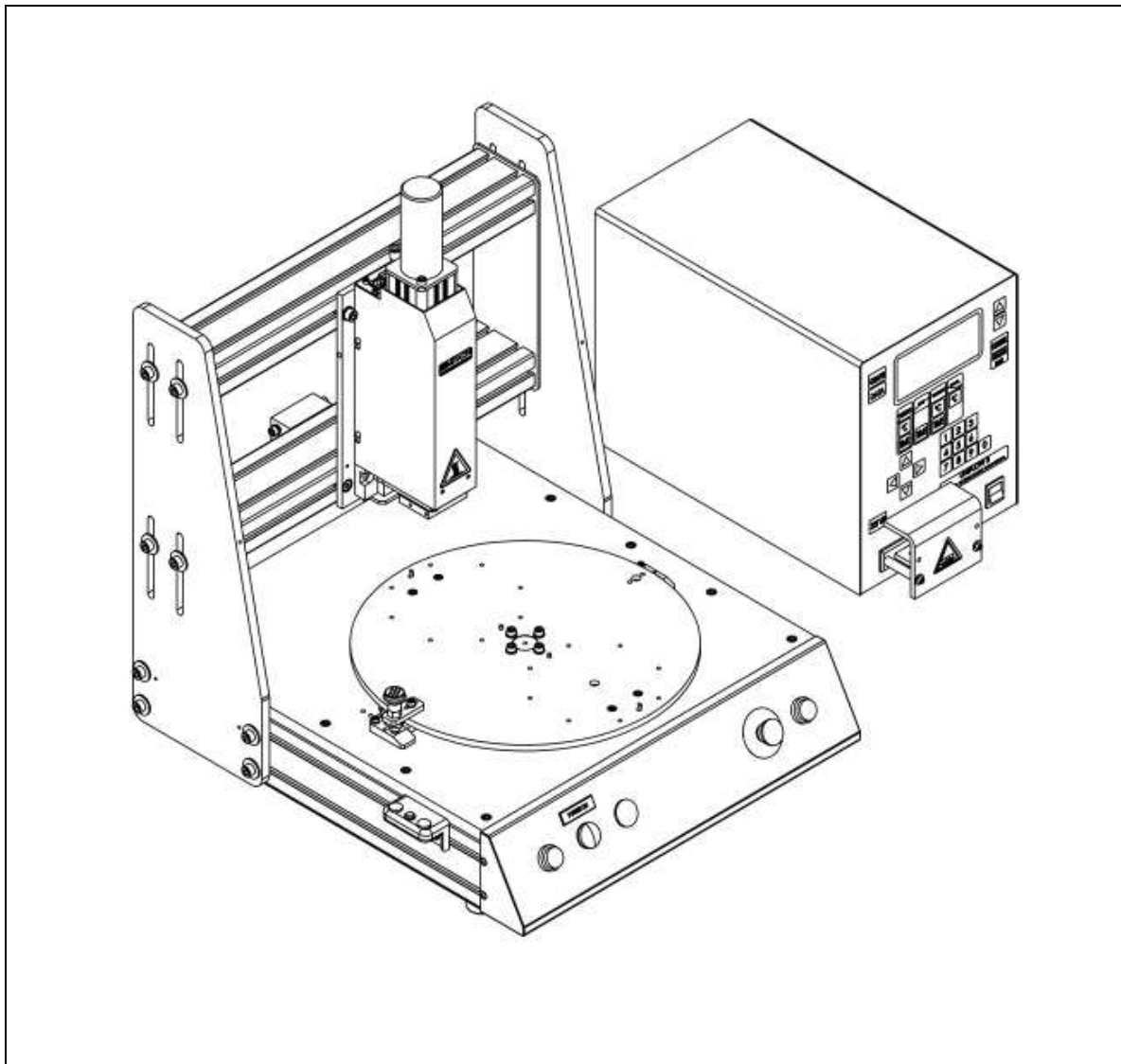




AMADA MIYACHI EUROPE

USER MANUAL

Desk Top 440 – Manual Operation



Amada Miyachi Europe
Schootense Dreef 21
P.O. box 164
NL-5700 AD HELMOND
The Netherlands

Phone: +31 (0) 492 54 22 25
Fax: +31 (0) 492 53 62 22
E-mail : info@amadamiyachieurope.com
Internet: www.amadamiyachieurope.com



Register of changes / Version control table

[illegible]

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Amada Miyachi Europe has the right to change parts of the machine at any time without prior or direct notice to the client. The contents of this publication is subject to change without notice.

