



**PHOENIX-07 DH
AUTOMATIC DOUBLE CORNER PVC
PROFILE WELDING MACHINE (ANGULAR)**

USER'S MANUAL



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1. GENERAL INFORMATION

1.1. INTRODUCTION

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

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

1.2 DISTRIBUTOR

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

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

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

2. MACHINE'S DESCRIPTION

Machine is designed for joining of vinyl (PVC) profiles though corner welding.



3. TECHNICAL FEATURES

Total Power	1800 WATT
Power of resistance heater	900 + 900 WATT
Power	4 A
Voltage	220 V – 3-Phase 60Hz
Melting Temperature	250° C
Working pressure	Min 6 – Max 8 bar (90-120 psi)
Profile clamping pressure	6 bar (90 psi)
Profile heating pressure	4 bar (60 psi)
Profile melting time	20 – 25 sec
Profile welding time	15 – 20 sec

WELDING FEATURES

Profile welding angle (At movable head)	30°-180°
Max. Profile width	150 mm (6")
Minimum frame dimensions	300 mm x 300 mm (12" x 12")
Max welding length	3500 mm (138")

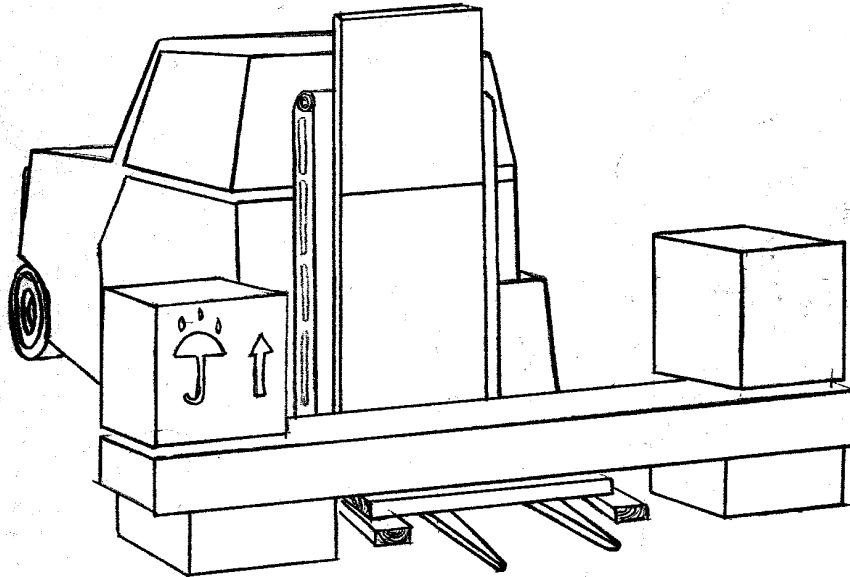
DIMENSIONS

Height	1700 mm (67")
Width	4400 mm (173")
Depth	1100 mm (43")
Weight	850 kg (1,870 lbs)

