

BURGAZ MAKİNE

OTOMASYON

www.burgazmakine.com

KTM-302 CNC ALUMINIUM AND PVC PROFILE PROCESSING MACHINE

USER MANUAL



BURGAZ MAKİNE

OTOMASYON

www.burgazmakine.com

1. ENTRANCE

1.1. Company Address

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INFORMATION



In all your correspondence with Burgaz Makine Otomasyon, please indicate the type, serial number and manufacturing year of your machine.

Before using the Burgaz Makine Otomasyon KTM-302 Cnc Aluminium and PVC Processing Machine, please read the user manual.

This manual is an original technical document prepared by Burgaz Makine Otomasyon Technical Documentation Department and should be kept for future reference.

2. SAFETY INFORMATION

2.1. General Information

 INFORMATION	
	Please make sure you read and understand the information in the Operation Manual.

- You must understand and follow all basic safety instructions for safe and problem-free operation of this machine.
- This operation manual contains the most significant information you need to operate the machine safely.
- All personnel working with this machine must follow the operation manual and the safety information it contains.
- Furthermore, please observe all rules and regulations regarding the prevention of all possible accidents on site.

2.2. Operator's Responsibilities

The operator should only allow personnel who fulfill the following criteria near the machine.

- Personnel who understand the work safety and accident prevention guidelines and well-trained in the operating of the machine
- • Personnel who have read, understood and signed the warning information in the "Safety Information" section of this manual.

 INFORMATION	
	The operator should regularly check that all personnel working on the machine are safety-conscious.

2.3. Personnel's Responsibilities

Çalışmaya başlamadan önce, makinede görevlendirilmiş personel/personellerin;

Before starting to work, all personnel working on the machine should:

- Follow all regulations on job safety and accident prevention,

- Read the warning information in the "Safety Information" section of this manual and confirm their understanding with a signature.

2.4. Potential Hazards During Machine Operation

Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine is designed based on skill and defined technical safety rules. The machine only;

- Intended application
- Perfect, safe working order

can be used in.

Improper use of the machine can result in the life of the user or third parties, loss of limbs, or damage to the machine and other property.

Errors and misuse that would impair or destroy safety must be corrected and improved.

2.5. Usage As Designed

Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine is designed only to open the door handles of PVC and Aluminum profiles within the limits specified in the technical data table by milling the mounting holes, lock place, wing triple handle holes, slide profile pool and hidden arm places.

Apart from the beam it should not be considered any purpose. Burgaz Makine Otomasyon cannot be held responsible for any damage, loss or injury caused by misuse.

The subjects listed below are also within the scope of use as designed;

- Using k adapt to all the information on Basic guide booklet
- Conducting scheduled inspection and maintenance work

2.6. Warranty and Liability

" Terms of Sale Contract and Delivery Times" are always applied. During the conclusion of the contract and agreement, the user is informed about the Terms of Sale Agreement and Delivery Times.

Warranty period from the date of product to the assembly **1 (a)** y is illustrated. The warranty covers the parts produced by Burgaz Makine Otomasyon machine against manufacturing defects. User errors, cutting and piercing tools are not covered by the warranty. Even though the machine is transported and installed in accordance with the instructions in the manual, any malfunctions in the machine caused by the manufacturer's fault or the use of defective materials are eliminated free of charge by part replacement or repair.

Burgaz Makine Otomasyon does not accept any warranty or liability for claims for property damage or

personal injury related to one or more of the following reasons;

- The machine has not been used as designed and / or the machine has been used in abnormal conditions (Turning the machine's speeds out of factory settings for milling)
- Incorrect assembly (combination), processing, operation and maintenance of the machine
- Malfunctions caused by the use of the product contrary to the matters contained in the user's manual
- Operation of the machine in case the protective equipment and safety devices are faulty and / or not working
- Failing to follow the information in the User's Manual booklet regarding transportation, storage, installation (facility), processing, operation, maintenance and machine settings
- Arbitrary design changes in the machine by unauthorized personnel
- Arbitrary additions to machine operating conditions (power ratio measures, speed) by unauthorized personnel
- Insufficient inspection of machine parts subject to wear
- Incorrect performance / execution of repairs and maintenance
- Disasters and disasters caused by foreign parts or overloads
- Not passing the used air through the dryer
- In the malfunctions caused by the lack of oil in the machines whose conditioner oil is used
- Faults caused by water leaking into the system due to the conditioner water container being full and not emptied,
- Apart from the recommended oils, different numbered oils, hydraulic, brake, vegetable oil, etc. faults caused by the use of faulty oils

Burgaz Makine Otomasyon will be pleased to receive your suggestions for improvement on any subject.

Burgaz Makine Otomasyon is constantly working to improve and develop its products, so it reserves the right to make changes in technical documents without notice. Information published in this document is periodically reviewed and necessary corrections are published in the next edition.

This document cannot be reprinted, copied or translated in whole or in part without the written permission of Burgaz Makine Otomasyon .

3. SAFETY INSTRUCTIONS

3.1. Kullanılan Sembol ve İşaretlerin Anlamları

Kullanma kılavuzunda kullanılan ve aşağıda listesi verilen sembol ve işaretler tehlikeli bir durumu işaret etmek için kullanılır.

 DANGER	
	This sign indicates a high risk . Ignoring this sign will result in death or serious injury

 WARNING	
	This sign indicates a moderate risk . Ignoring this sign will result in death or serious injury .

 CAUTION	
	This sign indicates a low risk . Ignoring this sign will result in second-degree injuries

 INFORMATION	
	This symbol indicates some tips and useful information to help you make the best use of the machine's functions

3.2. General Information

- Do not operate the machine without reading the user manual and fulfilling the necessary conditions.
- The manual should be in a place that the operator can always reach, close to the machine.
- User Guide to accident prevention and environmental protection must be available and applicable local regulations must comply with those regulations.

- One should not stand under the machine during loading and unloading .
- Before operating the machine , all protective equipment must be installed on the machine and in working condition.
- Only assigned and trained personnel this task should be employed on the machine.
- Only assigned and trained personnel can use the control panel of the machine .
- Correct placement of the profiles on the machine is within the responsibility of the personnel who will do the work.
- The personnel who will be the operator of the machine should have the necessary personal safety equipment ready.
- Play all the available safety equipment should be checked regularly before starting to speak business.
- Security hardware can only be removed in the following cases;
 - After the machine has come to a complete stop
 - After a safe measure has been taken against restarting the machine.
- Before operating the machine , make sure that the operation of the machine will not endanger anyone.
- At least once a shift, the machine should be checked for visible damage and the readiness of safety measures.
- No changes should be made in electrical and pneumatic systems .
- The work to be done on the electrical and pneumatic system should only be carried out by a qualified person or persons.
- Repairs and maintenance should not be done while the machine is running.
- The user should not intervene in case of a malfunction in the machine, and should ensure that the fault is eliminated by an expert person.
- The machine should never be used without grounding .
- Before starting any maintenance, repair and cleaning work on the machine , the electrical main switch must be turned off and must be locked against re-activation.
- Before starting any maintenance, repair and cleaning work on the machine, the main air inlet must be closed, the machine pressure must be reduced and it must be locked against re-activation.
- The cables in the machine should never be touched .
- The Emergency Stop button on the machine should only be used in emergencies .

- All Safety and Hazard notices on the machine must be kept legibly.
- If the transmission parts of the machine wear out, they should be replaced with new ones.
- Do not lean against the control panel and apply force in any way.
- The machine must be maintained and adjusted at all times . It should never be worked with the defective machine.
- The machine can only be operated indoors.
- The machine should not be operated in wet and humid environments .
- A heater should not be placed closer than 3 m anywhere around the machine .
- Only original spare parts should be used.
- The machine should be cleaned regularly.
- The machine cannot be used for any purpose other than its intended use.
- Burgaz Makine Otomasyon reserves the right to change the devices , components, parts and equipment on the machine without notice.

	INFORMATION
	It is the user's responsibility to provide the necessary locks to prevent unauthorized activation of the Electrical Main Switches and pneumatic components.