For extra information as to adjustments, maintenance and repair, contact the technical department of your supplier.

This user manual has been composed with great care. However, **Amada Miyachi Europe** cannot be held responsible either for any shortcomings occurring in this user manual or for their consequences.

Author: S F Duerden



AMADA MIYACHI EUROPE

Contents

1 SAFETY PRECAUTIONS	6
1.1 GENERAL SAFETY PRECAUTIONS	6
1.2 WARNINGS ON THE DESKTOP SYSTEM:	7
2 INTRODUCTION	8
2.1 GENERAL	8
2.2 INTENDED USE	9
2.3 PRINCIPLE OF OPERATION	10
2.4 SOUND LEVEL	10
2.5 SYSTEM REQUIREMENTS	10
2.6 SPECIFICATIONS – AIR AND ELECTRICAL SUPPLIES	11
3 CONSTRUCTION	12
3.1 GENERAL CONSTRUCTION	12
3.2 TAPE INTERPOSER MODULE (OPTION)	16
3.1 ACF MODULE (OPTION)	17
3.2 SAFETY MEASURES AND DEVICES	17
3.2.1 Protection guards	17
3.2.2 Hot parts	17
3.2.3 Electrical safety	17
3.2.4 Emergency stop	17
3.3 CERTIFICATION	18
3.4 DT-440 SYSTEM DESCRIPTION	19
4 INSTALLATION	20
4.1 TRANSPORTATION	20
4.2 INSTALLATION	20
4.3 POST INSTALLATION ADJUSTMENT INSTRUCTIONS	23
4.3.1 DT-440 systems	23
5 THE CONTROL PANELS	25
5.1 MAIN CONTROL PANEL	25
5.2 CONSTANT HEAT CONTROL PANEL (OPTION)	26
5.3 UNIFLOW CONTROL PANEL	27
6 GENERAL OPERATION OF THE DESKTOP SYSTEM	28
7 MAINTENANCE AND REPAIR	28
7.1 ADJUSTMENTS	28
7.2 FORCE CONTROL (OPTION)	29
7.2.1 Head down speed after very low to very high force changes	29
7.2.2 Head down speed after very high to very low force changes	30
7.3 PREVENTIVE MAINTENANCE	30
7.3.1 Daily Maintenance	31









AMADA MIYACHI EUROPE

7.3.2 Weekly Maintenance.....	32
7.3.3 Monthly maintenance.....	33
7.4 TECHNICAL MAINTENANCE.....	33
7.4.1 Fuse checks	33
8 CALL AMADA MIYACHI EUROPE.....	34

1 SAFETY PRECAUTIONS

1.1 GENERAL SAFETY PRECAUTIONS

	<p style="text-align: center;">WARNING</p> <p>Read this manual carefully before doing work on the Desktop system. Your supplier has no liability for injuries, damage and/or excessive wear, due to incorrect maintenance, unintended use, modifications and deactivation of safety devices.</p>
	<p style="text-align: center;">WARNING</p> <p>The Desktop system and its safety devices must not be modified or changed without written permission from your supplier.</p>
	<p style="text-align: center;">WARNING</p> <p>It is forbidden to install the Desktop system in an area with a possible explosive hazard due to chemicals or gases.</p>
	<p style="text-align: center;">NOTE</p> <p>If the Desktop system is being used by a third party, you, as the owner/user, are responsible unless it is agreed otherwise.</p>
	<p style="text-align: center;">WARNING</p> <p>Repair or maintenance of electrical circuit or component must only be done by qualified and trained personnel. Covers must only be removed and installed by a qualified technician.</p>
	<p style="text-align: center;">NOTE</p> <p>Figures in this manual may not be exactly as shown.</p>

1.2 WARNINGS ON THE DESKTOP SYSTEM:

To warn the user/owner of the Desktop system for certain dangers/risks several warning pictograms have been mounted on the Desktop system.