IP 52 Conforms with EN 60529

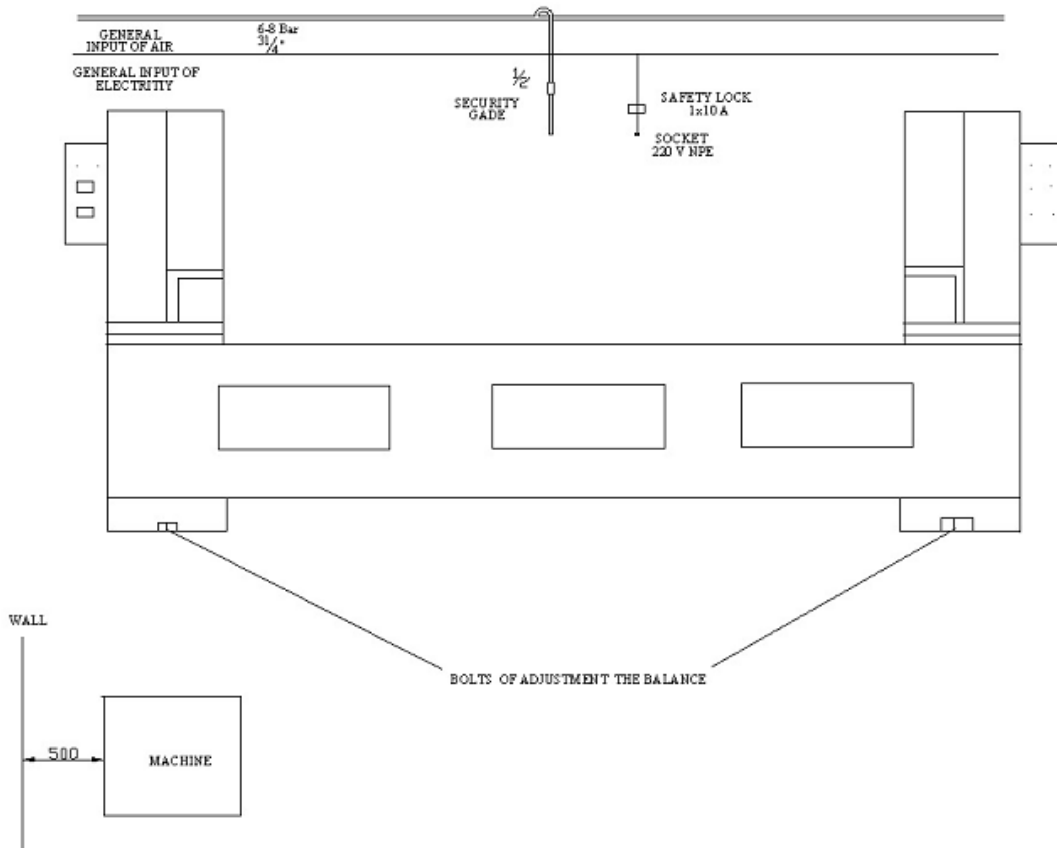
4. TRANSPORT OF THE MACHINE

- The machine has to be packed properly for transport.
- The best packing method is a wooden crate suitable for lifting via forklift.
- The machine cannot be transported in horizontal position.
- Electrical and pneumatic equipment on the machine must be protected against outer influences and impacts
- For indicating the machine's top, there should be the "up" sign on the wooden crate.
- It is recommended to use forklift at loading and unloading.
- Machine cannot be moved using your hands.
- Nothing should be placed onto the machine.
- The machine must be stored with package.
- To store in a dry, closed area at room temperature.
- The machine must be placed on an even ground.



5. INSTRUCTIONS FOR SAFE INSTALLATION

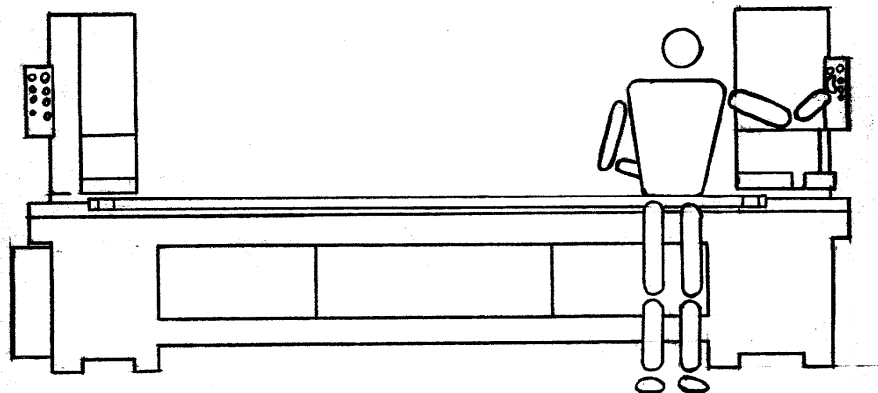
- *Ensure that the area around the machine is free from any objects which could cause damage to the machine, like cutting tools.*
- *Place the machine on a flat ground.*
- *There must be at least 50 cm (20") free distance between the wall and rear side of the machine. Also left and right sides of machine have to be free*
- *After installation you have to balance the machine via the adjustment bolts located at the bottom corners of the machine.*
- *Ensure to lead also a neutral line, grounding wire to the machine.*
- *A convenient safety switch has to be installed at the connection point of power supply to the machine*
- *Compressed air connection of the machine has to be made via rubber hose suitable for min. 6 Bar (90 psi) air pressure. Avoid tense hose connection.*
- *The power cord of the machine should be lead through a spiral to avoid external damage to the cord. Avoid tense cable.*
- *Ensure that the grounding cable is connected to the PE connector.*



