

ZIGMA – 06 A
HEAVY DUTY 18" (450 MM) AUTOMATIC DOUBLE HEAD MITER SAW
USER'S MANUAL

CONTENTS

1. GENERAL INFORMATION

- 1.1. Introduction
- 1.2. Information About The Distributor

2. MACHINE'S DESCRIPTION AND PURPOSE OF USE

- 2.1. Machine's Description
- 2.2. Technical Features
- 2.3. Cutting Diagram
- 2.4. Dimensions
- 2.5. Parts List and Technical Drawings

3. SAFETY

- 3.1. Safety Information
- 3.2. Accident Prevention
- 3.3. General Safety Information
- 3.4. Safety Symbols And Meanings

4. TRANSPORT OF THE MACHINE

5. INSTALLATION OF THE MACHINE

- 5.1. Preparation
- 5.2. Instructions About Safe Connection Of The Machine To The Power Source
- 5.3. Air Pressure Setting

6. MACHINE SAFETY DATA

7. OPERATION

- 7.1. Panel Promotion and Program Entry
- 7.2. Automatic Cutting
 - 7.2.1. Recipe
 - 7.2.2. Cut List
- 7.3. Manual Cutting
- 7.4. Slicing
- 7.5. Setting
 - 7.5.1. Calibration
 - 7.5.2. Technician Settings
 - 7.5.3. Input And Output Test

8. SAFE INSTALLATION OF THE SAW BLADE

9. MAINTENANCE, SERVICE AND REPAIR

- 9.1. Periodic Checks And Starting To Work
- 9.2. Maintenance At The End Of The Working Day

10. TROUBLESHOOTING GUIDE

11. COMPONENTS

- 11.1. Electric Components
- 11.2. Hydraulic-Pneumatic Components

1. GENERAL INFORMATION

1.1. Introduction

The user's manual given by the manufacturer contains information about the machine parts. Each machine operator should read these instructions carefully, and the machine should be operated after fully understanding them.

Safe and efficient use of the machine for long term depends on understanding and following the instructions contained in this manual. The technical drawings and details contained in this manual constitute a guide for the operator.

1.2. Information About The Distributor

ATech Machine, Inc., 8539 Ziggy Lane, Gaithersburg, MD 20877 - USA

ATechMachinery.com

Tel. : +1-240-505-1967

e-mail : info@ATechMachinery.com

*In case of any technical problem please contact your nearest ATECH dealer or ATECH head office through the above mentioned phone, fax or e-mail address.

*Technical labels with the model description of the machine are fixed onto the front side of each machine.

*The machine's serial number and manufacturing year are stipulated on the technical label.

2. MACHINE'S DESCRIPTION AND TECHNICAL FEATURES

2.1. Machine's Description

Double head automatic saw machine for cutting of PVC, aluminum and wooden profiles in desired angles. The operator has the possibility to adjust the cutting speed of the saw blade via knob according to material type and size. Machine features:

- Aluminum and PVC profiles can be cut in the desired length as straight and angled cuts.
- The head can be adjusted automatically at 45 ° and 90 °, manually at other grades.
- Moving on precision rails with the help of right head servo motor, pneumatic brake and conveyor.
- Both cutting units provide more rigid and precise cutting thanks to two front-end clamping systems.
- Dual hand safety system available.
- Provides maximum safety thanks to the protective caps.
- The cutting unit is hydro-pneumatic and the cutting speed can be precisely adjusted according to the type of material to be cut.
- Touchscreen with operator control panel.
- Manual – Automatic – Slicing has three cutting modes.
- 45 ° Cutting Capacity: 173 x 207 mm
- 90 ° Cutting Capacity: 173 x 293 mm
- Stroke: min:90° 360 mm – 45° 480 mm, max: 7000 mm
- Oil spray system is available.