	WARNING
	Use the hardware problem that caused the dismantling of the security bulletin Burgaz Makine Otomasyon does not accept responsibility.

3.3. Safety, Warning Labels and Their Meanings



This symbol indicates that the machine should not be operated before reading the operating manual and fulfilling the necessary conditions.



This symbol indicates that protective glasses should be used to protect eyes from dust and burrs .



This symbol indicates that protective earmuffs should be used to prevent future sensory disturbances in the ears.



This symbol indicates that protective gloves should be used when changing sets and profiles to protect the hands .



This symbol indicates that an air gun must be connected to the air outlet where it is used



This symbol indicates that the connection it is used for is the ground line.



This symbol indicates informational descriptions of the machine .



This symbol is a warning symbol to prevent health or any permanent damage to the individual.



This symbol indicates that there is electricity where it is used.



This symbol indicates that there may be a possible hand accident.



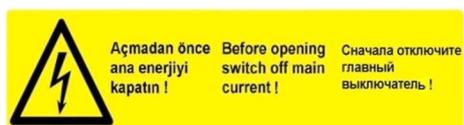
This symbol indicates that there may be a possible hand accident.



This symbol indicates the electrical connection values on the machine .



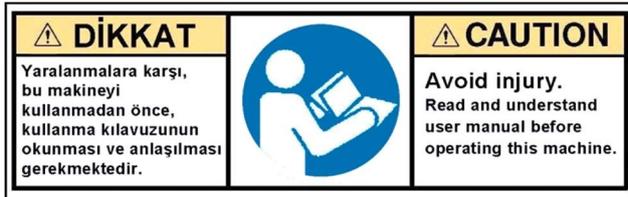
This symbol identifies the forklift lift points.



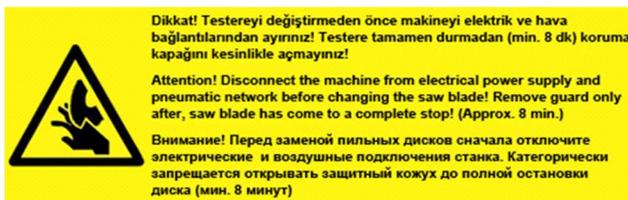
This symbol indicates the electrical risk at the location.



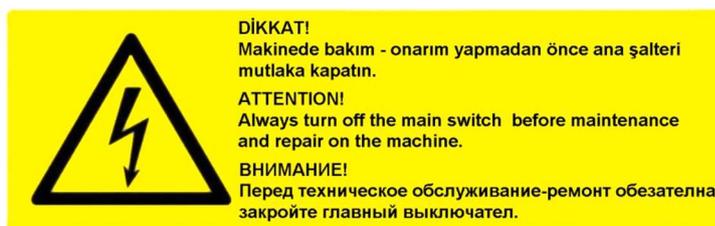
This symbol indicates the main electrical switch.



This symbol indicates that the machine should not be operated before reading the operating manual and fulfilling the necessary conditions.



This symbol indicates that there may be a cutting accident when changing blades. It also shows that the blades must stop completely when changing the blades.



This symbol indicates that the main switch must be turned off before starting maintenance, repair and cleaning activities on the machine .



This symbol indicates that the material is fragile, must be kept in an upright position and away from rain and moisture. *

* (This symbol is on the outer package of the machine)



CE conformity label.



3.4. Security ,Warning Labels and their positions;



3.5.

1.	<p>DİKKAT Yaralanmalara karşı, bu makineyi kullanmadan önce, kullanma kılavuzunun okunması ve anlaşılması gerekmektedir.</p> <p>CAUTION Avoid injury. Read and understand user manual before operating this machine.</p>		
2.			
3.		4.	<p>Dikkat! Elektrik bağlantısı 3/Faz - 400V 50Hz</p> <p>Caution! Voltage connection 3/Phase - 400V 50Hz</p> <p>Внимание! Электрическое напряжение 3/фаза - 400V 50Hz</p>

Figure 3.2: Security ,Warning Labels Locations

1.		2.	<p>Dikkat! Testereyi değiştirmeden önce makineyi elektrik ve hava bağlantılarından ayırınız! Testere tamamen durmadan (min. 8 dk) koruma kapağını kesinlikle açmayınız!</p> <p>Attention! Disconnect the machine from electrical power supply and pneumatic network before changing the saw blade! Remove guard only after, saw blade has come to a complete stop! (Approx. 8 min.)</p> <p>Внимание! Перед заменой пильных дисков сначала отключите электрические и воздушные подключения станка. Категорически запрещается открывать защитный кожух до полной остановки диска (мин. 8 минут)</p>
3.	<p>Ana Elektrik Şalteri Main Switch Главный выключатель питания</p>	<p>DİKKAT! Makinede bakım - onarım yapmadan önce ana şalteri mutlaka kapatın. ATTENTION! Always turn off the main switch before maintenance and repair on the machine. ВНИМАНИЕ! Перед техническое обслуживание-ремонт обязательно закройте главный выключатель.</p>	
4.		<p>Açmadan önce ana enerjii kapatın ! Before opening switch off main current ! Сначала отключите главный выключатель !</p>	
5.		6.	

3.5. Organizational Measures

The user must provide the necessary personnel safety equipment.

All safety equipment connected to the machine must be checked before starting work.

It is the user's responsibility to correctly position the profiles on the machine.

3.6. Protective Equipments

Before each start-up, the following protective equipment must be in place and in a functional condition in the machine.

- Lockable main safety switch that prevents unwanted and unauthorized operation of the machine
- Emergency Stop button
- Manometers and air pressure sensors showing that the machine is connected with pressurized air
- Door security sensor

Security hardware can only be removed in the following cases;

- After the machine has come to a complete stop
- After taking the necessary safe precautions against the re-activation of the machine

If optional equipment is fitted to the machine, the correct installation of the protective devices is the user's responsibility.

	INFORMATION
	It is the user's responsibility to provide the necessary locks to prevent unauthorized activation of the Electrical Main Switches.

3.7. Other Safety Precautions

Please keep the User Manual ready and at hand at or near the place of use of the machine .

In addition to the Basic guide to accident prevention and environmental protection must be available and applicable local regulations must comply with those regulations.

All safety and warning information on the machine must be kept in a legible state.

3.8. Personnel Training

Only trained personnel can work on the machine.

Play changers fields of activity they are authorized staff of its members; facility / assembly-collection / commissioning / operation / installation-programming / maintenance, repair and cleaning should be separated and classified as full and clear.

Novice and training personnel should be allowed to work at the machine but under the supervision of one of the trained and experienced staff members.

3.9. Machine Control

Only trained and trained personnel can work on the machine.

Play changers fields of activity they are authorized staff of its members; facility / assembly-collection / commissioning / operation / installation-programming / maintenance, repair and cleaning should be separated and classified as full and clear.

Novice and training personnel should be allowed to work at the machine but under the supervision of one of the trained and experienced staff members.

3.9. Machine Control

Only trained personnel are allowed to use the machine.

The warranty will be void and void for modifications to the machine's software without the written consent of Burgaz Makine Otomasyon .

In particular, this provision will apply to the following changes made by the client;

- Changes in the operating system
- Installing a new operating system
- Installing any software (such as Office programs such as Word, Excel or games.),
- Installing driver software
- Deleting files from the operating system or
- Adding extra hardware .

3.10. Safety Precautions in Normal Operation

- Please do not operate the machine when all safety equipment is not fully functional.
- Before turning off the machine's switch, please make sure that the start of the machine will not put other personnel in a dangerous situation.
- Check at least once at the beginning of each shift whether all safety equipment is damaged and that the safety equipment is working.

3.11. El Hazards Caused by Electrical Power

Only authorized personnel may work in the main electrical system works.

The electrical components of the machine should be checked regularly. Loose connections should be tightened and damaged cables should be replaced immediately.

The electrical cabinet must be kept locked at all times . Only authorized and authorized personnel can open the panel with the key or appropriate tool assigned to them.