Balancing the Machine and Wall Distance

6. POSITION OF OPERATOR

- Should stand in front of the machine
- Should place the vinyl profile onto the machine so that his hands remain outside of the machine
- Should stand as shown in the image below





7. CONDITIONS FOR STARTING TO WORK ON MACHINE

- To be ready for operating the machine it is necessary to lead a one-phase(L1) cable, a neutral line, grounding **(by a qualified electrician according to EN60204-1)** and supply compressed air of minimum 6 Bar (90 psi), maximum 8 Bar (120 psi).
- To start working on the machine at first it is necessary to supply air and check the pressure reading on the manometer located inside the pneumatic control panel.
Furthermore, it is necessary to turn the main switch ON and then to wait for the temperature indicator to reach the preset temperature value.
- Main stop buttons on the machine must be in ON position.
- The pressure regulators, heat indicators and time controllers on the control panel of the machine are preset in the factory, and may have to be reset according to different vinyl (PVC) profile brands and types.



8. NECESSARY ADJUSTMENTS

- Only trained personnel may carry out adjustments on the machine.
- At any malfunction, first of all it is necessary to contact ATECH or your nearest ATECH dealer.
- Adjustment of the welding size: The Machine is delivered to you preset for 3 mm welding seam. In case of deviation from this value please check the parameters "heating time of a heater" and "Temperature indicator". If applicable, reset these parameters to the factory preset values. Furthermore, check the pressure of the side plates, whether it conforms to the factory set value. If despite to these adjustments the welding seam size is not as desired, please check the cut lengths and angles.
- Adjustment of inaccurate welding: Whether a profile moves up or downwards after welding, check if the correct fixtures for that profile type are used, and whether the top clamp pressure is correct. If the irregularity is forward or backwards check the profile in relation to the rear plate.
- Adjustment of welding durability: the machine is delivered to you checked, adjusted and tested. At complications in durability of welding it is necessary to check the factory settings. If you have changed brand or type of vinyl (PVC) profiles it might be necessary to change the settings according to that profile. If a problem continues in spite of readjustments reasons can be: Adjustments of speed of clamps; after melting the profile resistance should quickly go downwards and plates on each side start to clamp. If this process takes too long, the heating plate cools down and welding is getting not strong enough. To speed up this process it is possible to adjust the valve accordingly. Temperature of resistance, pressure of plates, time of fusion and speed mentioned above influence durability of welding.
- Adjustment of a corner: The Machine delivered to you has been adjusted for welding vinyl extrusions at 90° angle. At occurrence of problems in corners it is necessary: to check measurements on both profiles, not decrease time of welding, to ensure that correct fixtures are used. Profile must be cut according to the desired welding angle.
- Change of parameters of temperature and time: Change of temperature; temperature resistance can be increased or decreased. For this purpose you just have to press the button "SET " on the temperature indicator. Welding temperature of your machine is adjusted on +20°C. The increase in the temperature indicator should be half the sum of annual increase and decrease in absolute value. Regarding the example values, the adjustment increase should be.

