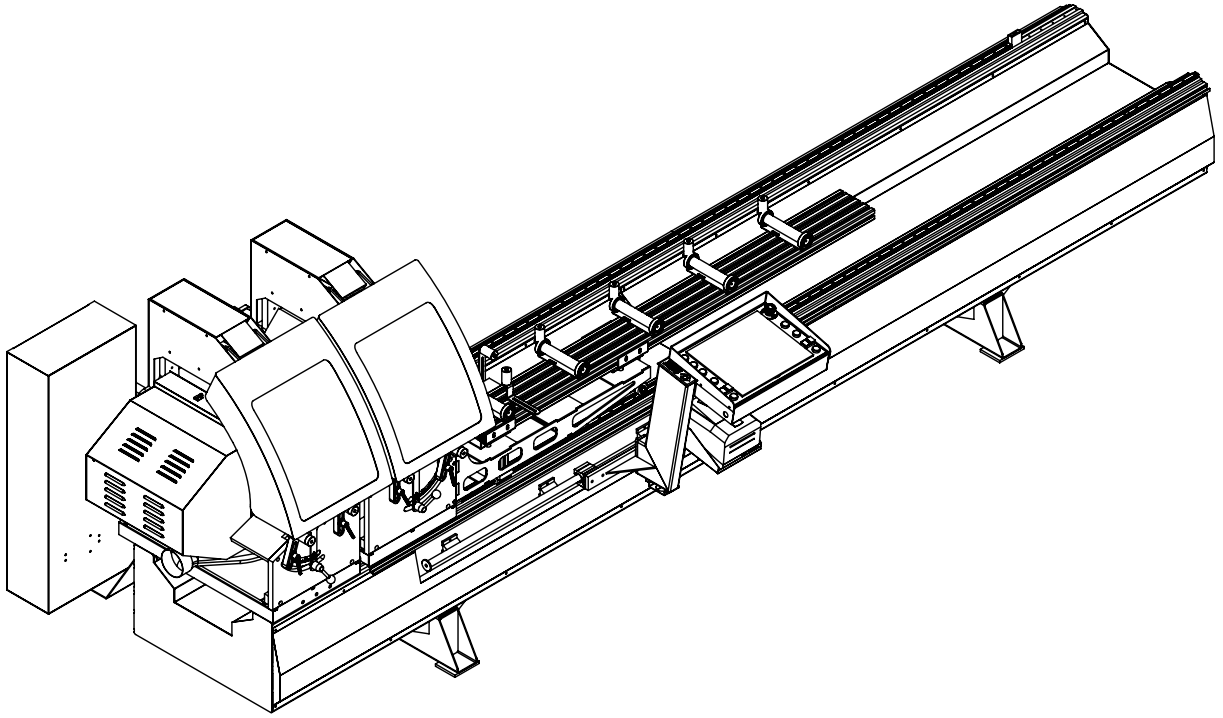




**ÖZGENÇ  
MAKİNA**



# Machine Operation Manual

[www.ozgencmachine.com](http://www.ozgencmachine.com)





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## GENERAL INFORMATION

Includes general topics related to the user's guide.

### 1. DOCUMENT ISSUING INFORMATION

REVISION	
1	2017

Özgenç Makina reserves the right to introduce technical changes.

#### 1.1 After-sales Service

##### Address:

Nilüfer Organize Sanayi Bölgesi

113. Sk. No:23 Nilüfer

BURSA/TURKEY 16250

##### Contact:

Tel: +90 224 411 07 46

Fax: +90 224 411 07 49

E-mail: info@ozgencmakina.com.tr

**Note:** Spare parts are supplied by our below-mentioned company.

Any necessary spare parts are delivered by M.S.K MOTOR KOMPRESÖR MAKİNA SAN.TİC.LTD.ŞTİ.

Tel: +90 224 411 07 46

Fax: +90 224 411 07 49



### 1.3 Procedures to Follow

Warning symbols and phrases in this document should be taken into consideration.



These warning signs are intended to protect occupational health and avoid any hazard.

	Beware of risk of burning your hands in case of contact. Take necessary measures.
 Caution!	A warning sign to prevent machines from experiencing any damage.
 NOTE	Used for warning purposes for proper use of machine features.
 CONTROL	Shows warning messages of operators which are to be inspected.
	Includes the equipment operators are required to use during use

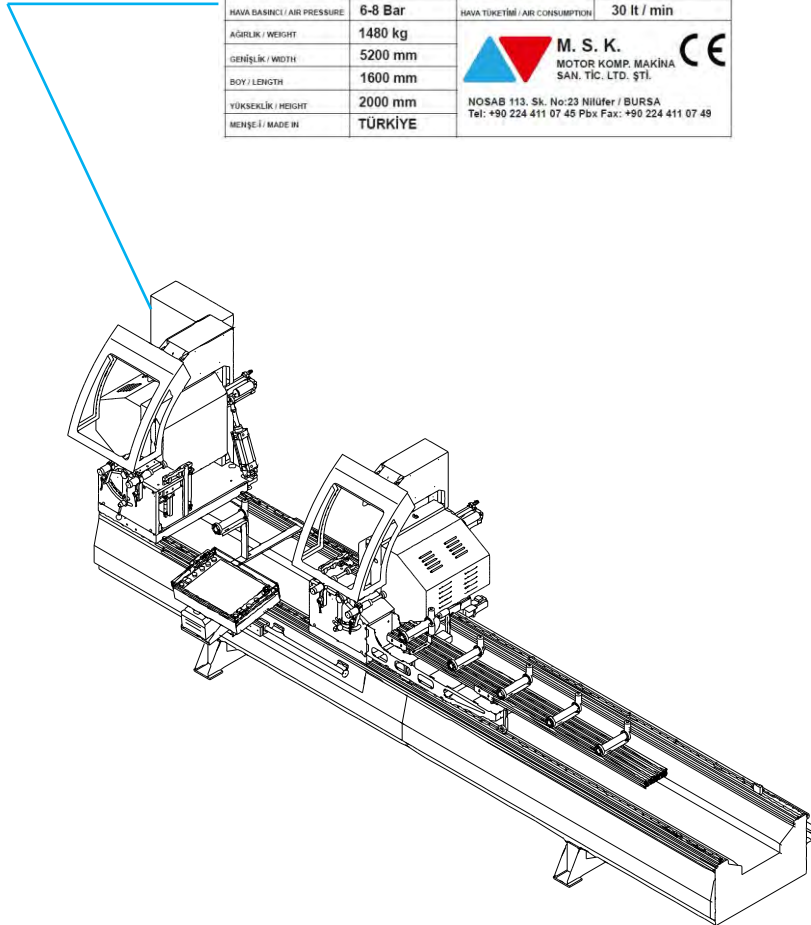


## 2. SCOPE OF USER'S GUIDE



User's guide is a document which must be read by the operating personnel before operating the machine. This guide covers all the required information for machine use. Information about how to provide long-term use of the machine and basic maintenance information is also contained in this document. This guide helps users making correct of use of the software and mechanical components. Although some equipment installed on the machine vary in shape, operating principles remain the same.

ÜRETİCİ / PRODUCER	M.S.K MOTOR KOMP. MAKİNA SAN. TİC. LTD. ŞTİ.		
KOD / AD / CODE / NAME	OMRM 113 Otomatik Çift Kafa Kesim Makinesi Automatic Double Head Aluminum Profile Cutting Machine		
SERİ NO / SERIAL NO.	10D31114	ÜRETİM TARİHİ / PROD. DATE	2015
GÜÇ / POWER	5 kW	VOLTAJ / VOLTAGE	400 V
FREKANS / FREQUENCY	50 Hz	AKIM / CURRENT	6.5 A
HAVA BASINCI / AIR PRESSURE	6-8 Bar	HAVA TÜKETİMİ / AIR CONSUMPTION	30 lt / min
AĞIRLIK / WEIGHT	1480 kg		
GENİRLİK / WIDTH	5200 mm		
BOY / LENGTH	1600 mm		
YÜKSEKLİK / HEIGHT	2000 mm		
MENŞE / MADE IN	TÜRKİYE	NOSAB 113. Sk. No:23 Nilüfer / BURSA Tel: +90 224 411 07 45 Pbx Fax: +90 224 411 07 49	





### 3. Machine Description



Designed for cutting PVC and Aluminum profiles

#### General Features:



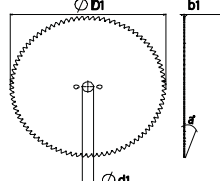
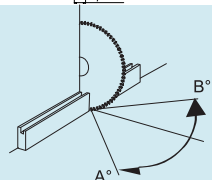
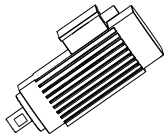
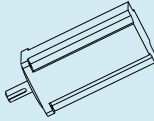


- Performs double side precision cutting of PVC and Aluminum profiles in 45°- 90° angles and in angles within these ranges
- Machine provides automatic adjustment in 45°- 90° angles and easy adjustment in the angles within these ranges
- High precision movement system with servo motor ( +/-0,1mm )
- LCD Control Panel
- PLC control system
- 500 step memory capacity including quantity and dimension of cuts
- Automatic cutting program for profiles longer than 4 m
- Aluminum wedge slicing program
- Multiple language support
- Left head is fixed and right head is movable
- Ability to operate single or double head
- Unit that supports profile between cutting heads
- Conveyor system on the movable head to carry profiles
- Adjustable cutting speed
- Diamond saw diameter: 450 mm
- Saw outlet distance is 148 mm and provides cutting ability for double 70 profiles
- Secure cutting covers operate automatically with the pneumatic system
- Specially designed shaving exhaust outlets
- Full safety against occupational accidents
- The power source protects the system from any sudden voltage change.

#### Option:

- Hydropneumatic and Cooling Assembly for Aluminum cutting
- CO – Cutting optimization: Computer to machine data transfer module and barcode label printer

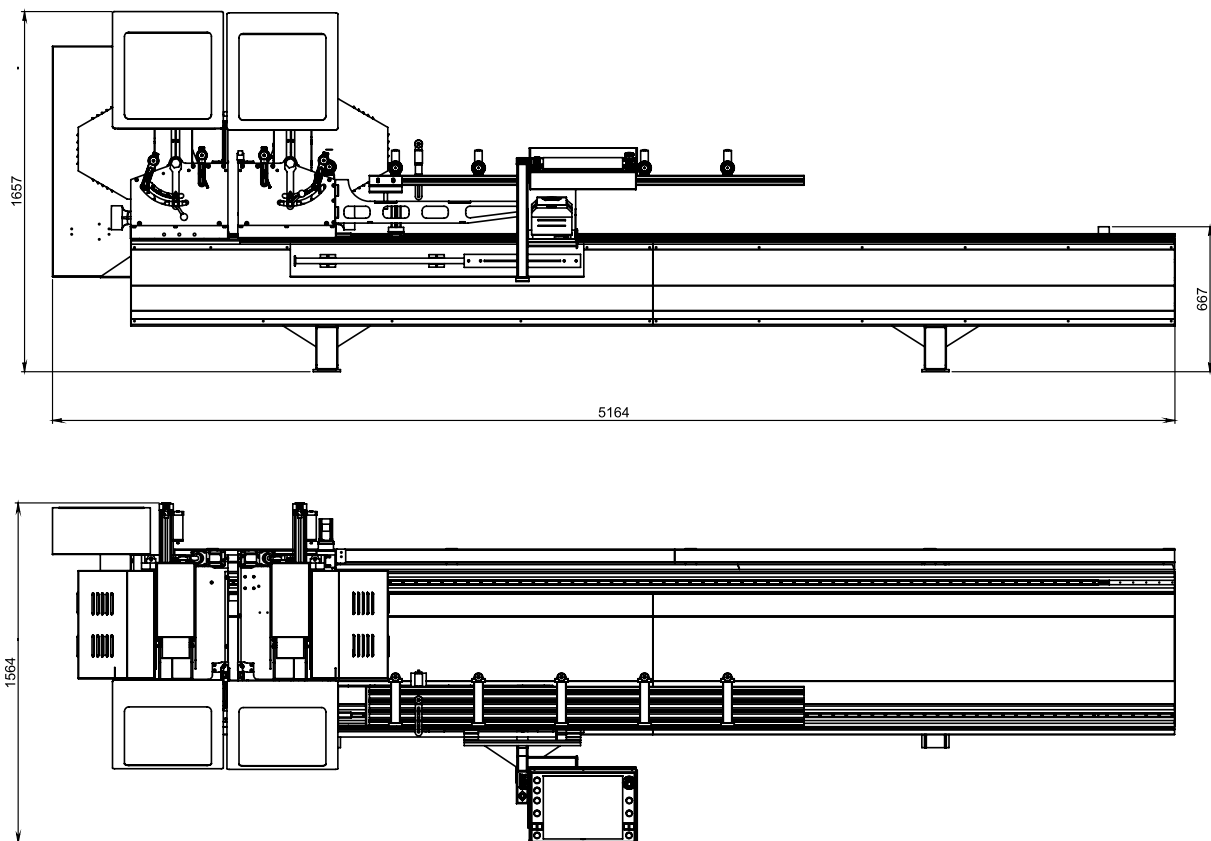


### 3.1 Machine Specifications

Operating Voltage	400	Volt (V)	
Current	6.4	Ampere (A)	
Used Force	5	Kilowatt (Kw)	
Operating Pressure	6-8	BAR	
Used Force	30	Lt / Min.	
Saw Details			
ØD1	450	mm	
Ød1	30	mm	
b1 (saw thickness)	3	mm	
z (No. of teeth)	120		
Saw Rotating Angle (Automatic)			
A	45	Angle (°)	
B	90	Angle (°)	
Saw Motor			
Number of Engines	2	Number	
Operating Voltage	380	Volt (V)	
Current	4.8	Ampere (A)	
Used Force	2.2	Kilowatt (Kw)	
Servo Engine			
Number of Engines	1	Number	
Operating Voltage	400	Volt (V)	
Current	2.6	Ampere (A)	
Used Force	0.4	Kilowatt (Kw)	
Max. and Min. Profile Dimensions that can be cut at once			
L ( max.)	4000	mm	
L (min.)	280	mm	
Machine Weight	910	Kilogram (Kg)	



### 3.2 General Machine Size



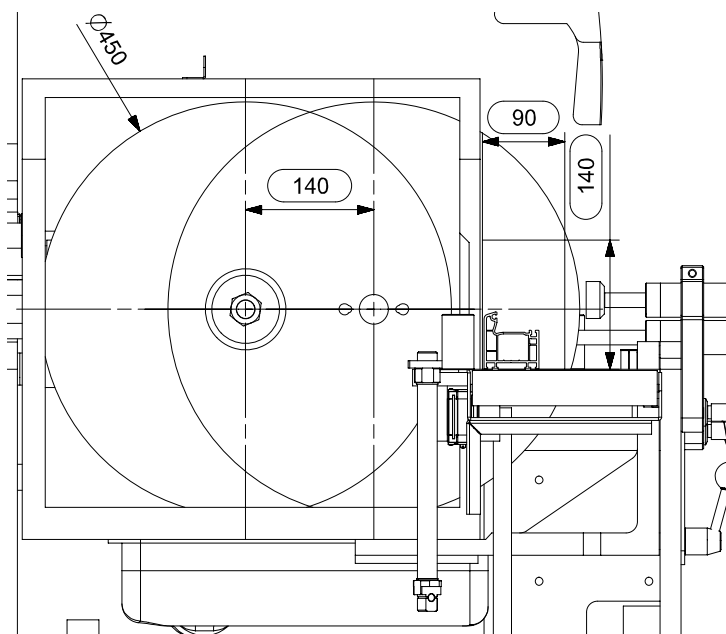
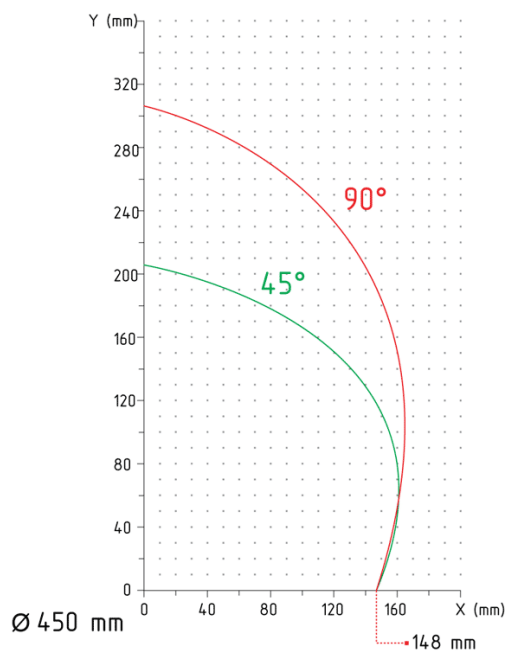
Machine Length: 5164 mm

Machine Width: 1564 mm

Machine Height: 1567 mm

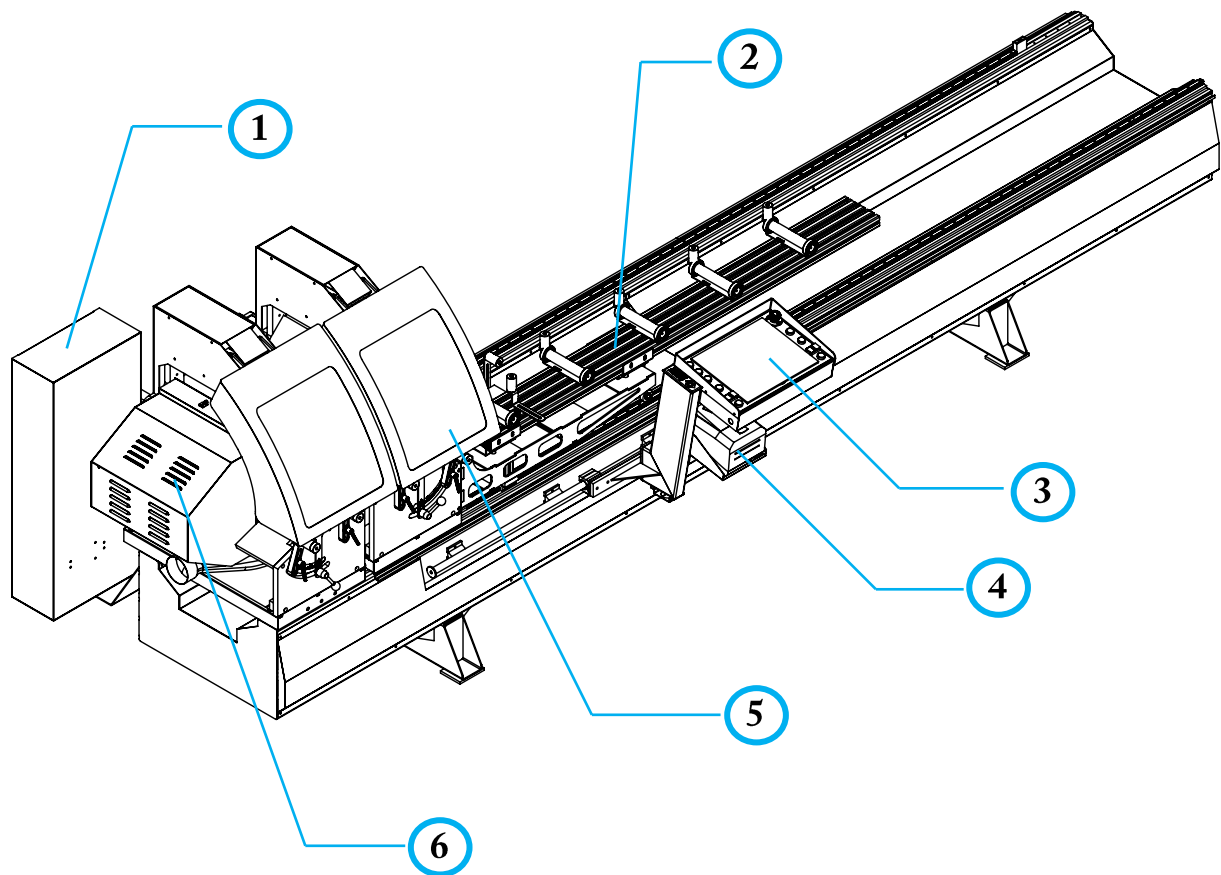


### 3.3 Machine Cutting Capacity





## 4. General Machine Structure

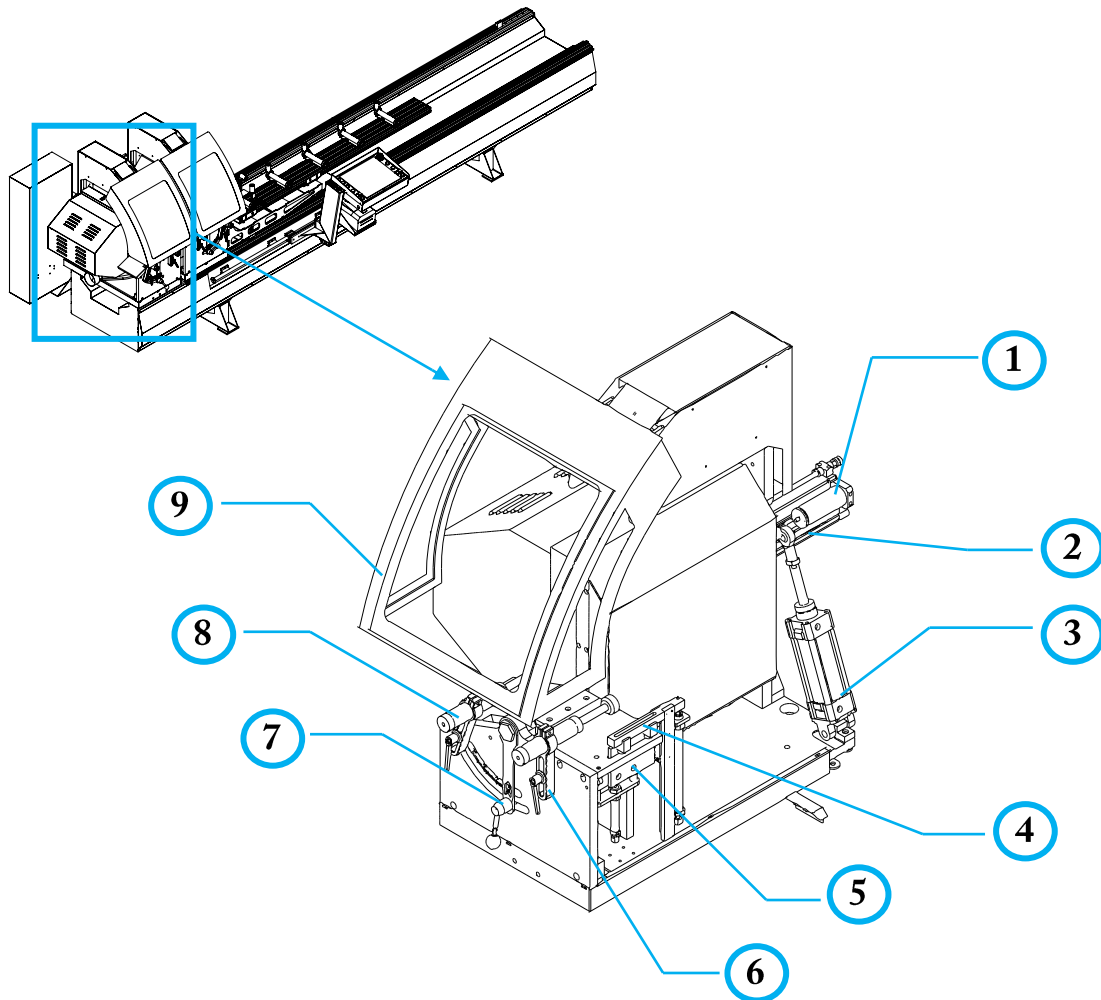


- |   |   |
|---|---|
| 1 | Electrical Panel                          |
| 2 | Profile Carrying Conveyors                |
| 3 | User Control Panel (Panel Pc ) "Optional" |
| 4 | Barcode Printer "Optional"                |
| 5 | Protection Cover                          |
| 6 | Saw Protection Cover                      |





## 4.1 General Structure of Cutting Unit



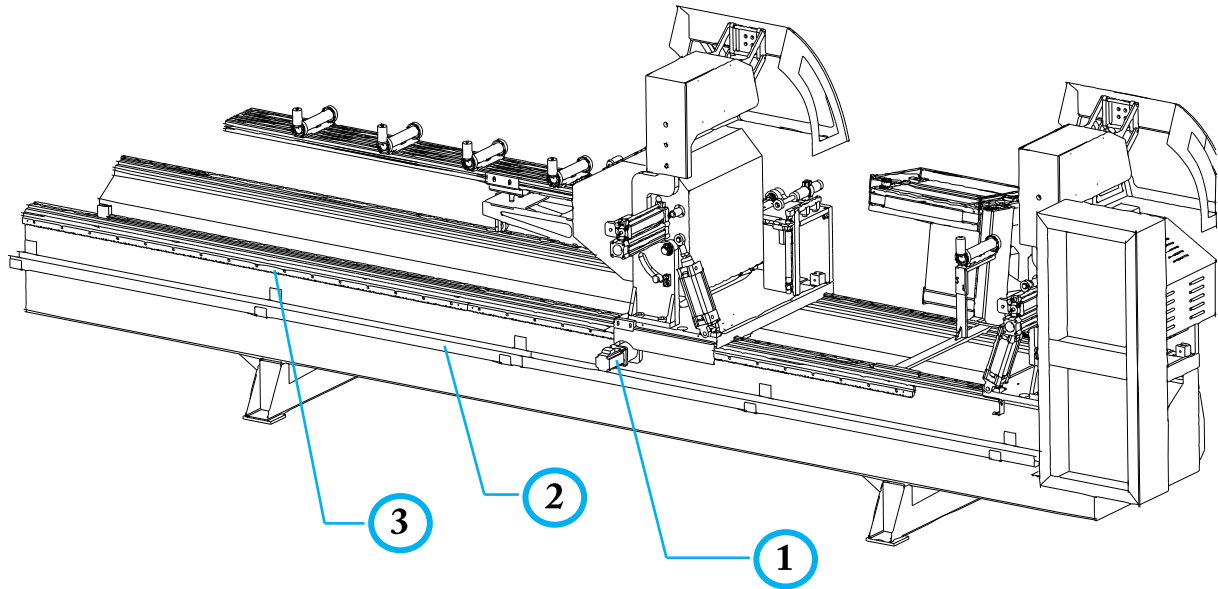
1	Hydropneumatic Piston "Optional"
2	Saw Movement Pistons
3	Cutting Unit Movement Piston
4	Profile Top Press System
5	Short Profile Cutting Gauge
6	Piston Clamp
6	Cutting Unit Intermediary Angle Adjustment Handle
7	Profile Side Press Piston
8	Protection Sheet Cover



**Hydropneumatic Piston option:** This is a special product of our company. It absorbs vibrations caused by pneumatic movement of the saw during aluminum profile cutting and provides a stable cutting with a smooth surface finish. Cutting speed can be adjusted using the speed adjustment valve connected to hydropneumatic piston



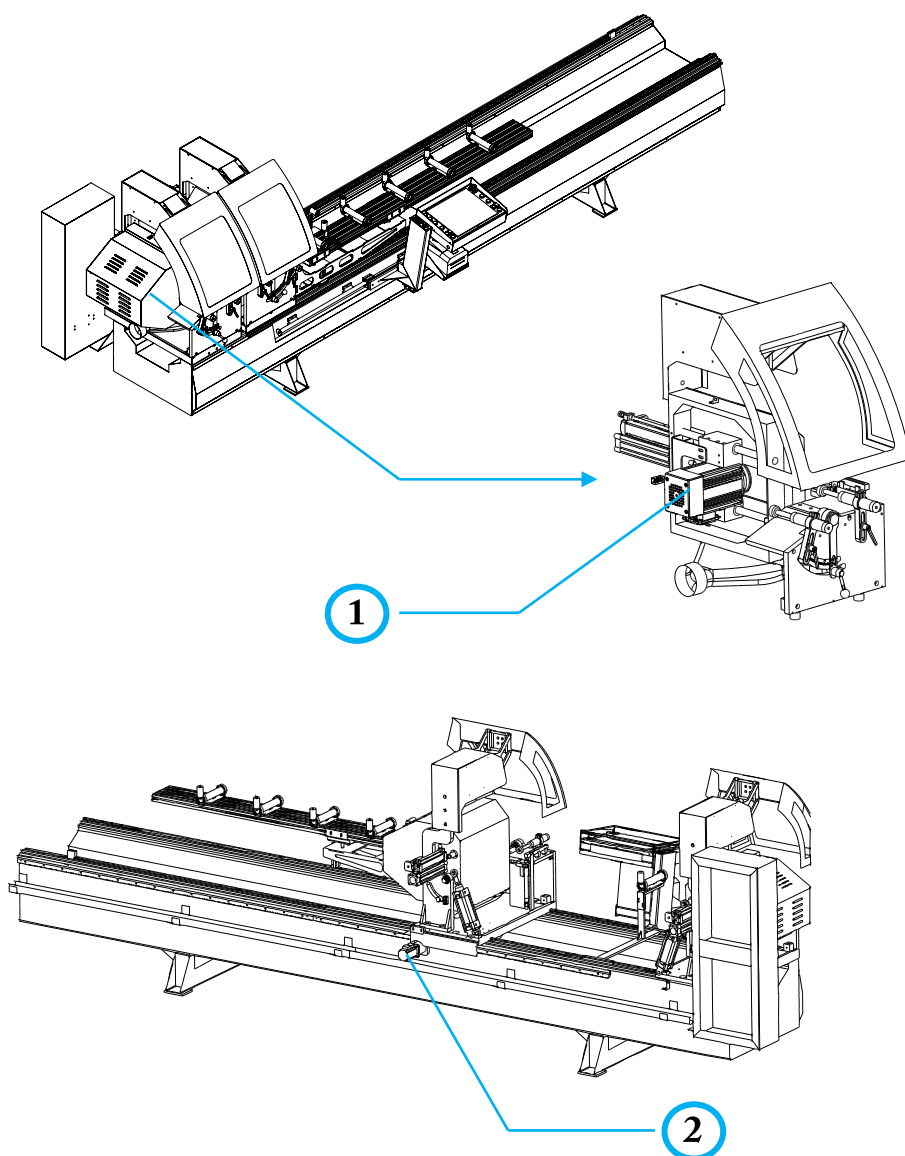
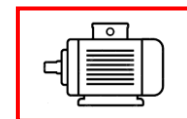
## 4.2. General Structure of the Machine Body



- |   |                          |
|---|--------------------------|
| 1 | Movable Head Servo Motor |
| 2 | Cable Conduit Sheet      |
| 3 | Toothed Rack             |



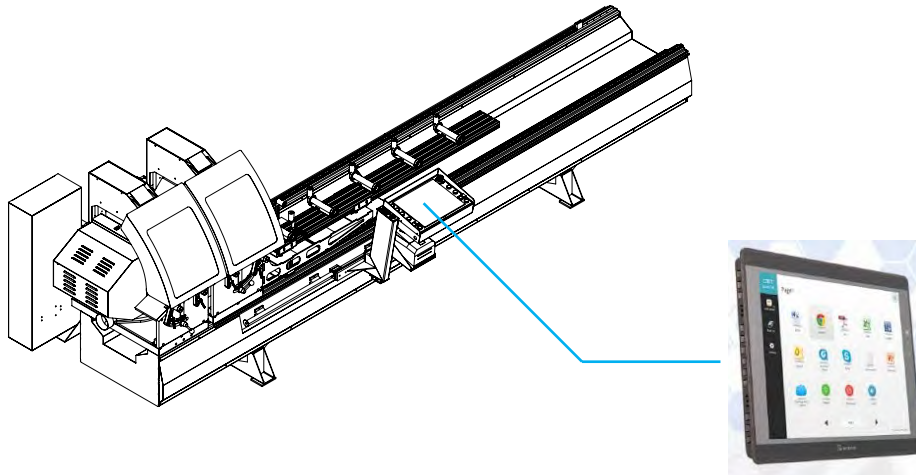
#### 4.4 Locations and Features of Electrical Motors used in the Machine