STANDARD ACCESSORIES

- 2 x Ø450 mm (18") carbide tipped saw blades
- Air gun
- Additional conveyor on moving unit
- User's manual

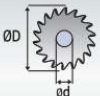


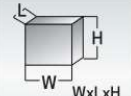

OPTIONAL ACCESSORIES

- Pneumatic spray mist lubrication system

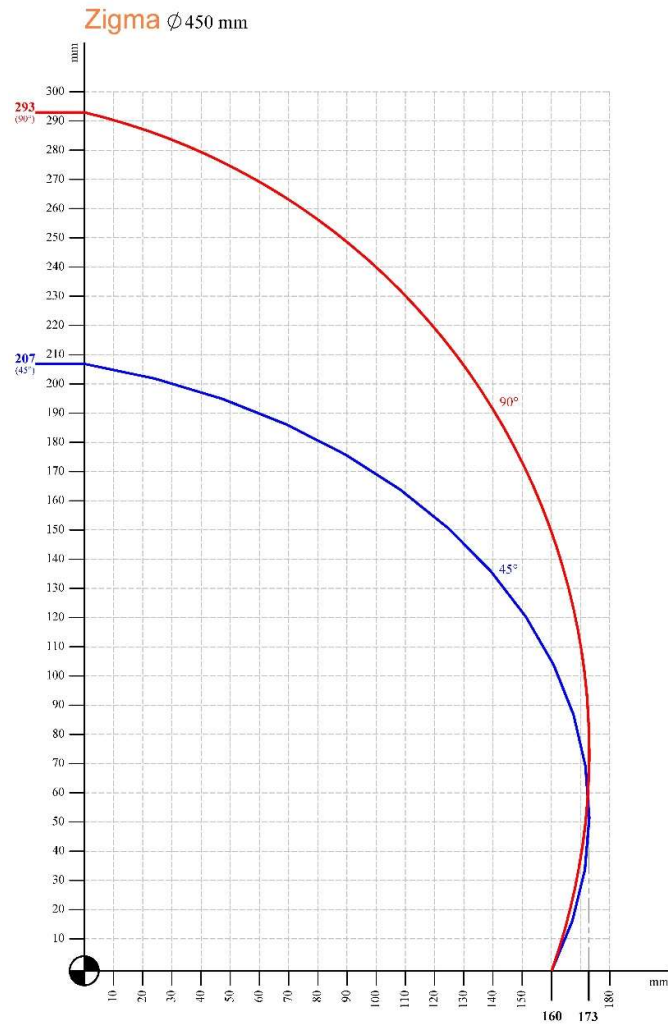
Please mention the below mentioned data in all your correspondence regarding the machine with the manufacturer and/or your ATECH dealer.

- Machine model
- Machine's serial number
- Voltage and frequency
- Name of dealer where machine was purchased
- Date of purchase
- Description of the machine fault
- Average daily operation period