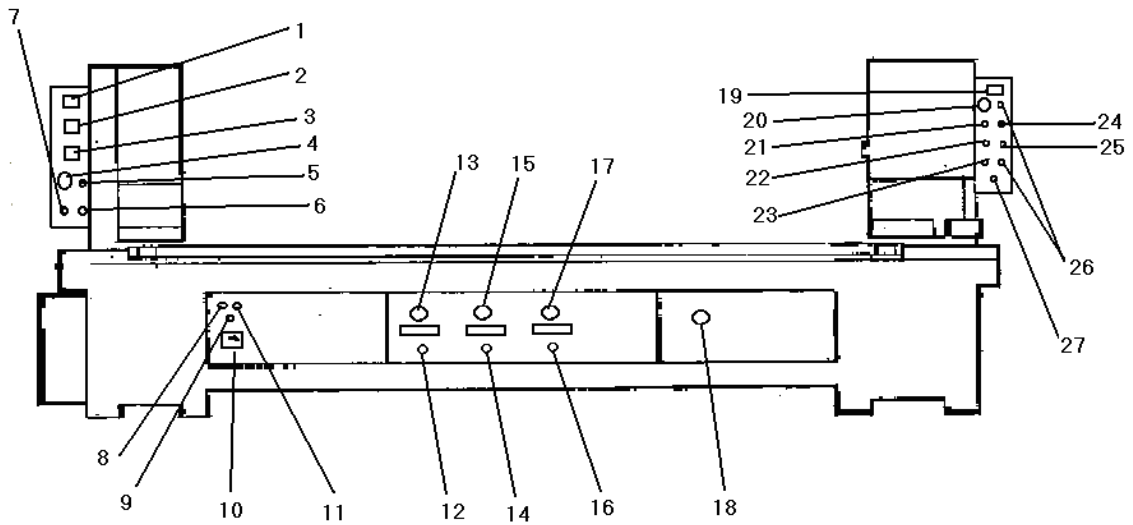


EXAMPLE : Preset temperature value 250°C
Ambient temperature in the workshop in summer: +10°C
 $10/2 = 5^\circ - 250^\circ + 5^\circ = 255^\circ\text{C}$
Set temperature should be 255°C

- Melting time can be adjusted by turning the cover on timer.

9. CONTROL PANEL OF THE MACHINE

- 1 HEAT INDICATOR (FIXED HEAD)
- 2 MELTING TIME
- 3 WELDING TIME
- 4 MAIN SWITCH OF FIXED HEAD
- 5 TOP CLAMP OF FIXED HEAD
- 6 TOP CLAMP STOP OF FIXED HEAD
- 7 SINGLE CORNER WELDING
- 8 SIGN TO ACTIVATE THE START BUTTON
- 9 START BUTTON
- 10 MAIN SWITCH
- 11 SIGN TO CHECK THE PHASE
- 12 PRESSURE REGULATOR OF TOP CLAMP
- 13 PRESSURE INDICATOR OF TOP CLAMP
- 14 PRESSURE REGULATOR OF FIXED HEAD
- 15 PRESSURE INDICATOR OF FIXED HEAD
- 16 PRESSURE REGULATOR OF MOVABLE HEAD
- 17 PRESSURE INDICATOR OF MOVABLE HEAD
- 18 MANOMETER
- 19 HEAT REGULATOR (MOVABLE HEAD)
- 20 MAIN SWITCH OF MOVABLE HEAD
- 21 MOVABLE PLATE OF TOP CLAMP OF THE FIXED HEAD
- 22 TOP CLAMP STOP (MOVABLE HEAD)
- 23 VERTICAL GAP ADJUSTMENT PLATE
- 24 MOVABLE PLATE OF TOP CLAMP
- 25 TOP CLAMP STOP
- 26 WELDING START
- 27 FIXING UNIT (MOVABLE-FIXED)



10. INSTRUCTIONS FOR SAFE OPERATION

10.1 Symbols of Danger and their Meaning

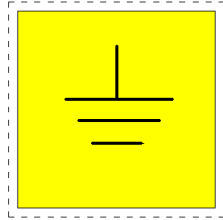
10.1.1. High voltage (Electrical Shock)



10.1.2. Attention



10.1.3. A sign of grounding (means: place for connection of grounding)



10.1.4. High temperature



10.1.5. Keep your hands away



The knowledge of values of signs above indicates dangerous situations. If the necessary measures are not taken, ATech cannot be held responsible for any consequences.



11. OPERATION SEQUENCES OF THE MACHINE

11.1. Conditions necessary to pay attention prior to operation of the machine

- There should be nothing near, inside or above the machine that can distract attention of the operator or bear danger.
- It is necessary to check the pressure of air (Max: 8 Bar Min.:6 Bar)
- Take care for cleanness of the operation area around the machine. Keep away dangerous and flammable materials such as oil and gas.
- The cable and hose must be connected so that they do not disrupt the operator.
- Wait until the temperature of resistance reaches the preset temperature.
- Check whether the correct fixture has been installed according to type of profile