Table 1: Pictograms on the Desktop system

	Warning: There is a risk of direct or indirect contact to live parts. Access is only allowed for technically qualified personnel. Labels are placed on the outside and the inside of the system and on connection boxes near to live parts.
	Warning: Risk of getting crushed between moving parts. Labels are placed near moving parts.
	Hot surface: Burning risk at the thermode and machine covers. Make sure that the machine has cooled sufficiently before you carry out maintenance work.
	General safety symbol Ensure the machine is only switched on when all the guards are in place. Keep the machine work table free of obstacles.
	Earth (Ground) point The label is placed on the left side of the system.
	Warning: There is a risk of direct or indirect contact with live parts when covers are open. Labels are placed on the outside of the control cabinet.
	Warning for maintenance and repair to make sure the main switch on the rear of the system cannot be switched on unintentionally.
	Recycling note: All parts of the Desktop system must be removed for recycling in accordance with local regulations, preferably to a company that can enable reuse of the materials.

	<p>NOTE: Regularly check if all pictograms are still in place on the unit. If they are not, replace them as quickly as possible.</p>
---	---

2 INTRODUCTION


2.1 GENERAL


This user manual makes sure new users are familiar with the operating and maintenance procedures, while experienced users may use this document as a reference work. References to other documents are made when necessary. Operators and technicians using the machine for the first time should study this manual carefully, in particular the safety instructions given in section 1. Additional training by **Amada Miyachi Europe** is recommended if the user wants to become quickly familiar with the system. The training course consists of, among other things, training in the completely independent operation of the system. Knowledge transfer should not only take place by circulating this manual among the operators, but by practising with the equipment and doing practical work with the machine.


The manual is based on current techniques. **Amada Miyachi Europe** retains the right to make changes to the documentation without being obliged to alter all previous versions.

Keep this instruction manual carefully for future use.

To underline certain subjects or actions the following markings are used in the text.

	<p>NOTE The statement concerned is to draw the user's attention to possible problems.</p>
---	--

	<p>WARNING If the procedure is not performed carefully the users can injure themselves or others or seriously damage the system.</p>
---	---

	<p>NOTE Figures in this manual may not be exactly as shown.</p>
---	--

Also pay special attention to the following:

- Ensure a clean working environment with adequate illumination
- Keep the control cabinets closed during normal use
- Only use original components supplied by **Amada Miyachi Europe**.

The Desktop system is built for simple and efficient operation. However you must take note of the contents of this manual and act accordingly. All personnel who work on or in the vicinity of the installation must be aware of these instructions.

In addition to the instructions in this manual, all current general safety regulations and conditions must be obeyed.

Competent persons are persons who:

- have a certain level of knowledge gained by training/education
- have certain skills necessary to operate the Desktop system.

The operator has to be a competent person.

Qualified technicians are persons who:

- are competent
- have a certain level of technical knowledge gained by training/education
- are familiar with the techniques used in the unit
- are aware of the possible risks (trained **Amada Miyachi Europe** personnel).

	<p style="text-align: center;">WARNING</p> <p>The installation, technical maintenance, repair and removal and removal of components may only be done by qualified technicians, unless specified otherwise.</p>
---	--

Desktop system operators are competent persons responsible for controlling the machine, cleaning the unit and simple maintenance operations.

Desktop system qualified technicians are responsible for the installation, setting up and other maintenance operations.

The purpose of this user manual is to create a safe and an efficient interaction between man and system.

2.2 INTENDED USE

The Desktop is a system for the manual loading and unloading of the parts that are then processed under fully automatic control.

The system can be used for Hot-Bar Reflow soldering, Heat-Seal Bonding, ACF laminating and ACF Bonding.

The system has been developed for joining various product components.

The correct operating conditions are described in this user manual.

**WARNING**

Your supplier has no liability for injuries, damage and/or excessive wear, due to incorrect maintenance, unintended use, modifications and deactivation of safety devices.

2.3 PRINCIPLE OF OPERATION

The system is a Desk-top system and is built on a chassis with integrated controls. The machine operator is responsible for the manual positioning of the product components.

The alignment of the product components is done in a fixture, using a micrometer screw, one or more dowel pins and/or an optional camera-monitor system.