When working on the electrical parts of the machine , a second personnel should be present next to the switch to cut the electricity from the main switch when necessary.

 CAUTION	
	If the electricity network on which the machine will be used fluctuates more than $\pm 10\%$, a voltage regulator should be used. Burgaz Makine Otomasyon cannot be held responsible for any malfunctions and problems that may occur otherwise.

 INFORMATION	
	V The voltage regulator and the main supply fuse must be installed outside the machine and are not included in the scope of delivery of the machine. It has to be prepared by the customer.

3.12. Hazards Arising from the Pneumatic System

 CAUTION	
	<ul style="list-style-type: none">The working pressure of the machine is min. 6 and max. It is 8 bars. Bass only authorized personnel can work in Incline air network.
	While working in Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine , always wear protective glasses. If you do not do this, the particles that emerge while working on the machine, while cleaning the profiles with an air gun or cleaning the plastic & aluminum etc. burrs on the machine may harm your eyes.

3.13. Points Creating a Specific Danger

3.13.1. Tearing and cutting-induced Mechanical Hazards

During the cleaning process;

 CAUTION	
	<ul style="list-style-type: none"> • Before cleaning in Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine , please prevent the machine from moving by turning the main switch to the "0" position. • Please lock the electrical main switch with a padlock to prevent unauthorized activation of the machine.
	<p>While working in Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine , always wear protective glasses. Failure to do so, particles that emerge while working on the machine, while cleaning the profiles with an air gun or cleaning the plastic burrs on the machine may harm your eyes.</p>
	<p>Always wear protective gloves while working on the machine , especially during cleaning or changing drill bits.</p>

	
	<ul style="list-style-type: none"> • Touching the surface of the blades can cause serious injury. • Never put your hands in the working area of the blades while the machine is running. • Turn off the main switch before starting to work on the blades in Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine . • Please lock the electrical main switch with a padlock to prevent unauthorized activation of the machine.
	<p>While working in Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine , always wear protective glasses. Failure to do so, particles that emerge while working on the machine, while cleaning the profiles with an air gun or cleaning the plastic burrs on the machine may harm your eyes.</p>
	<p>Always wear protective gloves while working on the machine , especially during cleaning or changing blades.</p>

3.13.2. Pressure and crushing Induced Mechanical Hazards

While pressing the pressure pistons;

 CAUTION	
	Pistons compress profile as pneumatic sensors profiles when pressed or when the switch detects. Never put your hand inside the machine while the machine is running.

3.14. Machine Safety Area

3.14.1. Emergency Stop



Picture 3.2: Location of Emergency Stop Button

Emergency Stop Button

The emergency stop button should be used to stop the machine safely in emergencies.

The position of the emergency stop button is as shown in Figure 3.2 .

3.15. Personnel Protection

3.15.1. Protection Against Contact of Live Parts

Before starting maintenance, repair and cleaning activities on the machine ;

 WARNING	
	<ul style="list-style-type: none"> To prevent the main switch from being turned back on, hang a warning sign on the switch and lock it with a padlock.

	<ul style="list-style-type: none"> • Wait for the capacitors in the DC system to discharge completely. (About 1 minute). • Measure that the DC system voltage falls below 50 V after turning off the main switch.
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Before starting the process:

 WARNING	
	<ul style="list-style-type: none"> • To prevent the main switch from being turned back on, hang a warning sign on the switch and lock it with a padlock. • Replace the screws and pins of all cover and cover parts to prevent contact with live parts. • Check the earth "PE" cable connections of all electrical parts and motors. • If it is not possible to turn off the main switch or other electrical equipment, an authorized electrician should be present at the main switch or electrical equipment to ensure safety when the working personnel falls into a dangerous situation.

 INFORMATION	
	<p>The voltage regulator and the main supply fuse must be installed outside the machine and are not included in the scope of delivery of the machine. It has to be prepared by the customer.</p>

3.15. Maintenance , Repair and Cleaning

See Section 8 .

3.17. Design Changes in the Machine

No improvement, addition or change should be made without the approval of the manufacturer .

No conversion work can be done without the written approval of Burgaz Makine Otomasyon .

Fantastic play machines lost his job layout elements must be replaced immediately.

Please use only Burgaz Makine Otomasyon spare parts and consumables.

If parts other than Burgaz Makine Otomasyon are used in the use of spare parts or consumables, the manufacturer does not accept the claims and claims under warranty.

3.18. Cleaning the Machine and Disposal of Waste

The oils and other materials used must be selected correctly and waste must be disposed of correctly. Especially:

- When working with lubrication systems and devices
- When cleaning with solvents

3.19. Sound Emission of the Machine

The pressurized sound emission of the machine depends on the working conditions of the machine, the profiles and tools being worked on.

 INFORMATION	
	Since the radiated pressure sound level is greater than > 80 dB (A) , operating personnel must be equipped with appropriate safety equipment to prevent further sensory disturbances.

3.20. Copyright

Burgaz Makine Otomasyon holds the copyright of this user manual.

This operating manual is intended for the use of the machine user and his personnel only.

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Burgaz Makine Otomasyon is constantly working to improve and develop its products, so it reserves the right to make changes in technical documents without notice.

Since failure to comply with this article will constitute a crime, legal sanction will be imposed.

 INFORMATION	
	The information published in this document is reviewed periodically and the necessary corrections are published in the next edition.

4.1. Storage of the Machine

If the machine will be stored for a long time, please pay attention to the following points;

- Only store the machine in dry rooms.
- After you have chosen a suitable protective packaging, pack the machine with it or leave the machine in its original packaging.

	INFORMATION
	Although all parts are covered with protective coatings , the system should not be put into operation until it has been reviewed and thoroughly cleaned.

4.3. Delivery Instructions

Please check the shipped parts of the machine and make sure it is complete. Only in this way can Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine be installed correctly.

All machinery, equipment and spare parts have been checked before being delivered to the carrier. When you receive the machine, check it for damages that may occur during transportation.

4.4. Transport Instructions

It is necessary to be very careful while transporting the machine.

Accident prevention rules must be applied for personnel safety during machine transportation.

- Only puter use literally working freight elevator.
- Use lifting equipment with adequate capacity .
- Tie down with rope or cable to prevent machinery and equipment from falling off during transport.
- Avoid sudden sharp movements during transportation.
- Do not press on machine parts .

Make sure that the load on the forks of the forklift is in a balanced position. Forklift forks must be positioned in accordance with the labels indicating the forklift lift points on the machine. While moving the machine, the forks are at the level close to the ground, which provides a comfortable view of both the balance and the front of the vehicle operator.

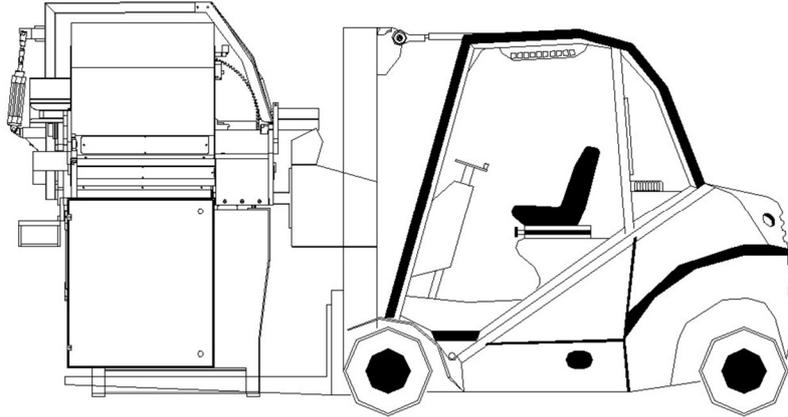
	INFORMATION
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	Planks, if any, should be removed after moving the machine parts to the installation site.
	CAUTION
	<ul style="list-style-type: none"> • When lifting the machine, make sure that the machine is not tilted. • After the machine is placed on the floor, it must be fully aligned .

4.4.1. Transport with Forklift

Transportation of the machine with the help of a forklift should be carried out in accordance with Figure 4.2 shown below.