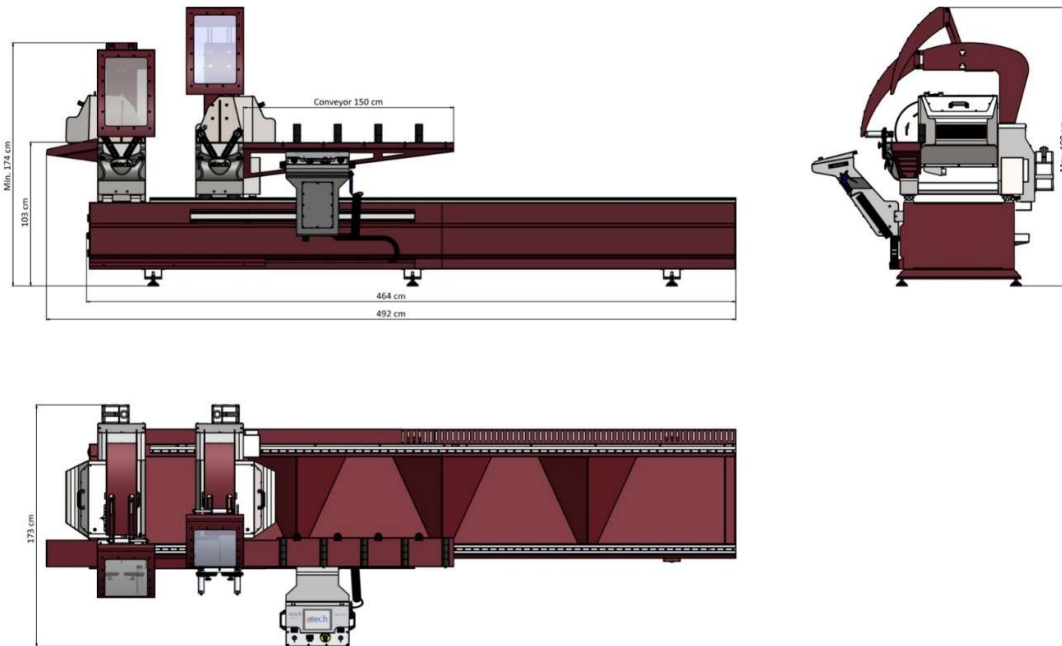
2.2. Technical Features

Teknik Özellikleri Technical Features						
Zigma	2x2.2 kW 400 V, 50 / 60Hz	D=450 mm d=30-32 mm	3000 r.p.m.	BAR AIR CONS. 6-8 Bar 45 lt/min	-	-


2.3. Cutting Diagram





2.4. Dimensions



2.5. Parts List and Technical Drawings

Part No	Part Picture	Part Name	QTY	Part Code
1		Hydro-Pneumatic Cylinder Set	2	ZGM2SA01001
2		Saw Blade Shaft	2	ZGM2SA01002
3		Motor Pulley	2	ZGM2SA01003
4		Coupling	2	ZGM2SA01004
5		Washer (30-32mm)	2	ZGM2SA01005
6		Saw Flange	2	ZGM2SA01006

7		Saw Tightening Nut	2	ZGM2SA01007
8		Saw Blade Shaft Nut	2	ZGM2SA01008
9		6206 ZZ Bearing	4	ZGM2SA01009
10		Bearing Cap	4	ZGM2SA01010
11		Head Tightening Group	2	ZGM2SA01011
12		Vacuum Connector	2	ZGM2SA01012

3. SAFETY

3.1. Safety Information

The symbols shown hereunder are necessary to be read with special attention.

Not reading or observing of them may cause damage to the equipment or personal injury.

IMPORTANT

The **IMPORTANT** symbol above is one telling to apply special care and to be careful at carrying out the specified operation.

CAUTION!

The **CAUTION!** symbol above warns you against specific dangers and requires to read the text. Not observing may cause damage to the equipment.



The above symbol **DANGER WARNING**, warns you against specific dangers and you have definitely to read them. Negligence may cause damage to the equipment and bodily injury. Read the user's manual carefully before using the machine or carrying out maintenance works.



3.2. Accident Prevention

3.2.1. Our machines are manufactured in accordance with EN 60204-1 and EN 292-2 CE safety directives, which cover national and international safety directives.

3.2.2. It is the task of the employer to warn his staff against risks, to train them on prevention of accident, to provide for necessary safety equipment and devices for the operator's safety.

3.2.3. Before starting to work with the machine, the operator should check the features of the machine, learn all details of the machine's operation.

3.2.4. Machine should be operated only by staff members, who have read and understood the contents of this manual.









3.2.5. All directives, recommendations and general safety rules contained in this manual have to be observed fully. The machine cannot be operated in any way for purposes other than those described herein. Otherwise, the manufacturer shall not be deemed responsible for any damages or injuries. And such circumstances would lead to the termination of the warranty.