No.	Motor Type	Quantity	Used Force
1	Asynchronous	2	2,2 Kw
2	Servo	1	0,4 Kw



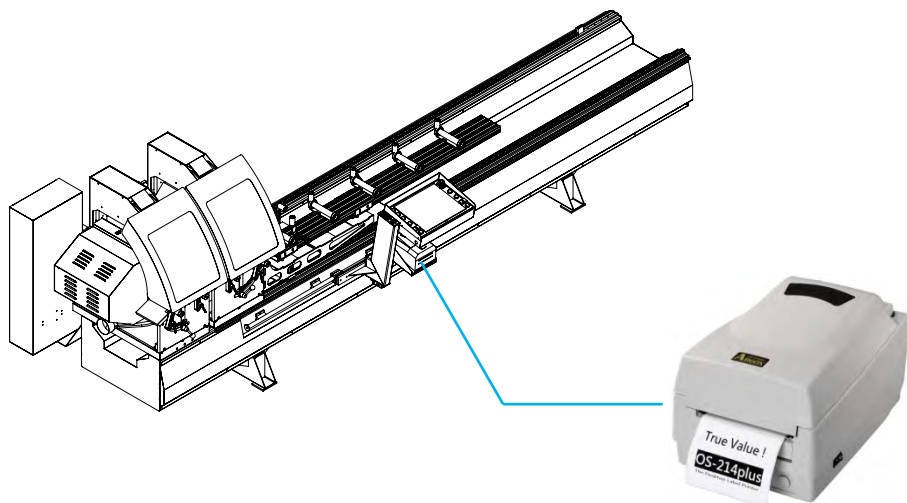
## 4.5 Features of User Control Panel



<b>Brand:</b>	Weintek
<b>Model :</b>	cMT-iPC15
<b>Display Dimension:</b>	15'' (Touch)
<b>Resolution:</b>	1024x768
<b>Memory:</b>	32 GB and RTC
<b>Case:</b>	Aluminum
<b>Processor:</b>	Intel ATOM E3827
<b>RAM :</b>	4 GB



## 4.5 Features of Barcode Printer

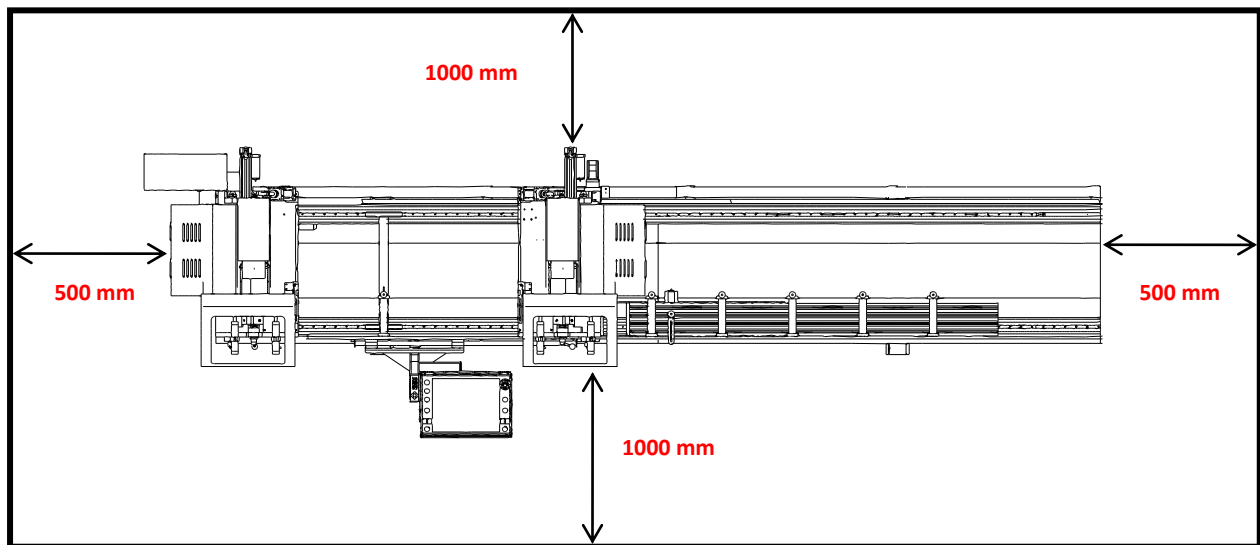


<b>Brand:</b>	Argox
<b>Model :</b>	OS-214 Plus
<b>Printing Method:</b>	Direct thermal (Printing without ribbon)
<b>Label type:</b>	Continuous form with center gap, Black Mark (separated with a black line)
<b>Label Outer Diameter:</b>	Max. 109 mm
<b>Size of Paper Used:</b>	100x35 Thermal

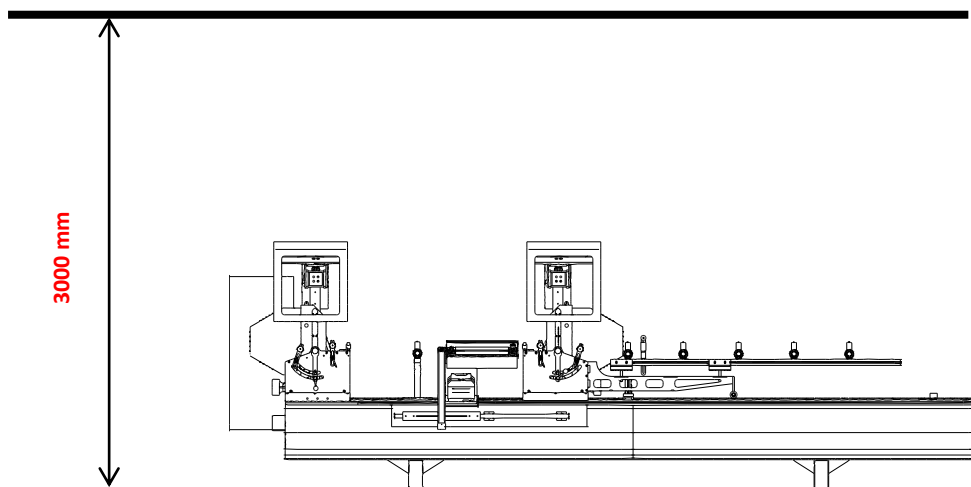


## 5. Machine Layout

During machine installation, take the range of motion into account to operate the machine. Also, leave a suitable distance for the machine's panel caps to open. Take following measures into account for safe operation.



For safe operation, prevent anyone except for trained staff to go beyond the safety distances given in the next page.



Take the following ceiling height into account for proper operation of machine.



## 6. OCCUPATIONAL SAFETY and MEASURES

### 6.1 Safety Switch

This section contains information required for safe use of the machine and general equipment.

### 6.2 Safety and Accident Measures

Required warnings regarding accidents and measures to be taken are given in the User's Guide. Still, user is responsible for warning and guiding workplace employees for complying with occupational safety rules. Workplace officers are responsible for performing required practical follow-ups. Operator must have full command over safety rules of the machine before starting to operate it. Current safety components at the time of machine delivery must be kept intact.

Manufacturing company cannot be held legally accountable for any accident and safety gap resulting from operation not compliant with use and safety requirements of the machine. Such risks shall also affect warranty conditions. Manufacturing company shall not be responsible for any accident and fault that may result from use of machine and equipment outside its instructions. Any critical part requiring replacement due to wearing etc. of the machine and other equipment must be immediately replaced.

Operator is responsible for use, cleaning, adjustment, operation, maintenance etc.



### 6.3 Machine Usage and Misuse

OMRM 113 is designed for cutting PVC and Aluminum profiles. Any machine fault and occupational safety gap other than those resulting from procedures are under user's responsibility.



## 6.4 General Safety Rules

OMR 113 Double Head Cutting machine is suitable for only one single operator. Operator must not operate the machine in case of any lack of attention caused by drugs, alcohol or medication. Operator must check the machine and components prior to operation. It should be ensured that the main switch is turned off during routine maintenance. Power and pneumatics must also be switched off. Any pressure must be discharged in case any hydro-pneumatic equipment is used. Do not replace the equipment and safety parts on the machine. Do not lift the safety device and barriers. Operator must wear a uniform suitable for machine and manufacturing requirements. Operator must not wear any rings, bracelets etc. which may cause an accident. Employees with long hair must use hair nets, if necessary. The machine must be installed in accordance with the training provided by M.S.K.

## 6.5 Maintenance Measures for Safety

All maintenance procedures must be performed by expert technicians who have command over the periodical technique. Use predefined equipment for machine maintenance.

## 6.6 Electrical Safety Rules



Severe occupational accidents and injuries may take place in case of failure to comply with the following safety rules. Any electrical intervention and maintenance must be performed by an engineer. All procedures must be performed using proper and isolated equipment. Take notice of safety signs and do not remove them. Do not make any addition and subtraction on the voltage line. Use original spare parts and equipment. Do not make any change in circuits. Turn electrical hardware off prior to any cleaning procedure. Make sure that the main cabinet and cabinet doors are closed. Cut the power from the main switch in case of fire. Use a proper fire extinguisher.



**Note:** Hardware panel locks must remain in the possession of authorized staff.





## 6.7 Lighting Conditions



Operator must use the equipment with proper lighting conditions for his/her safety and health. Minimum lighting power must be 300 lux for machine use. For more technical information, please see EN 12464-1 Lighting Norm.

## 6.8 Connections

All necessary connections must be prepared at the layout site in line with the machine. Electrical power, pneumatics or similar demands must be at values meeting requirements, and compatible equipment must be kept available at the layout site. Take IEC 64-8 norm into consideration for the installation of electrical equipment.



**Note:** Should the system is equipped with a power supply, then it must have a 0.3A circuit-breaker and start-up procedures must be performed by experts.

## 6.9 Earthing Requirements



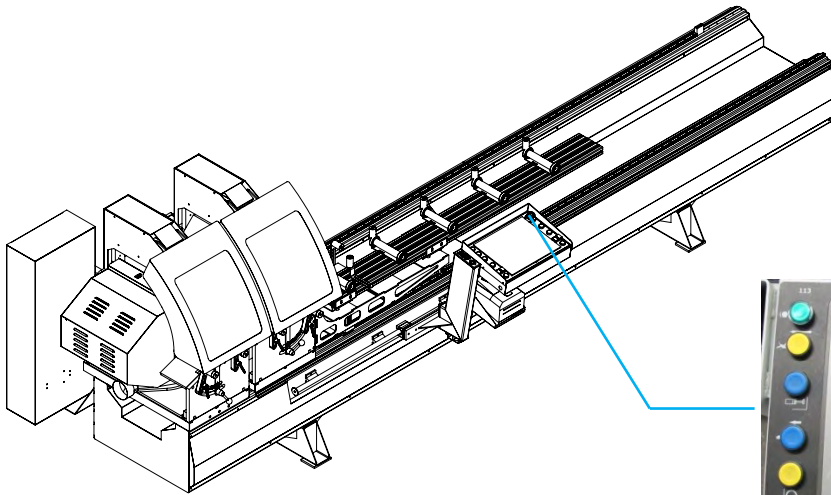
Earthing system must conform to standard features described in IEC 64-8. It must be compatible with IEC64 and IEC364 norms for low-voltage equipment. Earthing procedures must be performed in consideration of the voltage value. A stands for the marked point earthing inlet.



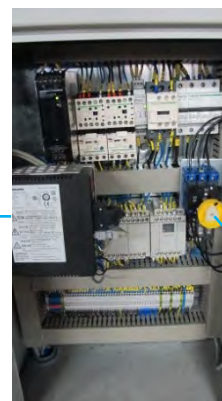
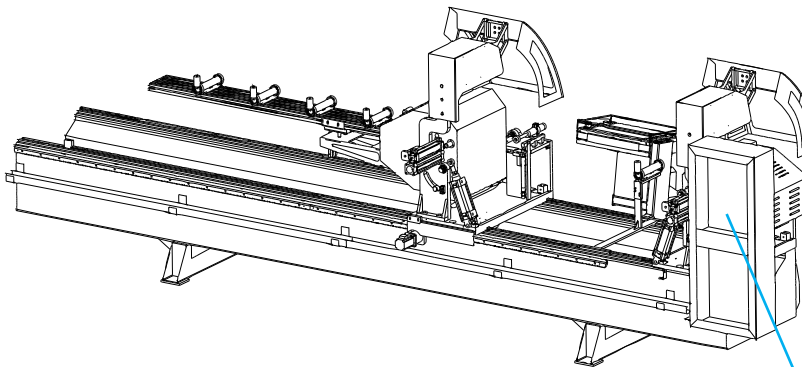
## 7. Safety Equipment

**DANGER!** It is not permitted to remove or deactivate safety measures taken for the machine and equipment.

-Location of EMERGENCY STOP on the machine!

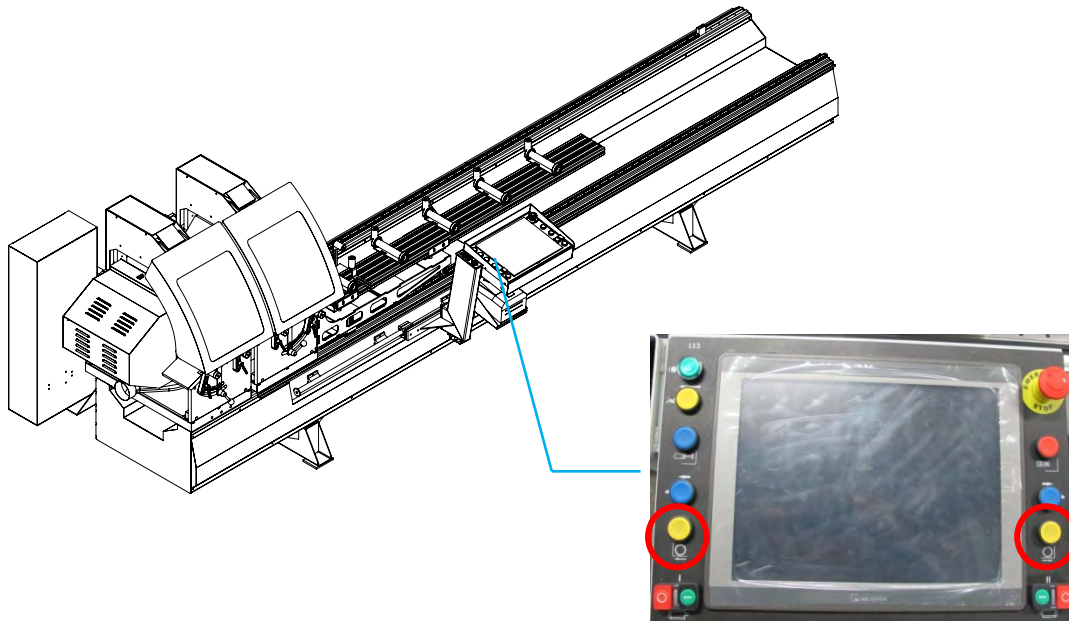


- Position of the Machine Main Switch

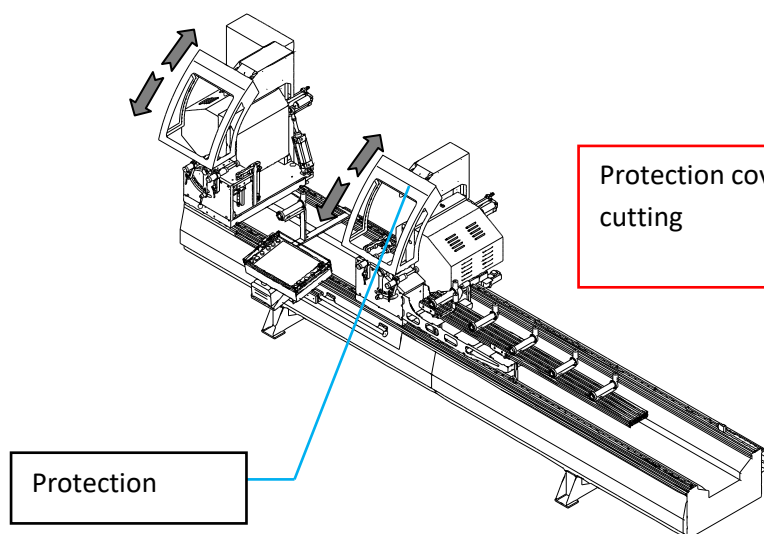




## -Double Manual Operation System



It is required to push the buttons circled in red above located on two hands for the machine to move the saws (to start cutting).









Protection

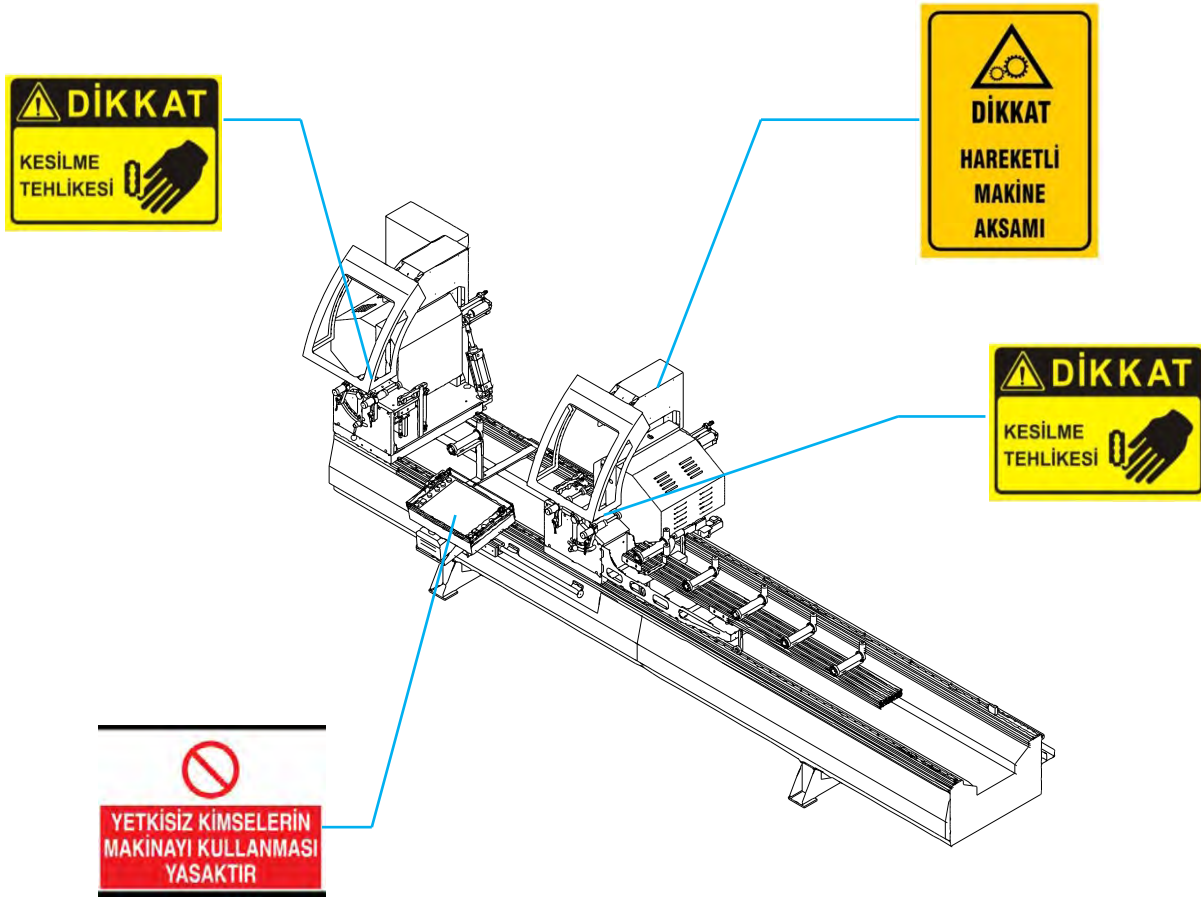
Protection covers that automatically close during cutting



## 7.1 Risky Areas and Warnings

Safety measures are taken on the machine through equipment, but it is also required to comply with additional visual safety measures at the operating site.

	<ul style="list-style-type: none"> <li>Any contact with moving parts may lead to electric shock.</li> <li>Do not use sharp objects on protective isolation equipment as they may do harm.</li> <li>Do not use pointed objects that can penetrate into the protective isolation equipment.</li> <li>Turn off the power supply prior to any maintenance or adjustment.</li> </ul>
	<ul style="list-style-type: none"> <li>During the operation of machine, pay attention to moving equipment or to those used to fix a part.</li> <li>Keep both hands away from equipment during operation.</li> <li>Do not make any adjustment or do not perform maintenance during operation.</li> <li>Do not grab moving parts with hands.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not put your hand in the area with hot equipment.</li> <li>Do not grab hot equipment.</li> <li>Use protective gloves to replace hot equipment.</li> <li>Do not extend your hand to any heated plate etc.</li> </ul>
	<ul style="list-style-type: none"> <li>Do not put your hand anywhere with a risk of jamming.</li> <li>Do not keep your hands on machine except for buttons.</li> <li>Take safety actions during maintenance and cleaning procedure.</li> <li>Take measures to avoid cuts while replacing milling cutters and drilling bits.</li> </ul>
<p>WARNING</p> 	<ul style="list-style-type: none"> <li>This machine does not create a level of sound detrimental to health.</li> </ul>
	<ul style="list-style-type: none"> <li>Please carefully read the relevant user's guide. Try to understand the safety warnings.</li> <li>Keep the user's guide at a visible spot.</li> </ul>



WARNING



## 7.2 Noise Emission

There is no noise emitted by machine units with an impact on occupational health.

## 7.3 Disposal of Hazardous Substances

In case the user uses lubrication and cooling equipment, then apply the methods indicated on respective labels.



## 8. Machine Start-up

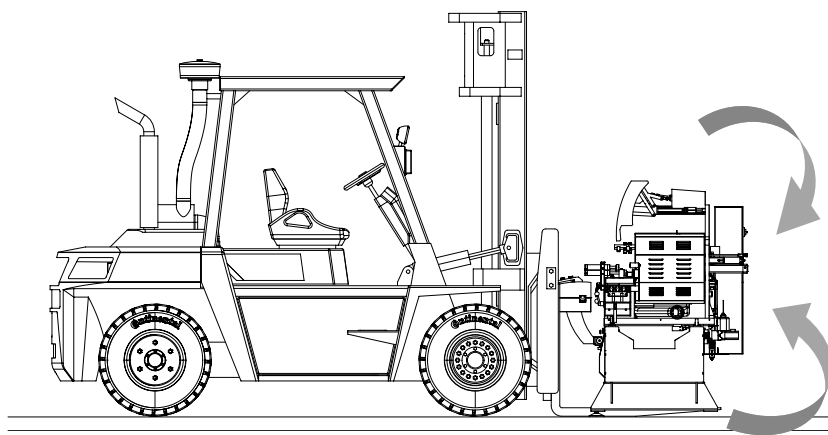
### 8.1 Shipment

Our machines are specially packed in accordance with the size and weight criteria. Main goal of packaging is to safely deliver the product free-of-damage to our customer. Some parts may be shipped as disassembled in line with the agreements with customer. Prior to any shipment, a contract is signed between parties about all detailed criteria.

Transport methods adopted during loading must comply with the mechanical structure and weight of the machine. Otherwise machine may suffer damage.



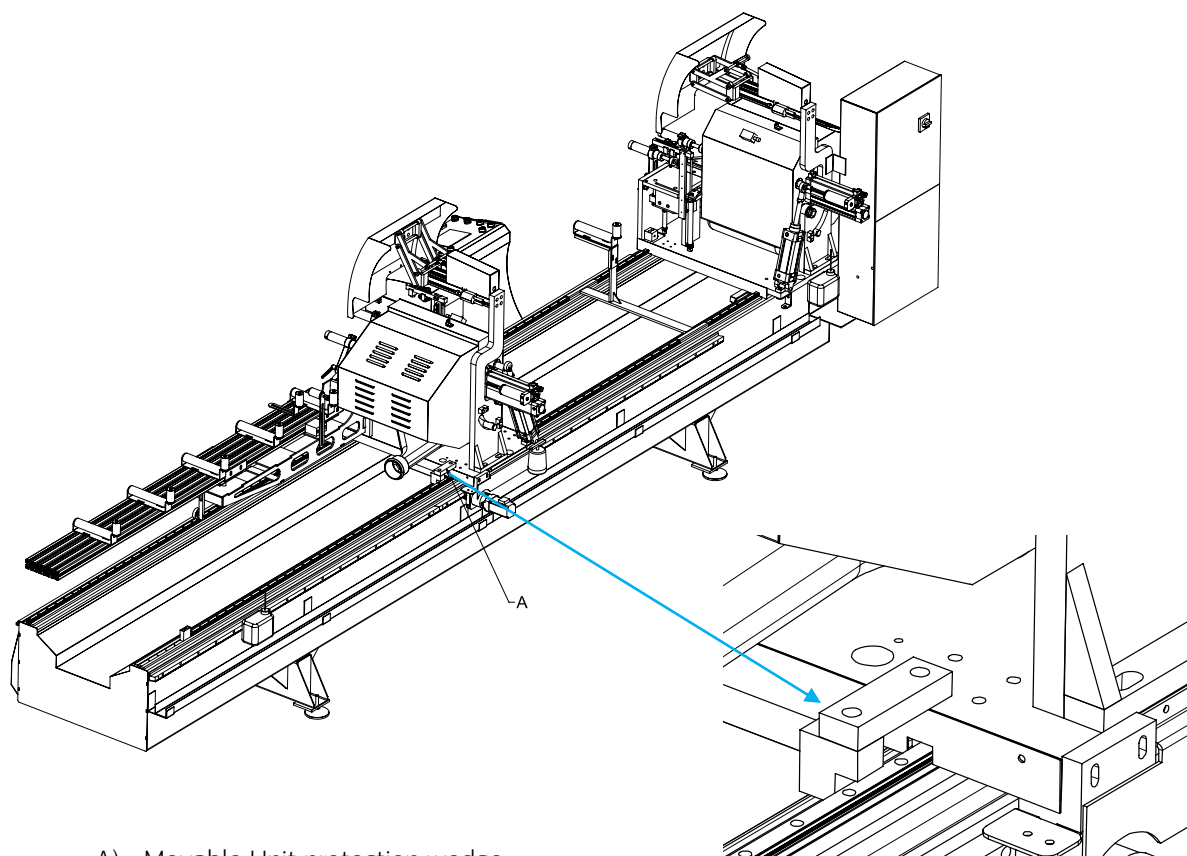
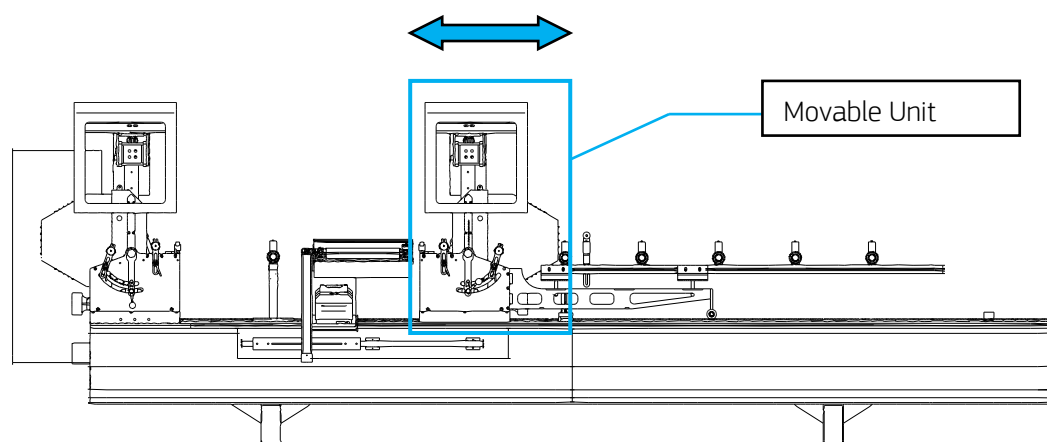
**NOTE !** Use a forklift during the shipment of machine.



**Note:**



Take precautions against potential risks that may arise due to displacement of the center or gravity during any lifting procedure.



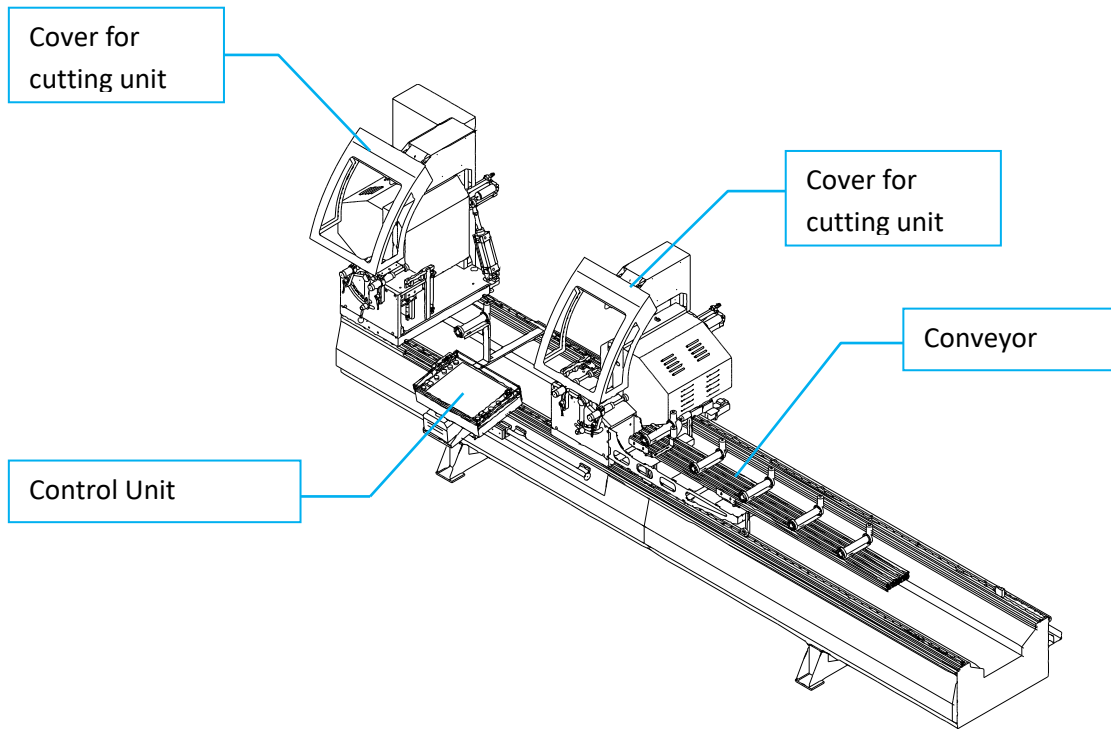
A) Movable Unit protection wedge.



Movable unit is fixed during shipment for safety.



- Control unit, covers of cutting units and conveyor are shipped as disassembled for overseas shipment.



- Screws of disassembled units are shipped as mounted in their places. Install the disassembled parts.





### 9.1. Machine Placement

Use predefined hanger lifting points to position the machine at the site described in the plant layout. You may adopt the aforementioned methods of transport. Using any other method may damage your machine.

### 9.2 Fixing on Ground

The machine must be placed considering the maintenance and operating spaces. Rear and side spaces and spaces recommended for maintenance procedures are above-mentioned. To fix the machine on the ground properly, make sure that the vibration-blocker stands which are provided with the machine are mounted.

### 9.3 Start-up Preparation



Moving parts of the machine are generally cleaned by an anti-rust oil. Power connection and pneumatic connection are made for the machine to function properly.



Electrical connections of the machine must be conducted by an expert staff.

