PHOENIX-02 DH
AUTOMATIC DOUBLE HEAD PVC PROFILE WELDING MACHINE (ANGULAR)

USER'S MANUAL

CONTENTS **Page**

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

ATech Machine, Inc.
10752-A Tucker Street – Beltsville, MD 20705 USA
Phone: +1-301-595-1816 Fax: +1-301-560-6627
Website: www.ATechMachinery.com E-mail: info@ATechMachinery.com

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

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

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

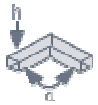
2. MACHINE'S DESCRIPTION AND PURPOSE OF USE

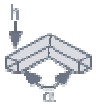
2.1 MACHINE'S DESCRIPTION

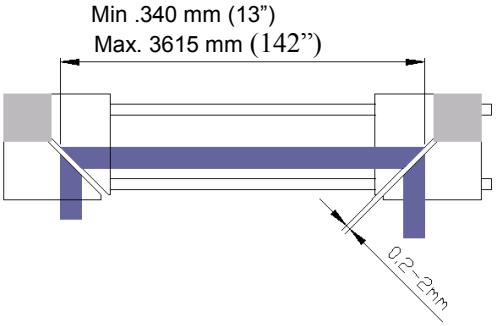
Machine is designed for the joining of PVC profiles though corner welding.

- Capable of adjusting the clamp and welding pressure according to the profile type.
- Equipped with a timer for melting and welding time.
- The thermostat is electronic and can be adjusted in a temperature range between 0^0-260^0 C.
- The movable head (right head) moves manually. It is equipped with a brake system.
- On the left head it is possible to weld at angles between 30°-180°. The right head is fixed at 90°.
- For safety reasons, the clamp pistons operate with low pressure.
- After clamping the profiles, the welding is carried out automatically.
- The machine has been designed according to CE Safety Directives.
- Equipped with profile support device.

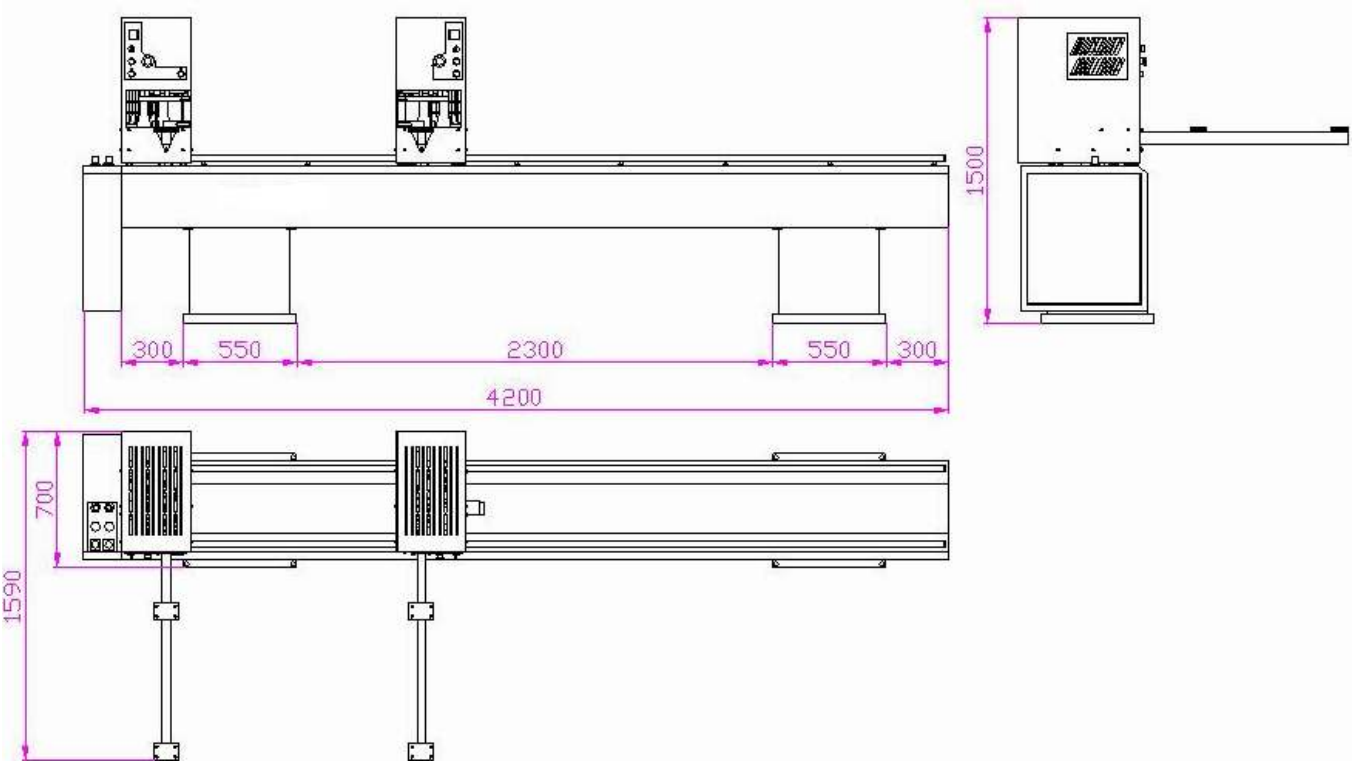
2.2 TECHNICAL FEATURES

Technical Features (American)						
PHOENIX-02 DH	4 HP 110V 60Hz	α=25°-180°	90-120 psi	1,25 CFM	28”x165”x59”	1100 lb