3.3. General Safety Information



- 3.3.1. The power cable should be led in such a way that nobody can step on it or nothing can be placed on it. Special care be taken regarding the inlet and outlet sockets.
- 3.3.2. If the power cable should be damaged during operation, don't touch and unplug it. Never use damaged power cables.
- 3.3.3. Don't overload machines for drilling and cutting. Your machine will operate more safely with power supply in accordance CE with the stipulated values.
- 3.3.4. Don't place your hands between parts in motion.
- 3.3.5. Use protective eye glasses and ear plugs. Don't wear oversize clothes and jewels. These can be caught by moving.
- 3.3.6. Keep your working place always clean, dry and tidy for accident prevention and safe operation.
- 3.3.7. Use correct illumination for the safety of the operator. (ISO 8995-89 Standard The Lighting of Indoor Work System)
- 3.3.8. Don't leave anything on the machine.
- 3.3.9. Don't use any materials other than those recommended by the manufacturer for cutting operations on the machine.
- 3.3.10. Ensure that the work piece is clamped appropriately by the machine's clamp or vice.
- 3.3.11. Ensure safe working position, always keep your balance.
- 3.3.12. Keep your machine always clean for safe operation. Follow the instructions at maintenance and replacement of accessories. Check the plug and cable regularly. If damaged, let it replace by a qualified electrician. Keep handles and grips free of any oil and grease.
- 3.3.13. Unplug first, before conducting and maintenance works.
- 3.3.14. Ensure that any keys or adjustment tools have been removed before operating the machine.
- 3.3.15. If you are required to operate the machine outside, use only appropriate extension cables.
- 3.3.16. Repairs should be carried out by qualified technicians only. Otherwise, accidents may occur.
- 3.3.17. Before starting a new operation, check the appropriate function of protective devices and tools, ensure that they work properly. All conditions have to be fulfilled in order to ensure proper operation of your machine. Damaged protective parts and equipment have to be replaced or repaired properly (by the manufacturer or dealer).
- 3.3.18. Don't use machines with improperly functioning buttons and switches.
- 3.3.19. Don't keep flammable, combustible liquids and materials next to the machine and electric connections.

3.4. Safety Symbols And Meanings

	Electric warnings.		Use protective goggles.
	If main connection cable is damaged during operation, do not touch it and disconnect the main plug from main socket.		Use protective earmuffs.
	When machine is working, do not make your hand close to saw blade.		Use protective gloves when changing the saw.
	Keep working environment clean, dry and tidy.		Read operating instructions carefully before using or maintaining the machine.

4. TRANSPORT OF THE MACHINE

IMPORTANT

* The transport should be done by qualified personnel only.

- 4.1.1. The machine should be transported by lifting with proper equipment (not touching the ground during the transport).
- 4.1.2. Don't lift the machine before ensuring that lifting devices or other equipment is placed properly under the machine.
- 4.1.3. For the weight and dimensions of the machine, 2.2. Technical Features

5. INSTALLATION OF YOUR MACHINE

The machine should be located at least 50 cm in front of the back wall. The machine is equipped with a burr collection bag connector and power supply socket on the back side.

The left side of the fixed head should be left 100 cm in accordance with the length of the profile material to be cut, and 200 cm space should be left on the right side of the moving head.

5.1. Preparation

- 5.1.1. The outer dimensions of the machine are stipulated in the dimensions page. The ground, where the machine will be placed, should be even, solid enough to bear the weight of the machine.
- 5.1.2. At the double head automatic saw machine Zigma all parts are delivered by the manufacturer ready for use.

Do not make electrical connections without removing the bolt and stop connections used for the detection of running systems before the machine is started and without wiping the protective oil layer in working parts.

5.2. Instructions For Safe Connection Of The Machine To The Power Source

- 5.2.1. The three-phase electrical cable socket must have five inputs to the cable on the machine.
- 5.2.2. Use a connection cable sockets in accordance with the CE Safety Directives.
- 5.2.3. Check the inlet power supply before powering the machine.