### 9.4 Electrical Connections



VOLT	400 V
HERTZ	50 Hz
CURRENT	6.5 A
POLE	3P+N+E

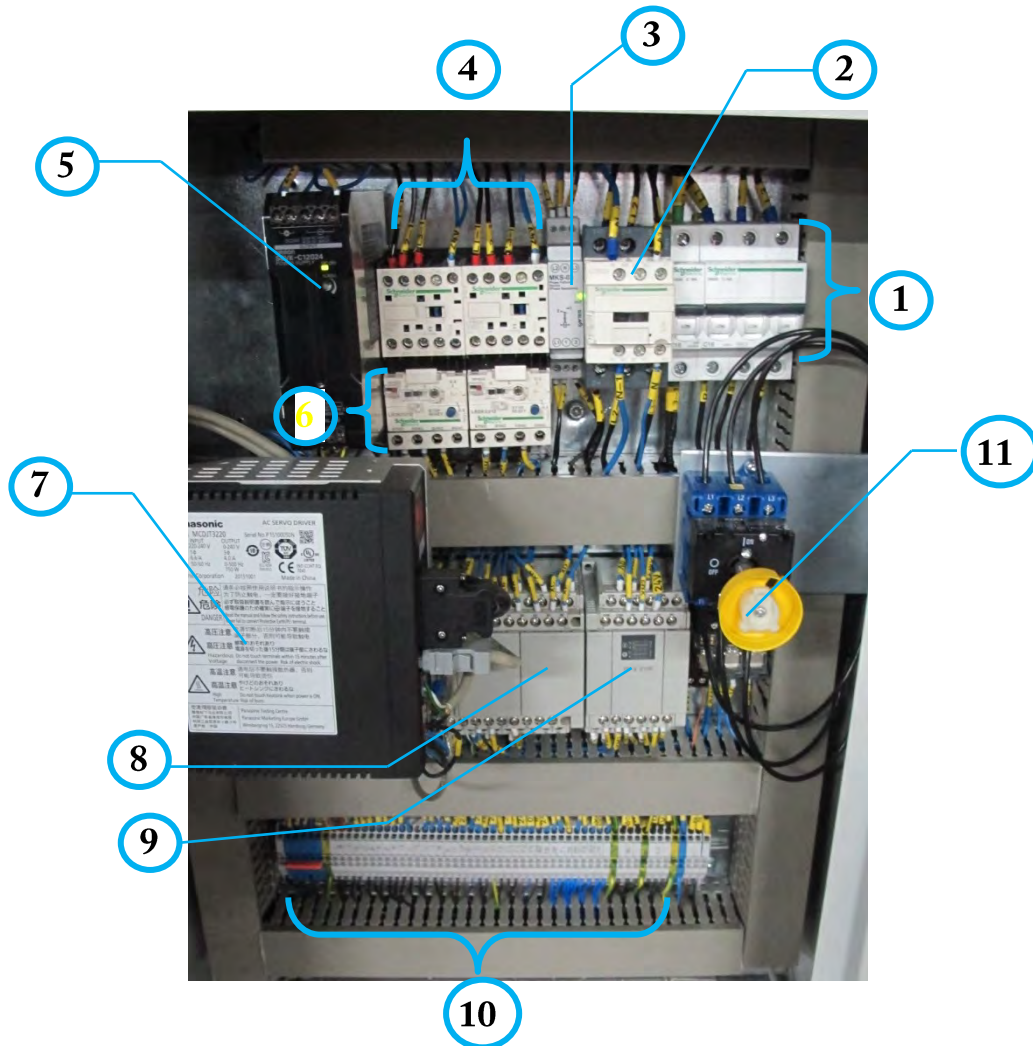
#### Important Note!

Drivers work in the range of 200-230 V. Driver may be burnt if overvoltage is applied. Check the voltage in the space where the machine will be used before supplying electricity to the machine. Also, grounding must be max. 2V. Otherwise, measurement faults may be encountered in the machine.



## 9.5 Electrical Panel Scheme and Equipment Structure

This electrical panel scheme is presented solely for the purpose of placement of components within the panel. Please see ANNEXES for a detailed electrical diagram.

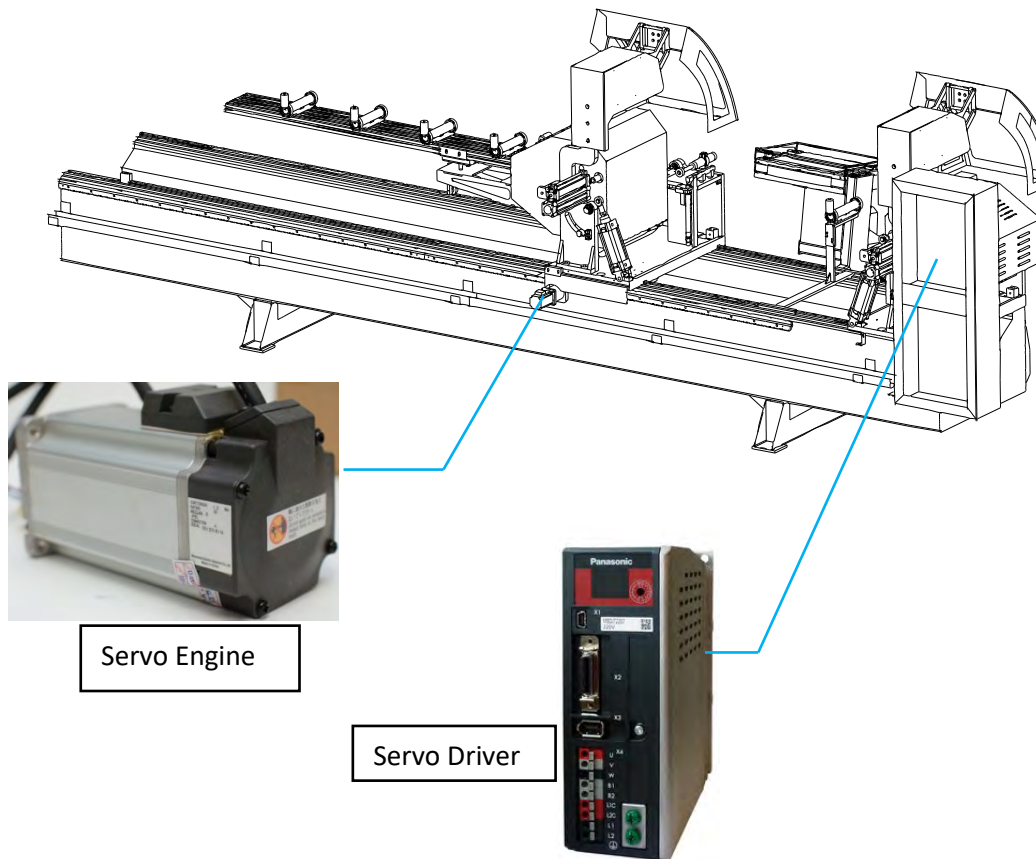


- |    |                         |
|----|-------------------------|
| 1  | Fuse Group              |
| 2  | Contactors              |
| 3  | Phase Protection Relay  |
| 4  | Contactors Group        |
| 5  | Power Supply            |
| 6  | Thermic Assembly        |
| 7  | Servo Driver            |
| 8  | PLC                     |
| 9  | Auxiliary Module        |
| 10 | Electric Terminal Group |
| 11 | Main Switch             |

+



- Equipment no "7" provided in electricity panel (Servo Motor Driver) is used to control servo motor.
- Servo motor is controlled by installing programming parameters in the driver (by downloading).
- Servo motors cannot be operated directly over the mains as asynchronous motors. Servo motor must be controlled by a servo driver system.
- Motor is the electronic power member that moves any of speed, moment or position variables of servo system that consists of power train and load in accordance with the reference value provided related to this variable.

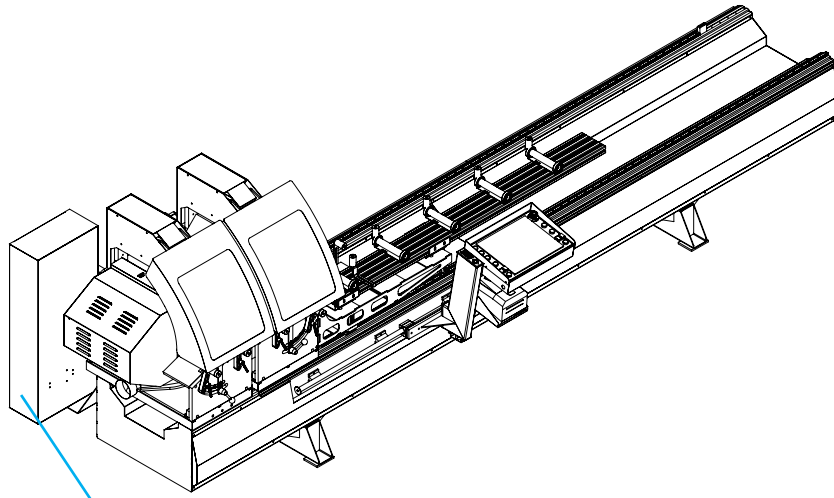


### Important Note!

Drivers work in the range of 200-230 V. Driver may be burnt if overvoltage is applied. Check the voltage in the space where the machine will be used before supplying electricity to the machine. Also, grounding must be max. 2V. Otherwise, measurement faults may be encountered in the machine.



## 9.6 Pneumatic Connections



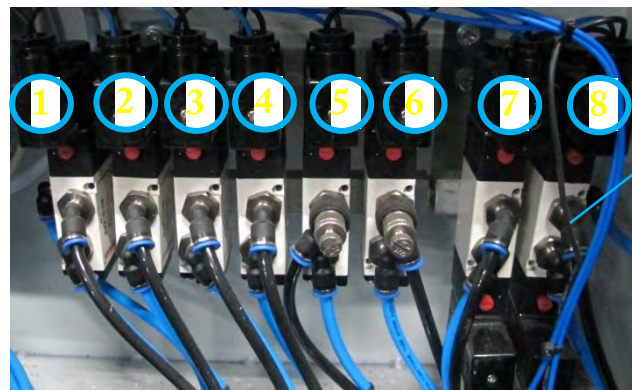
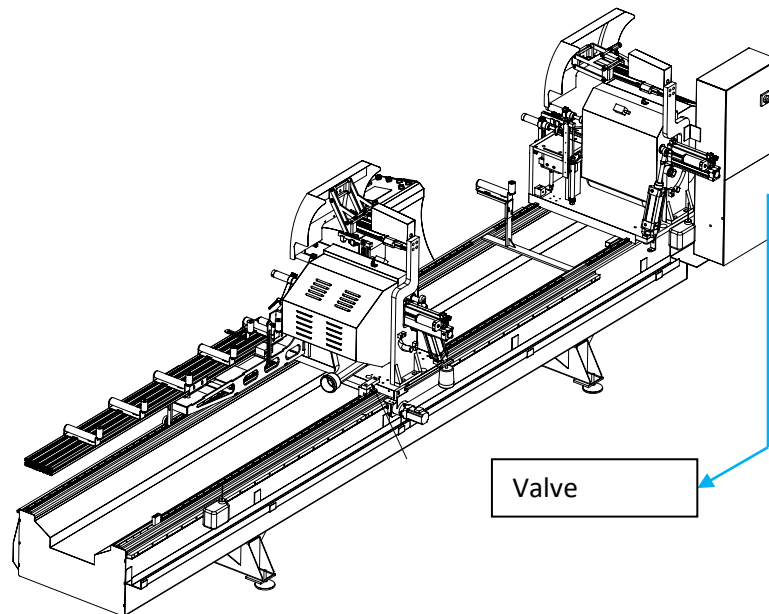
Attach the air house from the compressor to this inlet.



### Caution:

Make sure that your air supply is dry!

Solenoid Valve group controls the motion of current pneumatic equipment. Manual actions may also be performed by valves when necessary.



Pneumatic  
Valve

### Valves and Their Functions

Valve No. 1	Movable Unit Protection Cover Piston Movement Valve
Valve No. 2	Movable Unit Saw Movement Piston Valve
Valve No. 3	Fixed Unit Protection Cover Piston Movement Valve
Valve No. 4	Fixed Unit Saw Movement Piston Valve
Valve No. 5	Movable Unit Tightening Pistons Valve
Valve No. 6	Fixed Unit Tightening Pistons Valve
Valve No. 7	Movable Unit 45°-90° Angle Adjustment Piston Valve
Valve No. 8	Fixed Unit 45°-90° Angle Adjustment Piston Valve

Valves 1-6 are single coil solenoid valves



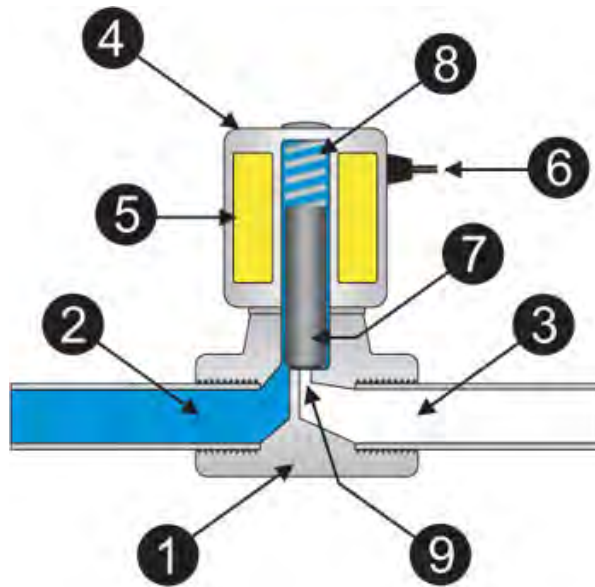
Coil

Valves 7-8 are double coil solenoid valves





Solenoid valves are electro-mechanical valves keeping the passage of air under control (direction control). **Internal structure of solenoid valves;**



1-) Valve body 2-) Inlet line 3-) Outlet line 4-) Solenoid/ Coil 5-) Winding Coil 6-) Cable Entry  
7-) Piston 8-) Spring 9-) Orifice

- When electricity supply moves through the coil, flow lines makes the piston electromagnetic. Coil moves the piston down or up according to the usage condition. This opens the path for the liquid. Thus, powered solenoid is closed under normal condition and stops liquid pass.



## 10. Machine Use

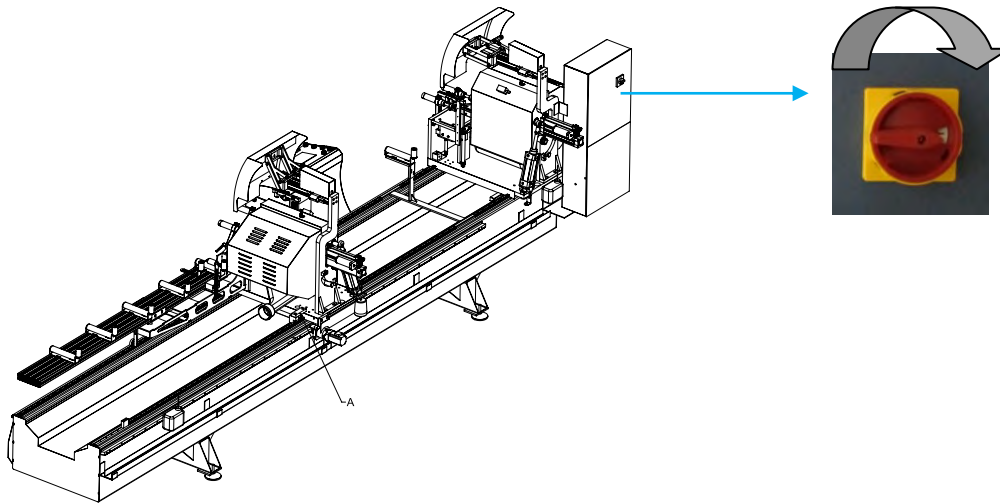
### 10.1 Machine Start/Stop

Make sure that there are no foreign objects on machine prior to operation.

### 10.2 Turning on Machine

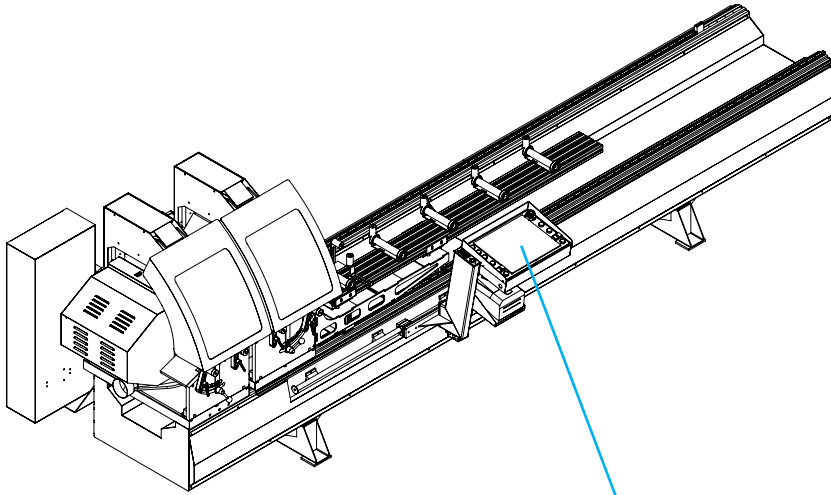
Rotate the main switch clockwise until it slots into place.

**Main Switch:** It completely cuts off the power supply from mains.

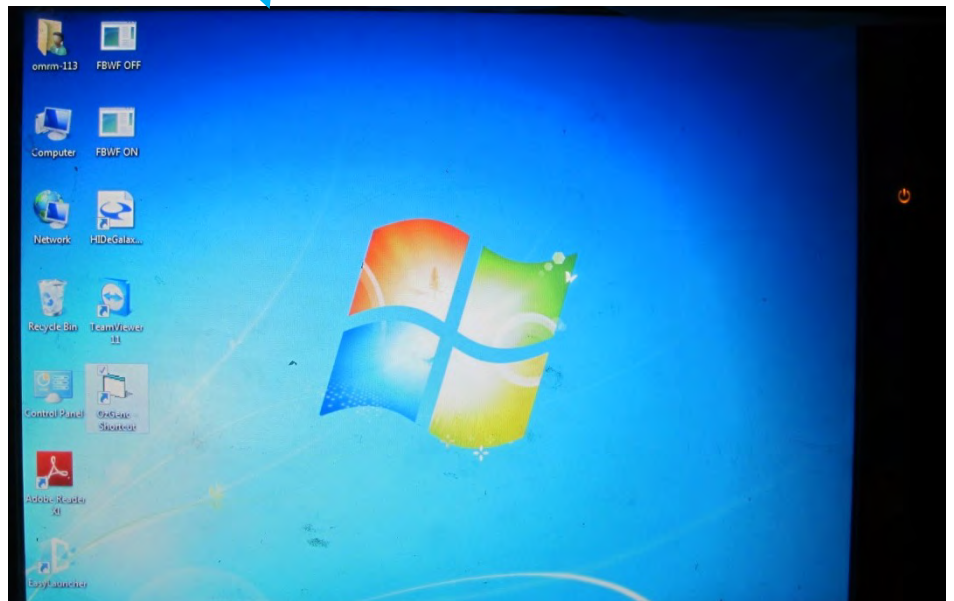


When the main switch is on, make sure that machine's lights are on and that the control unit home screen shows up.





Control Unit is delivered after installing Windows operating system.



Programs installed on the control unit for machines purchased with PC option



- ÖZGENC MACHINE CUTTING PROGRAM
- Team Viewer remote connection program (Used for remote maintenance by connecting the machine to internet)
- Windows operating system







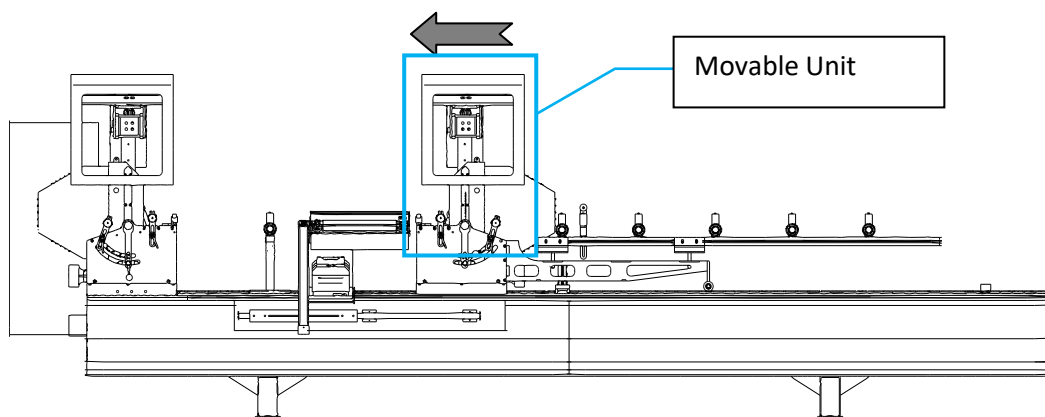
### 10.3 Control List



<b>Button No. 1</b>	<b>Servo failure lamp. It is lit to inform the operator in case of servo failure.</b>
<b>Button No. 2</b>	The button used to increase the movement speed of the movable unit. Press button no. 2 to increase the movement speed of the unit while it is manually sent for measurement
<b>Button No. 3</b>	Used to activate profile press pistons. Saw does not initiate cutting unless this button is active.
<b>Button No. 4</b>	Used to move the movable unit left from your perspective.
<b>Button No. 5</b>	This is the button used to perform cutting. Cutting can be performed by pressing buttons "5" and "10" simultaneously during cutting
<b>Button No. 6</b>	<b>Green Button:</b> Fixed unit is used to operate the saw motor <b>Red Button:</b> Fixed unit is used to stop the operation of the saw motor
<b>Button No. 7</b>	Emergency stop button is used to stop the machine in case of danger
<b>Button No. 8</b>	Used to deactivate profile press pistons. Press this button to remove the cut profile from the machine after cutting is complete
<b>Button No. 9</b>	Used to move the movable unit right from your perspective.
<b>Button No. 10</b>	This is the button used to perform cutting. Cutting can be performed by pressing buttons "5" and "10" simultaneously during cutting
<b>Button No. 11</b>	<b>Green Button:</b> Movable unit is used to operate the saw motor <b>Red Button:</b> Movable unit is used to stop the operation of the saw motor



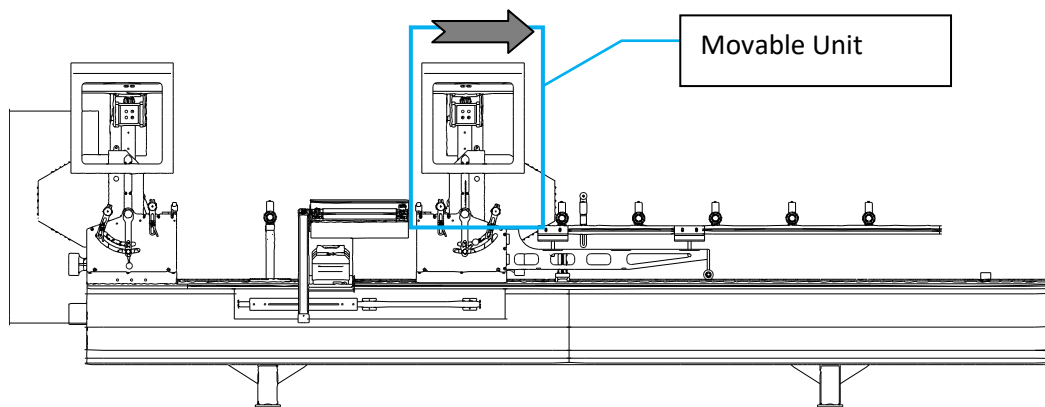
Press the button marked with a circle above to manually move the movable head left.



If you require to move the machine left faster, press buttons marked with circles above at the same time.



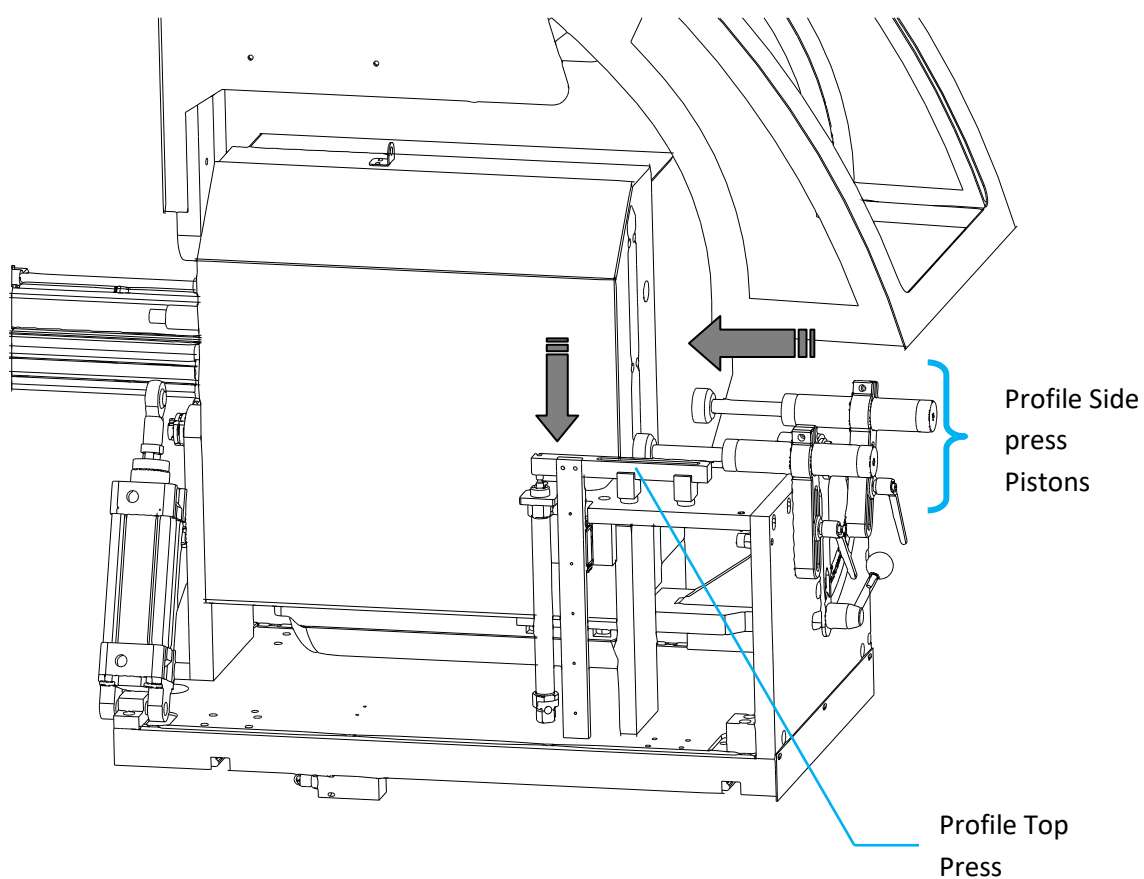
Press the button marked with a circle above to manually move the movable head right.



If you require to move the machine right faster, press buttons marked with circles above at the same time.



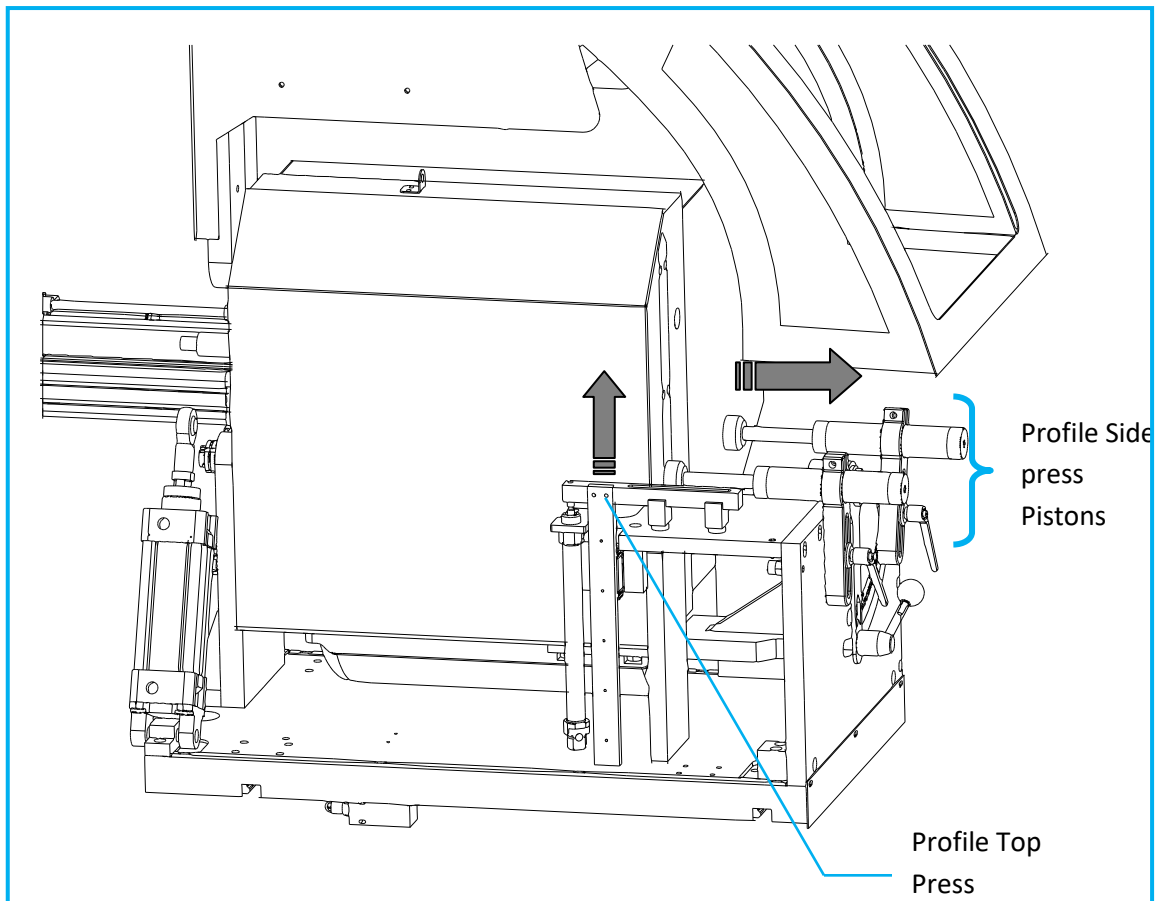
Press button marked with a circle above to activate presses on fixed and movable heads.







Press button marked with a circle above to deactivate presses on fixed and movable heads.