Technical Features (Metric)						
PHOENIX-02 DH	3 kW 120V 60Hz	α=25°-180°	90-120 psi	1,25 CFM	70x420x150 cm	500 kg



2.3 OVERALL DIMENSIONS



2.4 PART LISTS AND TECHNICAL DRAWINGS

Figure-1

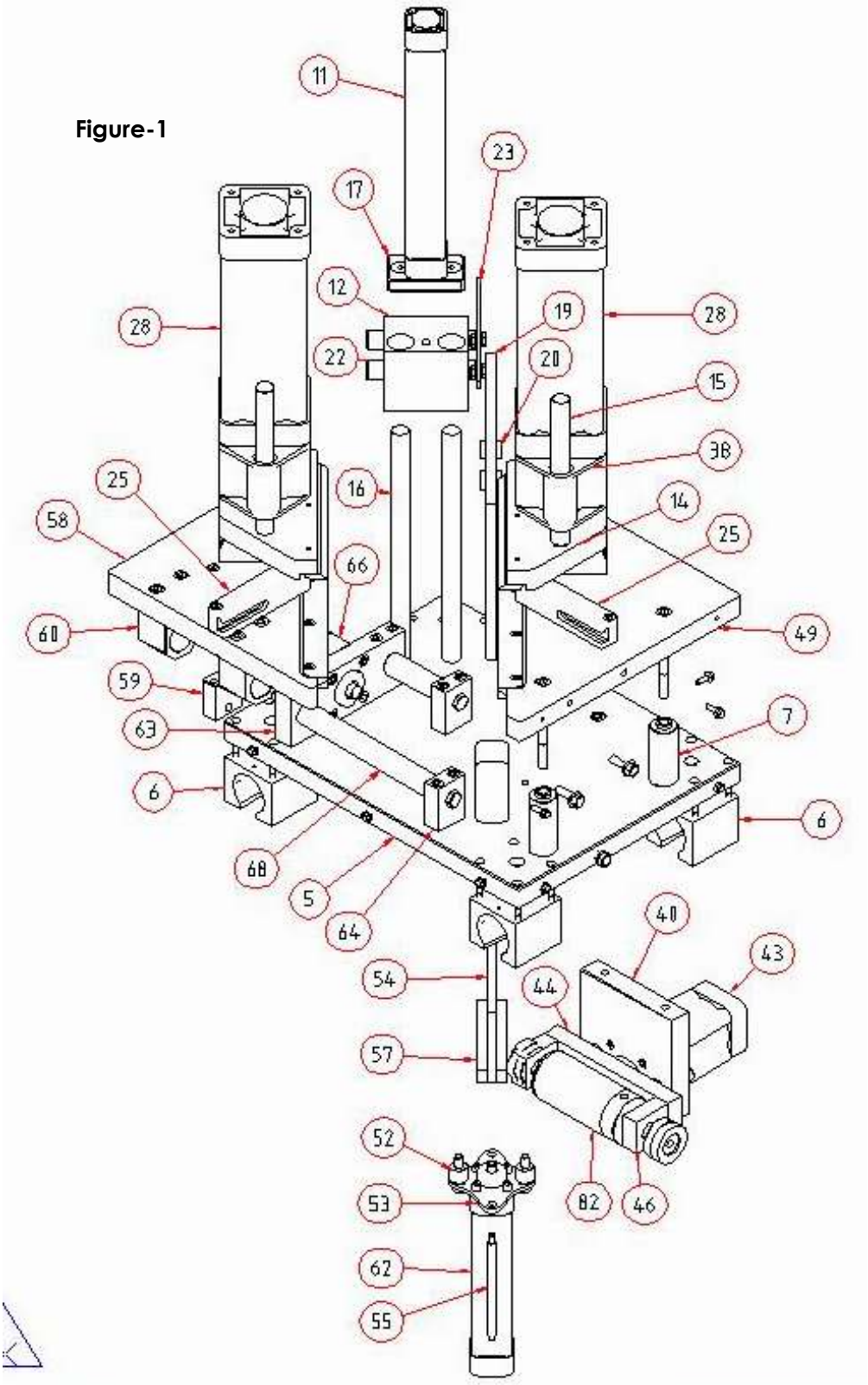


Figure-2

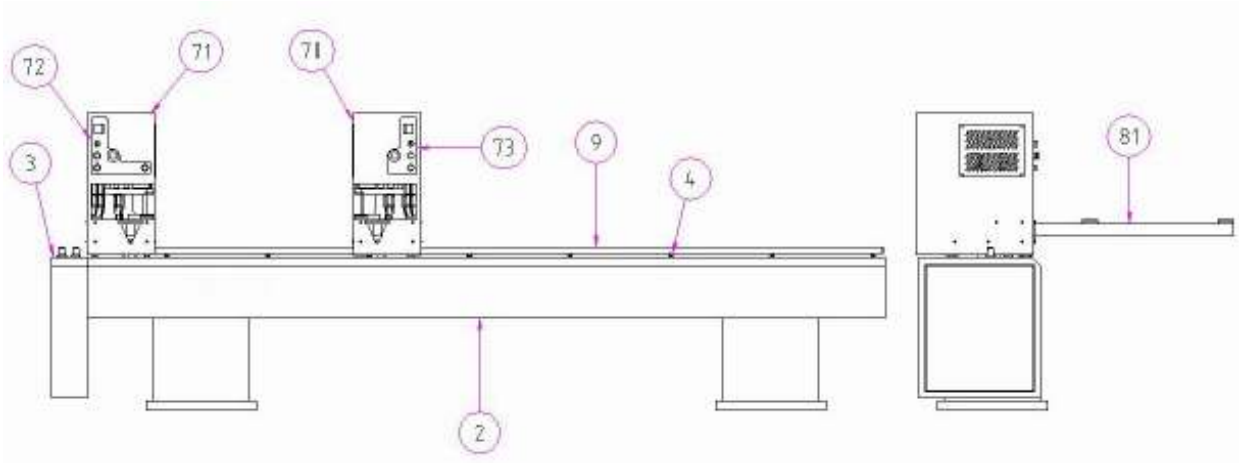


FIGURE-1 PARTS LIST

NO.	STOCK CODE	PART NAME	QTY
5	112-061	LOWER TABLE (RIGHT)	1
6	112-069	LIBAYS HOUSING	4
7	141-405	TABLE CONNECTION SHAFT	6
11	242-034	PISTON PMY 32X175	2
12	112-057	HEATING PLATE AXIS HOUSING	2
14	112-065	CLAMP SHOE 2	2
15	143-026	PISTON HOUSING SHAFT	8
16	143-045	HEATING PLATE PISTON GUIDE SHAFT	4
17	112-079	HEATING PLATE PISTON CONNECTION	2
19	111-241	RESISTANCE PLATE	2
20	222-021	HEATING PLATE HOUSING WASHER	8
22	144-016	HEATING PLATE HOUSING SHAFT	4
23	150-024	HEATING PLATE CONNECTION SHEET	2
25	112-067	SET SQUARE (NOT ANGULAR)	2
28	242-005	PISTON PAG Y80X90	4
38	111-240	CLAMP COLUMN	4
40	112-070	50X15 PISTON CONNECTION	1
43	242-036	PISTON PAG AY 50X15	1
44	112-073	BRAKE PISTON HOUSING CONNECTION	1
46	112-072	BRAKE PISTON HOUSING	2
49	112-062	FIXED TABLE (RIGHT)	1
52	141-404	GUIDE PISTON SUSPENSION	4
53	150-026	GUIDE PLATE PISTON CONNECTION	2
54	145-050	GUIDE PLATE	2
55	141-402	GUIDE PLATE SHAFT	4
57	141-412	GUIDE PLATE REST	2
58	112-063	MOVABLE TABLE (RIGHT)	1
59	112-078	TABLE PISTON SHAFT CONNECTION	2
60	112-075	TABLE MOVEMENT HOUSING	6
62	242-035	PISTON PMY 32X90	2

63	112-077	TABLE PISTON CONNECTION	2
64	112-076	TABLE MOVEM. SHAFT CONNECTION	4
66	242-037	PISTON PMY 50X35	2
