "!" button. The machine is ready for reverse operation..

To change the direction of the abrasive belt movement in normal mode, the procedure is the same.

ATTENTION

When activating reverse motion, remember to align the arrow on the belt with the rotation direction of the drive wheel. This requires repositioning the abrasive belt.

ATTENTION

Monitor the flatness of the backing plate – it wears out during use. The plate is a consumable item. The replacement interval for the backing plate depends on the intensity of use and is determined independently by the sharpener based on the plate's condition.

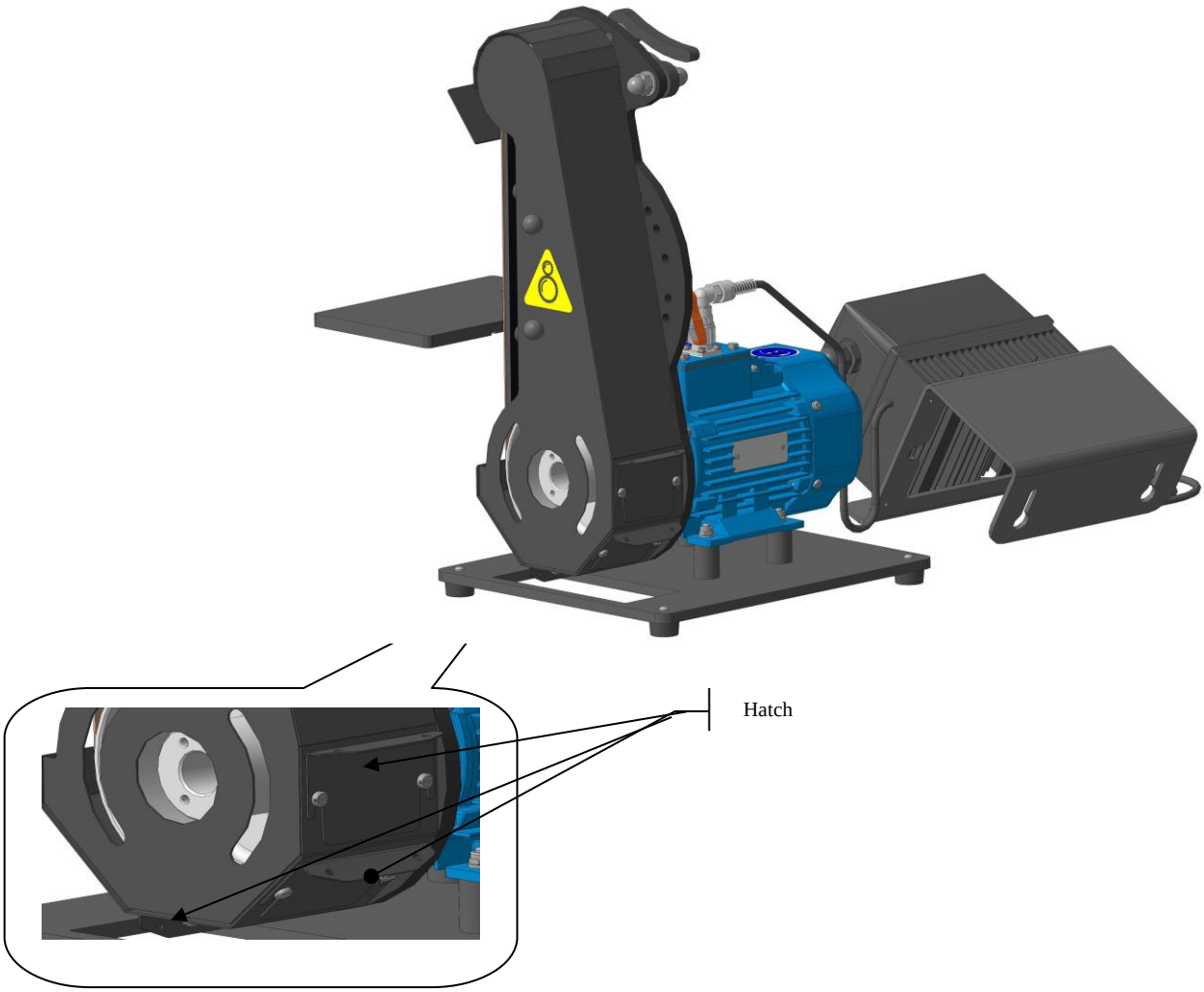


Fig. 16 Dust discharge hatches

To ensure that dust is removed from the housing strictly through the hole in the plate, use the covers. Depending on the rotation of the abrasive belt assembly, remove the appropriate cover so that the resulting opening is positioned above the hole in the plate.