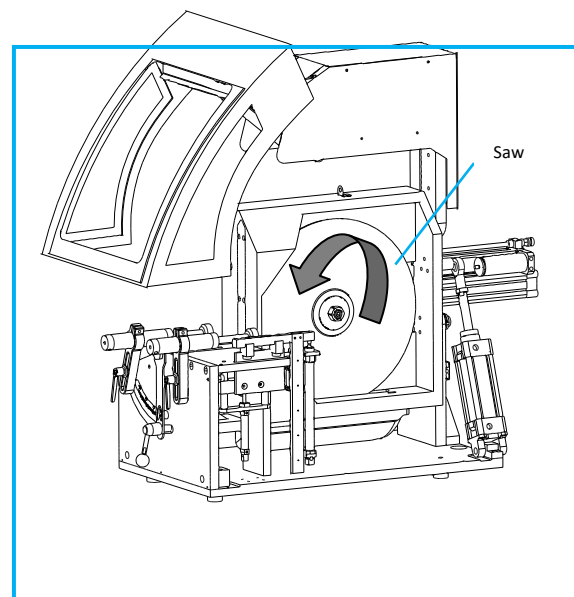
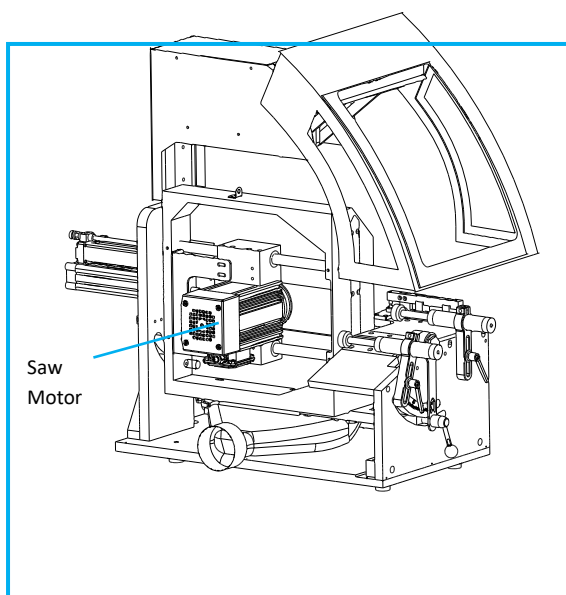
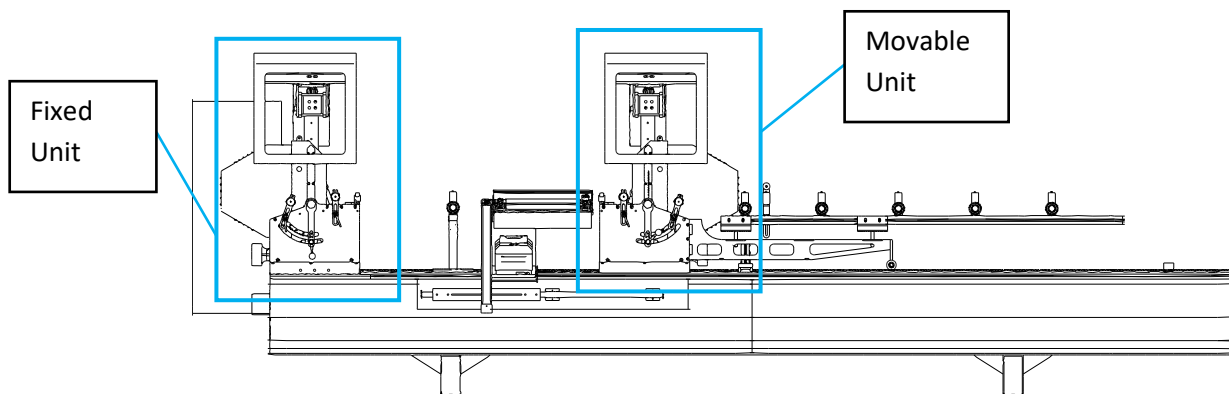


**Green Button No. 1** Used to operate fixed unit saw motor

**Red Button No 1:** Fixed unit is used to stop the operation of the saw motor

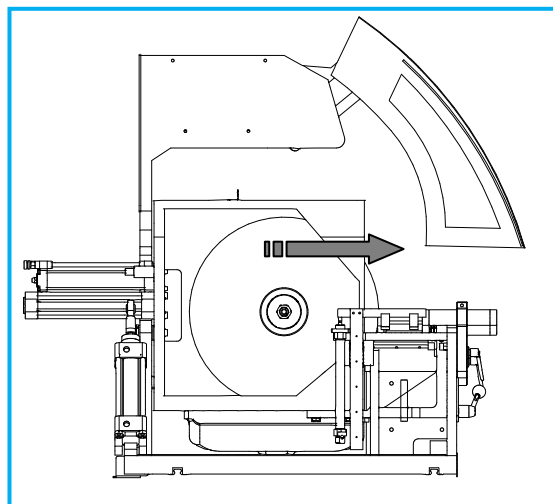
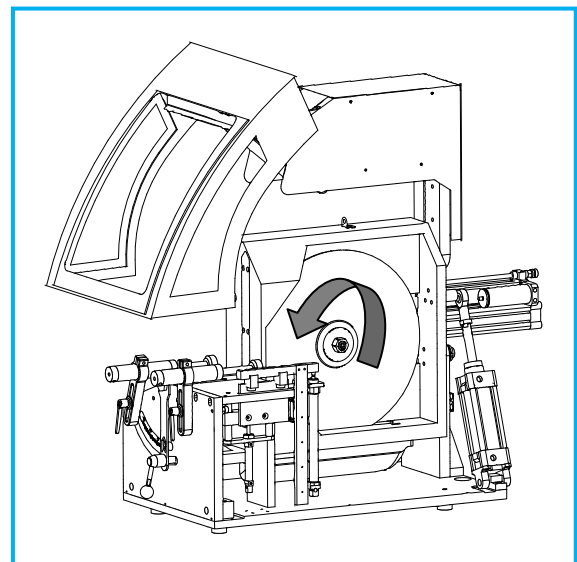
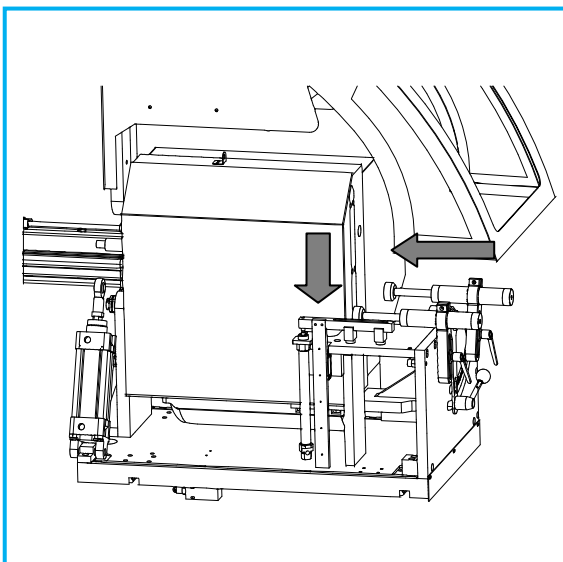
**Green Button No. 2** Used to operate movable unit saw motor

**Red Button No 2:** Movable unit is used to stop the operation of the saw motor





Press pistons are activated when profile is placed in the machine. Press buttons to operate saw motors. Saws will move forward to perform cutting after you press buttons marked with a circles above using both of your hands to perform cutting with saws.





- Any contact with moving parts may lead to electric shock.
- Do not use sharp objects on protective isolation equipment as they may do harm.
- Do not use pointed objects that can penetrate into the protective isolation equipment.
- Turn off the power supply prior to any maintenance or adjustment.

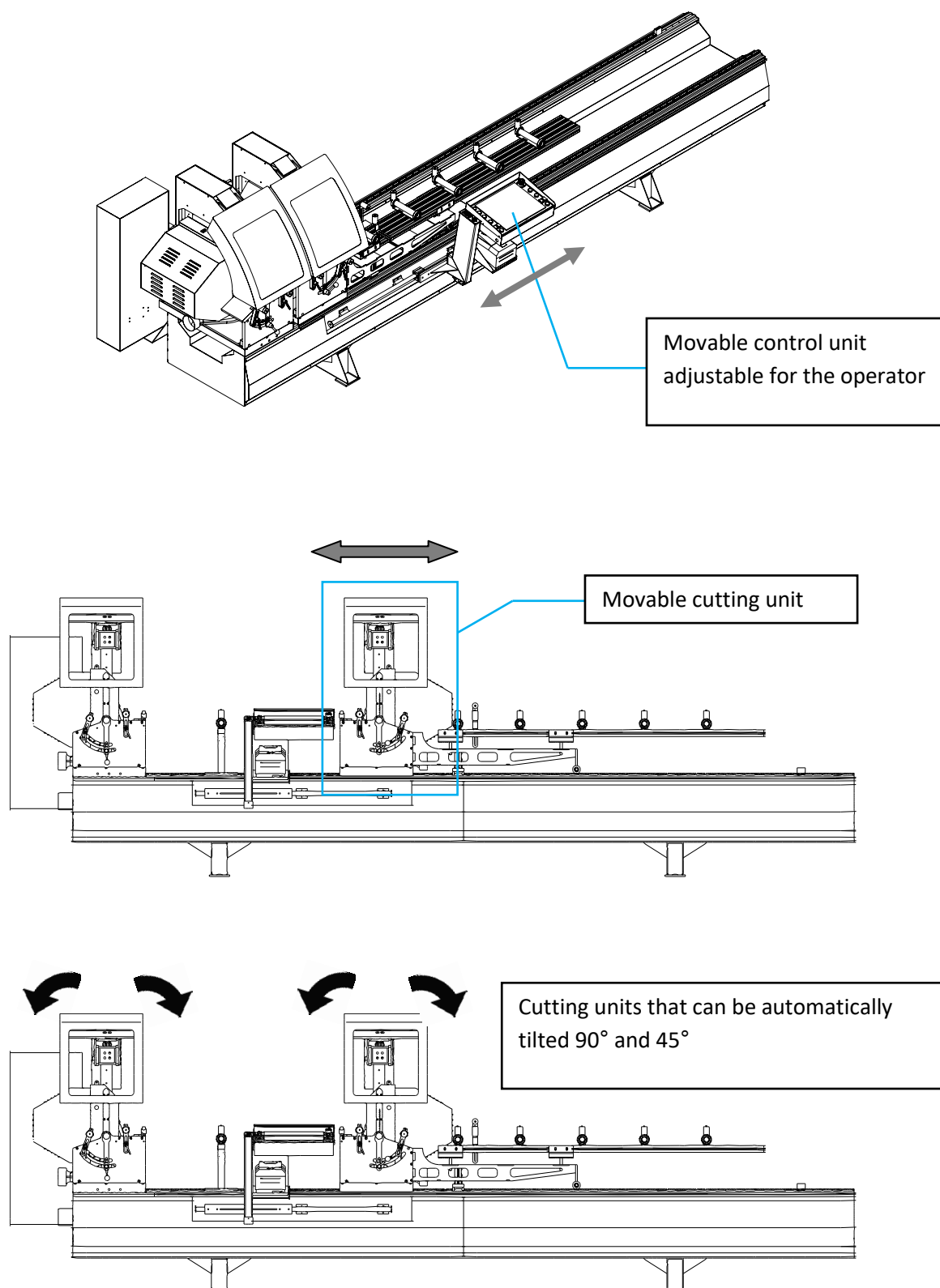
**Important Note:**

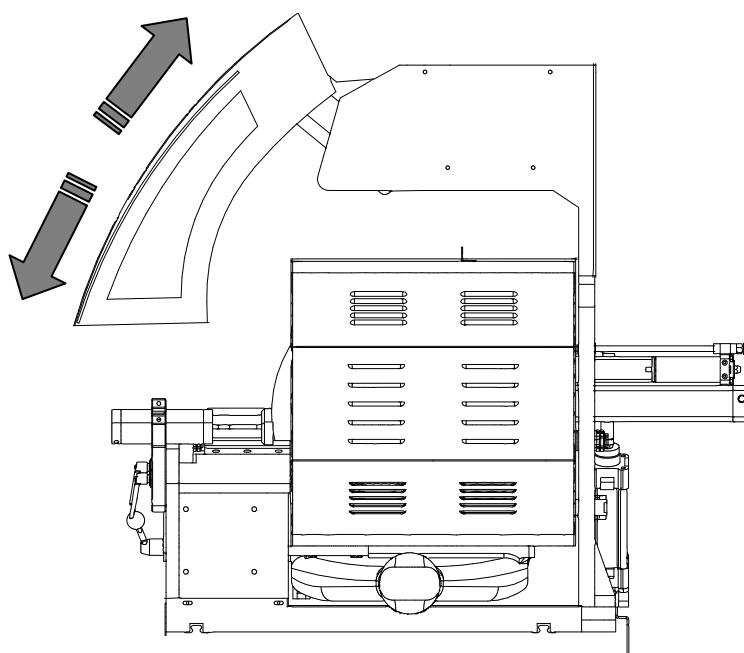
If the machine is relocated for any reason, it may not operate at the site it is plugged in. The reason for non-operation is the fact that the phases in plug sockets are reversed. Machine's saws are protected by a phase sequence relay to avoid rotation at a reverse phase. The machine may operate again as an electrician changes the phases in the machine's plug.



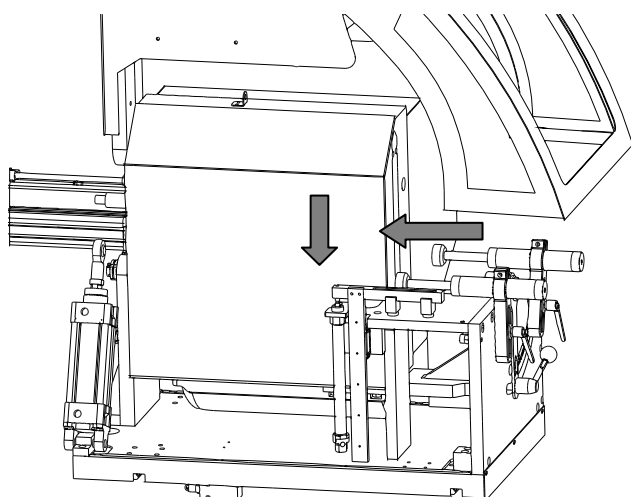


## 10.4 Moving Equipment on Machine

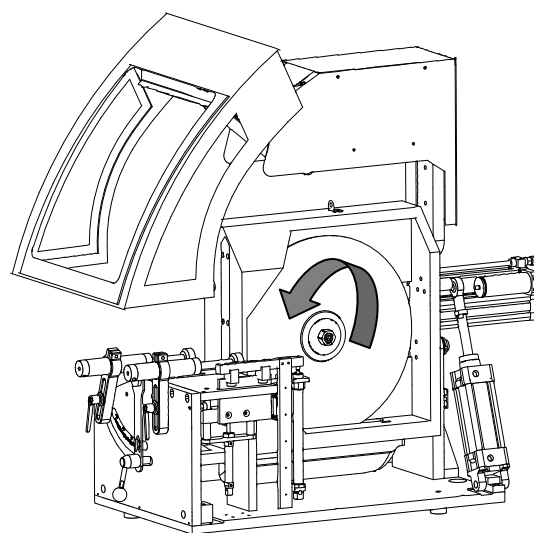




Protection covers that automatically lower during



Profile Press Pistons

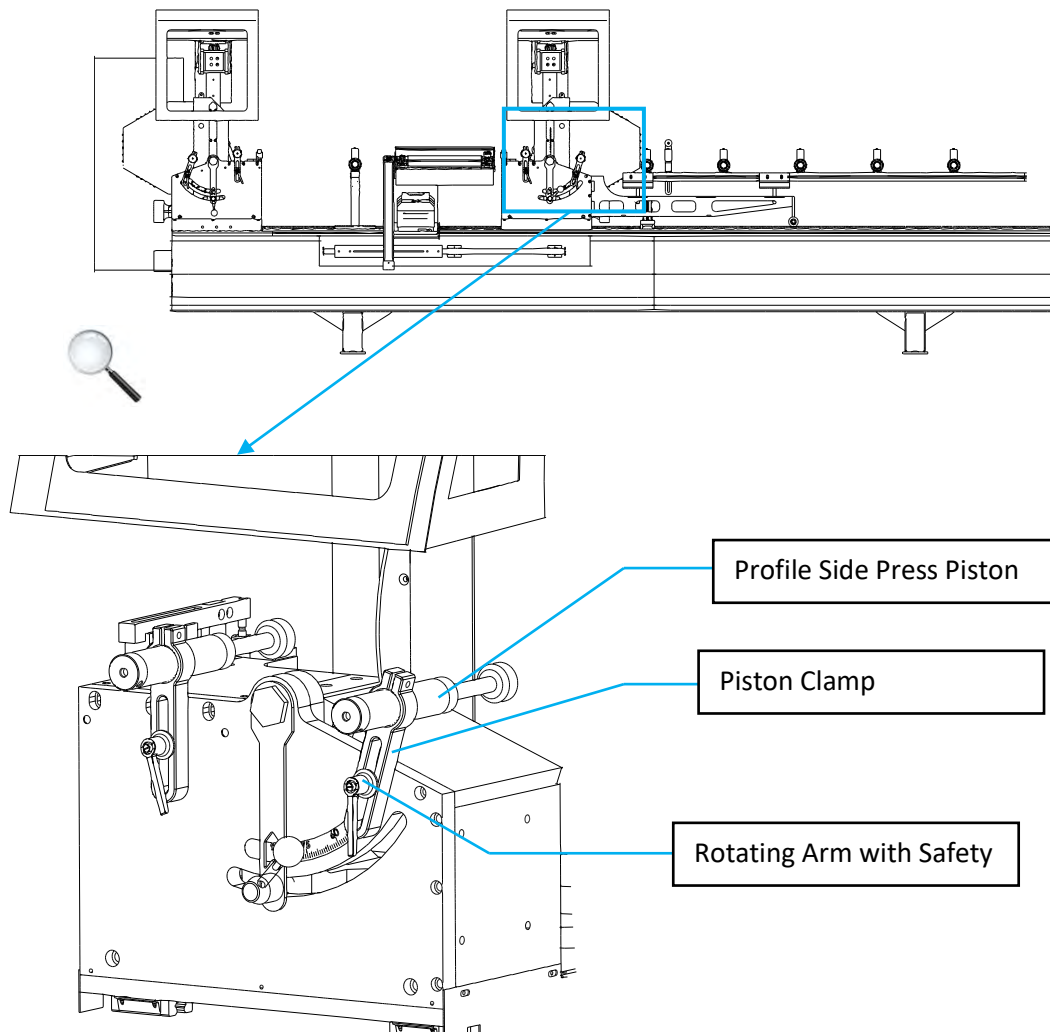


Saws



## 10.5 Adjusting Profile Press Pistons According to the Profile

Fixing profile is highly important during cutting. Machine has two types of presses for this. ( “ 1-” Side press (standard), 2-” Top press (optional) “ ). Pressures must be adjusted according to profile type and shape.

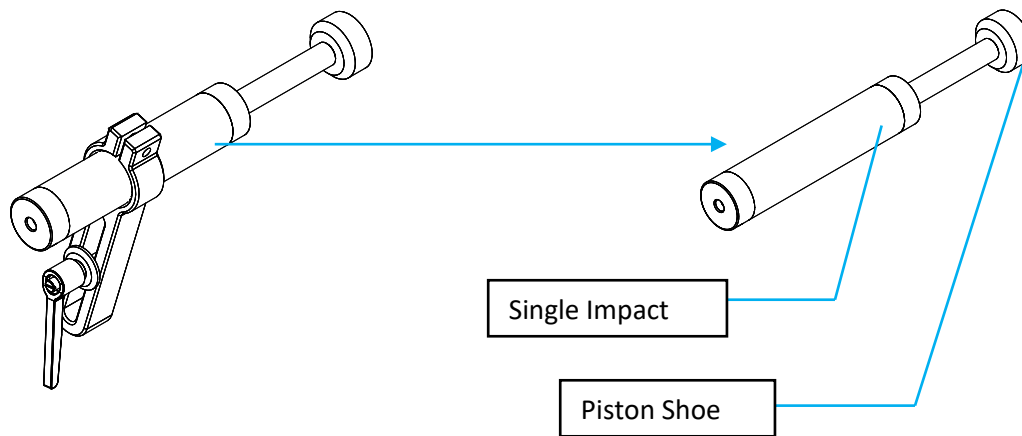


Profile side pressures generally consist of three parts as shown above.

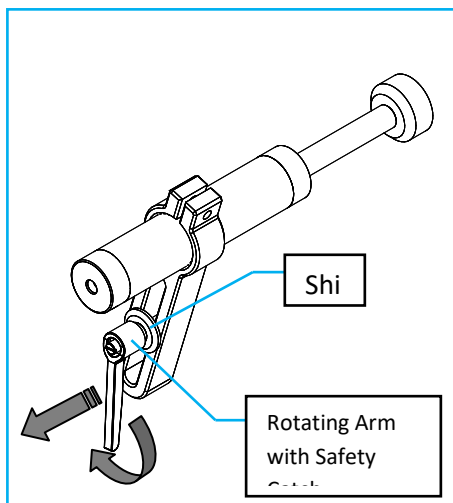
- Profile Side Press Piston
- Piston Clamp
- Rotating Arm with Safety Catch



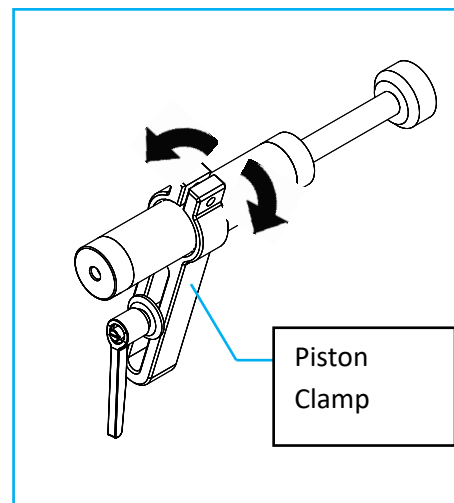
## Structure of Profile Side Press Piston



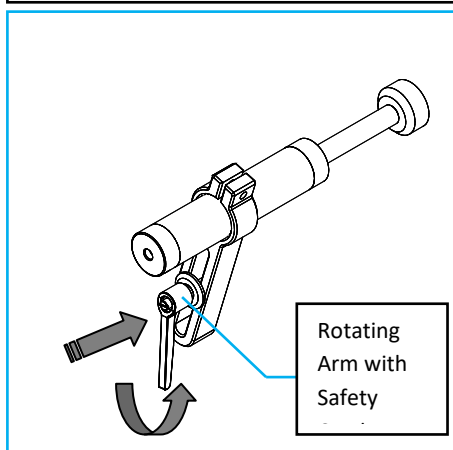
## Adjusting profile press piston



Keep Rotating Arm with Safety Catch pulled in the direction of the arrow as shown in the figure.



Rotate piston clamp to align with the profile

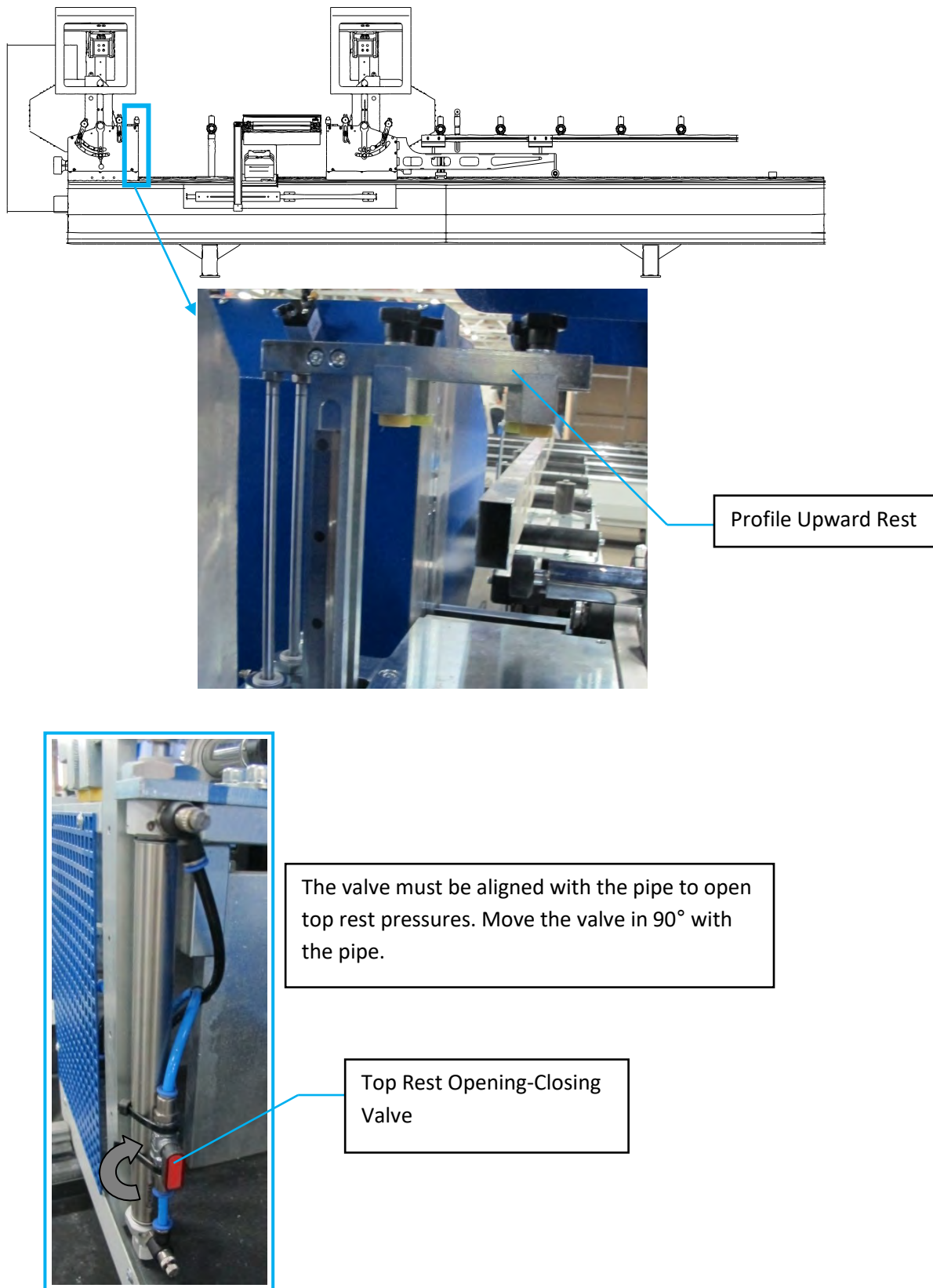


Fix the Rotating Arm with Safety Catch by pushing it in the direction of the arrow as shown in the figure.



## 10.5 Opening and Closing Top Press Pistons

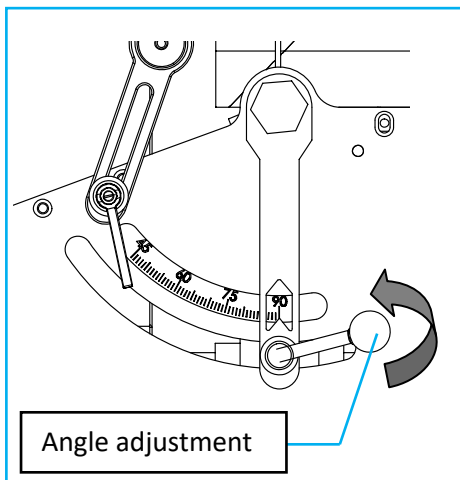
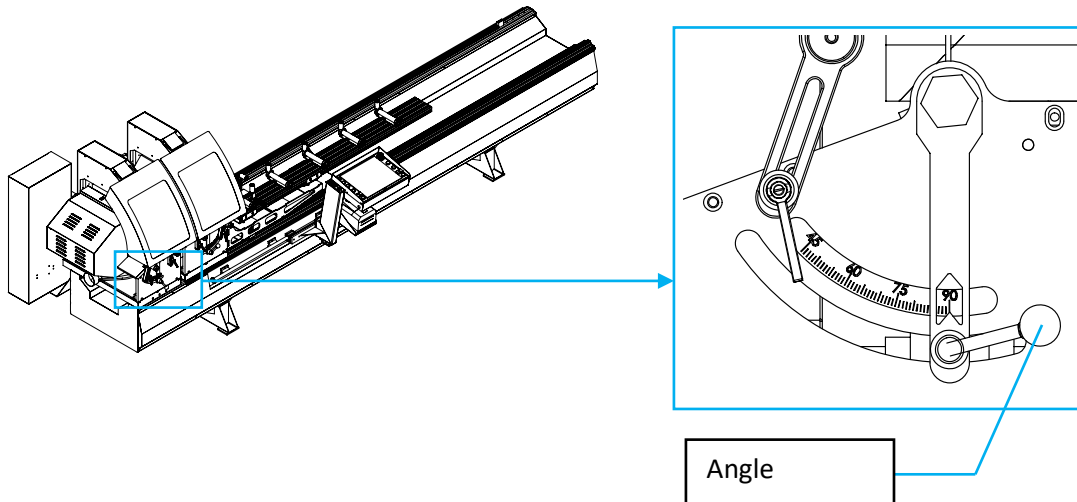
Top press rests can be operated or canceled as required



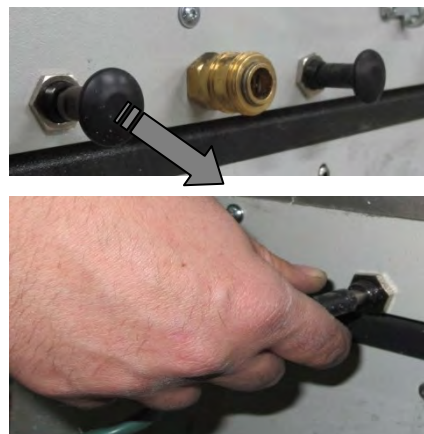


## 10.7 Tilting Cutting Units in Intermediary Angles

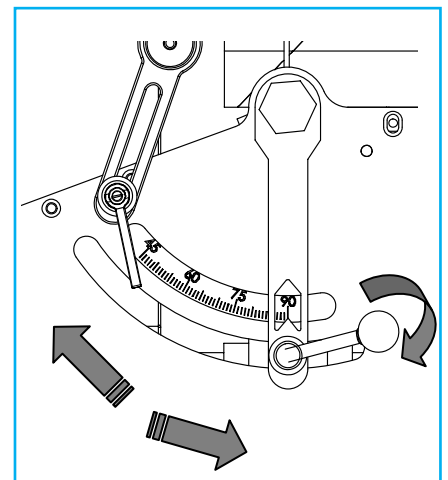
Cutting units are automatically tilted to 45 and 90° with software support. If it is required to perform cutting in angles between 45 and 90°, cutting units must be manually adjusted.



Rotate the angle adjustment arm left to loosen it before rotating the saw.!



Button Valve is manually pulled and the unit is released of pressure. It can be easily moved up and down manually. Button controls both units.



Rotate angle adjustment arm right to fix the units after moving the units to the desired cutting angle using the arms.



## 10.8 Adjusting Saw Cutting Speeds

It is required to adjust saw cutting speed to cut profiles smoothly without burrs as well as increasing saw service life. The machine is equipped with hydropneumatic pistons to cut aluminum profiles stably. Low and correct movement cannot be achieved due to compression of air which is a disadvantage of pneumatic systems (Flow and pressure of air received from compressor that the machine is connected plays an important role). Saw cutting speed can be adjusted by installing these pistons on the machines to achieve smooth movement.

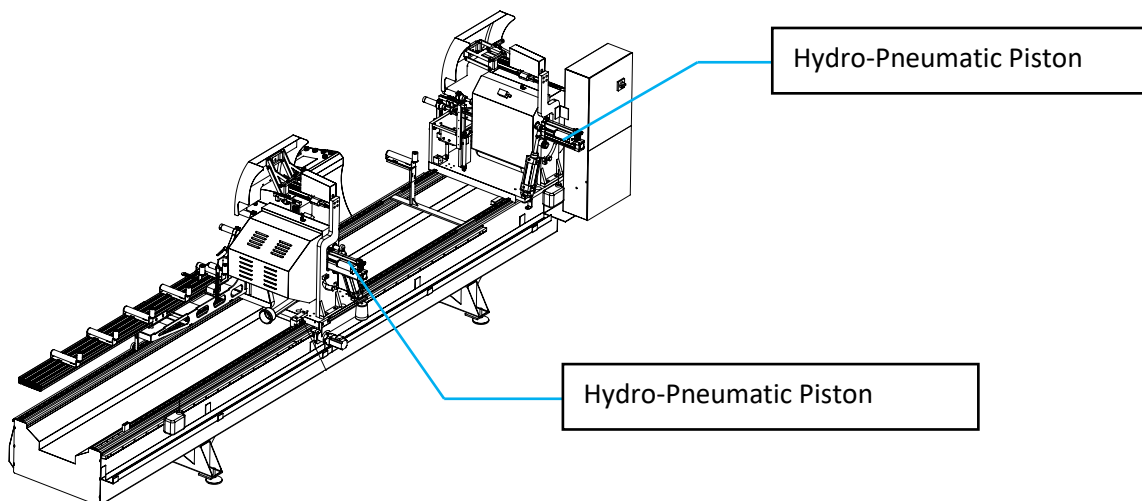
### General Structure of Hydro-Pneumatic Piston



Hydro-Pneumatic  
Adjustment Valve

Oil Tank

Hydro-Pneumatic Adjustment Valve; Hydro-Pneumatic adjustment valve adjusts the amount of oil passing through the orifice and determines piston movement speed.