68	144-015	TABLE MOVEMENT SHAFT (25X198.5)	2
82	550-070	BRAKE PISTON	1

FIGURE 2 PARTS LIST

NO.	STOCK CODE	PART NAME	QTY
2	211-038	FRAME	1
3	232-018	PANEL LABEL	1
4	141-371	TABLE MOVEM. SHAFT DOWEL	16
9	144-012	MOVEMENT SHAFT	2
70	211-038	UPPER PROTECTION (RIGHT)	1
71	211-038	UPPER PROTECTION (LEFT)	1
72	232-016	CONTROL LABEL (LEFT)	1
73	232-017	CONTROL LABEL (RIGHT)	1
81	550-071	PROFILE SUPPORT DEVICE	2

3. SAFETY

3.1. SAFETY INFORMATION

The symbols shown hereunder are necessary to be read with special attention.
Not reading or observing of them may cause damage to the equipment or personal injury

IMPORTANT

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

CAUTION !

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

DANGER WARNING

The **DANGER WARNING** above warns you against specific dangers, and definitely requires the text to read. Not observing may result in serious bodily injury.

Please read the user's manual carefully before using the machine or carrying out maintenance.

3.2. PREVENTION OF ACCIDENTS

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

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

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

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

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

3.3. GENERAL SAFETY INFORMATION

3.3.1. The power cable should be led in such a way that nobody can step on it or nothing can be placed on it. Special care has to be taken regarding the inlet and outlet sockets.