After the product components are positioned, the system is operated by the start button or buttons. The joining cycle will then be carried out. When the joining cycle is completed, the product must be removed from the system by an operator.

The principle of the bonding system is the bonding of products by controlled movements of a thermode, thus creating a known force, at a preset temperature and time.

The joining cycle is as follows:

The thermode moves down in the Z-axis under pneumatic or motorised control. It is then heated until the preset temperature has been reached. The joining operation is carried out at a constant thermode temperature. The thermode will then move up and the system is ready for the next joining cycle.

2.4 SOUND LEVEL

The sound level has been measured in accordance with the Machine Directive requirements.

The A-weighted equivalent continuous sound pressure has been measured at the working place during normal operating conditions. The sound level has been measured at a distance of one metre from the machine and at a height of 1.60 m above the reference plane. The measured A-weighted equivalent continuous sound pressure level (L_{Aeq}) does not exceed 70 dB(A).

2.5 SYSTEM REQUIREMENTS

The equipment requires no special foundation. A level table or bench strong enough to support the system is sufficient. When used in production, the machine and the adjacent area must be well illuminated.



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2.6 SPECIFICATIONS – AIR AND ELECTRICAL SUPPLIES

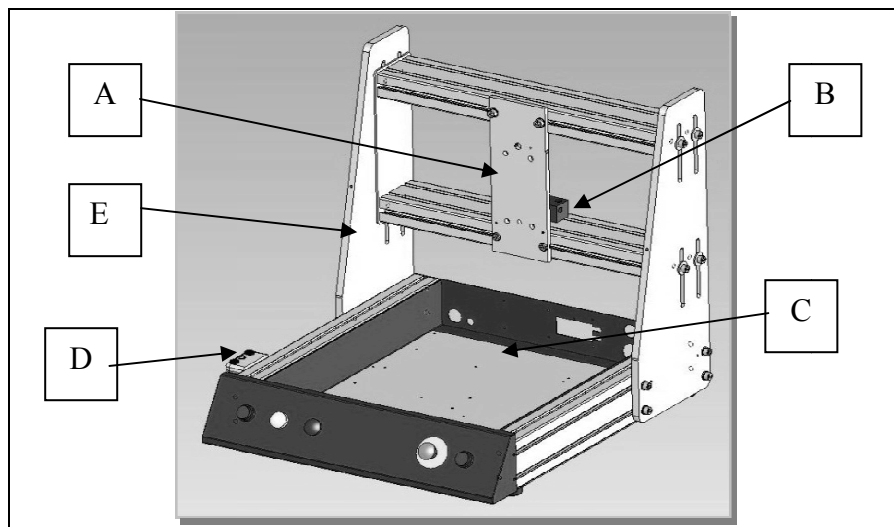
General	
Weight Joining system	40 kg / 88 Lbs (Excluding external heat source)
Dimensions Joining system	System: Heat Source:
Depth	600 mm / 23.62 Inch
Width	550 mm / 21.65 Inch
Height	510 mm / 20.04 Inch
Maximum fixture height	80 mm / 3.15 Inch
Gantry open width	520 mm / 20.47 Inch
Fixture assembly base plate	160x160 mm / 6.30x6.30 Inch
Starting operation	Two hand control
Operating temperature	15-40 °C / 60-104 °F
Operating humidity	93%@40 °C / 93%@104 °F
Connection requirements	
Input voltage Uniflow	230 Vac, 50 Hz, 1-Phase / earth / zero
Main fuse	16 A max, type C or D delay fuse
Input voltage Desktop (see note below)	230 Vac, 50 Hz, 1-Phase / earth / zero
Main fuse	4 A max, type C or D delay fuse
Compressed air required	6 bar, dry & filtered air
Machine data	
Maximum peak current (Uniflow)	16 A
Peak power (UNIFLOW)	3.5 kw
Maximum peak current (Desktop)	4 A
Peak power (Destktop)	300 W
Control voltage, internal	12 Vdc, supplied by the transformer (option)
Control voltage, internal	24 Vdc, supplied by the transformer (option)

Note: Electrical supplies in non-European countries will be different.