11.2 Description of some control modes of the machine

- After the operations described above the machine is ready for welding the profile.
- If the angle of welding is 90° the machine is adjusted for welding. if a different angle is desired (movable head) adjust the fences for the desired angle.
- **Welding process:** Wait until the temperature of resistance has reached the preset temperature value, press the button No: 9. If the sign lamp No:8 is not lit, press the button of the rear plate on the movable head No: 23, place the profile between the two welding heads, press the fixing button on the movable head No:27 and move the movable head by hand until the profile comes close to the rear plates of heads and fix the movable head, press the 'top clamp 1-2' button and top clamps of movable and fixed heads will clamp the profile. Take the other profile, which you will weld, and place it onto the movable head and push until it comes close to the rear plate and fence. Press the 'top clamp-3' button and the second clamp on the movable head will clamp the profile. Place the profile onto the fixed head in the same way and press 'top clamp -4' button. The second clamp on the fixed head will clamp the profile too. Visually check the profile and press the 'welding start' buttons simultaneously, whereupon the welding process will start automatically. Plates will move apart and the heater will go down, and the melting time will start. When the preset time is elapsed, plates go apart again, the heater goes up and the plates clamp the ends of the profile against each other and will hold until the preset time is elapsed. Thereafter the machine moves back to its starting position. The welding process is completed, repeat the same process to weld another profile.
- It is necessary to pay attention and to place the profiles onto machine so that your hands are kept outside the clamping and welding area of the machine.



11.3 Possible malfunctions and their remedy

The machine has been programmed to work automatically. No risk of malfunction will exist as long as the operator follows the instructions in this manual. Possible malfunctions are explained under the sections-mechanical and electrical items "necessary adjustments" and "Troubleshooting Guide".

11.4 Precautions against mechanical and electric dangers

- Around the machine there should be nothing that could physically or psychologically distract attention of the operator.
- The Owner of the machine should allow to work only if all precautions of safety are complied.
- It is necessary to know the meanings of signs on the machine and to observe their requirements.
- At danger, malfunction or erroneous work it is necessary to release any buttons and to immediately press the emergency stop button.
- Do not reach with your hands inside the machine.
- It is necessary to follow other instructions of this manual.

11.5 Necessary steps in emergency cases

- In emergency cases it is necessary to press immediately the emergency stop button,
- to switch OFF the main switch,
- to disconnect the air supply.

12. INSTRUCTIONS FOR MAINTENANCE

12.1. Instructions necessary to follow

- It is necessary to switch OFF the main switch and disconnect the air supply to the machine before carrying out any maintenance or repair work.
- It is necessary to familiarize with the signs on the machine very well and to follow them.
- Even after the main switch is switched OFF it is necessary to wait for 30 minutes to start the maintenance. Ensure that the resistance has cooled down before to starting to work on maintenance and/or repair.
- Do not change any parts of the machine without prior notification of ATech.
- Use only original spare parts from ATech. Do not allow to replace parts by unqualified persons. Otherwise ATech cannot be held responsible for any damages.
- Always keep the working area clean and tidy.



12.2 PERIODICAL MAINTENANCE

- *Before each maintenance and/or repair work: Unplug first and disconnect the air supply to the machine.*
- *Replacement of teflon cover of the heating plate.*
- *The heating plate is made of special aluminium plates. Demount the heating plate only when you have to replace it.*
- *The heating plate can be deformed because of the teflon cover and needs to be replaced after some time.*
- *The teflon cover has to sit tight on the heating plate.*
- *Before replacement of deformed teflon material unplug the machine and wait until the heating plate cools down.*
- *Attach the new teflon cover, switch on the machine and wait until the preset temperature has been reached, and continue welding.*

12.3 Daily maintenance

- *It is necessary to regularly inspect the machine by observing it daily and it must be ready to work.*
- *It is also necessary to completely clean inside of the machine by means of eliminating all dust and dirt.*
- *Both electric and electronic units of the machine must be kept clean from sawdust and scraps. Also they must be protected from outer influences.*
- *After end of work the resistance should be cleaned too by an acetone cloth so that no traces remain on it.*

12.4 Weekly maintenance

- *Clear perfectly the interiors and the surface of the machine.*
- *All of the movable parts and their related bearing components and tie bars must be regularly lubricated in order to ensure long usage life.*
- *There are 2 tubes on the air conditioner in the pneumatic panel. These tubes contain oil, which greases and cleans the air, and ensures so durability of the machine. Once a week it is necessary to remove these tubes, to clean one of them and pour in oil (Shell Fellus C10, Mobil OTE Light, BP Energol HLP 10) into the other.*

12.5 Monthly Maintenance

- *It is necessary to open the electric and pneumatic panels and to clean them with the help of compressed air.*
- *Greasing of all bearing and spindles on interior and surface of the machine.*
- *Examine visually the teflon material on the resistance for any damages on the teflon material, if necessary replace it. Before replacing the Teflon cover ensure that the heating plate has cooled down. Cut a new material at the size of the old one and attach it tight onto the heating plate. Switch on the machine. When the temperature has*