The machine must be lifted with a forklift from the front side.



Şekil 4.2: Transport with Forklift

5. TECHNICAL DATA

Machine Information

Name	Cnc Alüminyum & Pvc Processing Machine
Model	KTM-302
Serial Number	Please see the rating plate on the side of the machine

Connection Information

Elektrical Value	220 V, , 50-60 Hz
Total Power	3 kW
Air Pressure	6-8 bar
Air Consumption	60 lt / cyc

Weight and Sizes

Machine Lenght	1300 mm
Machine Width	1300 mm
Machine Height	1800 mm
Machine Weight	400 kg

Sound Emission Values

Audio Streaming Idle	70.5 dB()
Audio Streaming in Progress	101,2 dB(²)

Picture 5.1: KTM-302 Cnc Aluminium & PVC Processing Machine

5.1. Environmental Conditions

5.1.1. Sound Emission Values

Working area emission values (L_{pA}) are determined by TS EN ISO 11202 standards.

Ambient Sound Level : 40 dB (A)

Machine Idle Sound Level : 30 dB (A)

While the Machine is in Operation Max. Sound Level : 85 dB (A)

Working Part : Aluminum and Pvc

The measurement uncertainty coefficient temperature K is 4 dB (A).

The measuring device is placed 1 m away from the machine, 1.6 m above the ground, to center the machine.

 INFORMATION	
	The values given above are ambient emission values and do not represent the required safe working environment values. Since there is no direct relationship between emission values and machine values, these values cannot be used to decide whether to take an extra measure. Sound emission values are determined by the environment, working area, working profile etc. may vary depending on factors. The above values are given to the user to better estimate potential risks.

 CAUTION	
	Since the radiated pressurized sound level is > 80 dB (A) , the operating personnel must be equipped with appropriate safety equipment to prevent sensory disturbances that may occur in the future.

5.1.2. Temperature

Permitted environment

The machine should be installed in a dry place protected from frost and temperatures below zero.

Allowed ambient temperature **10 ° C and 30 ° C** is between.

At temperatures above **30 ° C** , electrical and electronic parts need extra cooling.

Temperatures during the process:

- During the process, the room temperature should not fall below **12 ° C**.
- **+ 26 ° C** ' may not be exceeded.

CAUTION	
	Make sure that there is enough air in the environment and provide air circulation!

 INFORMATION	
	These temperatures (European Community Workplace Directive) comply with the EC Workplace Directive.

5.1.3. Lightning

The user must ensure that the work area is brightly lit.

Minimum illumination intensity is 300 lux.

 INFORMATION	
	Burgaz Makine Otomasyon recommends ambient lighting intensity of 500 lux.

6. INSTALLATION ,ASSEMBLY AND PROCESSING

6.1. Safety Instructions

 WARNING	
	<ul style="list-style-type: none">• When lifting the machine with a forklift, make sure that the electric cables and air hoses are not damaged.• Do not use machine parts to climb on the machine!• Keep all handles and handles clean!• Electric cables must be placed exactly; The cross-section, length and quality of the cables must comply with local specifications.• Before turning off the machine's switch, make sure that the operation of the machine will not endanger anyone.• The machine can only be used by an authorized person who has read and understood this user manual.• During the machine installation, always follow the instructions in the user manual.• The machine should be installed only by Burgaz Makine Otomasyon Technical Service personnel.• The user is responsible for ensuring that the cables and pipelines comply with local specifications.

6.2. Installation Area and Usage Area

Structural requirements that the user must comply with before installing the machine ;

 WARNING	
	Before installing the machine, please make sure that the floor is smooth and capable of bearing the machine weight. See our data on machine weight for this.

 INFORMATION	
	<ul style="list-style-type: none"> • The plan in Figure 6.2 shows the required installation space for the machine . • The area where the machine will be installed must be flat and level. • When installing the machine , ensure that the legal regulations for the minimum distance are followed. • When installing the machine, a distance of at least 1 m must be left between the rear panel of the machine and the building wall or other machinery . • When calculating the location of the machine , accessories added later such as conveyor should be taken into consideration.

6.2.1 . Open up the Machine Package

 WARNING	
	<p>When lifting the machine with a forklift, make sure that the electric cables and air hoses are not damaged.</p> <p>Make sure that the machine does not slip off the forklift forks</p>

If the machine arrived on the pallet;

- D Remove the iş coating.
- Check that the bill of lading has been completed.
- Remove the transport safety nuts or ropes fixing the machine to the pallet.

Please check the machine visually for any signs of corrosion and if you detect any corrosion report it to the Technical Service.

	INFORMATION
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Clean the machine before using it.

6.3. Placement and Fixing

 CAUTION	
	<ul style="list-style-type: none">• Make sure that the machine is not connected to the electrical and pneumatic system while lifting the machine and its components with a forklift.• Follow the necessary safety precautions to prevent the machine from tipping over the forklift.

After receipt of the machine :

- Open the protective packaging of the machine .
- Take the dehumidifier bags available on the machine .
- Make sure that the machine and its components are complete.
- Remove the transport safety links (strap, wedge, etc.) that fix the machine on the pallet.
- Lift the machine off the pallet and bring it to the suitable location for the intended installation location.
- Make sure that the envisaged installation site surface is smooth and suitable for the machine weight.

 INFORMATION	
	<ul style="list-style-type: none">• Transport safety links fix the moving parts of the machine during transportation.• Before the machine is connected to the electrical and pneumatic system , the transport safety connections must be removed.

6.4. Energy Requirements

 WARNING	
	<ul style="list-style-type: none">• The electrical installation should be installed and fixed in accordance with the standards.• Cable cross sections, lengths and qualities must comply with local standards.• All operations in the electrical system should be carried out by expert personnel and TS EN 60204-1 standard should be considered.

6.4.1. Electricity

Please make sure the power cable cross section is suitable before energizing the machine . (see. Electrical Circuit Diagrams)

The fuse on the electrical installation of the machine must be 3 x 10 A. The machine should first be energized by our service personnel or a specialist.

The machine works with Monefaze 220 V. Cable colors are classified as follows in accordance with the relevant standards;

- Phase
- Neutral
- Grounding: Yellow I-green

The machine is equipped with a 2-pin plug (1 phase + 1 neutral + 1 grounding) in accordance with IP 44 standards . The socket part must also comply with the same standards. The picture below shows the example of the used receipt.



Picture 6.3: Sample of used Plug

6.4.2. Pneumatic

The connection of the machine to the pneumatic system is made through the air lubricator unit (Figure 6.4) on the right side of the machine.

In the pneumatic system to which the machine will be connected, there should be continuous compressed air between 6-8 bars. The colors of the pneumatic hoses on the machine are blue and black, and the blue suction hose; the black one is the exhaust hose.

Pneumatic operations on the machine should be carried out by a qualified personnel and the relevant directives should be considered.



Picture 6.4: Air Lubricator Unit

6.5. Installation Floor

It is of great importance for the machine performance that the ground on which the machine will be placed is as flat as possible. If the ground is not level, the machine should be balanced with the help of the adjustment bolts on the feet of the machine.



Figure 6.5: Balancing the Machine with the Help of Setting Bolts

6.6. Control Instruments

6.6.1. Main Switch



Picture 6.1: Main Switch

It is the switch that enables the machine to be energized and cut off the incoming energy .

The main switch is located on the lower front left of the machine.

6.6.2. Emergency Stop Button

Emergency Stop button ensures safe stop of the machine. There is an emergency stop button on the machine.

In malfunctions and emergencies, the machine must be stopped by pressing the Emergency Stop button

and thus all dangerous movements of the machine must be suspended.

Picture 6.7: Emergency Stop Button



The machine will remain off until the Emergency Stop Button is turned on . Emergency Stop Button should not be used to stop the machine. The Emergency Stop Button should be used only when needed. Because repeating this process too often may have negative effects on some electrical elements.

7. PROCESSING

 CAUTION	
	<ul style="list-style-type: none">• It is mandatory to check the protective equipment daily.