Our company is constantly working to improve the machine, so there may be minor design changes not reflected in this manual.

9. OPTIONS

A Set of Grinding Belts for Sharpening Knives on the ADEMS Tesar Machine

Designed for removing defects, sharpening, and polishing household, hunting, camping, and other knives.

The kit includes:

- Grinding belt 50x915 P80 XK 880 Y VSM CERAMICS – 1 pc.;
- Grinding belt 50x915 P200 (A100) 237AA 3M TRIZACT – 1 pc.;
- Grinding belt 50x915 P280 (A65) 237AA 3M TRIZACT – 1 pc.;
- Grinding belt 50x915 P700 (A30) 237AA 3M TRIZACT – 1 pc.;
- Grinding belt 50x915 P1100 (A16) 237AA 3M TRIZACT – 1 pc.;
- Grinding belt 50x915 P2500 (A6) 237AA 3M TRIZACT – 1 pc.

A Set of Grinding Belts for Sharpening Planer and Jointer Knives on the ADEMS Tesar Machine

Designed for sharpening and polishing planer, jointer, and thicknesser knives on the ADEMS Tesar machine.

The kit includes:

- Grinding belt 50x915 P40 XK 870 X VSM CERAMICS – 1 pc.;
- Grinding belt 50x915 P80 XK 880 X VSM CERAMICS – 1 pc.;
- Grinding belt 50x915 P120 XK 880 Y VSM CERAMICS – 1 pc.

Electronic Angle Gauge

Designed for monitoring and measuring the angle of the sharpened surface of hairdressing, manicure, grooming, medical tools, as well as hunting, chef's, and household knives.

10. WARRANTY SERVICE TERMS AND CONDITIONS

10.1. The warranty period is one year from the date of sale.
10.2. Warranty and post-warranty repairs are performed exclusively by specialists of the ADEMS company.
10.3. The warranty covers only manufacturing defects identified during the operation of the equipment within the warranty period.
10.4. Equipment is accepted for warranty repair only if accompanied by properly completed documents: a free-form application addressed to the General Director, containing the following fields:

- equipment name;
- purchase date;
- equipment cost;
- reason for the warranty claim;
- whether the equipment has been used or not;
- buyer's signature;
- equipment serial number, as stated in the warranty card for this equipment.
  10.5. The warranty does NOT cover:
- consumables and accessories (e.g., discs, abrasive belts, sandpaper, oils, filters, etc.);
- power cords; in case of insulation damage, they must be replaced without the owner's consent.
  10.6. Warranty repair is NOT performed in the following cases:
- absence, damage, or alteration of the serial number on the equipment or in its accompanying passport, or a mismatch between them;
- use of the equipment contrary to its intended purpose as specified in the user manual;
- failure due to overload;
- mechanical damage to the equipment;
- defects arising from actions of third parties, force majeure, natural disasters, adverse atmospheric conditions, and/or exposure to aggressive environments and high temperatures;
- natural wear and tear of the equipment (full or partial depletion of service life, severe internal or external contamination, rust);
- damage resulting from failure to comply with the operating conditions specified in the manual;
- equipment damage due to power grid voltage fluctuations;
- ingress of foreign objects into the equipment, which are not by-products of normal use;
- equipment damage due to non-compliance with storage and transportation rules;
- after attempts at self-disassembly, repair, structural modifications, or lubrication of the equipment during the warranty period, as evidenced by damaged seals/stickers;
- malfunctions related to insufficient equipment maintenance;
- partially or fully disassembled equipment.

  10.7. Preventive maintenance of the equipment (cleaning, flushing, and lubrication replacement) during the warranty period is a paid service.
  10.8. The service life of the equipment is 3 years from the date of manufacture.
  10.9. The owner will be informed of any potential violations of the above warranty terms after the equipment is diagnosed by ADEMS specialists.
  10.10. The owner authorizes ADEMS specialists to perform diagnostics in their absence.
  10.11. Under no circumstances shall ADEMS be liable for:

- losses or damages that, at the time of purchase, could not be attributed to a breach of the warranty terms by ADEMS;
- losses incurred due to the owner's fault, loss of commercial appearance, lost profits, or consequential damages.

10.12. Available service options, spare parts, and response times may vary by country. If service is required in a country where ADEMS has no Authorized Service Provider, service options may be limited. Where international service is possible, ADEMS may repair or replace equipment and parts with comparable items meeting local standards.

ATTENTION

The warranty period is extended for the duration the equipment is undergoing warranty repair.