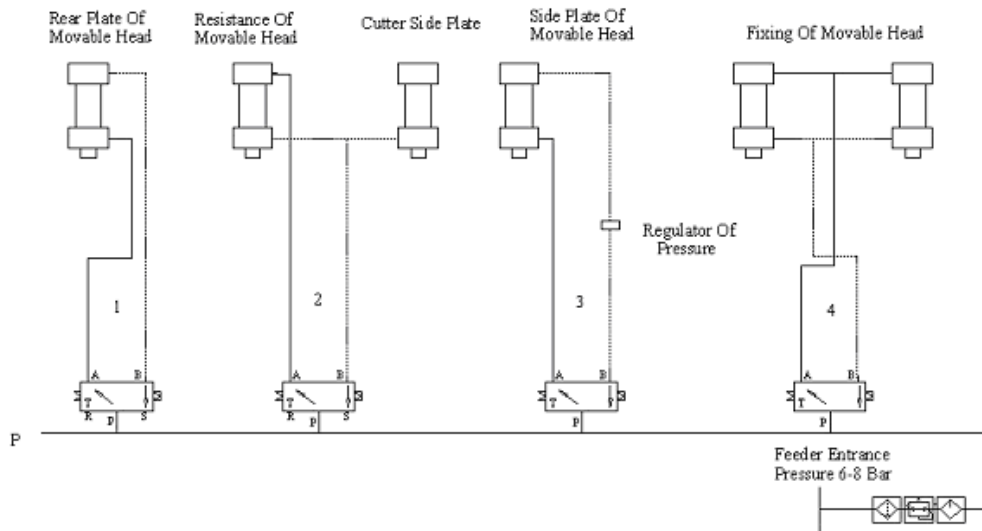
reached between 100-150°C switch off main switch again and and wipe the heating plate with a piece of cloth so that air goes out. Now it is possible to start welding.

- Check all bolts and pins on working parts in the machine for durability
- Visual check of interior and surface of the machine

13. TROUBLESHOOTING GUIDE

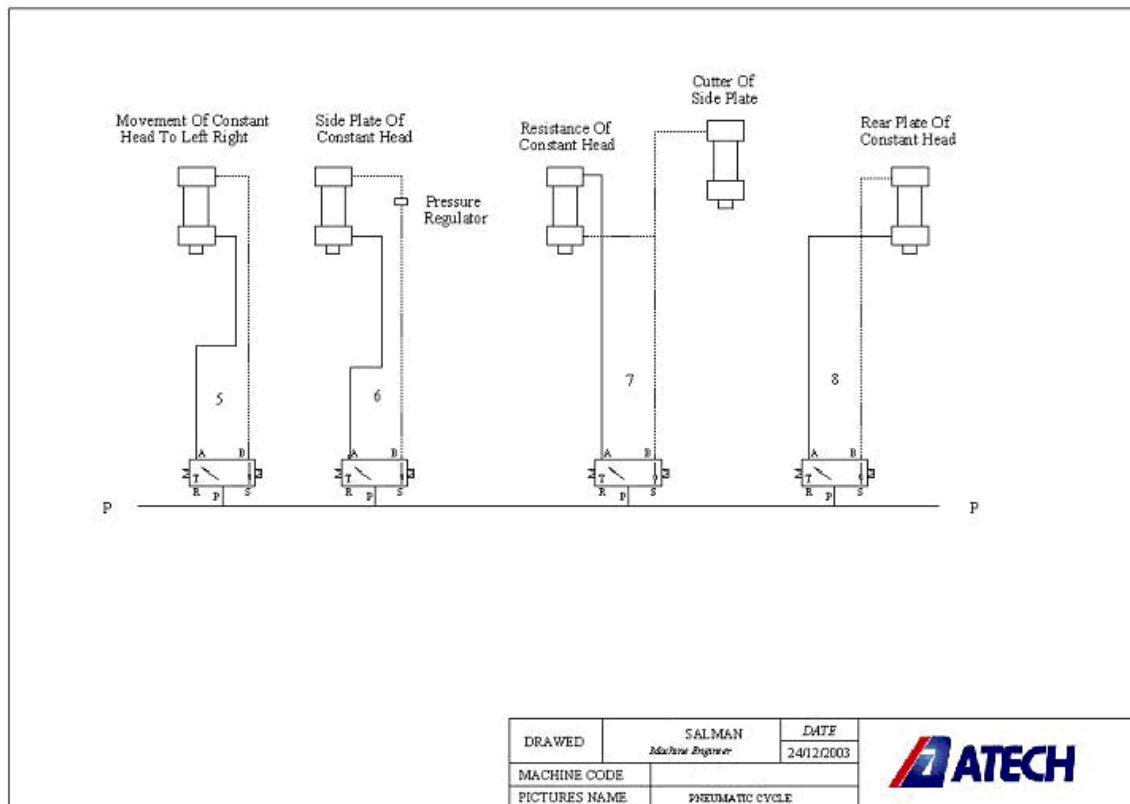
TROUBLE	POSSIBLE CAUSES	REMEDY
1. Profile is sliding or swaying on a fence during welding	Pressure drop of the top clamps. Increase the pressure of the plates.	It is necessary to increase the pressure of the top clamps up to appointed (6-8 Bar), to decrease pressure plates up to standard pressure (4-5 Bar).
2. Machine welds less than it is desired	The temperature preset at factory has decreased and the preset temperature of resistance decreased too.	Increase temperature setting of resistance and time of welding according to fusion.
3. Start button is not working at welding process and top clamp is not clamping	Switches on the machine	Check the switches
4. There is noise in clamps when the machine works.	Felts inside the clamp and spindles on the machine are not greased.	Fill in oil into the air conditioner and grease the spindles with hard oil.
5. The temperature in the machine rises and goes down above norm	Can be because of the cable for heat of resistance is deformed	It is necessary to change a cable transmitting the heat or get out the cable from resistance and replace it.