7.1. Machine Operation Principle

It carries out the milling processes of different series and different sizes of Aluminum & PVC profiles with pre-made programs without the need for adjustment.

It completes the operation in 2 operations with 2 Milling Engines.

The 1st milling spindle motor on the horizontal opens the arm barrel and mounting holes on the profile in the front.

The second milling cutter on the vertical opens the lock space on the profile with its spindle motor.

7.2. Settings and Components

7.2.1. Air Lubrication Unit

The air lubrication unit is located at the rear of the machine.

The air lubricator consists of four parts;

- Pressure regulating valve, Analog manometer
- Filter,
- Or Glama,
- Slide valve



Picture 7.1: Air Lubrication Unit

Pressure regulating valve and Analog manometer (A):

Machine operating pressure is 6 - 8 bar. If necessary, the operating pressure can be adjusted again to 6 - 8 bar by performing the following operations:

- Bass Unlock settings inch cap by pulling it upwards.
- Turn it to the right to open .
- K Turn to the left to IS.
- Adjust it to 6 - 8 bar by means of a manometer .
- Push Lock settings inches title by pushing it back down.

Filter (B):

The filter should be drained at regular intervals . For more detailed information, please see the relevant page.

Luricator (C):

Lubricator, pneumatic parts that need lubrication in the machine regularly (valves etc.), And air-conditioned air by the addition of a lubricating oil component. For more detailed information on adjusting the lubrication settings, please refer to the relevant page.

Slide Valve (d):

The slide valve is used to practically blow or shut off the air to the machine. It is possible to operate the slide valve by moving it up and down.

The green zone on the manometer indicates the working range of the machine, the red zone indicates the dangerous pressure, and the yellow zone the pressure that needs attention.

8. MAINTENANCE, REPAIR AND CLEANING

 CAUTION	
	<ul style="list-style-type: none">• In order to ensure the continuity of machine performance and occupational safety, it is mandatory to carry out maintenance, repair and cleaning activities at regular intervals recommended for the machine.• In order to ensure the smooth running of the machine , the following points must be strictly observed:• Do use proper and intended use of the GRI• Regular and careful cleaning activities do yl to• Look at the time and I am wary of making activities.

 INFORMATION	
	The recommendations and warnings in the user manual and all documents obtained with the machine should be heeded.

 WARNING	
	<ul style="list-style-type: none">• Maintenance ,Repair in all work areas on repair and cleaning should be done by experts.

	<ul style="list-style-type: none"> • When carrying out maintenance, repair and cleaning activities, make sure that the machine cannot be started accidentally. Separate the machine from the main electrical and pneumatic systems. • The precautionary measures specified by the relevant institutions and organizations regarding maintenance and repair should be followed. • Adjustment and maintenance-repair activities to be carried out on the machine and its components should be carried out by authorized personnel.
--	---

Before starting Maintenance ,Repair and Cleaning process

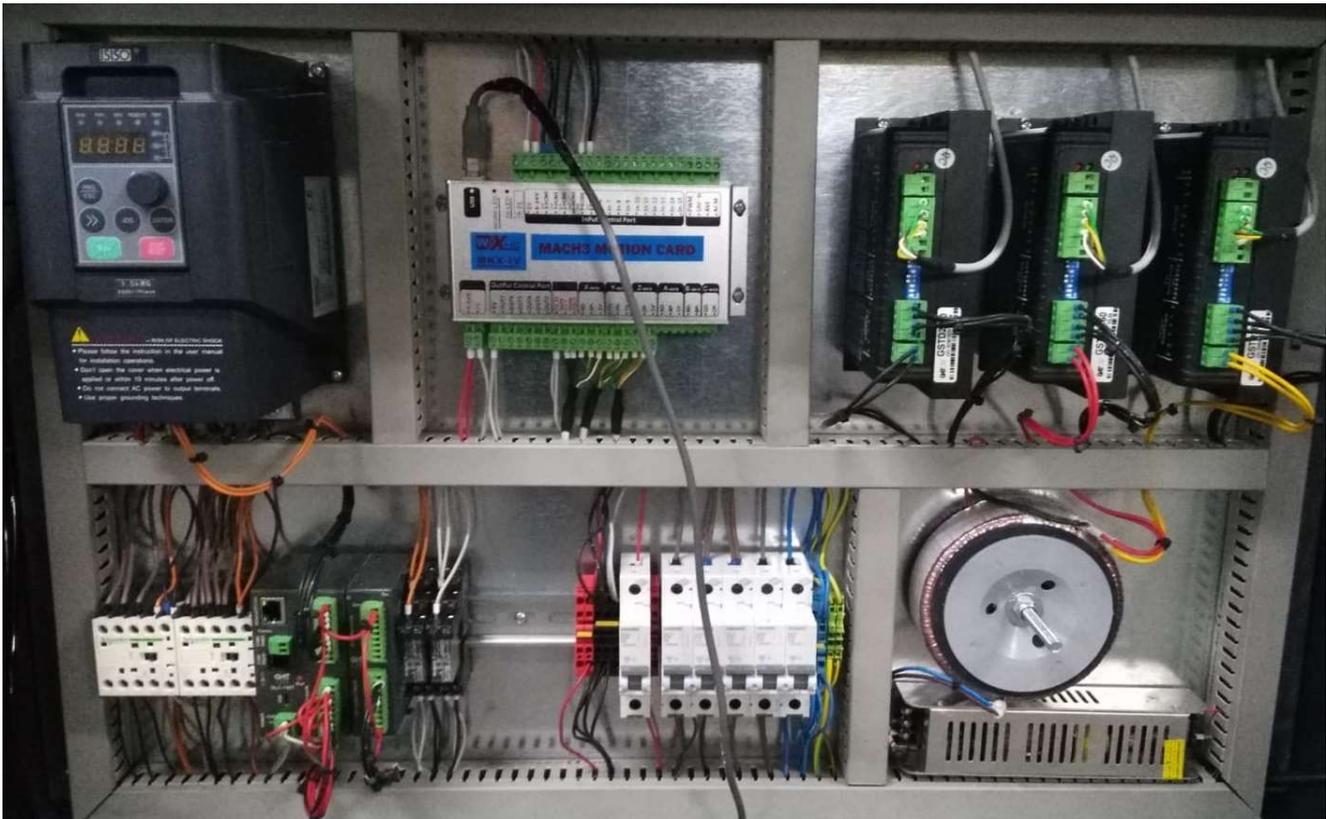
 WARNING	
	<ul style="list-style-type: none"> • The main switch must be turned off and locked with a padlock against re-activation. • All control panels must be locked or fitted with an appropriate warning sign. • It should be waited for approximately 1 minute for the energy in the capacitors to be completely discharged. <p>After turning off the main switch, it should be checked whether the intermediate circuit voltage is below 50 V.</p>

 INFORMATION	
	<p>The following oils are used and recommended for the lubrication of the machine equipment .</p> <ul style="list-style-type: none"> • Conditioning Unit: "Shell Morlina 10" High Performance Circulation Oil <p>Or GLAMA Nipples: "Rhod the Shell Grease RL3" Multi-Purpose Industrial Grease</p>

8.1. Maintenance and Repair

8.1.1. Electric Panel

Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine electrical panel and panel elements are shown in the picture below.



Picture 8.1: Electrical Panel

8.1.2. Air Lubricator Unit



INFORMATION



The filter should be cleaned regularly. In cases where it is not cleaned, malfunctions may occur in the machine.



Picture 8.2: Air Lubricator (Lubrication)

In order to clean the filter , the accumulated water and foreign substances must be discharged by pressing the pin under the sight glass inwards.

The lubrication of the pneumatic control valves is done automatically by the conditioner unit.

The operator must ensure that there is sufficient oil in the lubricating chamber and that sufficient dosage is made.

The green area on the manometer indicates the working range of the machine.

 CAUTION	
	The oil reservoir is under the influence of compressed air; Before the chamber is opened, the compressed air in the chamber should be evacuated using a slide valve.