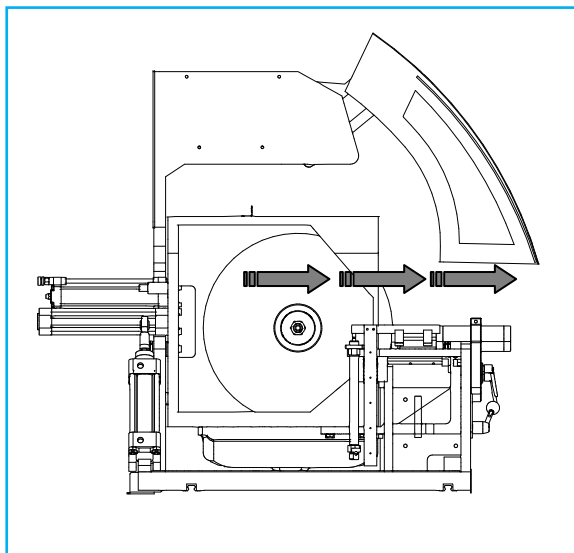
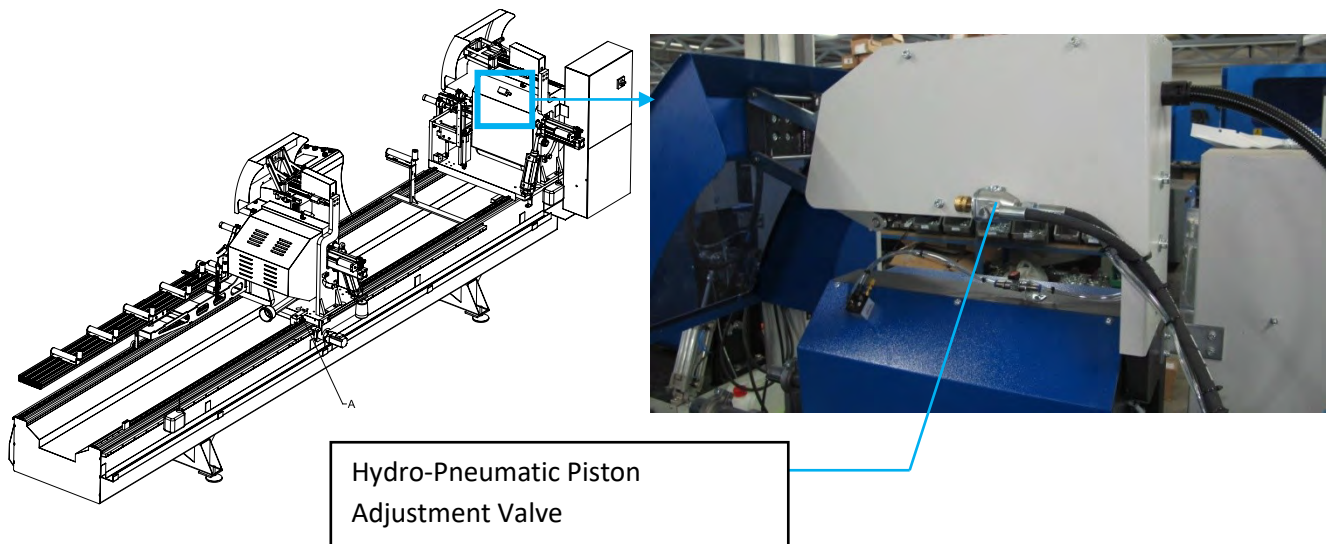
Hydro-Pneumatic Piston

Hydro-Pneumatic Piston

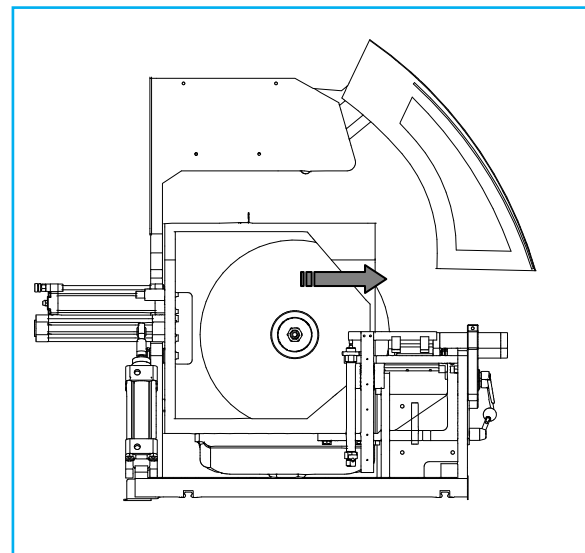




Hydro-Pneumatic adjustment valves are used to adjust saw cutting speed.



Turn adjustment valve left to increase cutting speed.



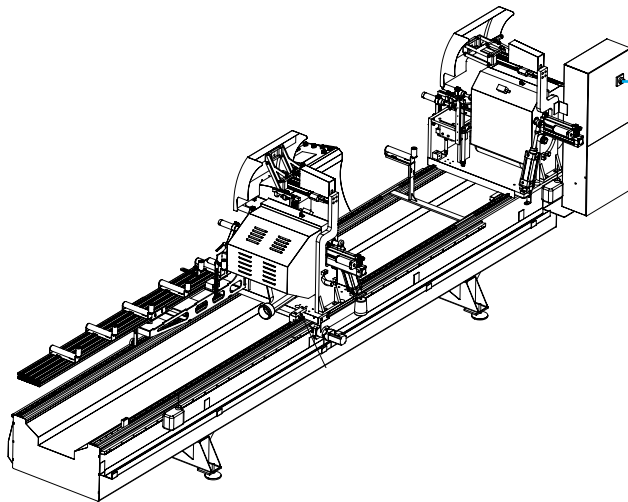
Turn adjustment valve right to decrease cutting speed.





## 10.9 Saw Replacement

Take necessary occupational safety measures before replacing a saw. Turn off the main switch. Turn off the machine's air inlet. Remove the protection cap of the saw unit. 32" wrench and 9" Allen set can be used for disassembly and installation.



Move the main switch to position "0" before replacing saw (switch it off).

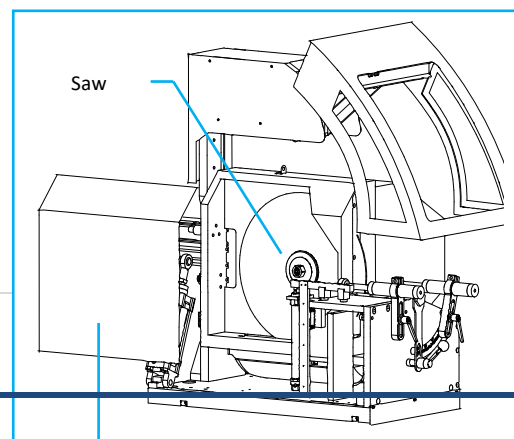
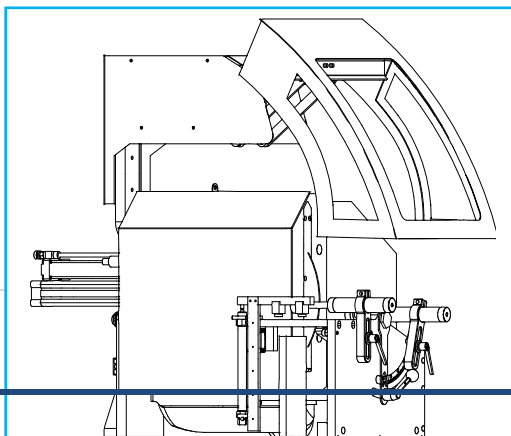
Cut the air supply from the



### **Important Note:**

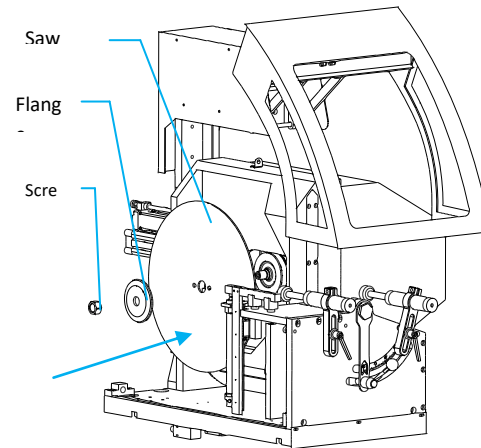


The screw direction of the moving unit's saw rod is to the left. Keep this in mind during the procedure! The nut is removed in the arrow direction shown on the picture below. It is tightened in the opposite direction.





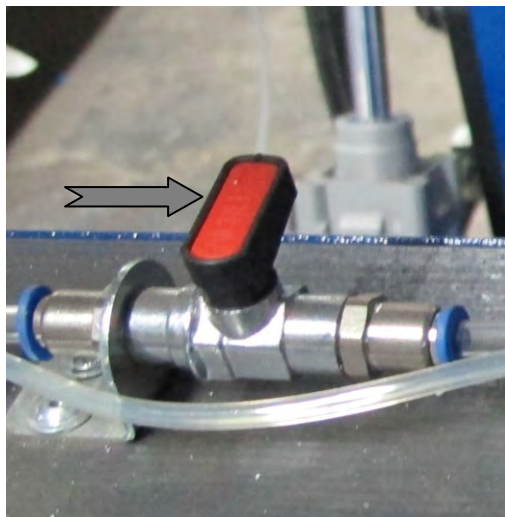
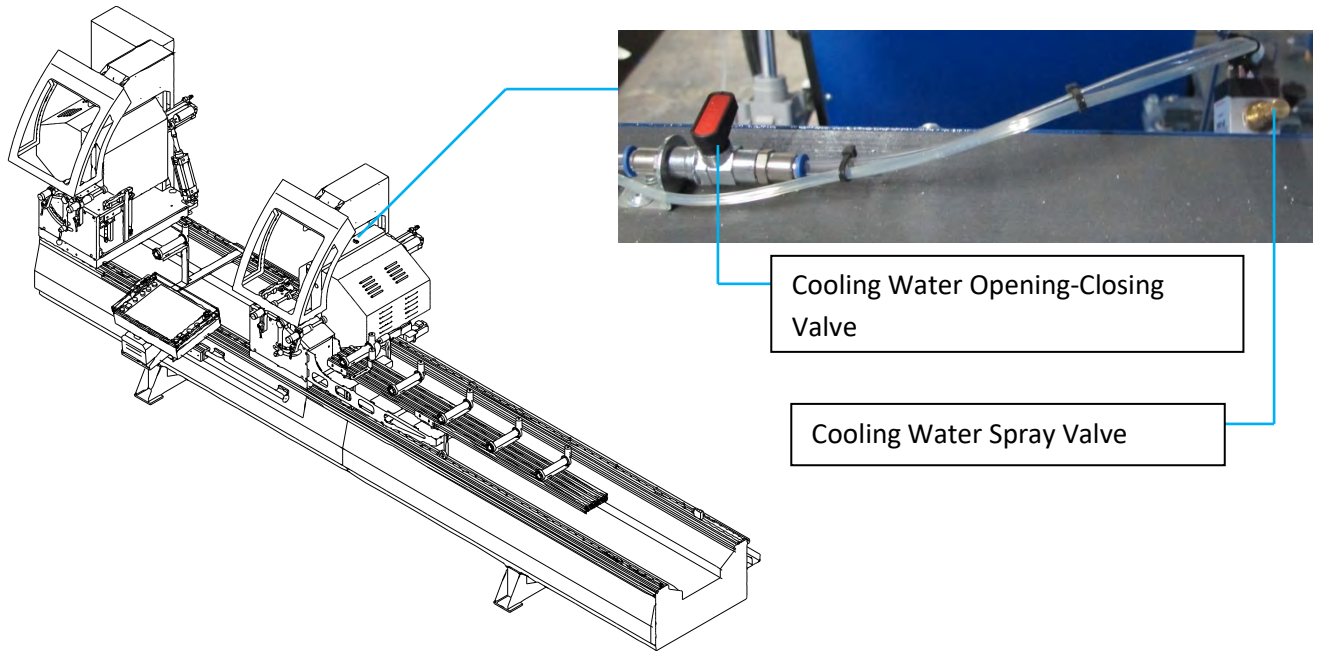
Move machine main switch to position "0" (closed) and cut air supply.



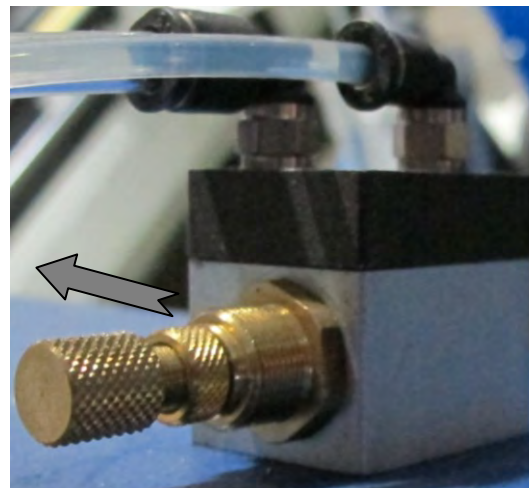
**Important Note:** Check for saw deflection before working with the machine after saw replacement.

### 10.10 Cooling Water Spray Valve Adjustment

Cooling water is used for smooth profile cutting and increasing saw life in machines with aluminum option. Cooling water is filled in tanks located behind the machine. Cooling water spray rate must be adjusted according to saw rotation and cutting speed.



Move Cooling Water Spray Valve to open position by moving it to pipe direction.

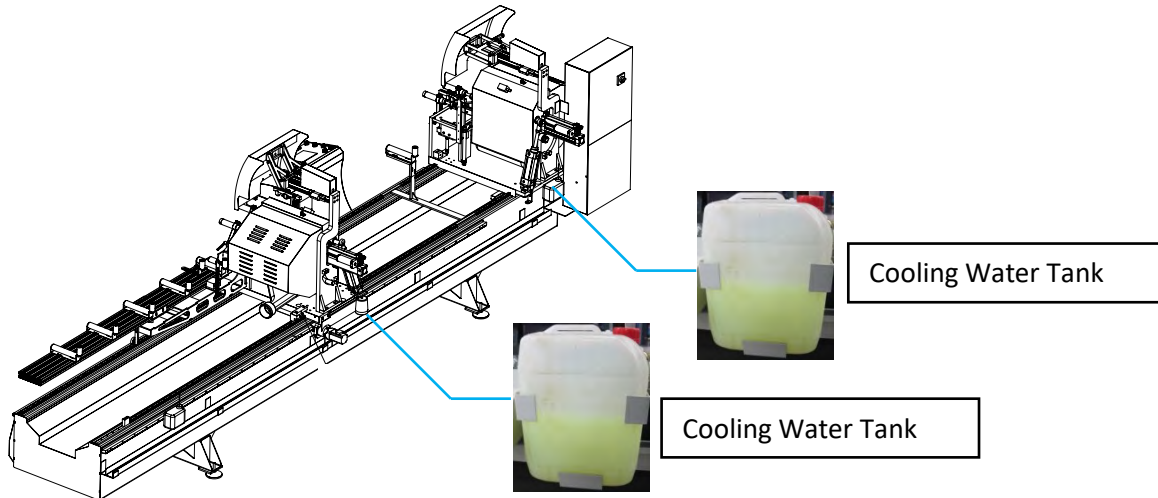


Turn spray valve to increase cooling water spraying volume and decrease by turning it right.



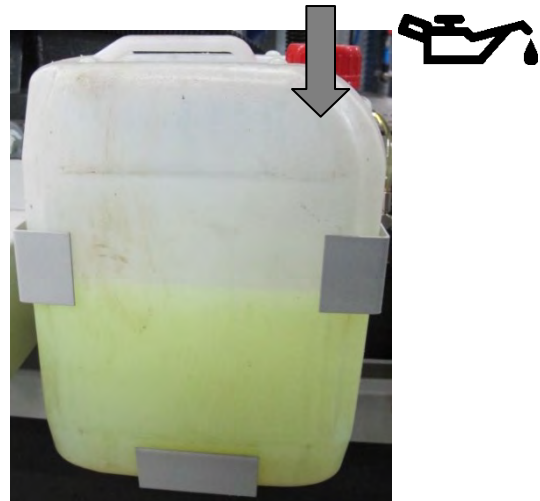
### Filling cooling water in tanks;

The machine has two cooling water tanks as one in fixed and one in movable unit.

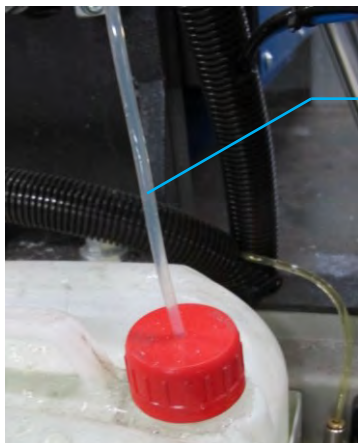


Cover

Rotate and remove the red cover on the Cooling Water Tank.



Fill one of the oils listed in the oil list below in the tank by mixing according to mixture ratio stated on it.



Cooling Water Tank

Then, replace the cover and lower the cooling water pipe till it contacts the liquid by passing it through the hole on the cover.



Coolants that can be used in the Machine;

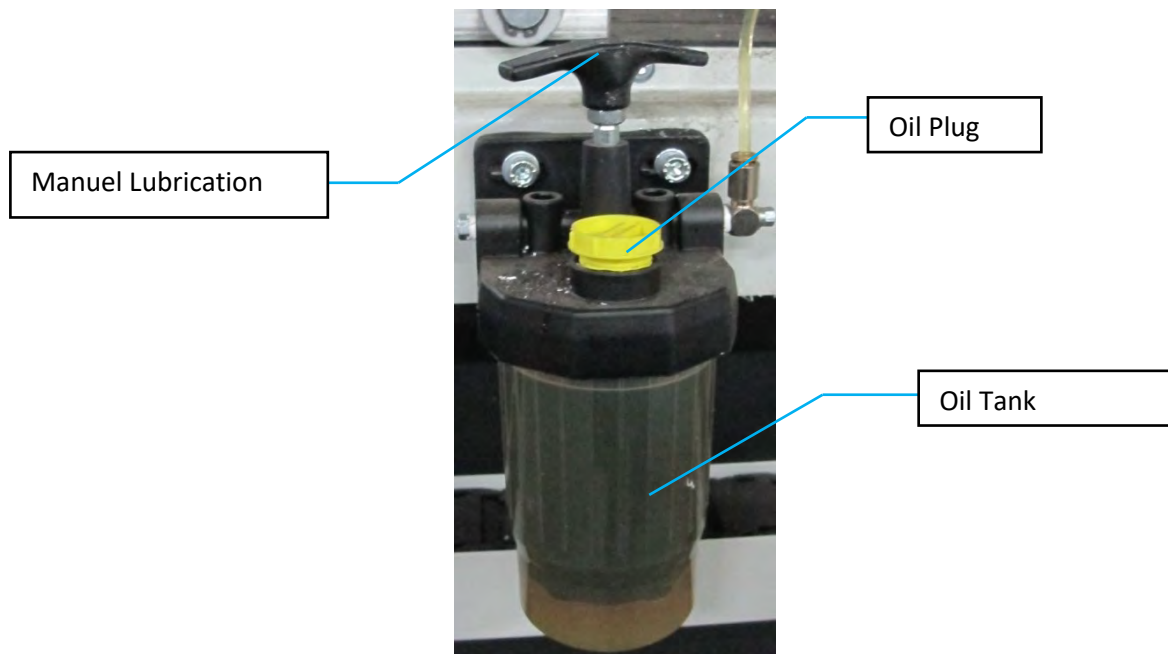
**Note:** Mix the coolants to be used with the ratio stated on the label

- Po Bor Oil
- Houghton Dromus BA
- Eurolub TE 210 ES - Universal Bor Oil
- K 102 Force - Semi-Synthetic Cutting Coolant
- Addinol Penta-Cool WM-440

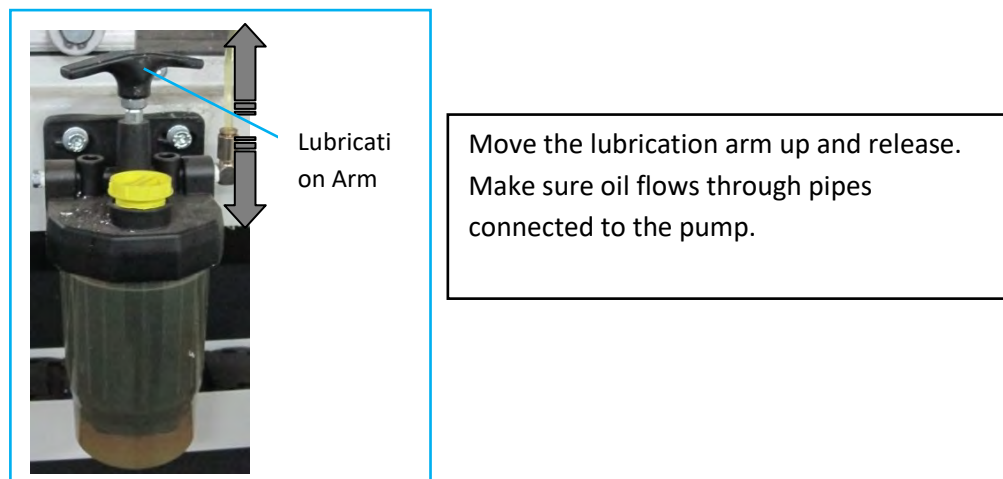


### 10.11 Lubricating Machine Rails

Moving parts and rail assembly must be lubricated for smooth machine operation. Use the manual lubrication pump located behind the movable unit of the machine to lubricate daily.

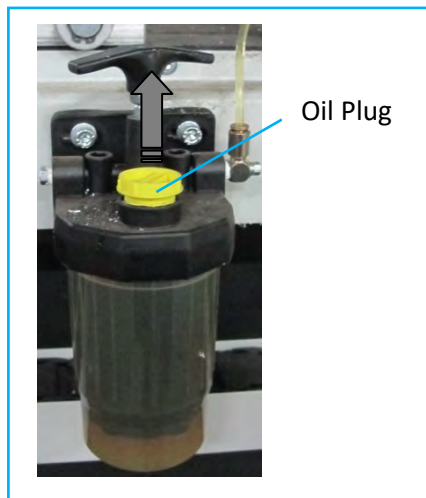


#### Using Manual Oil Pump

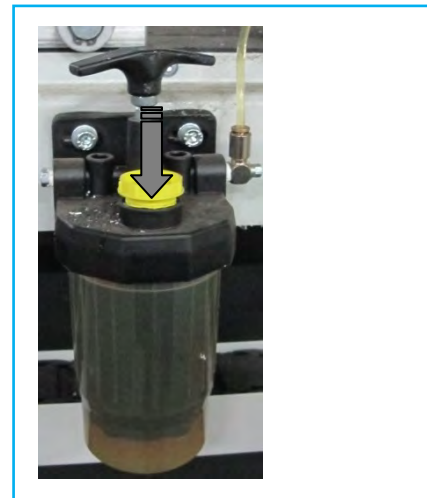




### Filling the Manual Lubrication Pump with Oil



Remove the oil plug.



Add one of the lubricants listed below until the container is full

Lubricants that can be used in the machine:

- Festo Special Oil OFSW-32
- ARAL Vitam GF 32
- BP Energol HLP 32
- Esso Nuto H 32
- Mobil DTE 24
- Shell Tellus Oil DO 32

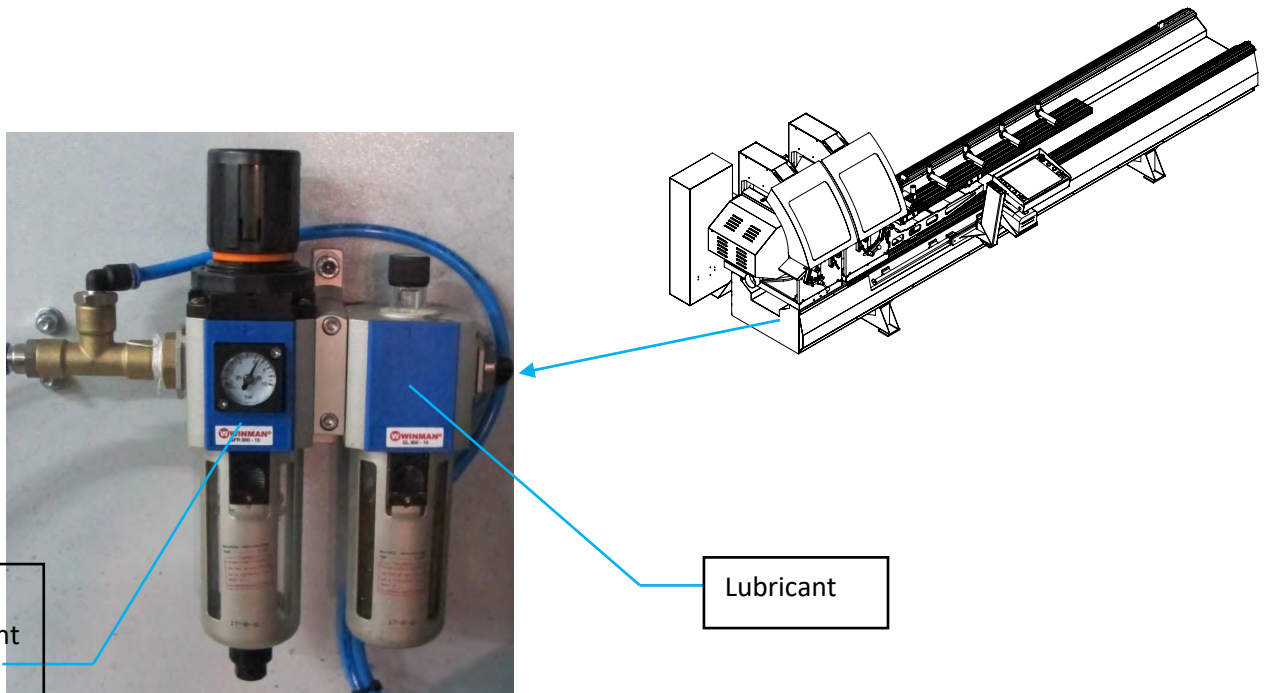




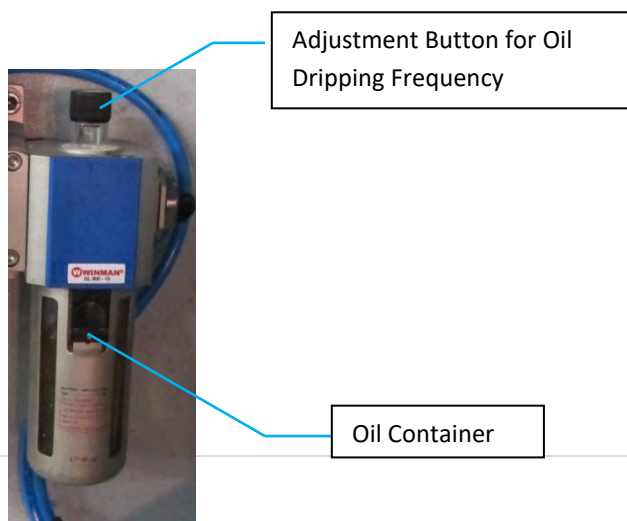


## 10.12 Adding Lubricant to Conditioner

Air must be lubricated for pneumatic equipment to work continuously and quietly and have longer service life. Non-lubricated pneumatic piston felts get damaged and start working noisily, etc. Valves also create problems such as leakage due to contaminated air.



Conditioner Lubrication Part ;





Filling conditioner with oil;



Press the black button on oil container and rotate by pulling it down



Remove metal cover by pulling it down



Then rotate and remove the glass container



Fill the glass container with one of the lubricants listed below and install the glass container by following the steps above in reverse

List of Lubricants that can be filled in the conditioner ;

- DODGE Deolube 10-S
- MOBIL Velocite 6
- SHELL TELLUS (Spindle) 10
- CHEVRON AW Machine Oil 10
- CASTROL Hyspin R&O 10
- TEXACO Spindura 10
- UNION Turbine 10



**Important Note:** Always check conditioner oil before using your machine





- |   |   |
|---|---|
| 1 | This will switch to machine calibration page  |
| 2 | Language options menu                         |
| 3 | This will switch to connection settings page  |
| 4 | Used to turn off the program and the computer |

- You will see operation mode page after you select the language

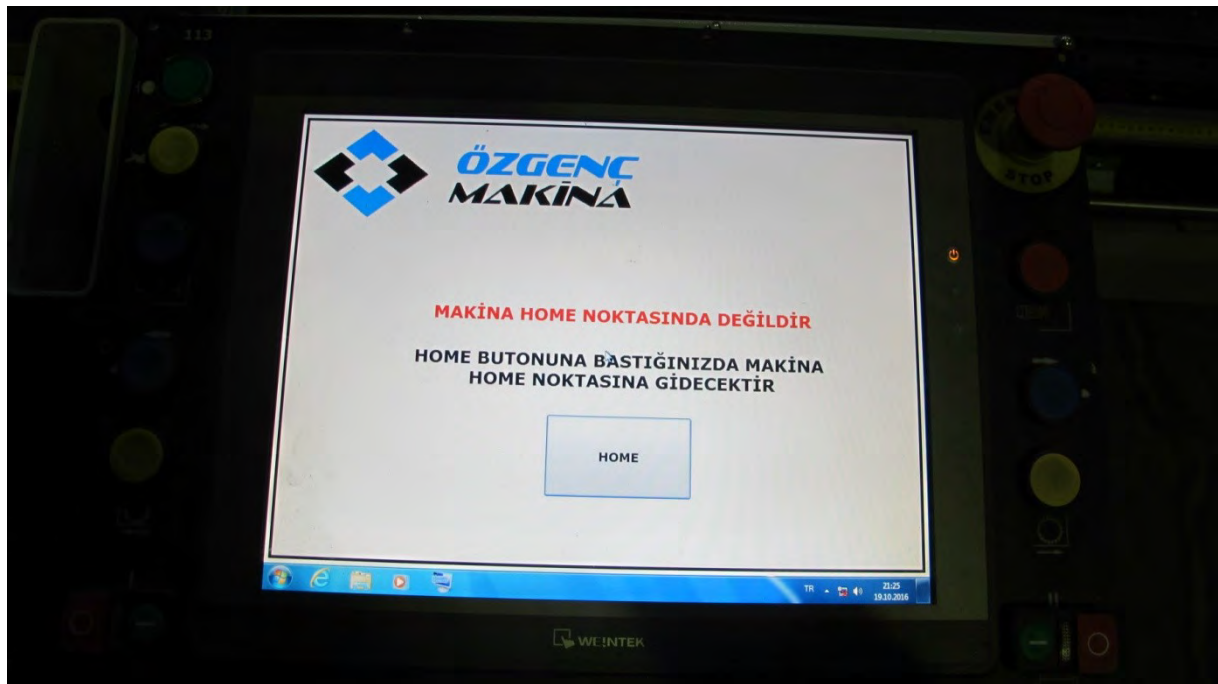




1	Used to turn off the program and the computer
2	Allows switching to manual cutting mode
3	Allows switching to automatic cutting mode ( ERCOM Program is opened)
4	Allows switching to long profile cutting mode
5	Allows switching to wedge cutting mode
6	Returns to previous menu (language options)

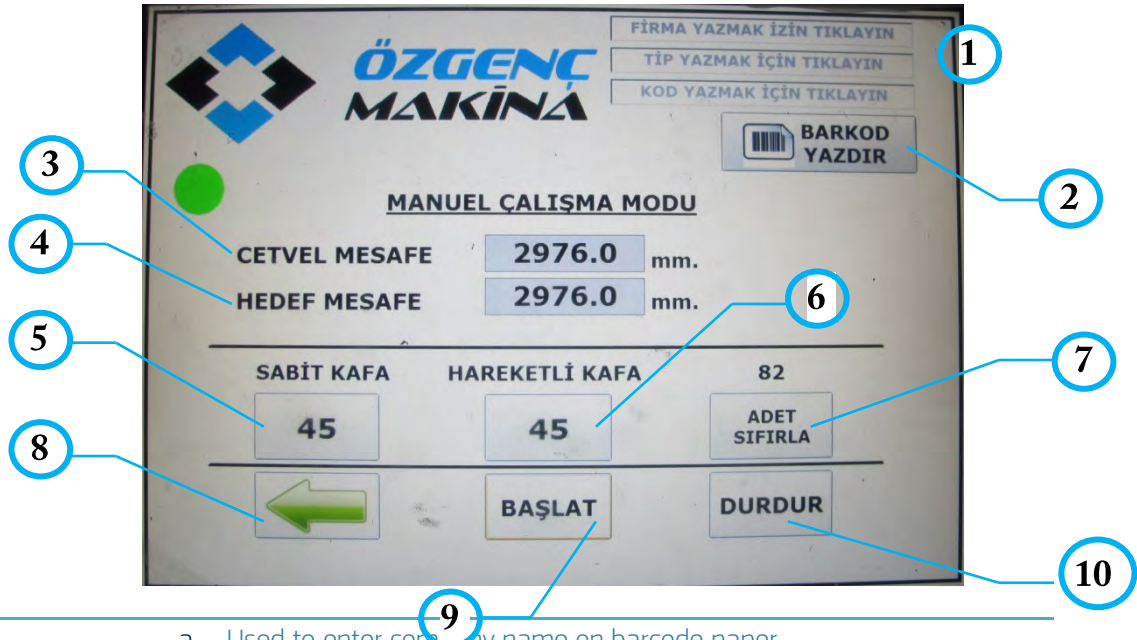
### 10.13.1 Manual Cutting Mode

**Important Note!** : You will see the following screen when you open the machine first whatever the operation mode is (Machine is not in home position). You need to send the machine to first limit (home) position by clicking "HOME" tab below. This will start machine self-calibration automatically. When Home button is clicked, movable unit will slowly move towards fixed unit and stop and calibration will be completed.