3.3.2. If the power cable should be damaged during operation, don't touch and unplug it. Never use damaged power cables.

3.3.3. Don't overload machines for drilling and cutting. Your machine will operate more safely with power supply in accordance with the stipulated values.

3.3.4. Don't place your hands between parts in motion.

3.3.5. Use protective eye glasses and ear plugs. Don't wear oversize clothes and jewels. These can be caught by moving parts.

3.3.6. Keep your working place always clean, dry and tidy for accident prevention and safe operation.

3.3.7. Use correct illumination for the safety of the operator. (ISO 8995-89 The Lighting of Indoor Work Systems)

3.3.8. Don't leave anything on the machine.

3.3.9. Don't use any materials other than those recommended by the manufacturer for cutting operations on the machine.

3.3.10. Ensure that the work piece is clamped appropriately by the machine's clamp or vice.

3.3.11. Ensure safe working position, always keep your balance.

3.3.12. Keep your machine always clean for safe operation. Follow the instructions at maintenance and replacement of accessories. Check the plug and cable regularly. If damaged, let it replace by a qualified electrician. Keep handles and grips free of any oil and grease.

3.3.13. Unplug first, before conducting and maintenance works.

3.3.14. Ensure that any keys or adjustment tools have been removed before operating the machine.

3.3.15. If you are required to operate the machine outside, use only appropriate extension cables.

3.3.16. Repairs should be carried out by qualified technicians only. Otherwise, accidents may occur.

3.3.17. Before starting a new operation, check the appropriate function of protective devices and tools, ensure that they work properly. All conditions have to be fulfilled in order to ensure proper operation of your machine. Damaged protective parts and equipment have to be replaced or repaired properly (by the manufacturer or dealer).

3.3.18. Don't use machines with improper functioning buttons and switches.

3.3.19. Don't keep flammable, combustive liquids and materials next to the machine and electric connections.

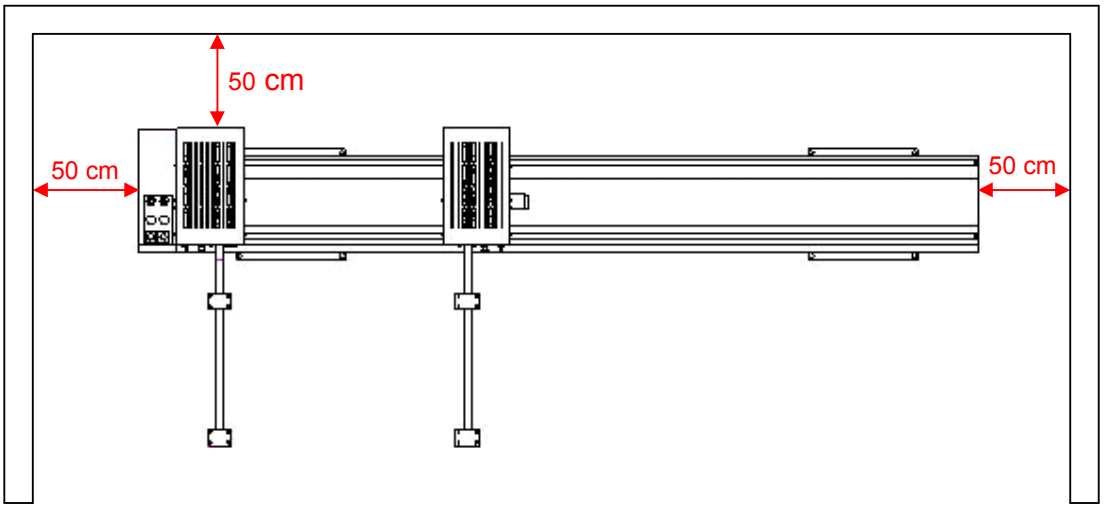
4. SAFE TRANSPORT OF THE MACHINE

IMPORTANT

* The transport should be done by qualified personnel only.
4.1. The machine should be transported by lifting with proper equipment (not touching the ground during the transport).
4.2. The Machine is delivered wrapped in nylon as packaging, unless other form of packing is agreed upon with the customer.
4.3. For the weight and overall dimensions of the machine see Page 4.

5. INSTALLATION OF THE MACHINE

The machine should be located at least 50 cm in front of the back wall. The ground on which the machine will be placed should be even and strong enough to bear the weight of the machine. For the machine's weight see Page 4.



5.1. PREPARATION

IMPORTANT

Remove the bolts and stopper connections first, which are used to fix the moving parts, before making the electric and pneumatic connections, and starting the machine.

5.2. ELECTRIC CONNECTION

5.2.1. The electric connections have to be carried out by a qualified electrician. Use only cables in accordance with the CE Directives.

5.2.2. Check the inlet power before making the electric connection.

5.3. AIR PRESSURE ADJUSTMENT

The air pressure of the machine has to be between 6-8 Bar for proper functioning of the pneumatic system. Don't operate the machine with an air pressure lower than 6 Bar. To adjust and to check the air pressure, read the manometer on the conditioner (See Figure 2).