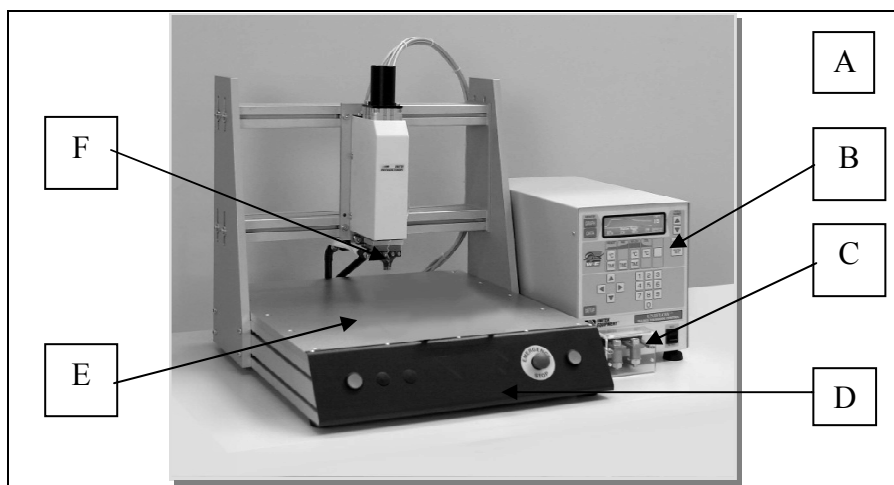
3 CONSTRUCTION

3.1 GENERAL CONSTRUCTION

The Desk Top (DT) systems consist of several parts, the main ones of which are shown below.

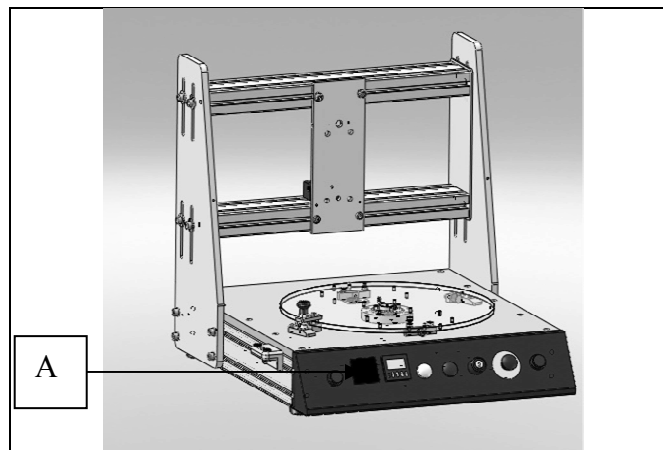


- A. Left/right and rotation head adjustment plate
- B. Power cable connection block
- C. Electrical control drawer
- D. Wrist strap earth (grounding) point
- E. Portal (front/rear adjustment of the bond head)