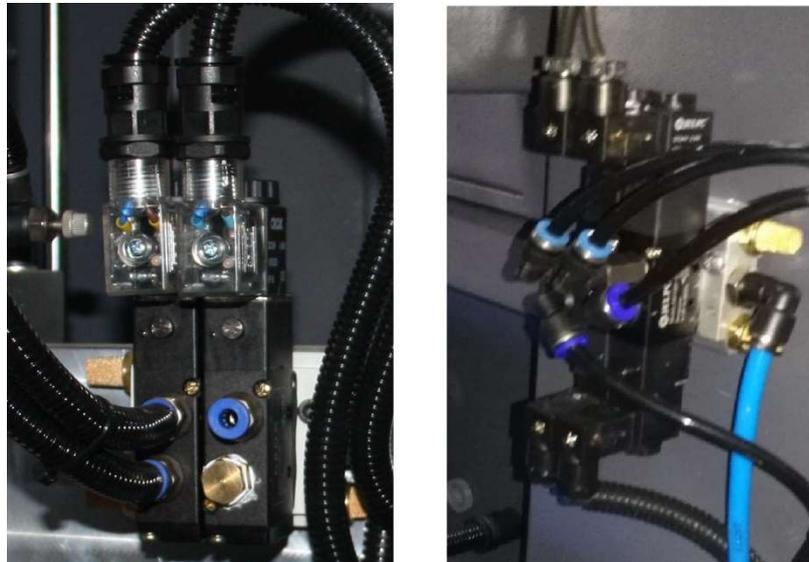
	INFORMATION
	It is recommended that the dosage amount of the conditioner oil in the machine be adjusted as 1 drop per source.

8.1.3. Pistons, Valves and Magnetic Sensors

Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine uses solenoid valves with two (2) connections, single coil return spring, two (2) connection double coil return electric. (figure 8.3)

Magnetic sensors are mounted on the pistons and check whether the piston reaches the desired position. When the piston reaches the desired position, the LED light on the sensor illuminates, allowing visual control. It is adjusted and fixed by moving it back and forth on the piston with the help of the screw on it. Air heating is done through the air restrictors shown in the picture below. Air restrictors allow adjustment of the forward and backward movement speeds of the piston.

Picture 8.3: Valve Groups



8.1.4. Bakım Planı

NUM BER	Naming	Activity	Maintenance Frequency	Explanenation
1	General Machine	Cleaning	Daily Weekly	Rough Cleaning Basic (Fine) Cleaning

2	Machine Interior Areas	Cleaning	Weekly and In case of need	Basic (Fine) internal cleaning of the machine against chips. Preferably vacuuming ,sweeping or pressurized air can be used.
3	Air Lubricator	Control	Daily	Oil reservoir filling ,filter cleaning.
5	Oiling the Machine	Oiling	It can In 120 minutes 2,5 seconds or It can be increased as required.	Lubrication with Number 68 skid oil.
6	Pneumatic Equipment	Control	Monthly	Control of cracks, cuts and pores in hardware BA checking the tightness of parts Glant
7	Electrical Equipment	Control	Monthly	Control of cracks, cuts and pores in hardware BA checking the tightness of parts Glant
8	Security Equipment	Control	Before every shift	Lockable main switch control Control of the emergency stop button The container then the seat sensor control
9	Electric Panel	Control	Every 3 months or in case of need	Basic Cleaning



INFORMATION



- The maintenance and repair information provided is for single shift work order. Maintenance intervals should be shortened when working in multiple shifts.
- In order to ensure the continuity of machine performance and work safety, it is recommended to have your machine have a general maintenance once (once) a year.

8.1.5 Recommended oils

The use of the following oils in Burgaz Makine Otomasyon machine products is recommended by us.

Multipurpose industrial greases;

NLGI Class 3

Worked Penetration 25 C ASTM D217 (mm / 10): 220-250

Dropping Point ASTM D566 (C): 96 C

- Shell 'Shell Rhodina Grease RL-3'
- Mobil 'Cup Grease No: 3'
- Petrol Ofisi 'Cap Grease 3'
- Golf 'Cap Grease No: 3'
- BP 'BP Energrease GP-3'
- Castrol 'Castrol Helveum 3'

Circulating oil;

ISO VG 10 class

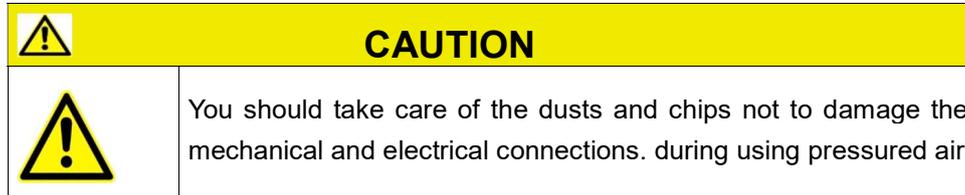
-
- Shell 'Morlina 10'
- Mobile 'Velocite 6'
- Castrol 'Hyspin AWS 10'
- Texaco 'Spindura 6'

Esso 'Spinesstic 10'

8.2. Cleaning Activities

Daily rough cleaning of the machine against dust and chips; Basic (fine) cleaning should be done weekly.

In basic (fine) cleaning activities, pressurized air should be used and a cleaning cloth should be used when necessary.



Chips and dust inside the machine ; It should be cleaned using one of the methods of wiping, sweeping or vacuuming.

Rail shafts must be cleaned and lubricated with ISO VG 10 grade oil. Axes, slides, piston bearings and shafts should be cleaned daily with a brush or cloth.

Machine surfaces should be cleaned with a non-corrosive cleaning agent against oiling and dusting.

8.3. Machine Life

The useful life of Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine is 10 years.

8.4. Machine Disposal

The machine must be dismantled by specialists and disposed of in accordance with national regulations.

The following points should be taken into account in the disposal of the machine .

- Metal and plastic parts should be sent for recycling
- Electrical and electronic parts must be sent to hazardous waste recycling.

9. CONTROL BOARD



A

B

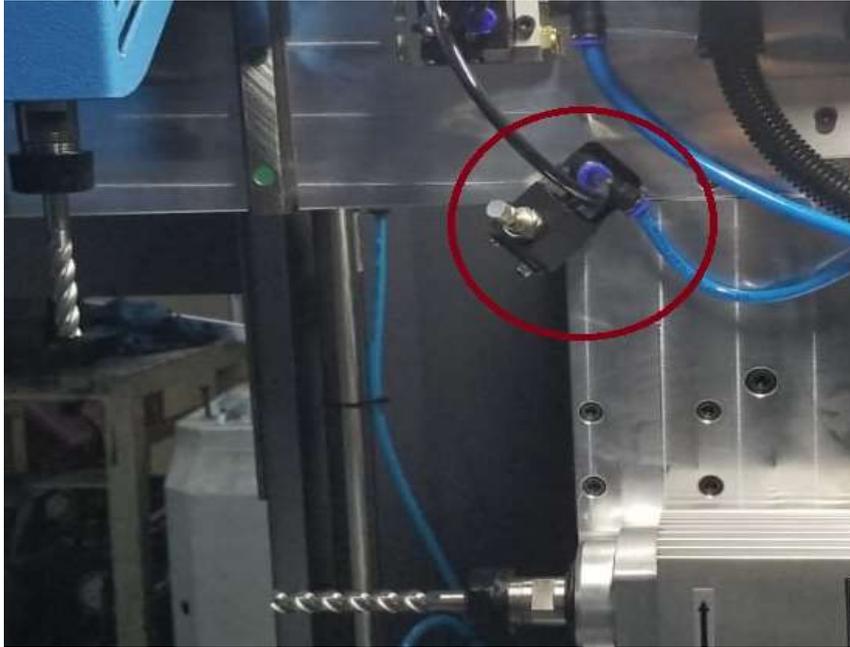
C

B

D

- A) Start Irrigation** : When switching from PVC profile to Aluminum profile, this button is activated before the operation starts and automatic irrigation is activated in the machine.
- B) Start Buttons** : The machine starts the milling process by pressing the 2 B buttons shown in the picture at the same time while the vise is pressed.
- C) Emergency Stop** : The Emergency Stop button enables the machine to stop safely.
- D) Vise Opening and Closing** : It fixes the profile to the machine so that the profile can operate on the machine.