- Manual Operation Mode screen that opens after pressing "Home" button is as follows.

}



	a. Used to enter company name on barcode paper
1	b. Used to enter profile type on barcode paper
	c. Used to enter profile code on barcode paper
2	Used for printing barcode after cutting
3	Shows the distance that machine is located (in mm)
4	The distance that machine is required to be sent is entered here (Profile cutting length)
5	Shows the cutting angle of fixed cutting unit ( Cutting units are only automatically tilted to 45 and 90°). Then this area is clicked, fixed cutting unit will only be set to 45 and 90°
6	Shows the cutting angle of movable cutting unit ( Cutting units are only automatically tilted to 45 and 90°). Then this area is clicked, movable cutting unit will only be set to 45 and 90°
7	Number of profiles cut in manual mod is reset when this area is clicked
8	Used to return to previous menu (Switches to Operation Mode menu)
9	Starts cutting according to entered dimensions and cutting angles
10	Stops the machine

Entering Target Distance in Manual Mode;



**ÖZGENC MAKİNA**

FİRMA YAZMAK İZİN TIKLAYIN  
TİP YAZMAK İÇİN TIKLAYIN  
KOD YAZMAK İÇİN TIKLAYIN

BARKOD YAZDIR

**MANUEL ÇALIŞMA MODU**

CETVEL MESAFE 2976.0 mm.  
HEDEF MESAFE 2976.0 mm.

SABİT KAFA	HAREKETLİ KAFA	82
45	45	ADET SIFIRLA
←	BAŞLAT	DURDUR

- Click the dimension field of target distance

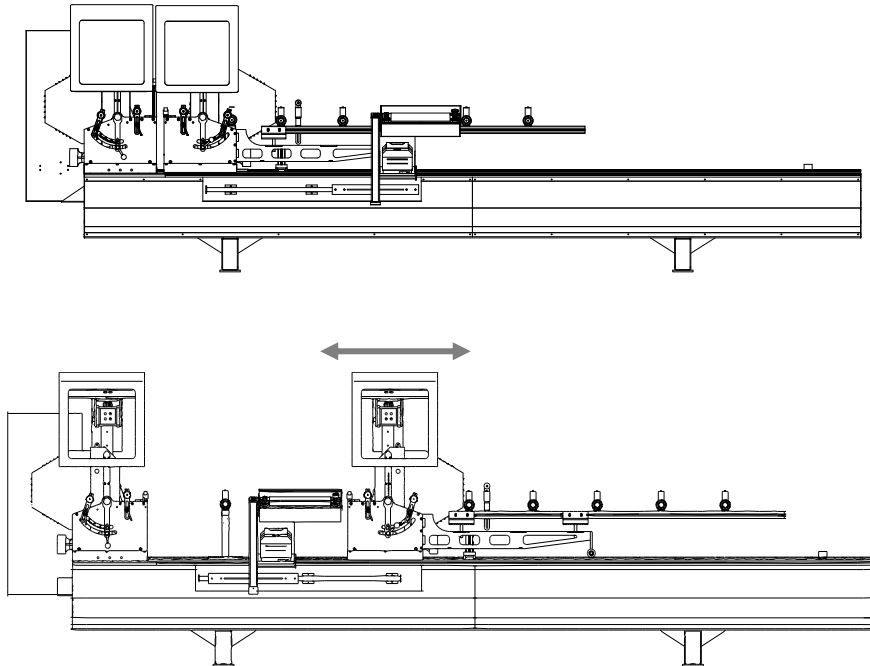
- Write the desired dimension using the numeric panel in millimeter (mm)

**Important Note!** Gauge must be used to cut pieces smaller than 500 mm. Gauge usage will be explained in the following sections. Machine can be used to cut profiles with minimum 290 mm length. "LONG CUT" mode must be used for cutting profiles larger than 4000 mm.

- Press "ENT" (ENTER) after entering the dimension

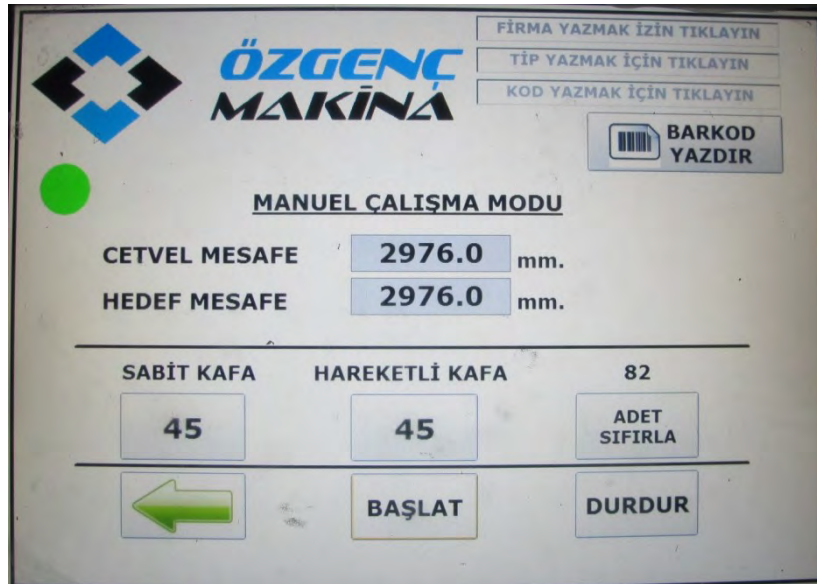


- Movable cutting unit will move to target distance entered when "Start" command is clicked



Adjusting Cutting Angles in Manual Mode ;



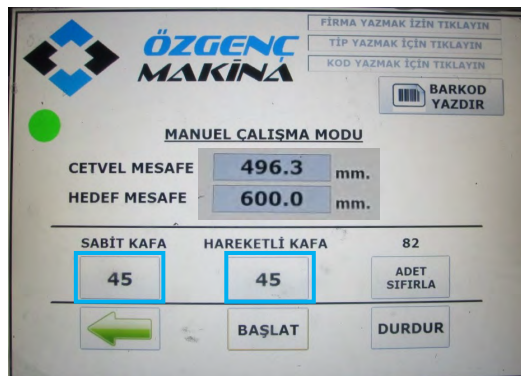


- Cutting angles are determined using buttons located under tabs called "Fixed Head" and "Movable Head" located in manual operation mode

**Note!** Remember that movable and fixed cutting units are automatically moved only to 45 and 90°.

- Click the button under the selected unit once depending on the unit(s) you want to (fixed and movable head) to 45 or 90°.

Click the buttons on the side to move both fixed and movable units from 45° to 90°



Both fixed and movable heads are tilted to 45° as shown on the side. Click buttons inside the rectangles on the side to move heads to 90° once.

Both fixed and movable heads are now in 90°

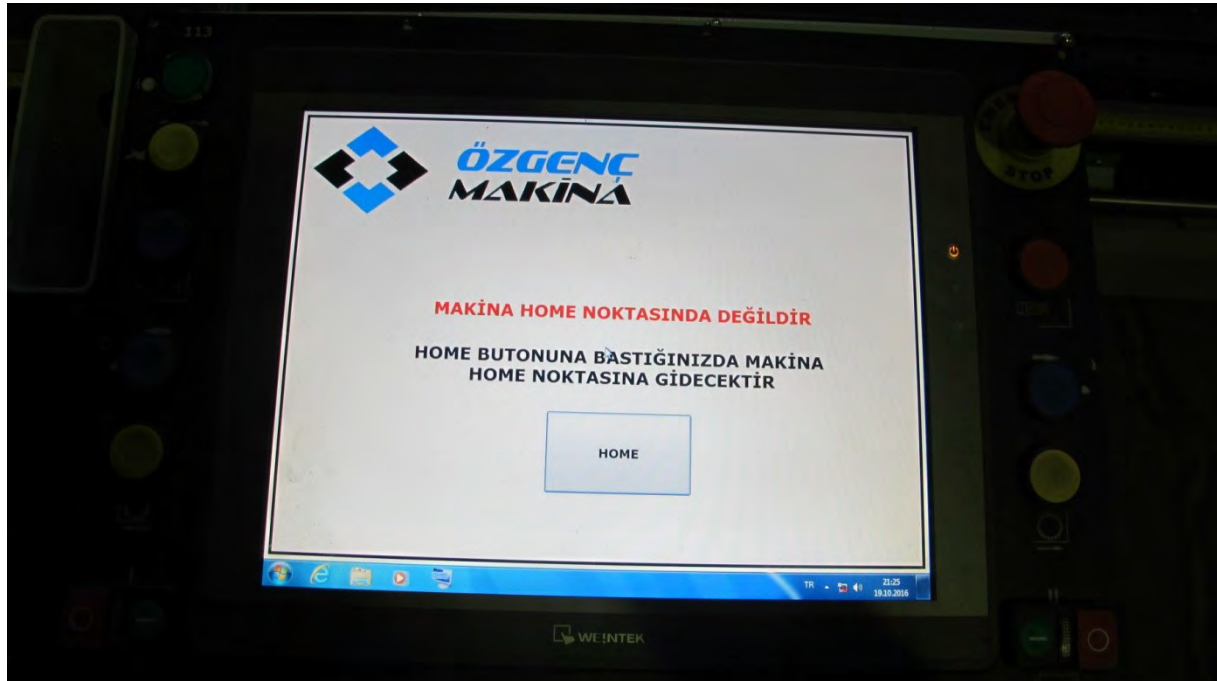


### 10.13.2 Cutting in Manual C

- Switch the machine on



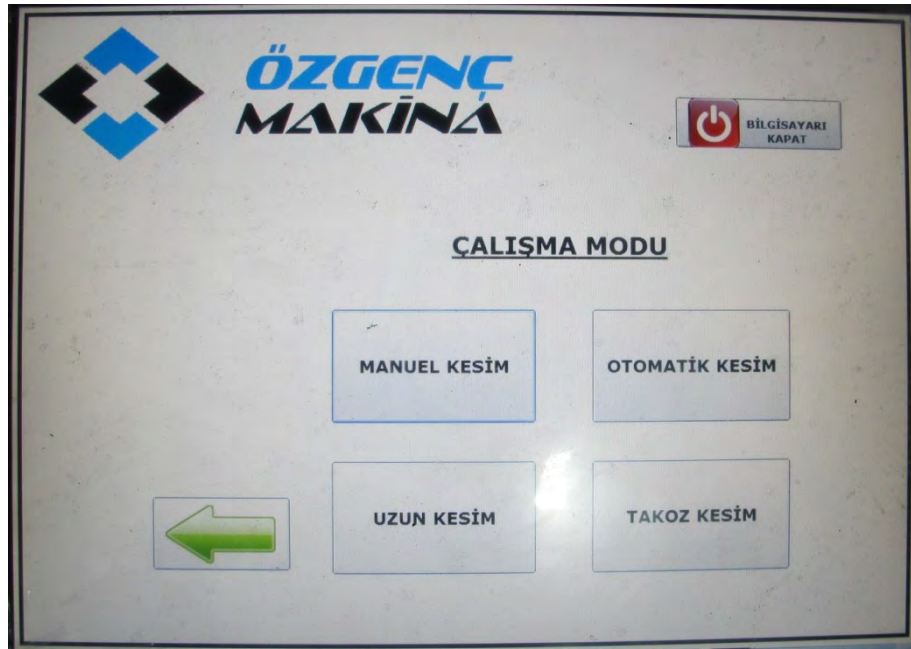
- Then send the machine for calibration by pressing "HOME" button on the screen



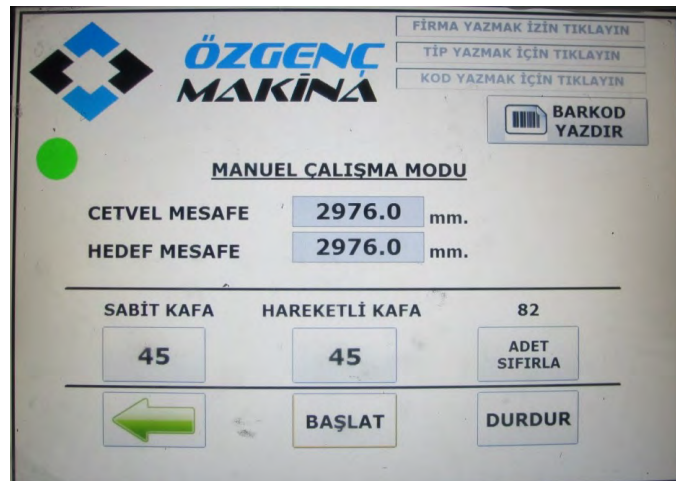
- Select the preferred language in the language options menu



- Select Manual Cutting Mode using the operation mode screen



- Click "Target Distance" in the next screen, enter the desired profile dimension using the numeric panel and press "ENT" (ENTER)

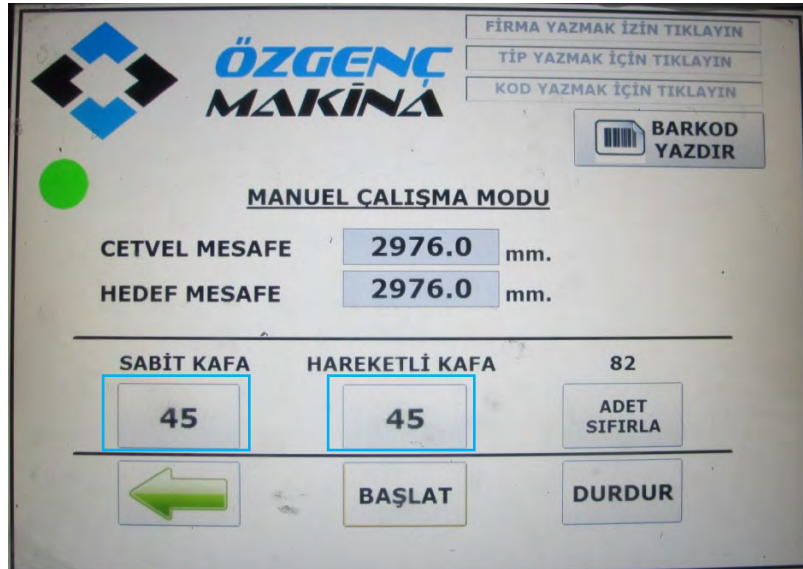


**Important Note!** Gauge must be used to cut pieces smaller than 500 mm. Gauge usage will be explained in the following sections. Machine can be used to cut profiles with minimum 290 mm length. "LONG CUT" mode must be used for cutting profiles larger than 4000 mm.





- Set the angles that you want to perform cutting



- Click "START" button and wait for the movable head to move to the dimension
- Place the profile in the machine

**Note!** Do not forget to set the coolant spray if the profile to be cut is aluminum

- Then press "press rests active" button on control panel to fix the profile

Button to  
Activate Press  
Rests



- Activate saw motors





Buttons to  
Operate Saw  
Motor



- Perform cutting using cutting buttons

**NOTE !** You need to press cutting buttons with your both hands simultaneously to perform cutting



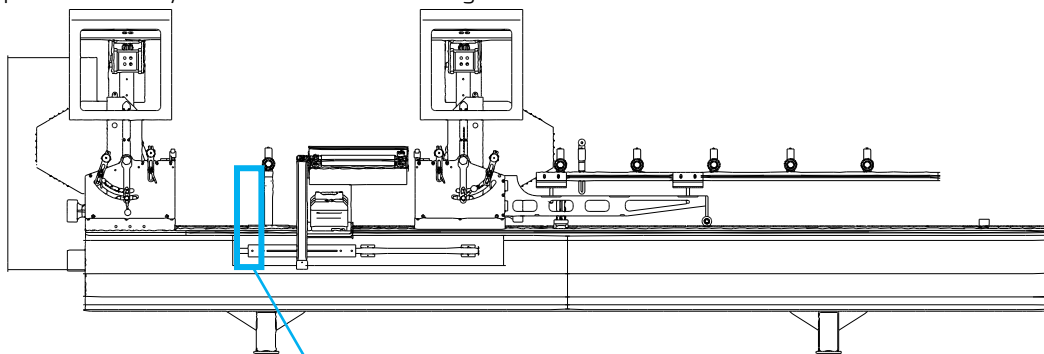


- Press "press rests deactive" button after cutting is complete and remove the cut profile

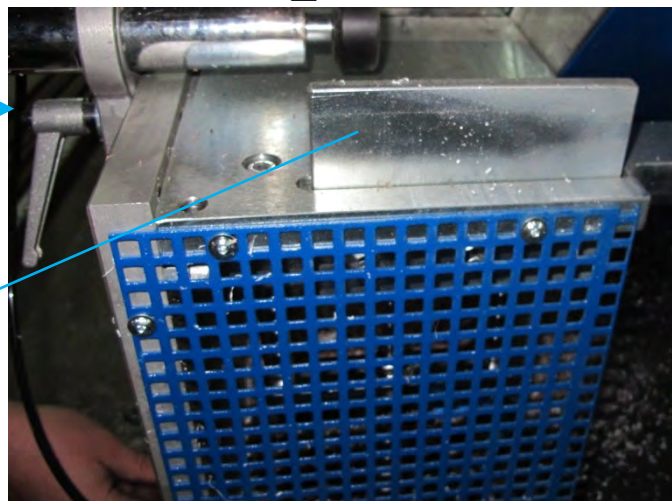


### 10.13.3 Cutting Short Pieces in Manual Cutting Mode

A short piece cutting gauge is available on the machine for cutting pieces shorter than 500 mm. Short pieces can only be cut in "Manual Cutting Mode"

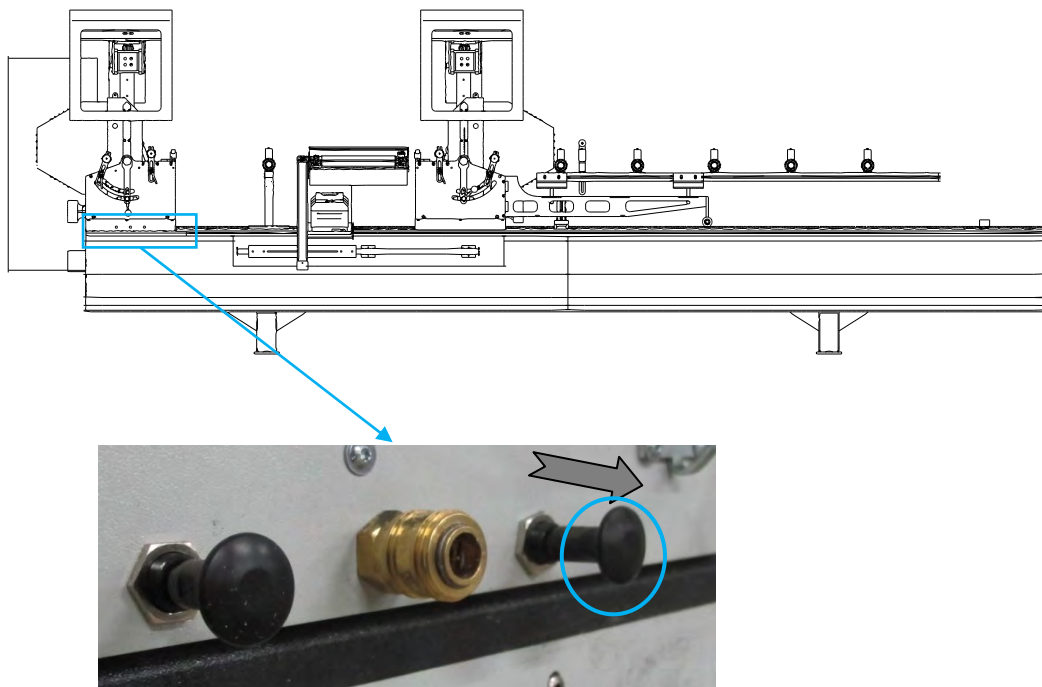


Short Piece Cutting Gauge

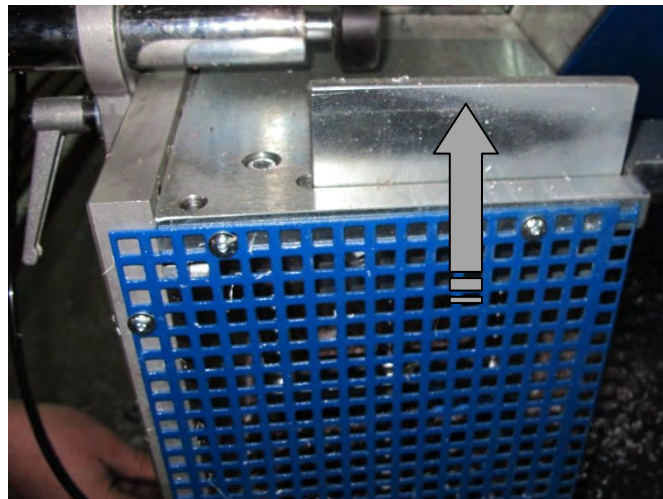


**NOTE !** Remember that the shortest piece can be maximum **290 mm**

Activating short piece cutting gauge;



- Manually pull the button valve located on fixed head unit shown in the figure above towards yourself
- Short piece cutting gauge will move upwards

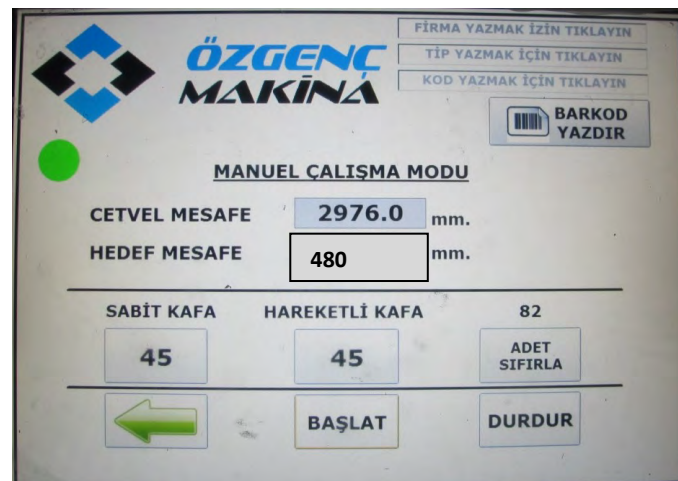
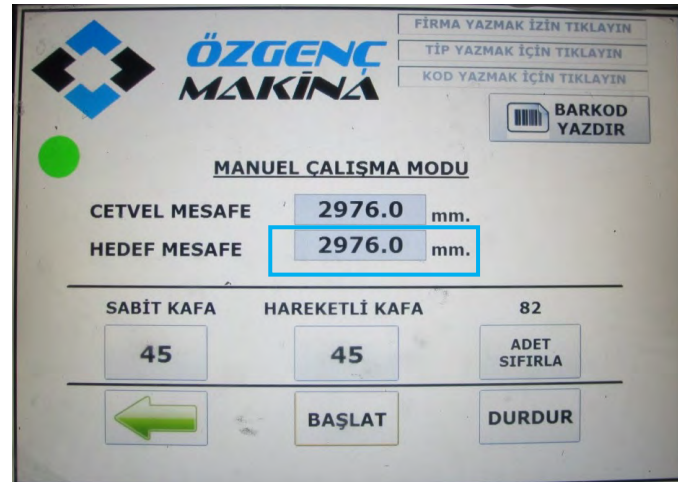


Cutting Short Pieces;

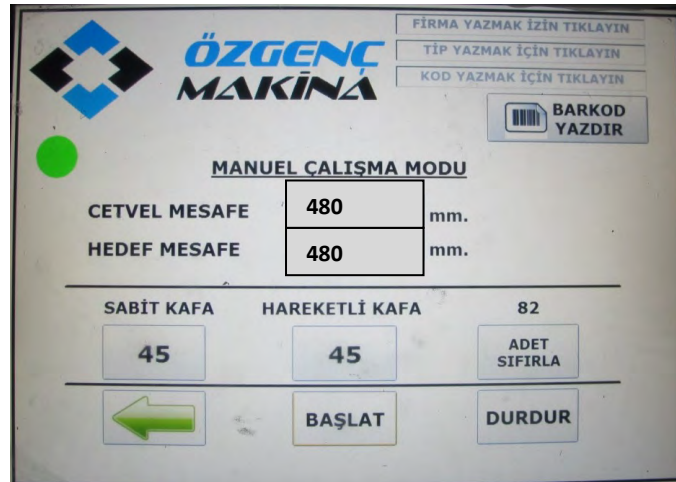




- Enter a dimension smaller than 500 mm and larger than 280 mm in manual cutting mode



- Press "START" and wait for the dimension called "RULER DISTANCE" to move to target dimension



- Activate short piece cutting gauge



- Place the profile to be cut between gauge and movable head unit
- Press "press rests active" button on the control panel to fix the profile



- Press movable unit saw operation button



- Perform profile cutting by pressing cutting buttons



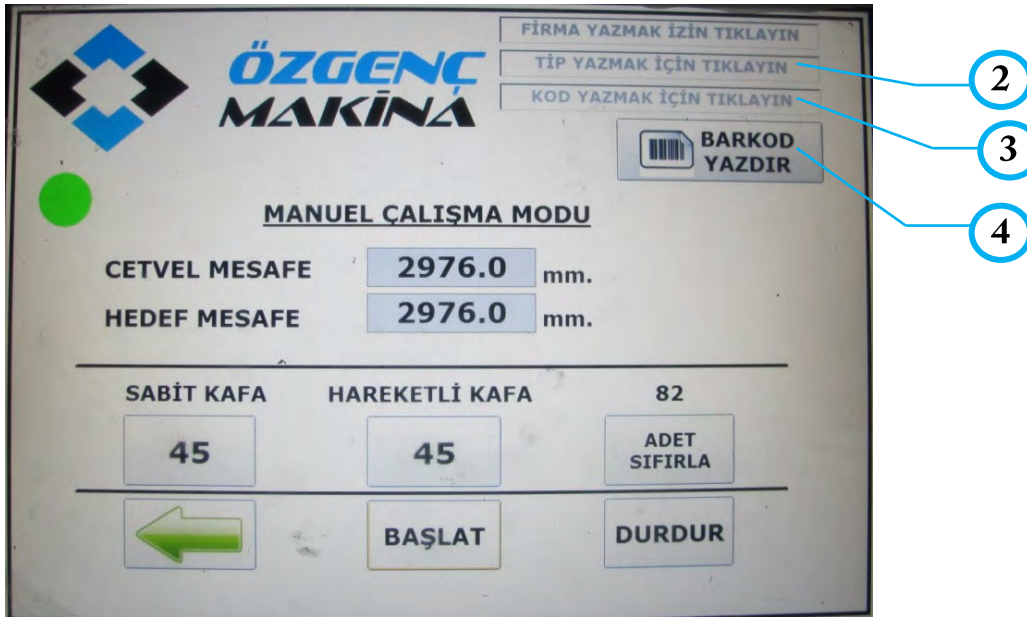
- Press "press rests inactive" button and remove the cut profile when cutting is complete



#### 10.13.4 Printing Barcode in Manual Cutting Mode

- Fill in the following fields and press "PRINT BARCODE" button to print barcodes in manual cutting mode



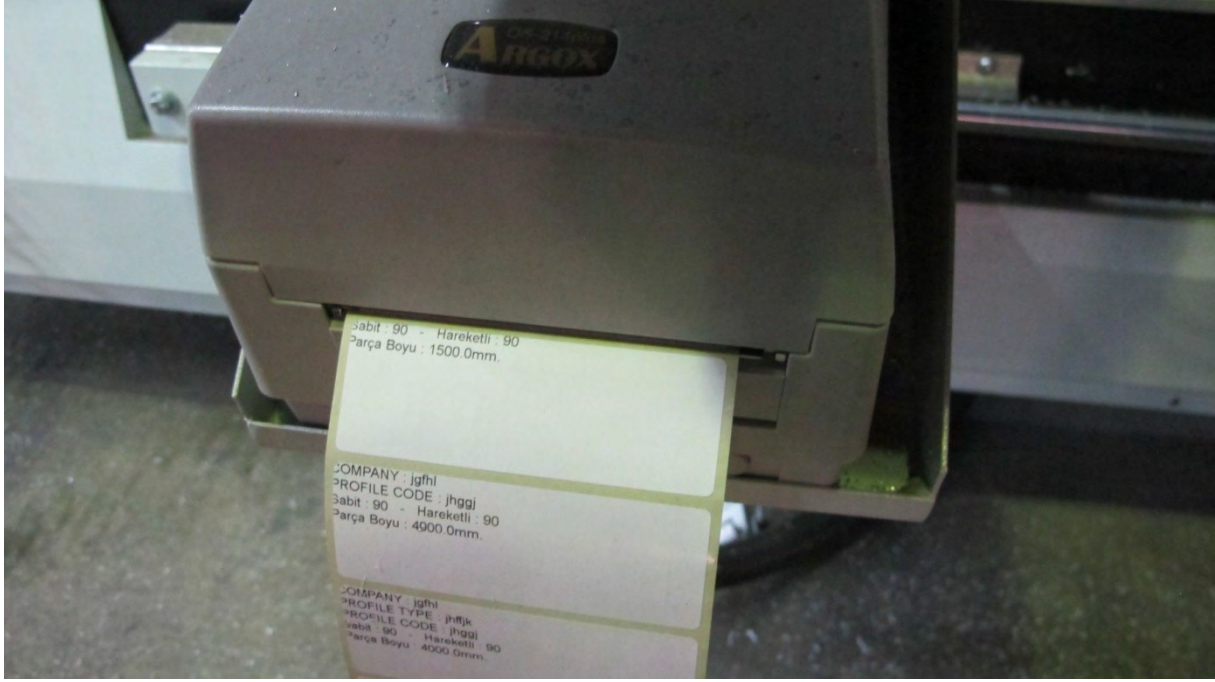


Screen keyboard will appear when you click Print Barcode button



- |   |   |
|---|---|
| 1 | Used to print company name on barcode paper |
| 2 | Used to print profile type on barcode paper |
| 3 | Used to print profile code on barcode paper |
| 4 | Used to print barcode paper                 |



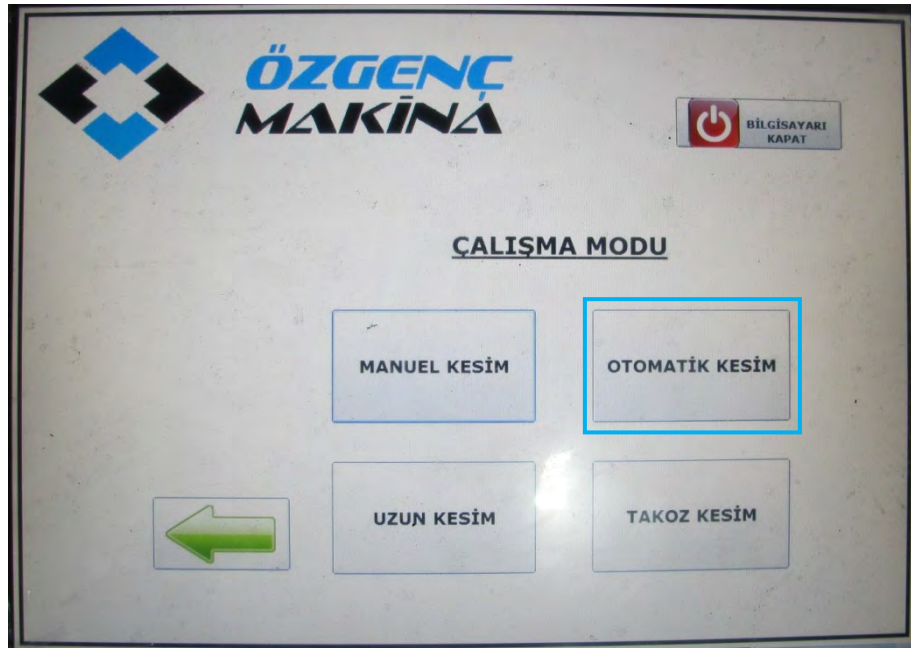


- Barcode paper will be printed according to information entered when you press Print Barcode



### 10.13.4 Cutting in Automatic Operation Mode

Click "Automatic Cutting Mode" on operation mode screen



**Note!** ERCOM program starts in Automatic Operation mode

P.No	Stok Kodu	Profil Açıklaması	Sipariş No	Poz No	Müşteri	Uzunluk	Sol Aç	Sağ Aç	Kesildi	İş Emri No	Gönderildi
6	5506_B	Kasa Profili		TES		1100	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
11	5506_B	Kasa Profili		TES		1200	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
12	5506_B	Kasa Profili		TES		1100	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
4	5506_B	Kasa Profili		TES		1100	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
5	5506_B	Kasa Profili		TES		1100	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
10	5506_B	Kasa Profili		TES		1200	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
7	5506_B	Kasa Profili		TES		900	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
8	5506_B	Kasa Profili		TES		850	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
9	5506_B	Kasa Profili		TES		850	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
1	5504_B	Orta Kayıt		TES		823	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
2	5504_B	Orta Kayıt		TES		773	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
3	5504_B	Orta Kayıt		TES		773	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>

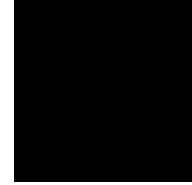
Liens	BAŞLAT	Kesilen Parça: 12	Kalan Parça: 0	Dataları Güncelle
Barcode Yazdır	Ayarlar	0.00%	0%	Yeni Sipariş
Kesilen Profiller Sil	Çıkış	PLC Bağlantısı Kuruldu		

Sol Testere: 45 Otomatik Sağ Testere: 90

**Note!** ERCOM operation screen



Data files in .csv format are supported by the program. You can transfer a file in .csv format to control panel using "USB" (Universal Serial Bus), "local connection" or by creating yourself in ERCOM or similar programs.