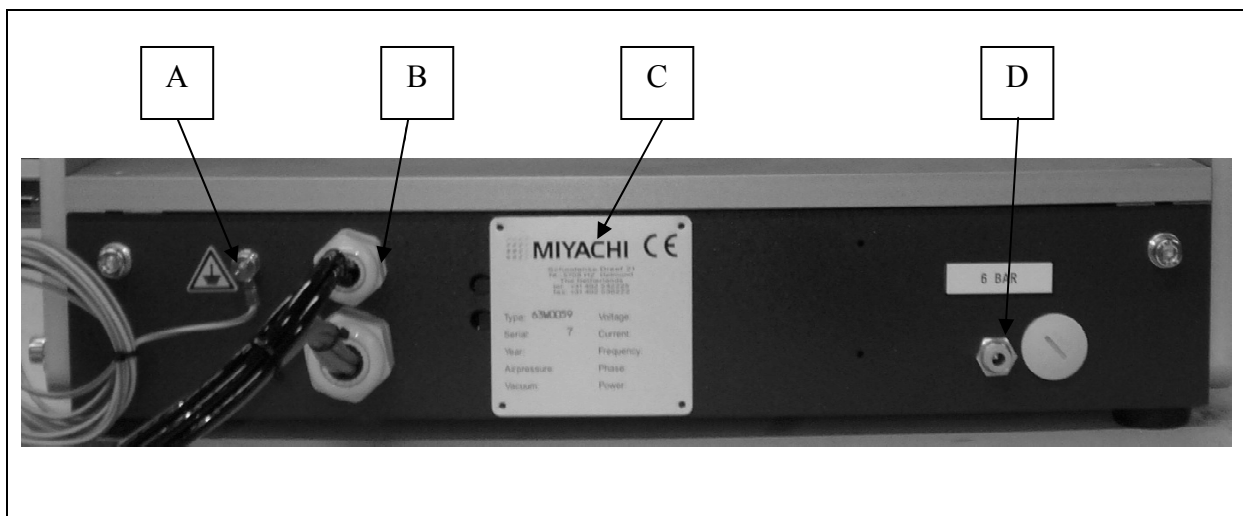


- A. Pneumatic head (80N or 500N)
- B. Uniflow power source
- C. Safety cover power cables (option)
- D. Control panel
- E. Base plate
- F. Quick Connect Block (QCB) and Thermode

Note: For more details about the pneumatic bonding head, refer to manuals 69H0082 (80N) or 69H0504 (500N).

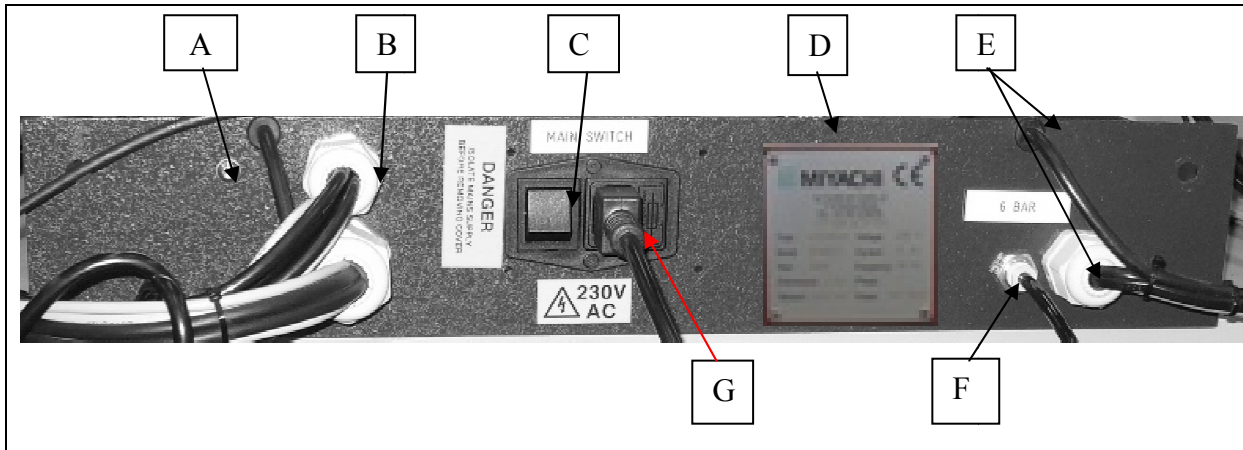


A constant heat control panel is shown at position (A). It may be installed in other positions. Note that this is an option.



Rear panel (no camera option)