5.3.1 Pull the adjustment button of the conditioner upwards.

5.3.2 Turning the adjustment button in clockwise direction increases the pressure, turning it in counter clockwise direction decreases the pressure.

5.3.3 Once you read 6-8 Bar on the manometer, push the adjustment button of the conditioner down and lock it in that position.

5.3.4 The conditioner unit collects the water within the air system in a receptacle in order to prevent damage to the pneumatic system components. Discharge this water periodically (at the end of the working day) by pressing or opening the button under the conditioner.

5.3.5 The manufacturer recommends to use the following oils with the conditioner: TELLUS C 10 / BP ENERGOL HLP 10/ MOBIL DTE LIGHT / PETROL OFISI SPINDURA 10.

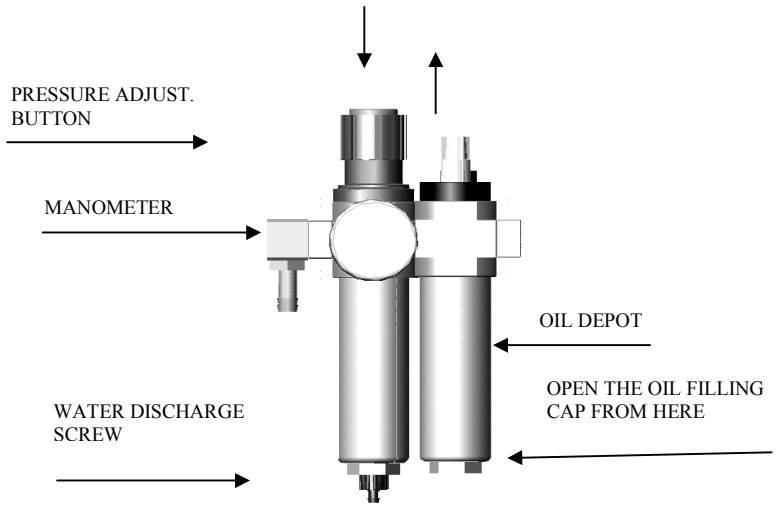


Illustration-1

6. MACHINE SAFETY INFORMATION

6.1 It is not allowed to operate the machine with the upper protection covers and other safety devices removed.

6.2 Your machine operates with 230V 50Hz (110V 60Hz). Let the electric installation of your machine carry out by a qualified electrician only.

6.3 Lifting, installation, electric, pneumatic maintenance of the machine should be carried out by qualified personnel only.

6.4 Routine maintenance and scheduled maintenance should be carried out by qualified personnel after unplugging the machine and disconnecting the air supply first.

6.5 Ensure that the machine has been cleaned, tested and maintained before starting to operate.

6.6 Check the safety devices, power cable and moving parts regularly. Don't operate the machine before having replaced defective safety devices or faulty parts.

6.7 Keep foreign materials away from the working area of the machine, keep away from the machine's moving parts.

IMPORTANT

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

7. OPERATION

7.1 GENERAL

The PHOENIX-02 DH Automatic Double Corner VINYL (PVC) Welding Machine has been designed for the corner joining of PVC profiles. Do not use the machine for any other purposes.