A) Irrigation System



It is a system that sprays boron oil to cool the carbide milling blades that process aluminum profiles. If the lubrication system and the operations to be done on Aluminum will cause sever damage on the milling blades and the work motor. As a result of oil-free processes in aluminum processing, parts that damage the machine are excluded from the warranty.

D) Fixing the Profile with Pneumatic Vice



There are 2 clamping pistons on the machine to perform operations on aluminum and PVC profiles. The machine will not start unless the profile is fixed.

MECHANICAL SWITCHES



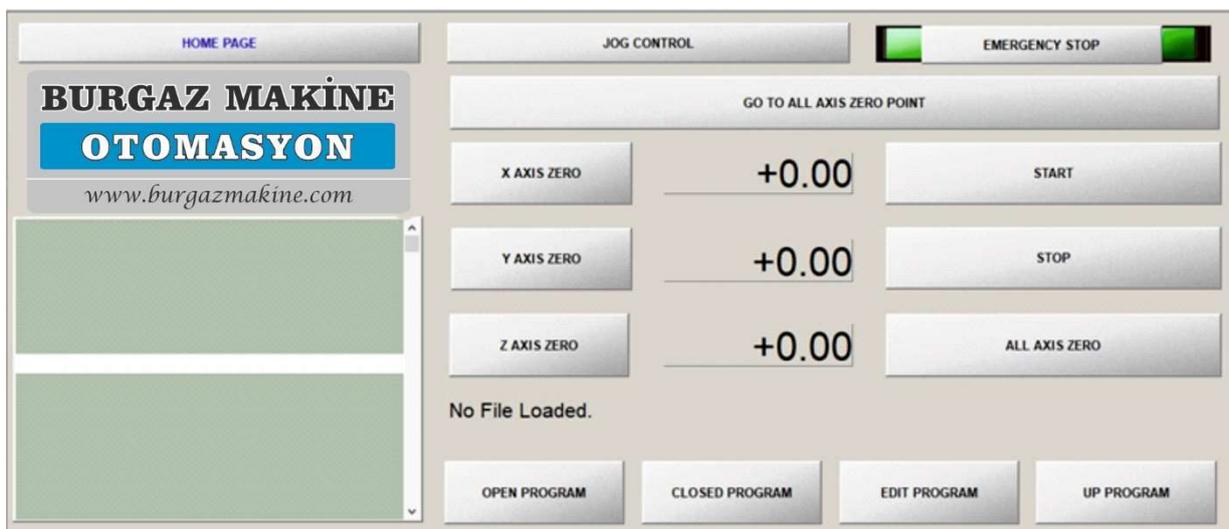
There are mechanical switches at the reference points of the 3 axes of the machine. When any situation is encountered, when the machine is sent to the reference from the screen, the machine will go to its original position, that is, to the zero point. If the axis passes the mechanical switch when it is moved by manual control. Mechanical Stoppers, whose zero point is out of bounds, will stop the axis.

Axes sent to zero with the switch skipped cannot reset and an error is encountered. In such cases, the machine is manually moved forward from the switch and sent back to zero point.

10. SCREEN

A computer is used in the machine. It is a computer-applied interface that provides information transfer to the 3 axis control unit on it.

MAIN MONITOR



Home Page: It is the button that returns to HOME PAGE after navigating between pages.

Jog Control: It is the menu that allows the machine's axes to move in a controlled manner in order to

safely remove the blade inside the profile during power cuts, emergency stop or to remove the chips jammed during cleaning.

Emergency Stop: It is the button that allows us to see on the screen when an emergency stop is pressed from the outside.

Go To All Axis Zero Point: It provides the 3 axis to be sent sequentially from the zero reference point to the mechanical switches and should be done once every time the machine is turned on.

X Axis Zero: It is to determine the point where the X axis reaches the zero point as zero.

Y Axis Zero: It is to determine the point where Y axis reaches the zero point as zero.

Z Axis Zero: It is to determine the point where Z axis reaches the zero point as zero.

Open Program: Opens the program of the profile that will be processed.

Closed Program: Closes the opened profile program.

Edit Program : Profil programlarının içeriğini değiştirir.

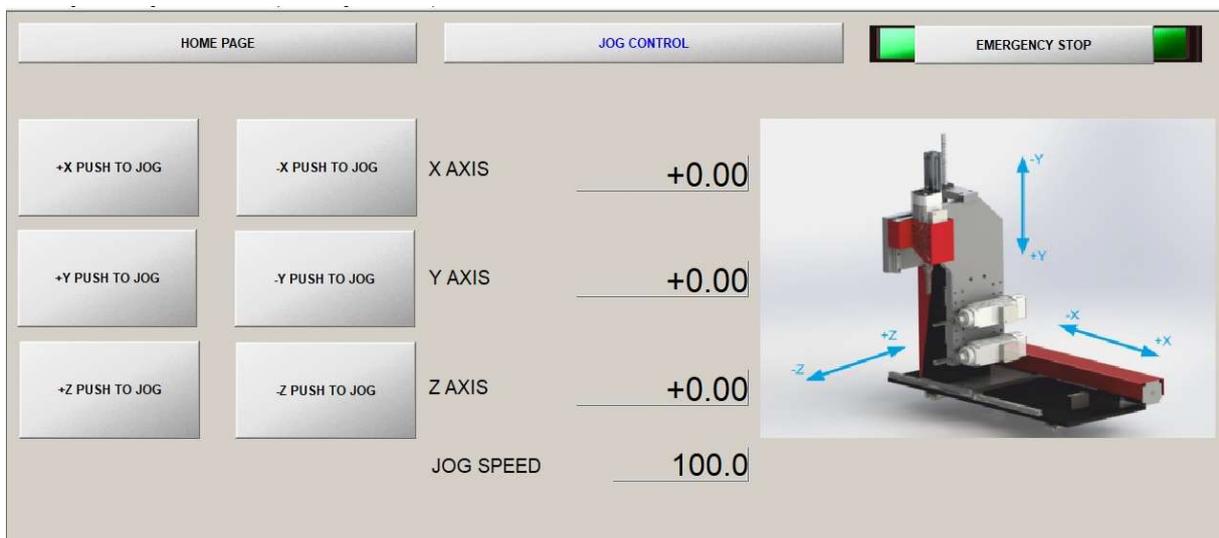
Up Program: Resets the program that was stopped by the emergency stop.

Start: Starts the milling process from the screen.

Stop: Stops the milling process.

All Axis Zero: For zeroing the X, Y, Z axes at the same time.

JOG CONTROL



Jog Control: It is the menu that allows the machine's axes to move in a controlled manner in order to safely remove the blade inside the profile during power cuts, emergency stop or to remove the chips jammed during cleaning.

+ X Push To Jog: It provides manual control in the + direction on the X Axis.

- X Push To Jog: Provides manual control in X axis - direction.

+ Y Push To Jog: Provides manual control in + direction on Y Axis.

-Y Push To Jog: Provides manual control in Y-axis - direction.

+ Z Push To Jog: Provides manual control in the + direction on the Z Axis.

-Z Push To Jog: Provides manual control in Z axis - direction.

X Axis: Shows the distance traveled on the X Axis in millimeters.

Y Axis: Shows the distance traveled on the Y Axis in millimeters.

Z Axis: Shows the distance traveled on the Z Axis in millimeters.

Jog Speed: Changes the speed of movement of the axes manually. Speed values between 1 and 100 are entered.

11. PROGRAMMING

The programming language used on the Burgaz Makine Otomasyon KTM-302 Cnc Aluminum & Pvc Processing Machine is programmed with the M&G codes used in world standards.

The standard commands that can work with the programming language used are given below, together with their explanations.

G0: It is linear motion. It **is the** command to send the milling knives **to the** fast position **without cutting** . Factory default speed, speed definition is **not possible**.