CAUTION!

The socket connections have to be made by a qualified electrician, the rotation direction of the saw blade has to be observed by starting the machine. If the saw blade rotates in reverse direction, the socket connections have to be checked and re-connected properly.

If the saw blade rotates in reverse direction, it will cause danger for the operator and the equipment.

To correct the rotation direction of the saw blade, plug in the machine and follow these instructions:

- 1. Turn on the main switch and open the manual cutting page on the screen.
- 2. Press the motor button on the control panel to start one of the motors.
- 3. Press the same motor button again to stop the engine. Observe the rotation of the saw from the saw output channel.

If the saw blade rotates in reverse direction: The electric socket connections have to be checked and corrected by a qualified electrician. The direction of rotation of the saw must not be run without testing.

5.3. Air Pressure Setting

For the pneumatic system to operate properly, the air pressure must be 6-8 bars. **Do not operate at lower pressures than 6 bars.** Read the manometer on the conditioner to calibrate and check the air pressure.

Follow the steps below for air pressure settings.

- 5.3.1. Pull up the conditioner adjustment knob.
- 5.3.2. The pressure increases when the knob is turned clockwise, while the pressure decreases when it is turned counter-clockwise.
- 5.3.3. When you read the 6-8 Bar pressure setting on the pressure gauge, lock the conditioner setting knob.
- 5.3.4. The conditioner unit accumulates the water contained in the air system into the collection container so as not to damage the pneumatic system components. Automatically removes water collected when air is supplied to the machine.
- 5.3.5. The oil recommended by the manufacturer in the conditioner is TELLUS C 10 / BP ENERGOL HLP 10 / MOBIL DTE LIGHT / PETROL OFFICE SPINDURA 10.

6. MACHINE SAFETY DATA

- 6.1.1. It is not allowed to operate the machine with the protective cover and other protective equipment removed.
- 6.1.2. Your machine operates with 400V ~ 3 Phase 50Hz. Let the electric installation of your machine carry out by a qualified electrician only. Grounding must be done. There will be irregularities in machine operation if grounding is not done properly.

- 6.1.3. Lifting, installation, electric, pneumatic maintenance of the machine should be carried out by qualified personnel only.
- 6.1.4. Routine maintenance and scheduled maintenance should be carried out by qualified personnel after unplugging the machine and disconnecting the air supply first.
- 6.1.5. Ensure that the machine has been cleaned, tested and maintenance before starting to operate.
- 6.1.6. Check the safety devices, power cable and moving parts regularly. Don't operate the machine before having replaced defective safety devices or faulty parts
- 6.1.7. Never replace the circular saw without disconnecting the air and the electrical power connection.
- 6.1.8. Keep foreign materials away from the working area of the machine, keep away from the machine's moving parts.

IMPORTANT

The saw blade continues its rotation for a while after switching off the motor.

CAUTION!

Don't use the machine for purposes other than it has been designed for (cutting of iron and other ferrous materials).

IMPORTANT

The safety data have been defined above. In order to prevent physical damage or damage to the equipment, please read the safety information carefully and keep the manual always in an easy accessible place.

7. OPERATION

Zigma double head automatic cutting machine cuts products made of non-ferrous aluminum, wood and PVC type. The operator adjusts the cutting progress of the saw according to the type and size of the material to be cut by means of throttle valves on the head (manually). The inner and outer sharp edges of the circular saw allow you to achieve a high quality smooth surface.

With the help of the servo motor located on the moving head of the Zigma double head automatic cutting machine, the dimensions of the work piece to be cut are obtained by finding the position in the most precise way. As it has the ability to do its approach to measurement with the help of the program in the same direction, it eliminates all measurement errors caused by the gap.