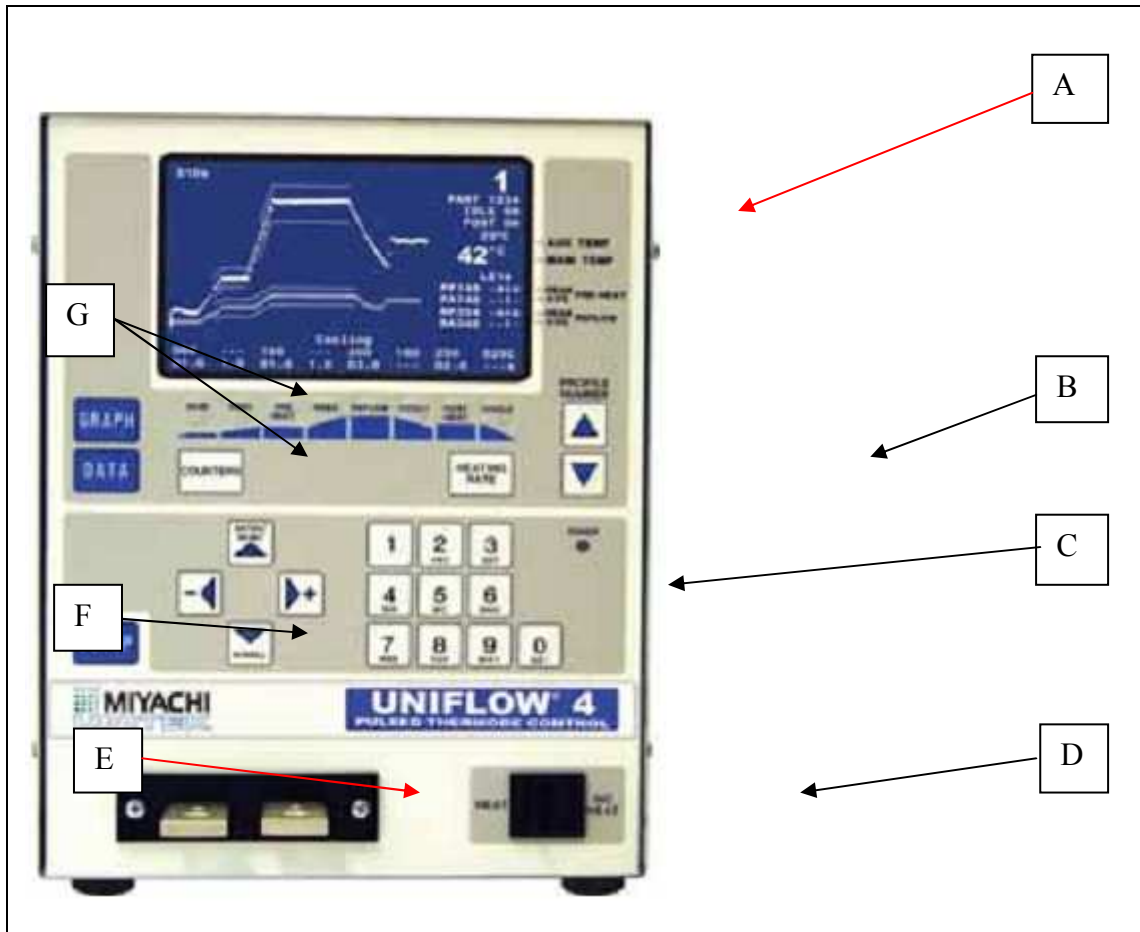
- A. Earth (ground) connection
- B. Power input and data cables from the Uniflow
- C. Data plate and CE conformation
- D. Pneumatic input connection



Rear connection panel (with camera option)