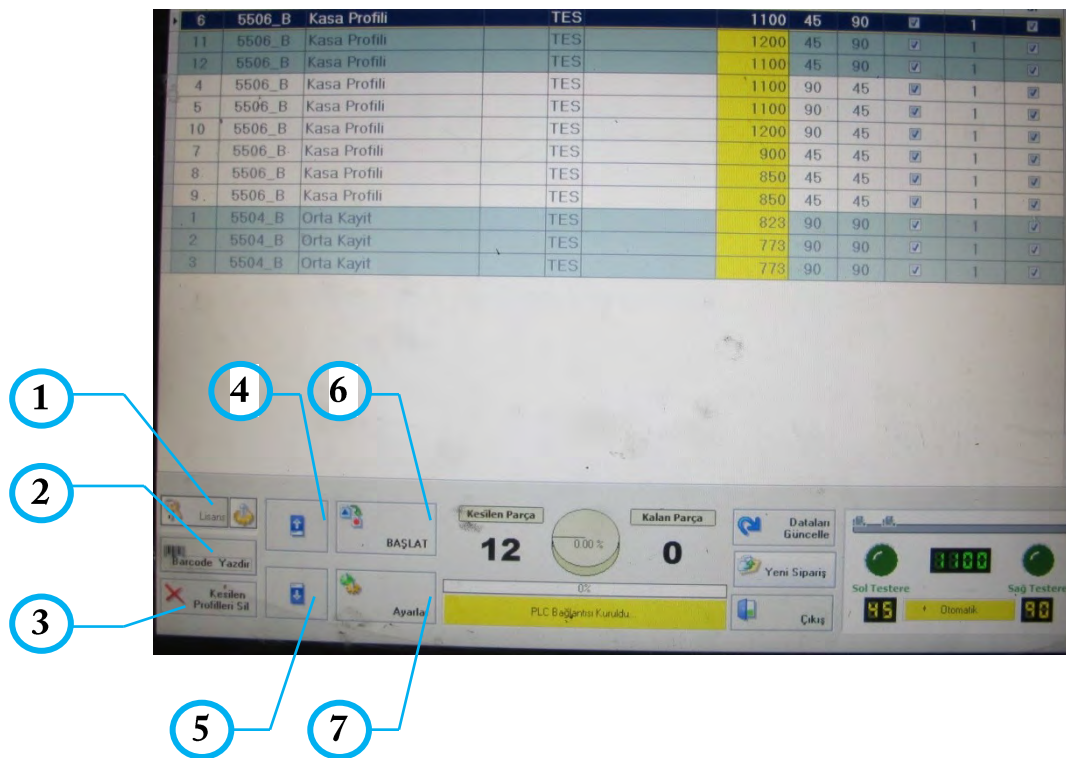


### 10.13.5 Automatic Operation Mode Screen





1	Shows the number of profile to be cut
2	Shows profile stock code
3	Profile description (used to easily locate profiles)
4	Shows order no. of profile(s) to be cut
5	Shows the operation to be implemented on the profile (TES: Refers to Cutting with a Saw)
6	Shows the customer that the profile is cut for
7	Shows the length of the profile to be cut
8	Shows the cutting angle of the fixed cutting unit
9	Shows the cutting angle of the movable cutting unit
10	Shows if profile cutting is complete or not ( Profiles with a tick (✓) in the checkbox are completed)
11	Shows the job order of the profile to be cut
12	



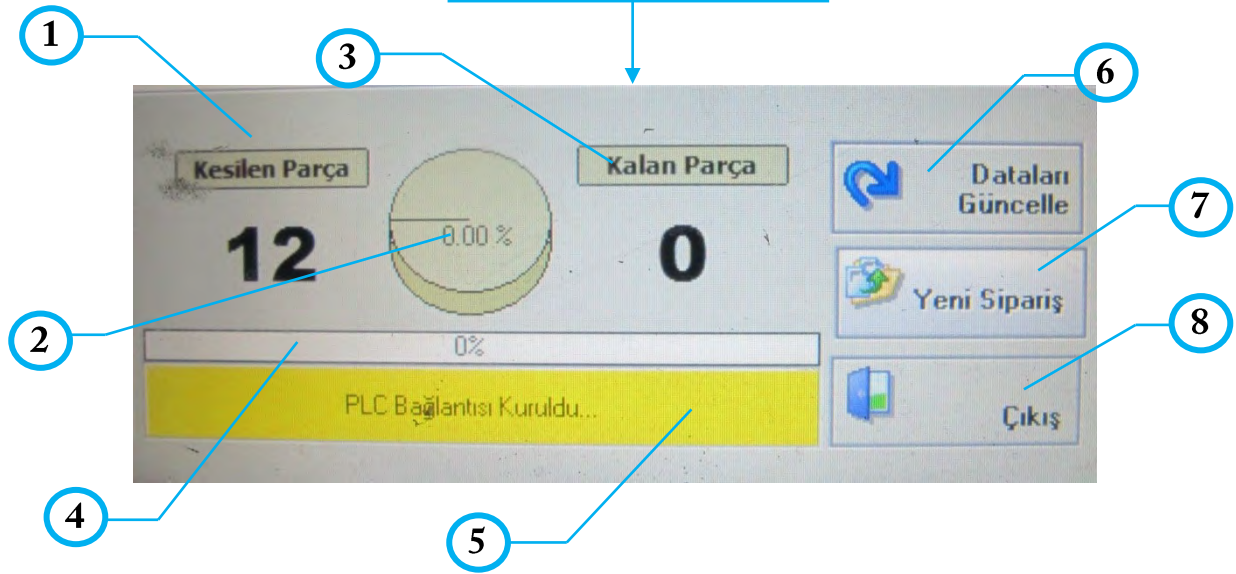
1	Used for license settings of ERCOM program (Machine ERCOM program becomes licensed)
2	Used to print barcodes for cut profiles
3	Removes cut profiles from cutting list
4	Used to move to previous page in cutting list (page is scrolled up)
5	Used to move to next page in cutting list (page is scrolled down)
6	Used to start cutting for profiles in cutting list





## 7 Used for program settings

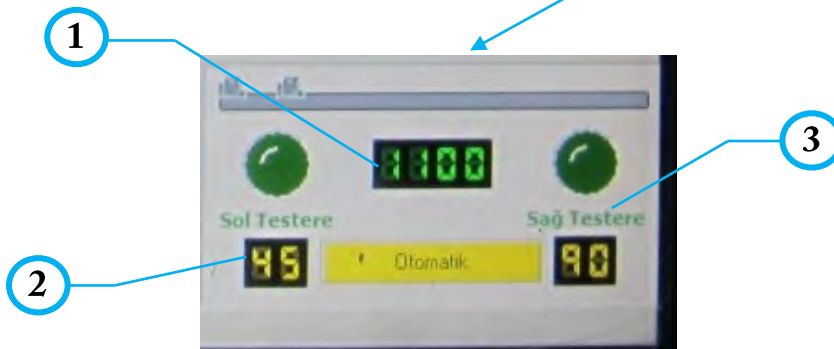
P.No	Stok Kodu	Profil Açıklaması	Sipariş No	Poz No	Müşteri	Uzunluk	Sol Aç	Sağ Aç	Kesildi	İş Emri No	Gönderildi
6	5506_B	Kasa Profili		TES		1100	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
11	5506_B	Kasa Profili		TES		1200	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
12	5506_B	Kasa Profili		TES		1100	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
4	5506_B	Kasa Profili		TES		1100	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
5	5506_B	Kasa Profili		TES		1100	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
10	5506_B	Kasa Profili		TES		1200	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
7	5506_B	Kasa Profili		TES		900	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
8	5506_B	Kasa Profili		TES		850	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
9	5506_B	Kasa Profili		TES		850	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
1	5504_B	Orta Kayıt		TES		823	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
2	5504_B	Orta Kayıt		TES		773	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
3	5504_B	Orta Kayıt		TES		773	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>



- 1 Shows the number of cut profiles
- 2 Shows the percentage of (%) cut profiles in the cutting list
- 3 Shows the number of profiles that are not cut
- 4 Shows the percentage of (%) loaded cutting list
- 5 Shows the status of communication with PLC
- 6 Used to updated details (works as a "refresh" command)
- 7 Used to add new order to cutting list
- 8 Used to exit program



P.No	Stok Kodu	Profil Açıklaması	Sipariş No	Poz No	Müşteri	Uzunluk	Sol Açı	Sağ Açı	Kesildi	İş Emri No	Gönderildi
6	5506_B	Kasa Profili		TES		1100	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
11	5506_B	Kasa Profili		TES		1200	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
12	5506_B	Kasa Profili		TES		1100	45	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
4	5506_B	Kasa Profili		TES		1100	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
5	5506_B	Kasa Profili		TES		1100	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
10	5506_B	Kasa Profili		TES		1200	90	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
7	5506_B	Kasa Profili		TES		900	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
8	5506_B	Kasa Profili		TES		850	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
9	5506_B	Kasa Profili		TES		850	45	45	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
1	5504_B	Orta Kayıt		TES		828	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
2	5504_B	Orta Kayıt		TES		773	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>
3	5504_B	Orta Kayıt		TES		773	90	90	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>



- |   |   |
|---|---|
| 1 | Shows the length that the machine is located        |
| 2 | Shows the cutting angle of the fixed cutting unit   |
| 3 | Shows the cutting angle of the movable cutting unit |

### NOTE !

When job order is load (file with CSV extension), optimization is applied to achieve the least scraps as possible. This offers maximum efficiency for cut profiles. Linear single dimensional optimization type is applied.





### 10.13.6 Loading New Order in Automatic Operation Mode

- Tabs will open at the top when you click "New Order"

These tabs are;

- Add Profile
- Load Csv
- Transfer
- Exit



- |   |  |
|---|--|
| 1 | Used to select profile manually and add to the list  |
| 2 | Used to locate the job order prepared using the program (.csv extension) in the directory of the control panel |
| 3 | Used to transfer .csv (cutting list) to the program  |
| 4 | Used to close tabs   |

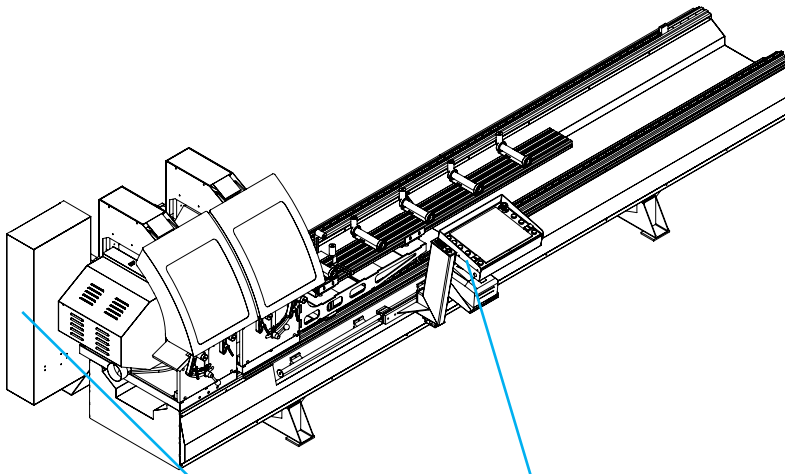


P. No	Özellik Kodu	Profil Açıklaması	Şişirici No	Proz. Mıçtır	Uzunluk	İst. Aç.	Sıgı. Aç.	Kesilme	İç Emis.	Çıktı
6	5506_B	Kasa Profili	TES		1100	45	90	9	1	9
11	5506_B	Kasa Profili	TES		1200	45	90	7	1	7
12	5506_B	Kasa Profili	TES		1100	45	90	7	1	7
4	5506_B	Kasa Profili	TES		1100	90	45	9	1	9
5	5506_B	Kasa Profili	TES		1100	90	45	9	1	9
10	5506_B	Kasa Profili	TES		1200	90	45	9	1	9
7	5506_B	Kasa Profili	TES		900	45	45	9	1	9
8	5506_B	Kasa Profili	TES		900	45	45	9	1	9
9	5506_B	Kasa Profili	TES		900	45	45	9	1	9
1	5504_B	Orta Kaset	TES		825	90	90	7	1	7
2	5504_B	Orta Kaset	TES		775	90	90	7	1	7
3	5504_B	Orta Kaset	TES		775	90	90	7	1	7

Cutting list will be loaded to the program when transfer command is pressed.

### 10.13.7 Loading Cutting List Using Load CSV Command in Automatic Operation Mode

- Allows locating the cutting list from the usb device or directory that you previously loaded to the control panel and loading to the program



USB Hub

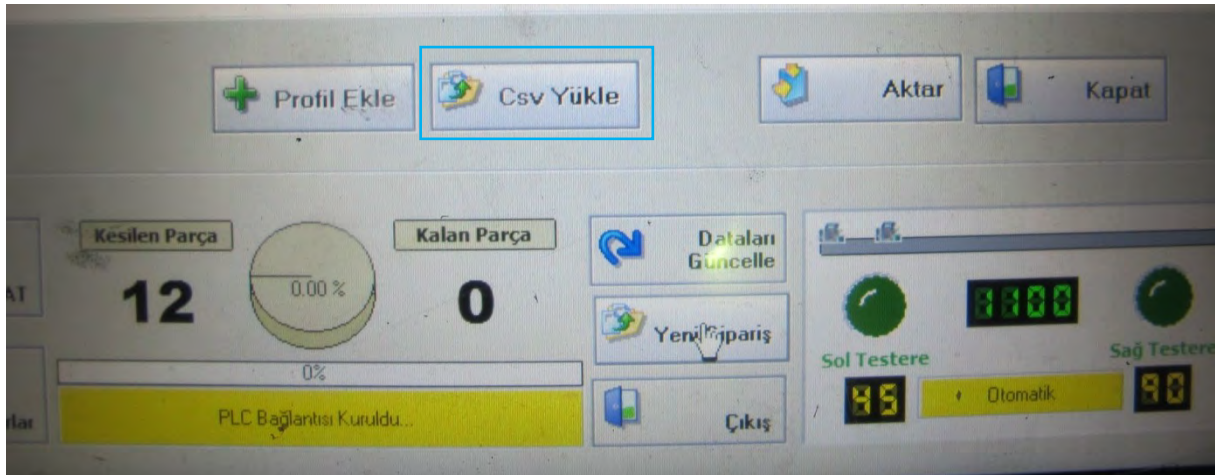


#### Note!

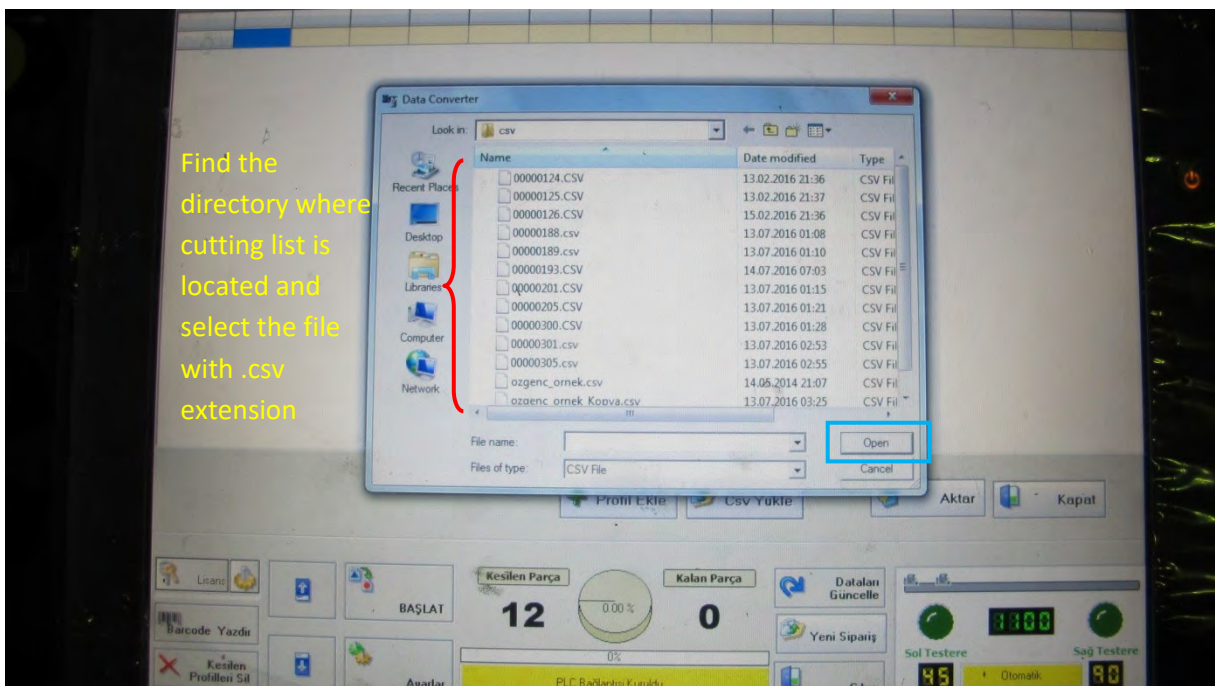
The machine has 2 USB hubs as 1 around electricity board and 1 on the control panel

- Press "New Order" tab
- Click "Load CSV" in the tabs





- Select the cutting list you want to load on the "Data Converter" tab and press "Open" button



This will load the cutting list to the program

Sample .CSV Format



ISNO	PROFILNO	POZNO	MONTAJ	ISLEM	ARABANO	YERNO	STOKKODU	UZUNLUK	UNET	DEKSEN	RENK	FIRMA	MUSTERI	SEVKTAR	PROFILBOY	SIPARISNO	SOLACI	SAGACI	PROFILADI	PARGANO	ISNO	IMGPATH
1	1	1	3	1	1	1	12601	1671	1665	1641	11	ERCOM BIL OZGENC M	06.04.2012	1	5200001	45	45	Zendow Ka	3	11 C:/Users/Dave/Desktop/DATA/		
1	2	1	1	0	1	1	12601	1671	1665	1641	11	ERCOM BIL OZGENC M	06.04.2012	1	5200001	45	45	Zendow Kasa L 1.44				
1	3	2	3	1	1	2	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	1	5200001	45	45	Zendow Kasa L 1.44				
1	4	2	1	0	1	2	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	2	5200001	45	45	Zendow Kasa L 1.44				
1	5	2	3	1	1	3	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	2	5200001	45	45	Zendow Kasa L 1.44				
1	6	2	1	0	1	3	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	2	5200001	45	45	Zendow Kasa L 1.44				
1	7	2	3	1	1	4	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	3	5200001	45	45	Zendow Kasa L 1.44				
1	8	2	1	0	1	4	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	3	5200001	45	45	Zendow Kasa L 1.44				
1	9	2	3	1	1	5	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	3	5200001	45	45	Zendow Kasa L 1.44				
1	10	2	1	0	1	5	12601	1671	1665	1501	11	ERCOM BIL OZGENC M	06.04.2012	4	5200001	45	45	Zendow Kasa L 1.44				
1	11	1	2	0	1	1	12601	1641	1635	1671	11	ERCOM BIL OZGENC M	06.04.2012	4	5200001	45	45	Zendow Kasa L 1.44				
1	12	1	4	0	1	3	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	5	5200001	45	45	Zendow Kasa L 1.44				
1	13	2	2	0	1	2	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	5	5200001	45	45	Zendow Kasa L 1.44				
1	14	2	4	0	1	2	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	5	5200001	45	45	Zendow Kasa L 1.44				
1	15	2	2	0	1	3	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	5	5200001	45	45	Zendow Kasa L 1.44				
1	16	2	4	0	1	3	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	6	5200001	45	45	Zendow Kasa L 1.44				
1	17	2	2	0	1	4	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	6	5200001	45	45	Zendow Kasa L 1.44				
1	18	2	4	0	1	4	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	6	5200001	45	45	Zendow Kasa L 1.44				
1	19	2	2	0	1	5	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	7	5200001	45	45	Zendow Kasa L 1.44				
1	20	2	4	0	1	5	12601	1501	1495	1671	11	ERCOM BIL OZGENC M	06.04.2012	7	5200001	45	45	Zendow Kasa L 1.44				
1	21	1	0	0	1	1	12620	1547	1541	0	11	ERCOM BIL OZGENC M	06.04.2012	8	5200001	90	90	Zendow O.Kay.1 Fr.				
1	22	1	0	0	1	1	12620	1547	1541	0	11	ERCOM BIL OZGENC M	06.04.2012	8	5200001	90	90	Zendow O.Kay.1 Fr.				
1	23	2	0	0	1	2	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	8	5200001	90	90	Zendow O.Kay.1 Fr.				
1	24	1	0	0	1	1	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	8	5200001	90	90	Zendow O.Kay.1 Fr.				
1	25	1	0	1	1	1	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	8	5200001	90	90	Zendow O.Kay.1 Fr.				
1	26	2	0	1	1	2	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	8	5200001	90	90	Zendow O.Kay.1 Fr.				
1	27	2	0	0	1	2	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	28	1	0	0	1	1	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	29	1	0	1	1	1	12620	515	509	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	30	2	0	1	1	2	12620	515	509	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	31	2	0	1	1	3	12620	515	509	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	32	2	0	1	1	4	12620	515	509	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	33	2	0	1	1	5	12620	515	509	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	34	2	0	1	1	2	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	9	5200001	90	90	Zendow O.Kay.1 Fr.				
1	35	2	0	0	1	3	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	36	2	0	1	1	4	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	37	2	0	1	1	3	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	38	2	0	1	1	3	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	39	2	0	1	1	4	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	40	2	0	1	1	4	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	41	2	0	1	1	5	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	42	2	0	1	1	5	12620	491	485	0	11	ERCOM BIL OZGENC M	06.04.2012	10	5200001	90	90	Zendow O.Kay.1 Fr.				
1	43	2	0	0	1	4	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	11	5200001	90	90	Zendow O.Kay.1 Fr.				
1	44	2	0	0	1	5	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	11	5200001	90	90	Zendow O.Kay.1 Fr.				
1	45	2	0	0	1	5	12620	1407	1401	0	11	ERCOM BIL OZGENC M	06.04.2012	11	5200001	90	90	Zendow O.Kay.1 Fr.				
1	46	1	2	4	1	1	12611	1188	1182	537	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	47	2	2	2	1	2	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	48	2	4	3	1	2	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	49	2	2	2	1	3	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	50	1	3	1	1	1	12611	537	531	1188	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	51	1	1	0	1	1	12611	537	531	1188	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	52	2	3	1	1	6	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	12	5200001	45	45	Zendow Kanat Pr.(60)				
1	53	1	4	2	1	1	12611	1188	1182	537	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	54	2	4	3	1	3	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	55	2	2	2	1	4	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	56	2	1	0	1	6	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	57	2	3	1	1	7	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	58	2	1	0	1	7	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	59	2	3	1	1	8	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	60	2	4	0	1	8	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	13	5200001	45	45	Zendow Kanat Pr.(60)				
1	61	2	4	3	1	4	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	62	2	2	2	1	5	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	63	2	4	3	1	5	12611	1048	1042	513	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	64	2	2	4	1	6	12611	1048	1042	537	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	65	2	3	1	1	9	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	66	2	1	0	1	9	12611	537	531	1048	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	67	2	3	1	1	2	12611	513	507	1048	11	ERCOM BIL OZGENC M	06.04.2012	14	5200001	45	45	Zendow Kanat Pr.(60)				
1	68	2	4	0	1	6	12611	1048	1042	537	11	ERCOM BIL OZGENC M	06.04.2012	15	5200001	45	45	Zendow Kanat Pr.(60)				
1	69	2	2	4	1	7	12611	1048	1042	537	11	ERCOM BIL OZGENC M	06.04.2012	15	5200001	45	45	Zendow Kanat Pr.(60)				
1	70	2	4	2	1	7	12611	1048	1042	537	11	ERCOM BIL OZGENC M	06.04.2012	15	5200001							



	with gasket, <b>13</b> =Outer coating with gasket, <b>14</b> = Double coating with gasket
FIRMA	Company Name
MUSTERI	Customer Name
SEVKTAR	Shipment Date
PROFILBOYNO	Height no. of optimized profiles
SIPARISNO	Order No
SOLACI	Left angle
SAGACI	Right angle
PROFILADI	Profile description

**NOTE !**

Just enter aluminum cutting dimensions in fields called dimensions

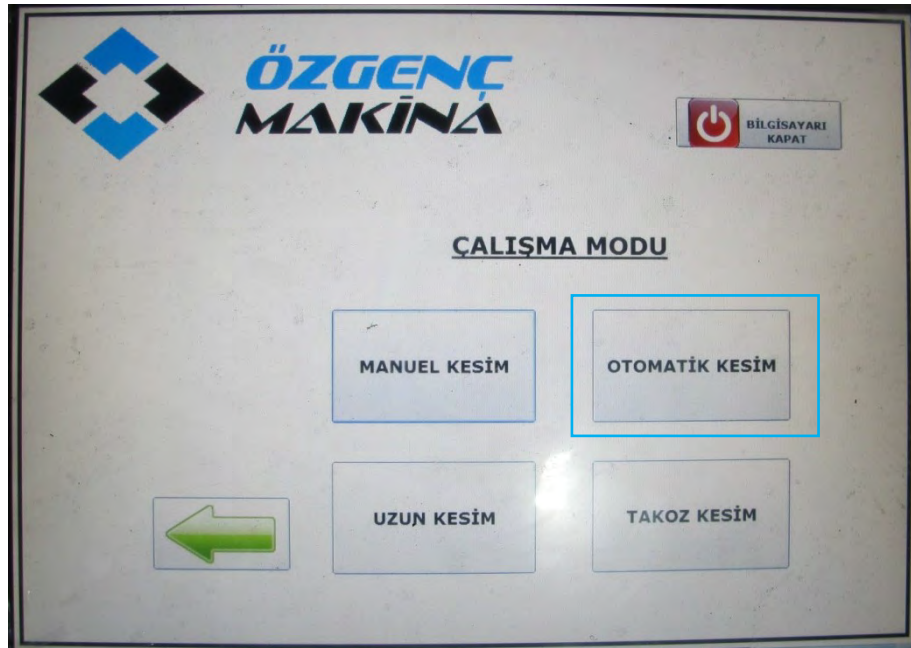
Everything is the same as PVC except for welding margin

Process will be carried out as aluminum when 0 is entered to UNET field



### 10.13.7 Profile Cutting in Automatic Operation Mode

- Select "AUTOMATIC CUTTING" mode in Operation Mode menu



- Load the .csv file as described in section 10.13.7.



- Click Start.
- Load profile in the machine according to cutting list.





- Press "press rests active" button on the control panel to fix the profile



- Activate saw motors



- Perform profile cutting by pressing cutting buttons



- Press "press rests inactive" button and remove the cut profile when cutting is complete



Repeat the operations in this way

**NOTE !**

Cutting units are automatically tilted according to cutting angle received from the program.