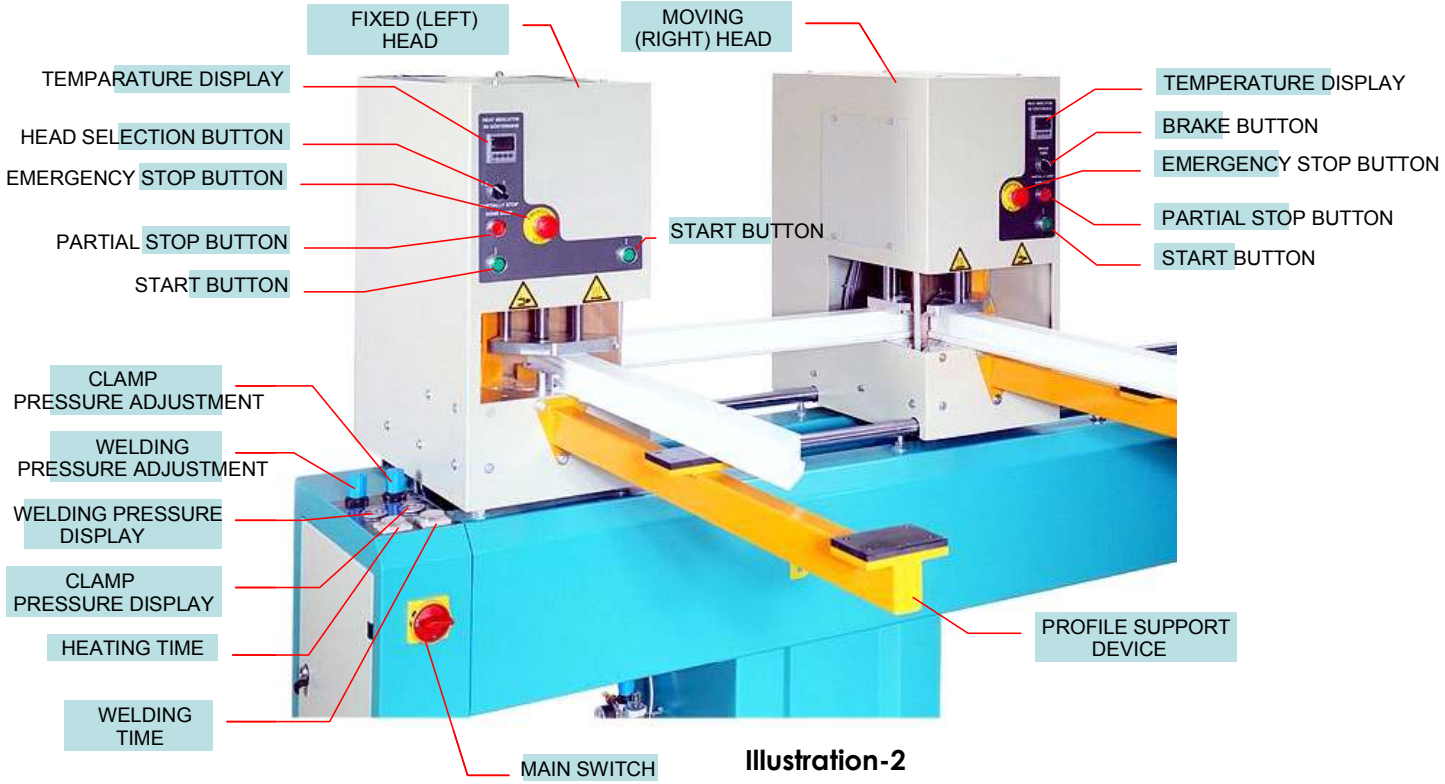


Illustration-2

7.2 BUTTONS AND DISPLAYS ON THE MACHINE

Temperature Display: For adjusting the temperature of the resistance, which heats and welds PVC profiles, between 0 - 260 C. The temperature is pre-set to 245 C at the factory. To change this value, press "Set". The pre-set value will blink. Input the new temperature value using the arrows on the display. Press "Set" again to save the input value.
Caution: Do not touch the (PRG) button next to the Set button. It has been pre-set in the factory.
Head Selection Button: Used for double or single head welding operation. For double head welding, the button has to be on the position "1-2". When the button is on "1", welding is possible on the fixed head.
Emergency Stop Button: When the Emergency Stop button is pressed, all pneumatic electric components of the machine return to their original position.
Partial Stop Button: Used to return to the previous operation step, when you determine that the operation is wrong or when you want to stop the operation.
Start Button: Used to start the welding operation.
Brake Button: It is used to fix the movable head. The machine will not operate before the brake system is active.
Welding Pressure Adjustment: For adjusting the welding pressure of profiles to be joined via heating and welding. It is pre-set to 6 Bar in the factory. If you want to change this value, turn the switch to the right or left respectively to increase or decrease it. To lock the set value, press the outer frame of the switch down.
Welding Pressure Display: It reads the welding pressure force in Bar.
Clamp Pressure Adjustment: It adjusts the pressure force of the clamps, which clamp the PVC profiles to be welded. It is pre-set to 4 Bar. This adjustment is made in the same way like the welding pressure adjustment.
Clamp Pressure Display: It reads the pressure force of the PVC profiles clamp in Bar.
Heating Time Display: Adjusts the time for application of the set temperature. It can be adjusted between 0-30 sec. It is pre-set to 20 sec.
Welding Time Display: To adjust the welding time of PVC profiles. This period can be adjusted between 0 - 30 sec. It is pre-set to 25 sec.

7.3 WELDING OPERATION

7.3.1 DOUBLE CORNER WELDING OPERATION

a. Open the power and air supply units.
b. Check whether the brake button located on the movable head (Illustration 2) is "OFF". If the brake button is not in "OFF" position, the machine will not work.
c. Ensure that the head selection button on the fixed head (Illustration 2) is in the position "1-2".
d. **Press the two Start buttons on the fixed head (Illustration 2) at the same time until their green lights are on.**
e. Put the brake button to "ON" and adjust the movable head to the desired position. Place the profile between the two heads, and put the brake button to "OFF" (closed).

f. Place the other profile onto the movable head. Clamp the profiles by pressing the Start button twice.
g. Go to the fixed head and position the other profile. Clamp the profiles by pressing the Start button separately.

IMPORTANT

For safety reasons, the profiles are clamped initially at low pressure (0.8 Bar).

h. Press the two Start buttons on the fixed head simultaneously. This will increase the clamping pressure from low pressure (0.8 Bar) to high pressure (6 Bar), and the machine will complete the welding operation automatically.