G1: It is linear motion. It is the command used for milling blades to **make cutting** . Speed definition **can be made**.

G2: Clockwise circular motion (CW).

G4: Temporary stop, used with **P** command.

G54: **The** location of the milling cutter is taken as the zero point of the profile to be processed.

G90: Programming in the absolute coordinate system (Absolute), Performs operation according to the machine's zero point.

G91: Programming in the incremental coordinate system (Incremental), Regardless of which position the machine is in after the command is entered, it accepts the position as zero and the operation is performed.

X: The '+' or '-' value on the X axis is entered.

Y: The '+' or '-' value on the Y axis is entered.

Z: The '+' or '-' value on the Z axis is entered.

F: Speed, Variable values can be entered. Speed ratios increase or decrease as much as the numerical value to be entered after F.

P: Writes at the end of the G4 command and makes waiting in seconds for the numerical values to be entered after P.

I: Distance from the circular starting point in the Y direction (defined as 0 in programs).

J: The hole to be drilled in a circular motion;
(Desired Diameter - Milling Cutter) / 2 = Value to enter J value. It is available as.

M3: 1. Start the horizontal tool motor.

M4: 2. Start the upper gear motor.

M5: Stop the engines.

M30: When the program is finished, start the program for the next action.

; : **The** program will not see the comments that will be written after the semicolon sign, or when it is added to the beginning of the lines you want to cancel in the program, that line will be ignored.

%: Used to determine the beginning and end of the program.

NOTE: THE MEASUREMENT UNITS OF THE FIGURES USED IN THE PROGRAM ARE IN MILLIMETERS . USED FOR TIME IS IN SECONDS .

12. **SAMPLE PROGRAM**

- 13.%
- 14.G90
- 15.G49
- 16.G0 X00.000 Y00.000 Z00.000 ; Send to zero at the position where the axes are stopped.
- 17.M3 ; 1. Running the horizontal job engine.
- 18.G0 X215 Y161 Z-62 ; Do not go quickly to the point of first action.
- 19.ARM PLACE
- 20.
- 21.G91 G54 ; Axes accept the point where they are zero.
- 22.G1 Z-4 F400 ; 1. Horizontal work engine approaching the profile.
- 23.G2 Z-2 I-2 J0 F400 ; Profile with a circular motion from its location
- 24.This row is duplicated according to the profile thickness.
- 25.G2 Z-2 I-2 J0 F400
- 26.G2 Z-2 I-2 J0 F400
- 27.
- 28.G90 G54 ; The axes return to the machine's own coordinate.
- 29.G0 Z-62 ; Safe distance from inside the profile of the milling cutter
- 30.come out
- 31.
- 32.BAREL PLACE
- 33.
- 34.G91 G54 ; Axes accept the point where they are zero.
- 35.G0 X-83 ; The barrel goes to the starting point.
- 36.G1 Z-4 F400 ; 1. Horizontal work engine approaching the profile.
- 37.G2 Z-2 I-3 J0 F400 ; Profile with a circular motion from its location
- 38.This row is duplicated according to the profile thickness.
- 39.
- 40.G2 Z-2 I-3 J0 F400
- 41.G2 Z-2 I-3 J0 F400
- 42.
- 43.G1 X-23 F200 ; Opening of the short 12 slot place in the barrel place.
- 44.G1 X23 F800 ; Slot return.
- 45.
- 46.G90 G54 ; The axes return to the machine's own

coordinate.

47.G0 Z-62 ; Safe distance from inside the profile of the milling
cutter

48.come out

49.

50.M5 ; 1. Stopping the horizontal job engine

51.G0 X40 Y160 Z-23.5 ; The profile moves to the lock slot position.

52.

53.

54.

55.

56.M4 ; 2. Starting of vertical job engine.

57.TOP LOCK LOCATION

58.

59.G4 P1 ; 1 second waiting time for the cycle of the
engine.

60.G1 Y200 F300 ; Milling the cutter into the profile.

61.

62.G91 G54 ; Axes accept the point where they are
zero.

63.G1 X180 F300 ; Milling the lock place longitudinally.

64.G1 Z6 F300 ; Milling the lock position to the width.

65.G1 X-180 F300 ; Back milling the lock place to longitudinal.

66.G1 Z-6 F300 ; Back milling the lock place to the width.

67.

68.G90 G54 ; The axes return to the machine's own
coordinate.

69.

70.G0 Y160 ; Safe distance from inside the profile of the milling
cutter

71.emergence.

72.

73.M5 ; 2. Stopping the vertical job engine.

74.G4 P2 ; Safe waiting time.

75.

76.G0 X00.000 Y00.000 Z00.000 ; Sends the axes back to the zero point.

77.M30 ; Resets the program for the next milling
operation.

78.%

13. EXPLANATION OF SOME SAMPLE PROGRAM COMMANDS

G0 X215 Y161 Z-62

It takes the axes to the point where it will mill at the same time in the X, Y, Z Planes.

G2 Z-2 I-3 J0 F400

Z, I, J and F Commands used with the G2 circular motion command.

Z: It represents the axis we will move. The value added after Z represents the value in millimeters it will move forward.

I ; It is used to determine the diameter of the hole to be drilled in the profile. If the Hole to be opened is $\varnothing 18$ and our milling cutter is $\varnothing 12$, we apply the following formula.

$$(\varnothing 18 - \varnothing 12) / 2 = 3$$

When we write next to the I Value, it will make a $\varnothing 18$ hole for us.

J; It must be next to zero '0' in all circumstances.

F: Symbolizes the speeds in the cutting process. The numbers next to F determine the speed in the cutting process (Example: F100 or F800, the speed increases as the number value increases, and the speed decreases with the decrease).

G4 P2

In the safe waiting period, P will not be active unless Per G4 is used, the numerical values written after P will increase the waiting time from the value of seconds (Example: **G4 P2** waiting time without operation is 2 seconds, **G4 P8** without operation is 8 seconds).

14. OPERATING OF THE MACHINE

- With normal electricity and air pressure.
- After the machine's power switch is turned on, the computer is turned on.
- The axis control program is opened, the machine is sent to zero point and the axes are reset.
- If the profile to be treated is PVC, irrigation is turned off, if it is an Aluminum profile, irrigation is turned on.
- The profile is placed in a pneumatic clamp and clamped.
- The program suitable for the profile is selected from the opened axis control program.
- Green start buttons are pressed from the front button group with two hands.
- When job motors complete the hole and slot work on the profile, it returns to the zero point.
- Profile is taken by opening pneumatic clamps.
- • These processes are repeated according to the appropriate profile programs.

15. TECHNICAL SERVICE

In case of need, do not hesitate to contact our technical service; Our technical service will be happy to assist you. You can reach us from the information below.

FAULT	WHY IS THAT ?	SOLUTION
The Machine Does Not Move At All!	<p>1 There may be electrical failure.</p> <ul style="list-style-type: none"> * 2 There may be air connection failure. * 3 Emergency Stop Button may be pressed. * 4 There may be no connection between the computer and the axis control board. 	<p>5 Check the Main Switch and input phases.</p> <ul style="list-style-type: none"> * 6 Check the air connections . * 7 Relieve the emergency stop button by pressing . * 8 Check the cable between the computer and the axis control board.
Machine is Running; But the vise doesn't work	There may be air connection failure.	Check the air connections.
Machine work motors do not rotate.	When the machine turns off the electrical switch and turns it back on in a short time, or when the voltage drops, the Drive that enables the movement of the work motors may have entered a malfunction.	Turn off the power switch of the machine and leave it on for 2 minutes. Then turn it back on.
The computer does not turn on.	The fuse of the electricity coming to the computer may have blown.	Check if there is a fuse blown from the electrical panel
The computer has power but the Windows operating system does not start	There may have been a file error regarding the Windows operating system.	In this case, please contact the technical service.
Emergency Stop button does not work!	The Emergency Stop button contact may be faulty.	Check the relevant contact
The machine does not start up.	The contact of the buttons pressed to start the machine may be defective.	Check the relevant contact.