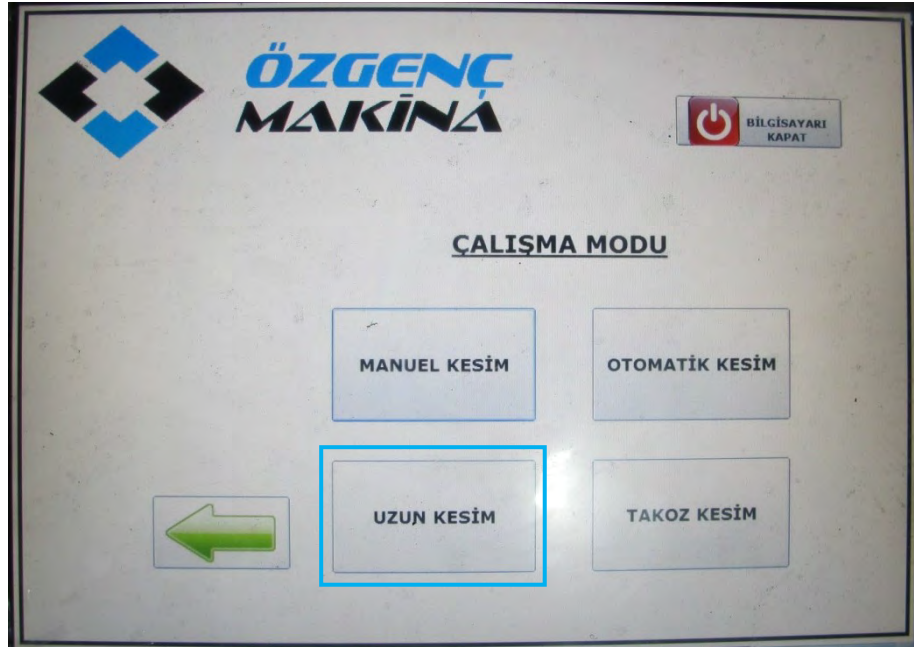
### 10.13.8 Profile Cutting in Long Cutting Mode

- Select "LONG CUTTING" mode in Operation Mode menu

**NOTE !**

"LONG CUTTING" mode must be used to cut pieces longer than 4000 mm.

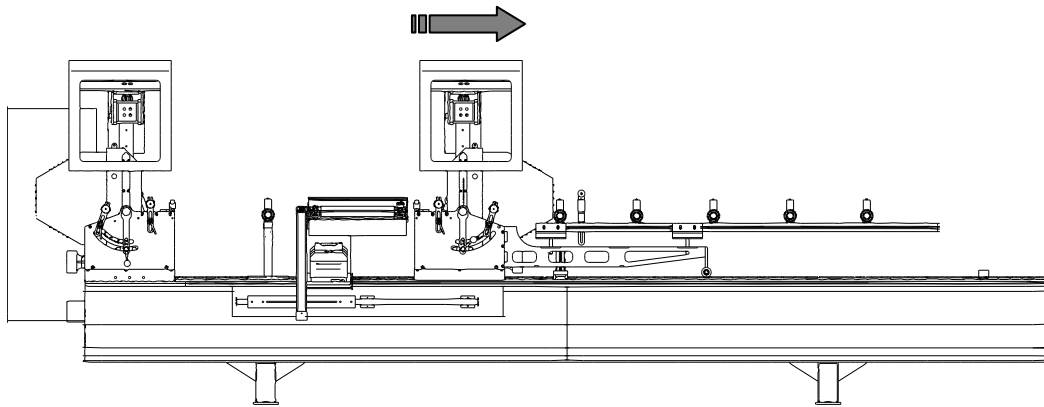
Max. 7500 mm profiles can be cut





1	Shows the current distance of the movable cutting unit
2	Profile length to be cut between 4000 -7500 mm can be entered. (Dimensions can be entered using numeric keyboard opened after clicking target distance)
3	Used to set saw cutting speed of fixed cutting unit
4	Used to set cutting angle of fixed cutting unit
5	Used to set cutting angle of movable cutting unit
6	Used to set saw cutting speed of movable cutting unit
7	Used to return to previous menu
8	Go to End command sends the movable cutting unit to the farthest position
9	Used to stop cutting
10	Used to start long cutting

- Enter the length of profile to be cut using "Target Distance".
- Then make necessary arrangements on profile to be cut
- Click "GO TO END" button to send movable cutting unit to the farthest position.



- Load profile to the machine and fix the profile by activating profile tightening buttons.



- Click "LONG CUTTING START" button.
- Movable cutting unit will drive the profile
- Activate saw .motors





- Perform profile cutting by pressing cutting buttons

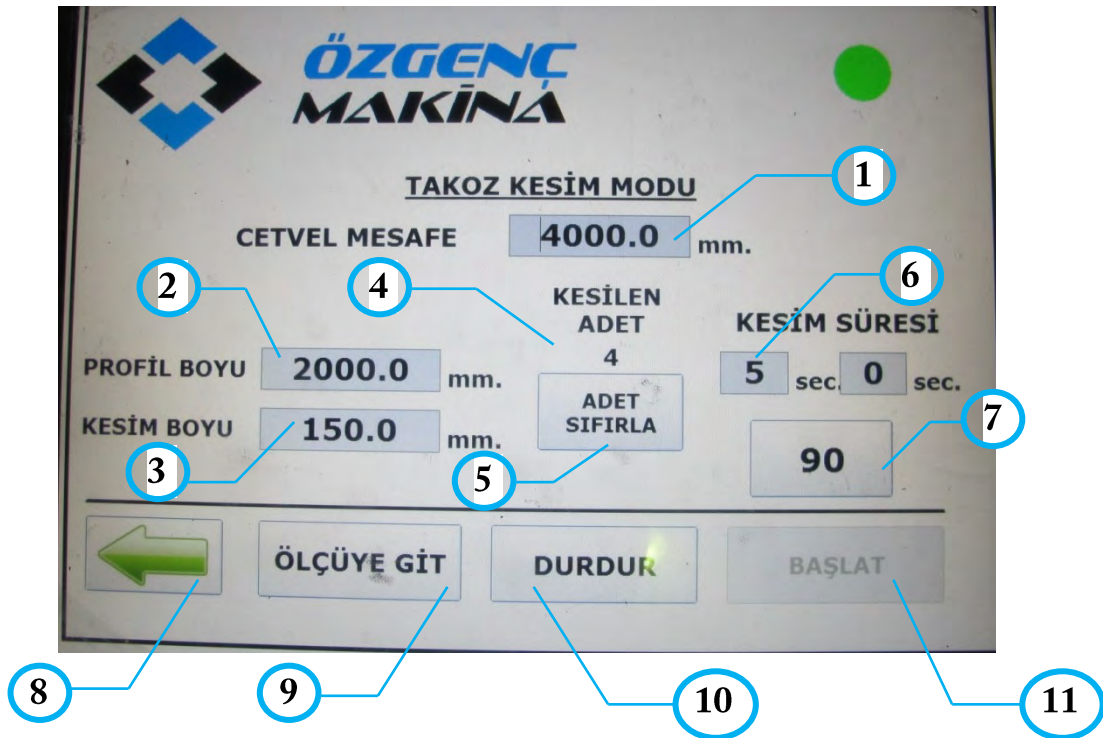


- Press "press rests inactive" button and remove the cut profile when cutting is complete



#### 10.13.9 Profile Cutting

- Select "WEDGE CUTTING" mode in Operation Mode menu





1	Shows the current distance of the movable cutting unit
2	Length of profile to be placed in the machine must be entered here
3	Length of profiles to be cut must be entered here
4	Counts the number of profiles to be cut
5	Resets the number of cut profiles
6	Used to set saw cutting speed of cutting unit
7	Used to set cutting angle of fixed cutting unit
8	Used to return to previous menu
9	When "Go to Dimension" is clicked, movable cutting unit moves along the profile length dimension entered
10	Used to stop cutting
11	Used to start cutting

- Enter the profile length to be loaded to the machine in "PROFILE LENGTH" field
- Enter the length of profile to be cut in "CUTTING LENGTH" tab.
- Set the angle of the fixed cutting unit
- Press "GO TO DIMENSION" command to move the machine to entered profile length.
- Load profile to the machine and fix the profile by activating profile tightening buttons.



- Activate saw motors



- Perform profile cutting by pressing cutting buttons



- Press "press rests inactive" button and remove the cut profile when cutting is complete



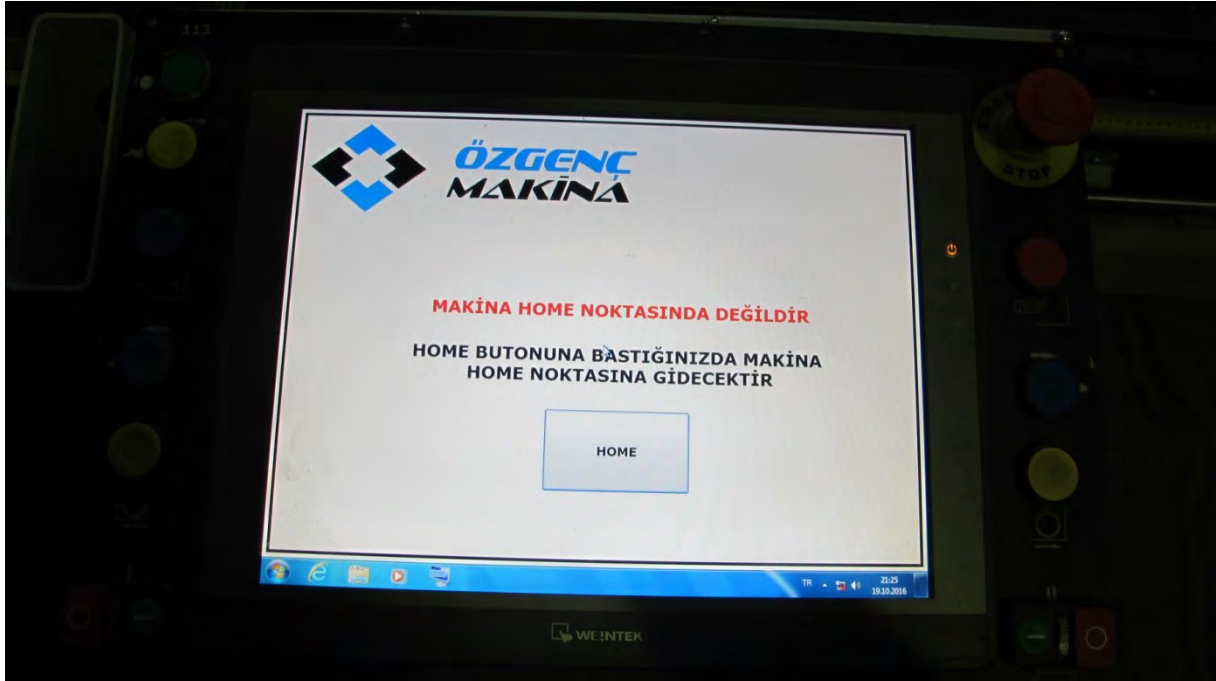
#### NOTE !

Only fixed cutting unit works in wedge cutting mode. Movable unit drives the profile.

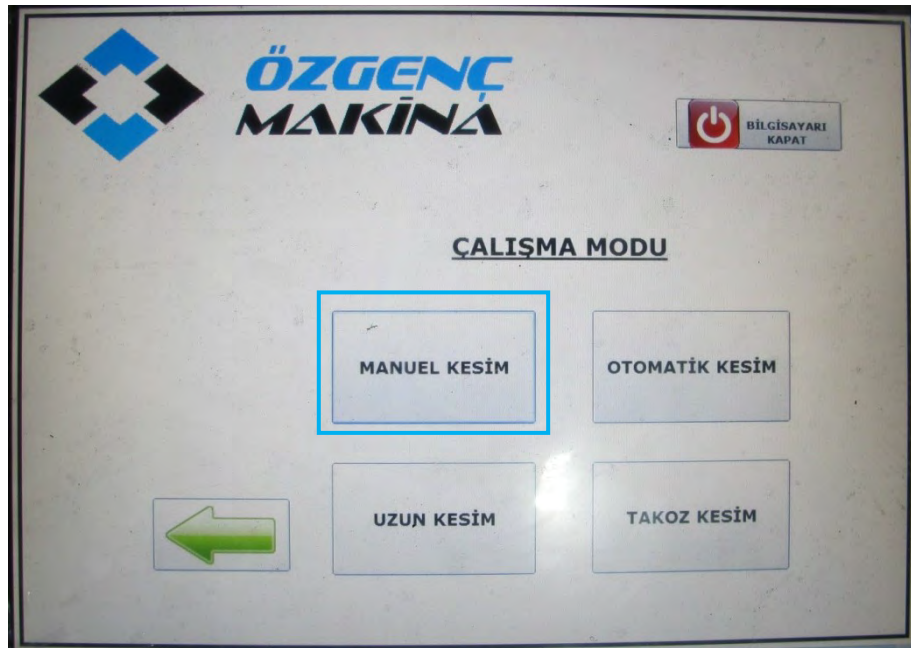
## 11. Calibrating the Machine

- Send machine to Home position.



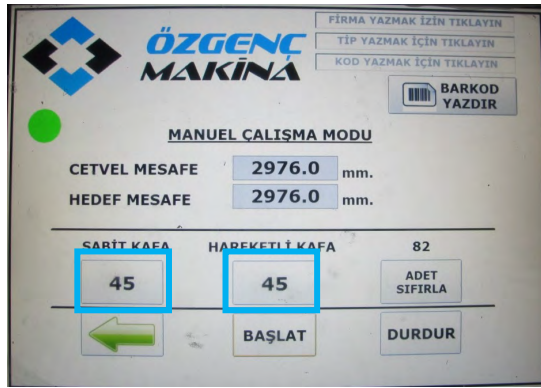


- Then select “Manuel Mode” option



- Move cutting units to 90°

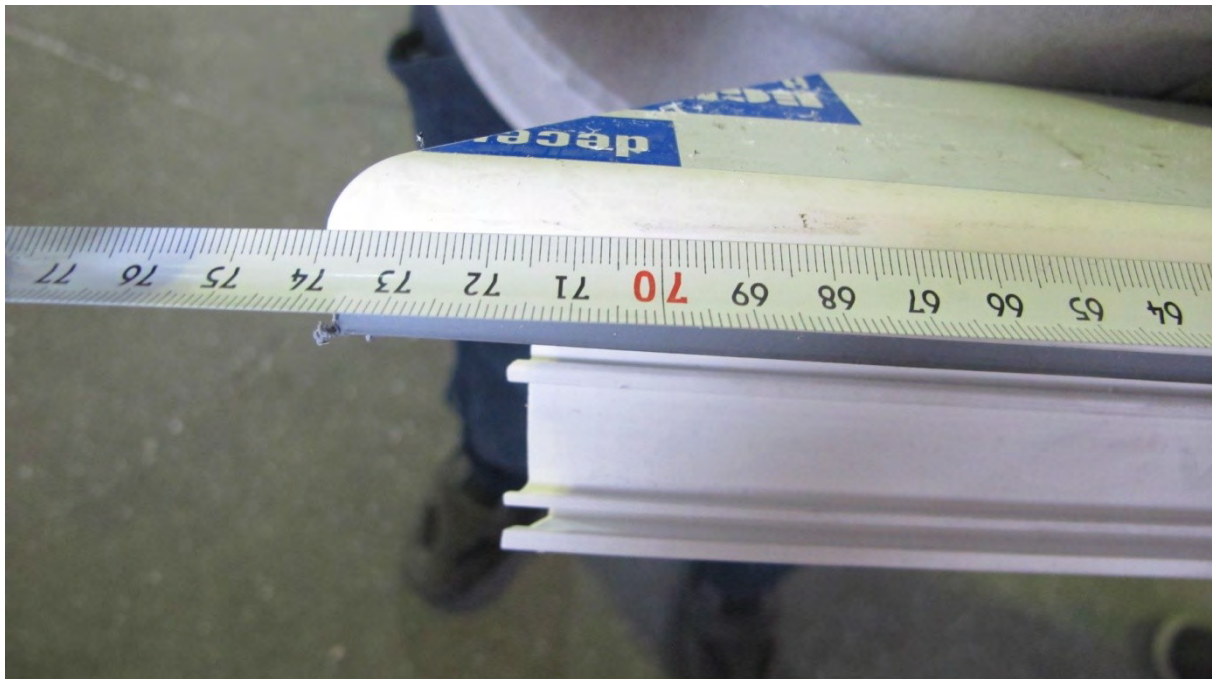




- Enter target distance required to be cut



- Perform cutting
- Measure the cut profile



- Press buttons shown in picture below simultaneously





- Click "Calibration Page" option seen on the screen



- Enter the dimension of the profile you have measured





## 11.1 Barcode Printer Settings and Operation Manual



- Please find "Turkish" user manual of Argox OS-214 Plus Barcode Printer in the link below:

<http://www.ekilavuz.com/kilavuz/ea8d94ed34a030f3/6/argox/os-214-plus/barkod-etiket-yazici>

- Following is the video of "Installing Ribbon and Paper" operation for Argox OS-214 Plus Barcode Printer

<https://youtu.be/ALgXalQEmM8>

- Please find "English" user manual of Argox OS-214 Plus Barcode Printer in the link below:

<https://www.manualslib.com/manual/9337/Argox-Os-214-Plus.html>



## 11.2 Servo Alarm Codes and Meanings

Protective function		Name	Cause	Action
Main	Sub			
15	0	Over-heat Protection	<p>The temperature of the servo drive heat sink and power devices has increased to the specified value or more.</p> <p>The ambient temperature of the servo drive has exceeded the specified value.</p> <p>Overload</p>	<p>Improve the ambient temperature and cooling conditions for the servo drive.</p> <p>Increase the capacity of the servo drive and motor.</p> <p>Specify a longer acceleration time.</p> <p>Reduce load.</p>
16	0	Over-load Protection	<p>Torque command value has exceeded the over-load level specified in Pr5.12 "Over-load level setup" and resulted in overload protection according to the time characteristics.</p> <p>The load is too heavy, the effective torque has exceeded the rated torque, and the operation continued for too many hours.</p> <p>Oscillation and hunting due to poor gain tuning. The motor is showing vibration and abnormal noise. The set value specified in Pr0.04 "Inertia ratio" is abnormal.</p> <p>The motor wiring is wrong or disconnected</p> <p>The machine has collided or suddenly got heavy. The machine has been distorted.</p> <p>The electromagnetic brake was kept applied.</p> <p>While making multiple connections, the motor wire was connected to some other axes, resulting in incorrect wiring.</p>	<p>Check the torque (current) curve for oscillation and excessive amplitude by using the analog output or the communication. See the front panel or communication to check for an overload warning indication and load factor.</p> <p>Increase the capacity of the servo drive and motor.</p> <p>Specify a longer acceleration time.</p> <p>Reduce load.</p> <p>Redo the gain tuning.</p> <p>Connect the motor wires to the wiring diagram.</p> <p>Change the cables.</p> <p>Remove the distortion of the machine. Reduce load.</p> <p>Measure the brake terminal voltage. Release the brake.</p> <p>Make the correct connection for the motor wires, encoder wires and their axes.</p>
18	0	Over-regeneration load protection	<p>Regenerative energy has exceeded the capacity of the regenerative resistor.</p> <p>Regenerative energy generated during the</p>	<p>Check the load factor of the regenerative resistor either with the front panel or by communication. The regenerative resistor should not be</p>



			<p>deceleration due to large load inertia has increased voltage at the converter, causing less regenerative resistor energy to be absorbed, resulting in further voltage increase.</p> <p>Due to high motor revolution, regenerative energy cannot be fully absorbed during the specified deceleration time.</p> <p>The operating limit of the external resistor is restricted to 10 % duty.</p>	<p>used for continuous regenerative braking.</p> <p>Check the operation patterns (velocity monitor).</p> <p>Check the display for the indication of regenerative resistor load factor and a regeneration over warning.</p> <p>Increase the capacity of the motor and servo drive.</p> <p>Make the deceleration time more gradual. Use an external regenerative resistor.</p> <p>Check the operation patterns (velocity monitor).</p> <p>Check the display for the indication of regenerative resistor load factor and a regeneration over warning.</p> <p>Increase the capacity of the motor and servo drive.</p> <p>Make the deceleration time more gradual. Decrease the motor revolution. Use an external regenerative resistor.</p> <p>Set Pr0.16 to 2.</p>
21	0	Encoder communication disconnect error protection	The communication between the encoder and the servo drive was interrupted a certain number of times, and the disconnection detection function started to work.	<p>Make the correct connection of the encoder wires.</p> <p>Correct any wrong connections of the connector pin.</p>
	1	Encoder communication error protection	The data communication from the encoder is erroneous. The data error is mainly due to noise. The encode wires are connected but there is a communication data error.	<p>Make sure the encoder supply voltage is DC 5 V +/- 5% (4.75- 5.25 V). Bear this in mind especially when the encoder wires are long. Separate the encoder wires from the motor wires if they are bundled together.</p> <p>. Connect the shield to FG.</p>
23	0	Encoder communication data error protection	The data communication from the encoder is not erroneous, but the data itself is erroneous. The data error is mainly due to noise. The encode wires are connected but there is a communication data error.	<p>Make sure the encoder supply voltage is DC 5 V +/- 5% (4.75- 5.25 V). Bear this in mind especially when the encoder wires are long. Separate the encoder wires from the motor wires if they are bundled together.</p>



				. Connect the shield to FG.
24	0	Position deviation excess protection	Position deviation pulses have exceeded the setup of Pr0.14 "Position deviation excess setup" The motor operation is not following the command. The set value specified in Pr0.14 "Position deviation excess setup" is too small.	1) Check if the motor rotates according to the position command pulse input. Check the torque monitor to see if the output torque has saturated. Perform a gain tuning. Set the upper limit in Pr0.13 "1st torque limit" and Pr5.24 "Second torque limit setting." Make the encoder wiring connections to the wiring diagram. Extend the acceleration time. Reduce the load and lower the velocity. 2) Set a greater value in Pr0.14.
	1	Velocity deviation excess protection	The difference (speed deviation) between in-position preset velocity and actual speed exceeded the Pr6.02 "Velocity deviation excess setup". Note: When in-position preset velocity becomes zero by force, such as the immediate stop because of the command pulse inhibition (INH) and the positive/negative overtravel limit, the speed deviation increases in that moment. Also, the speed deviation increases during startup of in-position preset velocity, so apply a fully flexible setting.	Increase the Pr6.02 setting value. Make longer the acceleration and deceleration duration of the in-position preset velocity, or improve the following capability with the gain adjustment. Disallow the velocity deviation excess detection. (Pr6.02=0)
26	0	Over-speed protection	The motor rotational speed has exceeded the set value specified in Pr5.13 "Over-speed level setup".	Stop giving excessive speed command. Check the input frequency and scaling ratio for the command pulse. If there is an overshoot because the gain tuning is poor, redo it. Connect the encoder wires to the wiring diagram.
	1	2nd over-speed Protection	The motor rotational speed has exceeded the set value specified in Pr6.15 "2nd over-speed level setup".	
27	0	Command pulse input	The command pulse input frequency has exceeded 1.2 times the value specified in	Check the command pulse input.



		frequency error protection	Pr5.32 "Command pulse input maximum setup".	
	2	Command pulse multiplier error protection	The scaling ratios used to set the Command pulse counts per one motor revolution, the command scaling numerators 1-4, and the denominator of electronic gear are not appropriate.	Check the setting values for the command scaling.
28	0	Limit of pulse replay error protection	The output frequency for pulse regeneration has exceeded the limit value.	Check the set value specified in Pr0.11 "Output pulse counts per one motor revolution" and Pr5.03 "Denominator of pulse output division." To disable the detection, set Pr5.33 "Pulse regenerative output limit setup" to 0.
29	0	Deviation counter overflow protection	The position deviation value based on the encoder pulse has exceeded 229(536870912).	Check if the motor runs according to the position command. Check the torque monitor to see if the output torque has saturated. Perform a gain tuning. Set the upper limit in Pr0.13 "1st torque limit" and Pr5.24 "2nd torque limit". Make the encoder wiring connections to the wiring diagram.
33	0	IF overlaps allocation error 1 protection	Duplicate assignment of a function to the input signals (SI1, SI2, SI3, SI4, and SI5).	Correct the function assignment to the connector pins.
	1	IF overlaps allocation error 2 protection	Duplicate assignment of a function to the input signals (SI6, SI7, SI8, SI9, and SI10).	Correct the function assignment to the connector pins.
	2	IF input function number error 1 protection	Undefined numbers are used for the function assignment of the input signals (SI1, SI2, SI3, SI4, and SI5).	Correct the function assignment to the connector pins.
	3	IF input function number error 2	Undefined numbers are used for the function assignment of the input signals (SI6, SI7, SI8, SI9, and SI10).	Correct the function assignment to the connector pins.



		protection		
	4	IF output function number error 1 protection	Undefined numbers are used for the function assignment of the output signals (SO1, SO2, and SO3).	Correct the function assignment to the connector pins.
	6	CL fitting error protection	The deviation counter clear function is assigned to an input signal other than SI7.	Correct the function assignment to the connector pins.
	7	INH fitting error protection	The command pulse inhibition input enable function is assigned to an input signal other than SI10.	Correct the function assignment to the connector pins.





## 12. General Maintenance Issues

### 12.1 General Maintenance

DESCRIPTIONS	DAILY	WEEKLY	MONTHLY
Cleaning top and surroundings of machine	✓		
Cleaning of oil and other wastes	✓		
Cleaning of moving parts	✓		
Cleaning of slides and threaded rods	✓		
Conditioner control (water, oil)	✓		
Lubrication points		✓	
Weekly maintenance		✓	✓

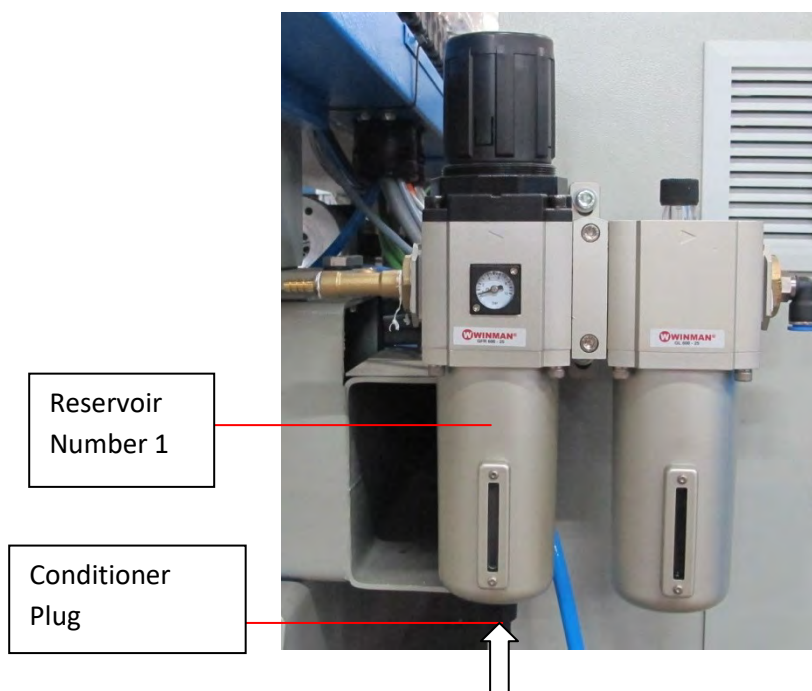


#### NOTE:

Slides and moving parts of the machine must be cleaned of dust and sawdust using compressed air.



## 12.2 Conditioner Water Level Control



There must not be water in the glass tube on the left of the conditioner (container no. 1). Water must be discharged in case of accumulation.

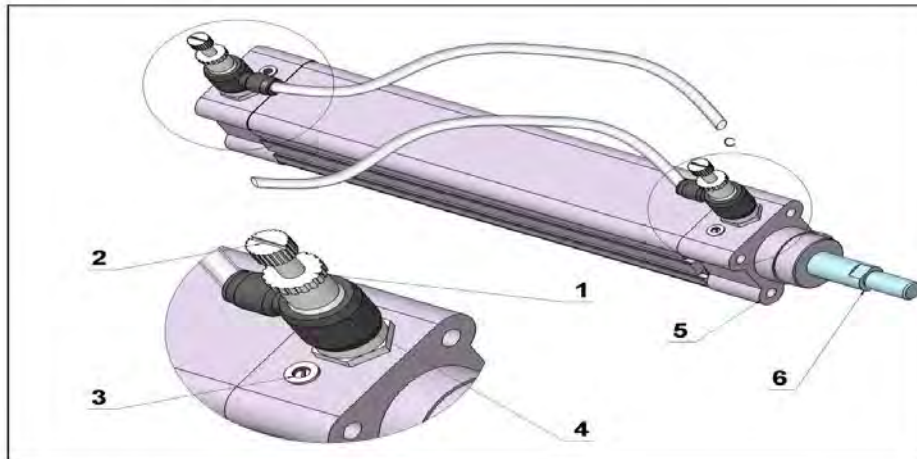
For this, you may press the plug under the tube upward or rotate it, depending on the type of the conditioner used for the machine.



### 12.3 Cylinder Settings

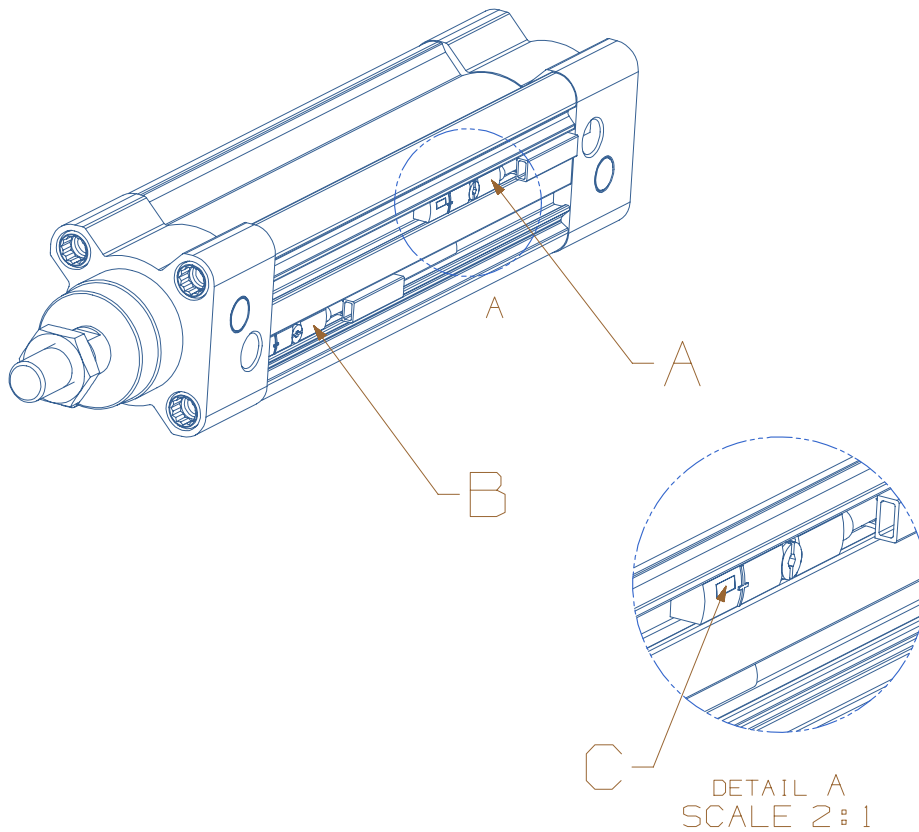
Loosen nut no. (1). Tighten or loosen bold no. (2).

This helps to adjust the pressure on the piston (6) within the cylinder (5) and to determine the speed of the cylinder to drive the engine. Loosening the screw no. (3) can help to perform padding settings.





## 12.4 Cylinder Sensor Settings



A	Cylinder BACKWARD position sensor
B	Cylinder FORWARD position sensor
C	Sensor LED indicating light

### Note:

In the normal standby position of the machine, backward and forward sensors of LED lights in relation to the cylinder position should be lit. You can adjust sensor settings using the special allen key located in the spare part box.



## 12.5 Setting the Conditioner

For pressure settings: Pull up the regulator cap "1". Rotating clockwise will increase the outlet air pressure of the conditioner, while rotating counter-clockwise, will decrease the pressure.

Discharging condensation fluid. Press or rotate the discharge screw "2" to discharge the water.

Putting oil into conditioner: Take off the oil container of the conditioner "3" rotating it clockwise and put pneumatic oil into the container. Speed settings for lubricant: Turn the adjusting screw "4" clockwise to reduce the flow (dripping) rate of the lubricant and increase it by turning in the opposite direction.