7.1. Panel Promotion and Program Entry



Zigma Double Head Automatic Cutting Machines Using electronic positioning device;



OFF

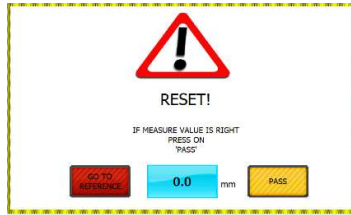


ON

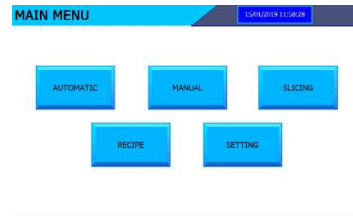
- a. Set Main Switch to "1". Electronic positioning device with touch screen. Tap the appropriate language option on the screen to pass the introduction page (ATECH).



- b. Perform machine position calibration if you are not sure of the position of the moving head before starting cutting. Press "GO TO REFERENCE" button. If you are sure of the position, click "PASS" button to go to the main page.



- c. The main page is the screen page with the selection of operations. Operation is started by touching the desired operation button. To return to the main page from other pages, click the main page button in the upper right corner.



7.2. Automatic Cutting



When you want to trade in the automatic cutting, you can cut the measurements you have prepared earlier by selecting from the "CUT LIST" or cutting them with the new cut values that you will created from "RECIPE".

You can access the desired values by using arrow keys next to the cutting list sequence number display to go to the measurement values available in the CUTTING LIST. When you reach the desired value, press **GO** button to send to demanded measurement. After moving the moving head to the desired measurement, press **CLAMP BUTTON** to fix workpiece. Press **Motor Buttons** to switch on motors. Press both **Cutting Buttons** to start cutting. Keep pressing the buttons until cutting process finishes. After cutting process finishes, pull hand pressure on the buttons. Saws will automatically return to their original position. After the cutting process is finished, the clamps will open automatically, you can get your profile.

IMPORTANT

NOTE: When the written value is completed during the cutting process, the machine will automatically switch to the next recipe and wait for you to press "GO" button.

NOTE: For intermediate cuts other than 0 ° and 45 ° (15° - 22.5° - 30°, ext.), firstly set both heads to 0 °. Then lower the air pressure on the cutting units by pulling the valves on the board (Right-Left Valves). Once the cutting units are manually set to the required degree, secure the heads with the help of the front lever. You can start the operation by typing the information such as the program number, the length to be cut, the quantity on the same page on the screen.

NOTE: In terms of employee safety, the cutting process is adapted to two-hand operation. The head moves on the group working in the cutting operations performed on the single head. The other cutting group unit remains stationary.

NOTE: In our machine, you can make automatic cutting of workpieces longer than 4100 mm. Max. workpieces up to 7000 mm can be cut. Workpieces with lengths from 4100 to 7000 mm cannot be cut with two heads at the same time as they pass the length of the machine. However, the desired measure can be cut with our own software. When you type the desired size and press the "GO" button, the moving head moves to the maximum size. Press the "Clamp button" to tighten the workpiece. When the workpiece is tightened, the forehead cleaning takes place automatically from the fixed head without waiting for any commands. After the cutting proses of the fixed head, the moving head moves back to the limit measurement by driving the profile as far as the missing dimension. Here you must start the moving head motor and cut it by pressing the two hand buttons. Press the cutting buttons for the next cut.

7.2.1. Recipe

When you press the **Recipe button**, you can create a new recipe or you can make changes by changing the values by accessing the values you have prepared before. Use the directional buttons on the side of the screen to access existing values. To create a new recipe, fill in the appropriate places. Press **AUTOMATIC button** to proceed to next step as described above. (7.2. Automatic Cutting)

You can also enter this page directly by pressing the **Recipe button** on the main page to perform the recipe operation.