7.3.2 SINGLE CORNER AND ANGLE WELDING OPERATION

Single corner and angle welding operation is carried out on the fixed head. The movable head is not angled.
a. Open the electric and air supply units.
b. Adjust the set squares as desired by loosening the allen screw on the set squares (Illustration 3, Screws No. 1-2). Tighten them after adjusting the set square position.
c. Check whether the brake button located on the movable head (Illustration 2) is "OFF". If the brake button is not in "OFF" position, the machine will not work.
d. Ensure that the head selection button on the fixed head (Illustration 2) is in the position "1".
e. Press the two Start buttons on the fixed head (Illustration 2) at the same time until their green lights are on.
f. Position the profiles onto the table. Clamp the profiles by pressing the Start buttons on the fixed head separately.
g. Press the two Start buttons on the fixed head simultaneously. This will increase the clamping pressure from low pressure (0,8 Bar) to high pressure (6 Bar), and the machine will complete the welding operation automatically.

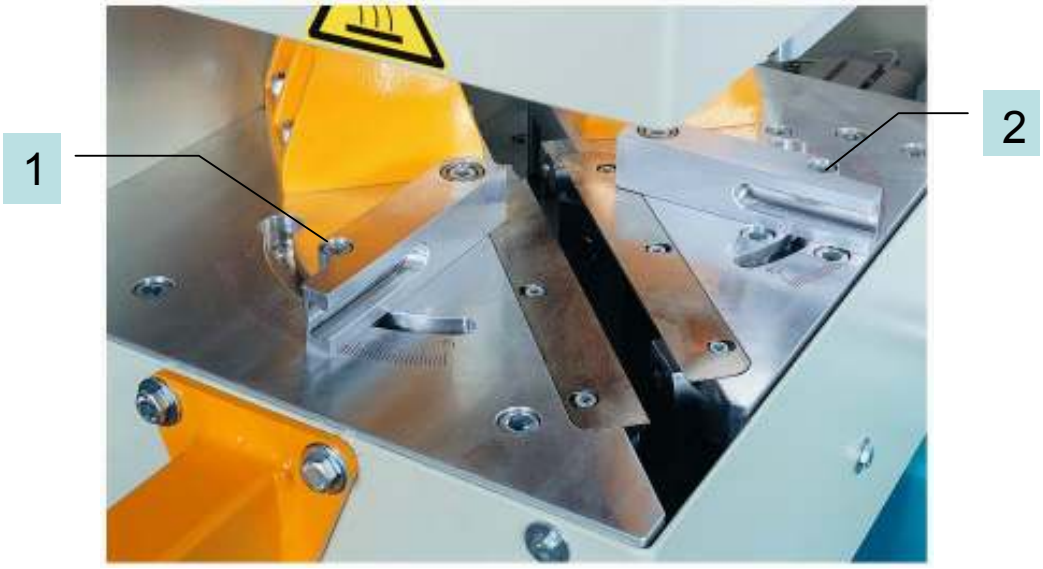


Illustration-3

7.3.3 WELDING SEAM ADJUSTMENT

The welding thickness (seam) can be adjusted between 05 mm and 2.0 mm. Please see Illustration-4 below on how to make this adjustment.

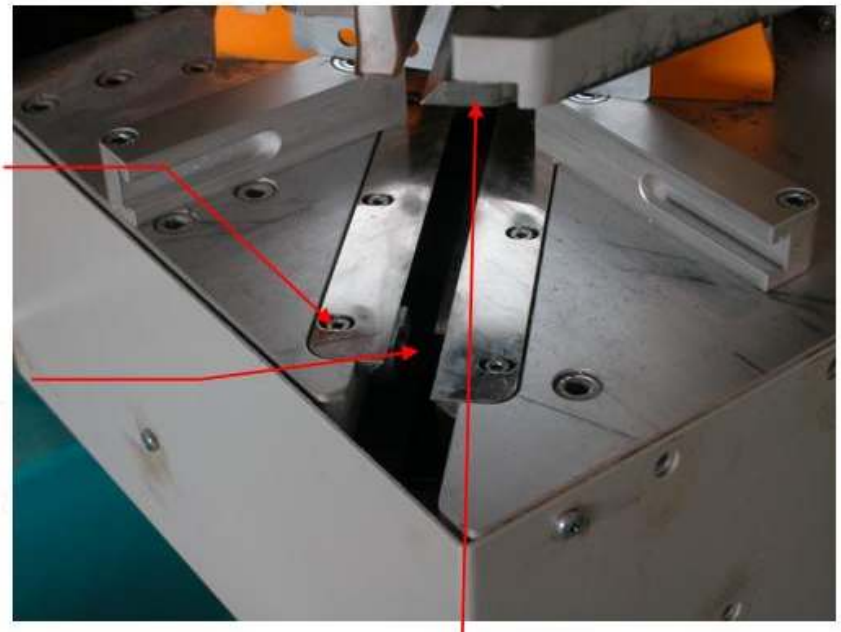


Illustration-4

8. MAINTENANCE

8.1. PERIODIC CHECKS

8.1.1 Ensure that the table and all parts are clean and dry. Degrease the table and dry it.
8.1.2 Clean the machine surface.
8.1.3 Check the pressure of the air pressure system.
8.1.4 Check the air pressure filter and the oil level of the conditioner. Fill up oil, if necessary (Illustration 1).