Pneumatic Cycle



DRAWER	Machine Engineer	DATE
MACHINE CODE		24/12/2003
PICTURES NAME	PNEUMATIC CYCLE	

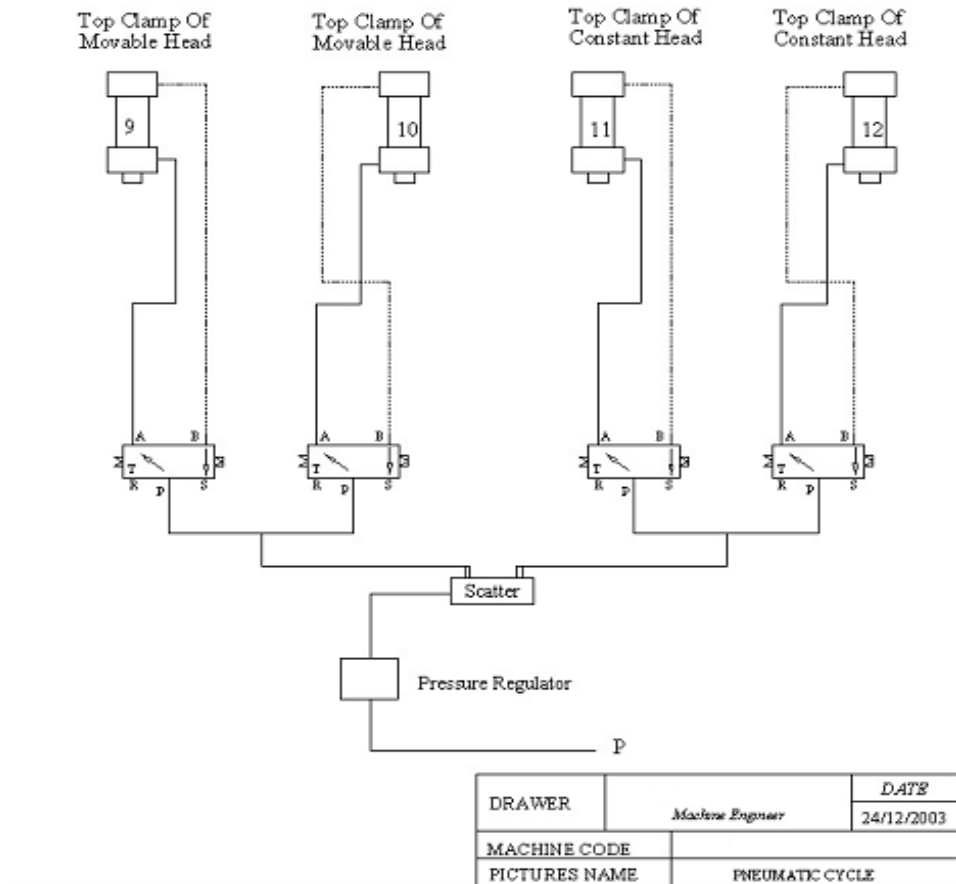
Pneumatic Cycle



DRAWN	SALMAN <i>Machine Engineer</i>	DATE 24/12/2003
MACHINE CODE		
PICTURES NAME	PNEUMATIC CYCLE	