7.2.2. Cut List

It is the section that shows all selections of entered recipes. Select the desired operation in this section and press the **Automatic cut button**, then proceed as described above. (7.2. Automatic Cut)

7.3. Manual Cutting

When you want to cut with **MANUEL CUT**, type desired workpiece measures in **DIMENSION TO GO** section. If the angle you want to cut is 45° or 90°, press the corresponding button. For intermediate angles set them manually. After setting the cutting measure and cutting angle, press GO button. After the moving head moves to desired measure, press the **Clamp Button** to fasten up the workpiece. Press the **Motor Buttons** to start the motors. Press both **Cutting Buttons** to start cutting. Keep pressing **Cutting Buttons** until cutting process finishes. After the cutting process is finished, the clamps will open automatically, you can get your profile.

You can also use the directional buttons at the bottom of the screen to change the position of the moving head.

7.4. Slicing

In the slicing section, it provides automatic cutting to the desired size, equal length and desired number of work pieces. The length of the workpiece to be sliced is written on “**PROFILE SIZE**”. Write the desired length value of the workpiece to be sliced in the “**MEASURE**” section. How many pieces will be cut is written in “**DEMANDED NO**”. It is sent to the starting position by pressing “**GO**”. After pressing the “**Clamp button**”, the cutting process will start automatically. The cutting process will continue until the specified number of pieces has been completed. When the workpiece on the machine is finished, the machine will stop to the stop position and wait for you to press the “**GO**” button. When you press “**GO**” and place the new profile, press the clamp button to continue the operation. If you want to stop cutting or exit the page while the slicing process is in progress, press “**PAUSE**” button and wait for the machine to stop. When the machine is stopped, you can leave the page and switch to another page or the machine can continue slicing by pressing the “**PAUSE**” button again.

7.5. Setting

Calibration can be performed in the Settings section, as shown in the above image. In case of unexpected problems, technician settings and input/output test section of components can be used by the authorized person.

7.5.1. Calibration

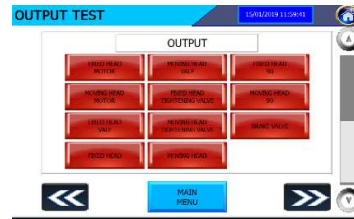
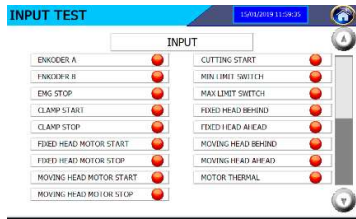
If you are not sure of the position of the moving head, enter the **CALIBRATION** page in the **SETTINGS** section. In the **CURRENT VALUE** section, the current position of the moving head is indicated. Press **GO TO REFERENCE** button to calibrate the position value. If you want to go to one of sections below you can press buttons below or return to main page by pressing the main page button above.

7.5.2. Technician Settings



The machine is made ready for use by the manufacturer. In case of a malfunction in reference values, the authorized personnel will enter this page and make necessary arrangements.

7.5.3. Input And Output Test



CAUTION!

It will be used by authorized personnel or trained personnel for the necessary operations. Do not enter this section unless it is necessary for cutting operations or settings.

8. SAFE INSTALLATION OF THE SAW BLADE

To remove the circular saw blade from the saw mile, apply the following sequence.

- 8.1.1. Cut off the machine's electrical and air connection.
- 8.1.2. Remove the saw casing cover.
- 8.1.3. While holding the saw shaft with 8 mm allen, remove the sawing nut with 32 wrenches.
- 8.1.4. Remove the saw flange.
- 8.1.5. Carefully remove the saw.
- 8.1.6. Install the new saw on the shaft by checking that the direction of rotation is correct.
- 8.1.7. Replace the dismantled parts in accordance with the order of dismantling.
- 8.1.8. Tighten the sawing nut with 32 wrenches while keeping the saw shaft fixed with 8 mm allen.
- 8.1.9. It is necessary to sharpen / replace the saw blade in certain intervals depending on the cutting material. If the cut material leaves burr after the cutting operation or if the saw blade is strained, it needs to be sharpened / replaced.