8.2. CLEANING AND REPLACING THE HEATING PLATE TEFLON COVER

8.2.1 Disconnect the electric and pneumatic supply. Dismantle the lateral covers of the upper protections.
8.2.2 Use a clean cloth to clean the Teflon.
8.2.3 To replace the Teflon cover, remove the thin plates on both sides of the heating plate with a proper key. Replace the old Teflon with a new one and fix it by tightening the thin plates.

8.3. MAINTENANCE AT THE END OF WORKING DAY

8.3.1 Disconnect the electric and air supply to the machine.
8.3.2 Clean the machine surface and remove all foreign materials.
8.3.3 After cleaning the table, dry it with a cloth (don't use aggressive substances for cleaning, which could damage the paint).

Unplug and disconnect the air pressure connections first, before carrying out these works.

9. TROUBLESHOOTING GUIDE

Here are some recommendations for solving urgent problems. If the trouble cannot be solved, or if you have a problem other than those described hereunder, please contact our technical service or your nearest dealer.

TROUBLES	CAUSES	REMEDY
The resistance does not heat	No power supply to the machine	Check the fuse, plug and socket.
The thermocouple does not work	The thermocouple connection wire is displaced.	Connect the thermocouple wire.
	The temperature display needs to be set.	Check the temperature display adjustment (245˚)
The clamps do not work. The guide plate does not move. The brake piston does not work. The heating plate does not move.	The air pressure is too low.	Check the air hose connections of the machine. Adjust the air pressure at the conditioner.
Machine does not weld or the welding is not clean.	The profiles were cut in different angles.	Check the angles of the profile ends. The saw blade might need to be sharpened.
	The Teflon is dirty or torn.	The Teflon should be cleaned or replaced.
If these recommendations do not solve the trouble, please ask for technical service.		

10. ELECTRIC AND PNEUMATIC COMPONENTS

10.1. ELECTRIC COMPONENTS

STOCK CODE	PART NAME	QTY
161-001	PAKO SWITCH KG20B	1
161-007	RESISTANCE (PHOENIX II)	2
161-026	W AUTOMAT 2A	1
161-027	W AUTOMAT 20A (PHOENIX II)	1
162-034	RELAIS(OMRON)G3NA-220B/24-240VAC	2
162-052	TIME RELAIS (OMRON)-H3CR-A8	2
162-053	TIME RELAIS SOCKET-PF083A-D	2
162-060	RELAIS SOCKET RXZ-7G(DK502/KD352	1
162-061	SPRING STOP BUTTON XB4-BA42	2
162-062	T.MEC.BUTTON XB4-BW3365	3
162-063	RATCHED BUTTON XB4-BD 21	2
162-065	SOCKET RELAIS RXN 41G11BD(DK502	1
162-071	PLC CPM1A-30CDR-D-V1 (PHOENIX II)	1
162-075	TIME RELAIS CONNESTION-Y92F-30	2
162-076	POWER SOURCE S82K-05024 (PHOENIX II	1
165-011	PERFORATED RAIL (KLEMSAN)	0.900 m
165-012	WGD1 CONNECTOR STOPPER	5
165-015	PEK 2.5 mm RED CONNECTOR	6
165-020	PEK 2.5 mm BEIGE CONNECTOR	32
165-023	UK 2.5/4 CONNECTOR BRIDGE,QUADRUPLE	4
165-024	UK 2.5/2 CONNECTOR BRIDGE, DOUBLE	2
165-025	PEK 2.5 mm BLUE CONNECTOR	6
165-028	TERMINAL PLATE NPP 2.5 10	12
165-043	FUSE CONNECTOR UK 5-HS(WSI 6)	1
165-048	GROUNDING CONNECTOR WGT4	3
165-061	PEK 4 mm BEIGE CONNECTOR	7
165-062	PEK 4 mm BLUE CONNECTOR	7
165-094	CABLE CHANNEL 37.5*62.5	1.580 m
165-099	62.5x62.5 CABLE CHANNEL	0.520 m
165-153	80x60 mm PLASTIC CHANNEL	2

10.2. PNEUMATIC COMPONENTS

STOCK CODE	PART NAME	QTY
241-016	1/8 EXHAUST (SC-SINTER)	24
241-029	40x10BAR PANEL MANOMETER(SM/DK)	2
241-032	LR-1/8-D-O-MINI/REGULATOR	2
241-036	MFH-5-1/8(24VDC)VALVE(PHOENIX II)	8
241-040	LOW PRESSURE VALVE (TEKNA)	1
241-041	COIL SOCKET 22 mm (TEKNA)	1
241-042	LOW PRESSURE VALVE COIL-24VDC	1
241-043	MFH-5-1/8-L-S B/SOLENOID VALVE	4
241-045	MSFG-24/42-50/60(DC)COIL(DK50)	4
242-005	PISTON PAG AY 80*90	4
242-034	PISTON ISO-M PMY 32*175	2
242-035	PISTON ISO-M PMY 32*90	1
242-036	PISTON PAG Y 50*15	2
242-037	PISTON ISO-M PMY 50*35	2
243-023	1/8-6 ANKLE (S6520-6-1/8)	2
243-025	1/8-6 SLEEVE (S6510-6-1/8)	24