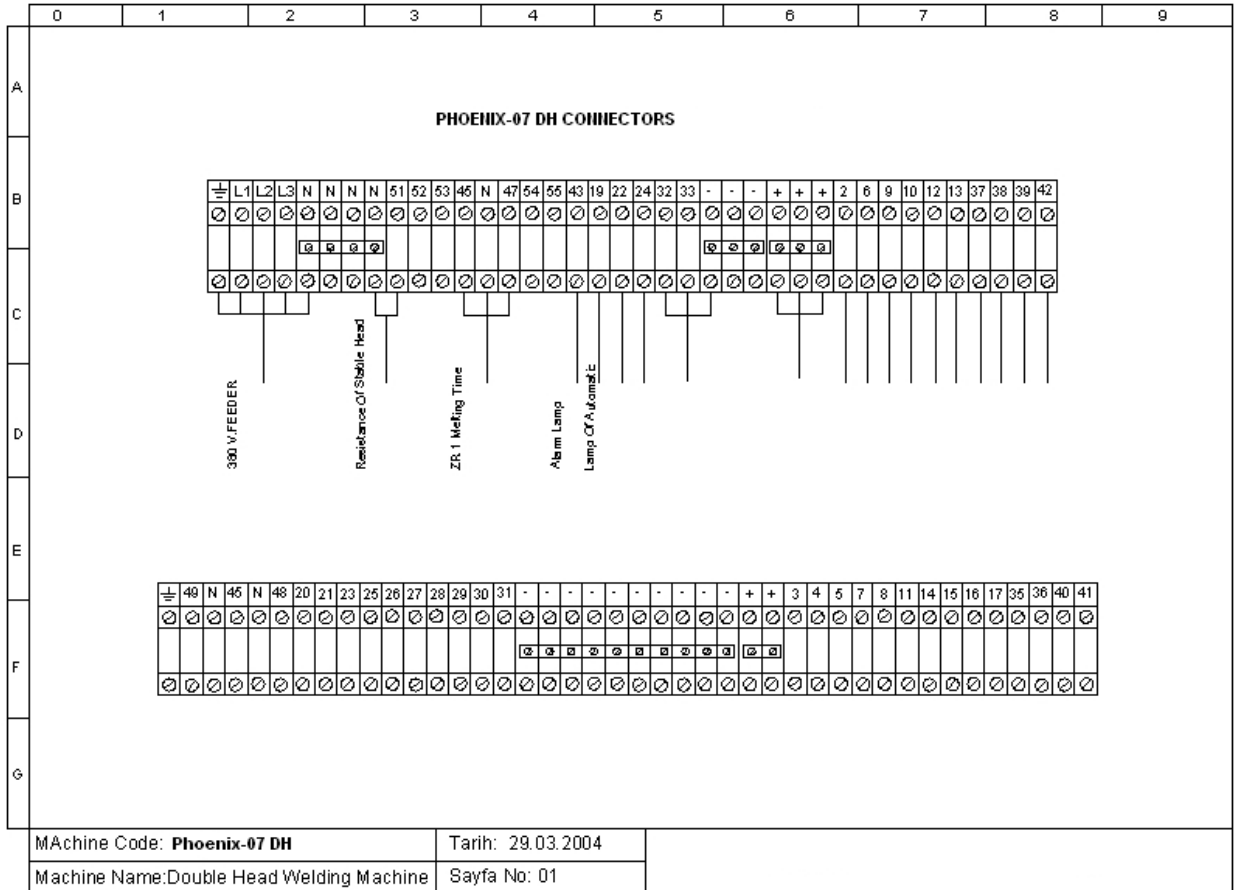


Pneumatic Cycle





PHOENIX-07 DH CONNECTORS





Wiring Scheme