CAUTION!

When replacing the saw with a new one, use the saw blade that corresponds to the saw blade diameter. The outer diameter of the saw ring is two parts according to 30 and 32 mm.

9. MAINTENANCE SERVICE AND REPAIR

9.1. Periodic Checks And Starting To Work

- 9.1.1. Make sure that the both cutting table and all parts are clean and dry. Clean the tray from the oil and dry it. Be especially sure of the cleanliness and installation of the gripper handles.
- 9.1.2. Clean all surfaces of the machine from the bulges, from the chips and foreign materials. Use glasses to protect yourself from harmful substances.
- 9.1.3. Check the saw blade against wear, bending, cracking and breakage before each use. Turn your hands carefully (after lifting the protective housing up) to see each tooth of the saw blade. If the saw is damaged, replace the saw.
- 9.1.4. Check the air pressure system pressure. Set the air pressure around 6-8 bar if necessary.
- 9.1.5. Check the air pressure filters and the oil level in the conditioner. If the amount of fat is missing, complete it.

Note : Disconnect the electrical power connection and the air pressure connections before doing all this.

9.2. Maintenance At The End Of The Working Day

- 9.2.1. Unplug the machine.
- 9.2.2. Remove all burr, chip and foreign materials from the machine surfaces. Use gloves to protect your hands from the sharp edges of the blade.
- 9.2.3. Don't use materials for cleaning the machine, which could damage its paint.
- 9.2.4. If water and water based liquids are used during the cutting process, dry the machine and rails with dry cloth at the end of the work and lubricated
- 9.2.5. Apply a thin layer of grease to the plate to protect it from corrosion. If it will not be used for a long time, lubricate with a protective oil.
- 9.2.6. Lubricate both surfaces of the saw blade with machine oil in order to protect it against corrosion.

10. TROUBLESHOOTING GUIDE

Here are our suggestions to get rid of immediate problems. If the fault can not be rectified or if you encounter a fault other than those listed below, please contact the technical service.

TROUBLES	CAUSES	REMEDY
Low surface quality (at aluminum and similar materials); <ul style="list-style-type: none"> Rough surface, Large chip, Not homogenous surface, Saw blade traces visible 	Not cooling the saw blade surfaces.	Lubricating the saw blade cutting surfaces, Using of cooling liquid.
	Using of damaged or blunt saw blade or the saw rotating in reverse.	Check the saw blade teeth. Replace if necessary. Check the electricity.
	Saw blade moves too quick.	The cutting speed is too high for the material. Decrease the cutting speed.

Motor does not work (Start button is pressed, not working)	No power supply to the machine.	Check the electric cable connections. Check the electric power sockets.
Motor is working but the pneumatic clamp piston do not work.	The air supply connections are missing, or the air pressure is too low.	Check the air compressor connections. Adjust the air pressure between 6-8 Bar on the conditioner.
The saw blade rotates in reverse direction.	The electric connection or the power cable is wrong.	Let the electric connections carry out by a qualified electrician.

11. COMPONENTS

11.1. ELECTRIC COMPONENTS

PART NAME	QTY
ELECTRIC MOTOR	2
SERVO MOTOR	1
MOTOR PATCHER	2
POWER CABLE 4x2,5 mm	3,5 m

11.2. HYDRAULIC-PNEUMATIC COMPONENTS

PART NAME	QTY
FRC 1/4 D MINI CONDITIONER	1
VALVE	9
PNEUMATIC CLAMPS	4
DMC Ø63 x 100 PNEUMATIC CYLINDER	2
DMC-A Ø50 x 182 PNEUMATIC CYLINDER	2
DMC-A Ø50 x 85 PNEUMATIC CYLINDER	2
DMC Ø40 x 25 PNEUMATIC CYLINDER	2
HYDRO-PNEUMATIC CYLINDER SET	2