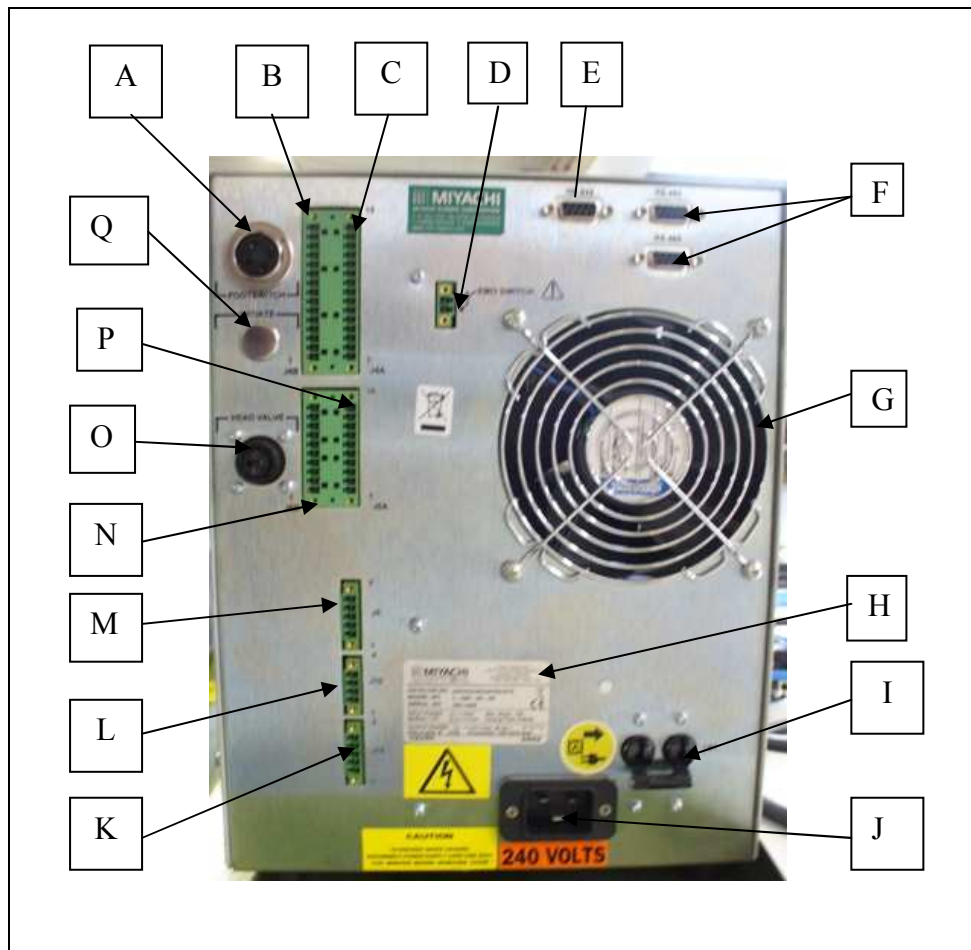
- A. Earth (ground) connection
- B. Power input and data cables from the Uniflow
- C. Mains switch
- D. Data plate and CE conformation
- E. Pneumatic and electrical control cables
- F. Pneumatic input connection
- G. Mains input connector

Note: The illustrations above may not be exactly as shown.



Uniflow 4 (front view)

- A. LCD display
- B. Profile number selection
- C. Keypad
- D. Heat/No heat switch
- E. Transformer connections
- F. Set up switch
- G. Data edit areas



- A. Foot firing switch (option)
- B. J4B firing home switch/in position sensors/start switches
- C. J4A control functions (miscellaneous)
- D. EMO switch
- E. RS-232 connector
- F. RS-485 connectors
- G. Fan outlet
- H. Serial number and CE plate

- I. Main switch/circuit breaker
- J. Mains input connection
- K. J15 connector
- L. J10 connector
- M. J9 connector
- N. J6B Z-axis valve/cool valve
- O. Head valve
- P. J6A relays
- Q. Initiate

3.2 TAPE INTERPOSER MODULE (OPTION)

If this option is installed, refer to the applicable manual.

3.1 ACF MODULE (OPTION)

If this is installed, refer to the applicable manual.

3.2 SAFETY MEASURES AND DEVICES

For a list of the system pictograms, refer to table 1 of this manual. Make sure you obey the warning and caution instructions in this table.

3.2.1 Protection guards

The two-hand control is designed in such a way that the operator is protected from crushing and burning. It also prevents the unintended starting of the bonding process. When the head is moving down or the turntable is moving, there is a danger of crush injuries.

3.2.2 Hot parts

If the thermode is touched there is a danger of burn injuries as the temperature of the thermode can rise to 600 deg C. The thermode area has an optional shield and a warning pictogram is placed on the head guard.

3.2.3 Electrical safety

The Desktop system using pulsed heat is not provided with a main switch. The system power is controlled by the Uniflow. The Desktop system using constant heat control has no mains switch and before work is done, the complete desktop must be disconnected from the main supplies, particularly if the desktop system has its own power supply.

3.2.4 Emergency stop

The Desktop system is equipped with one emergency stop push button which is mounted on the front of the machine. Activation of the emergency stop button will stop all machine movements, but if the bond head is in the down position it will rise. Additionally, the main supply must be disconnected to isolate the constant heat controller.

	<p style="text-align: center;">CAUTION</p> <p>If you push the red button when the head is in the down position, it will move up.</p>
---	--

Power supply and compressed air will be removed from certain parts of the machine immediately.



NOTE

Push the red button to activate the emergency stop.
Deactivate the emergency stop by turning it counter clockwise.

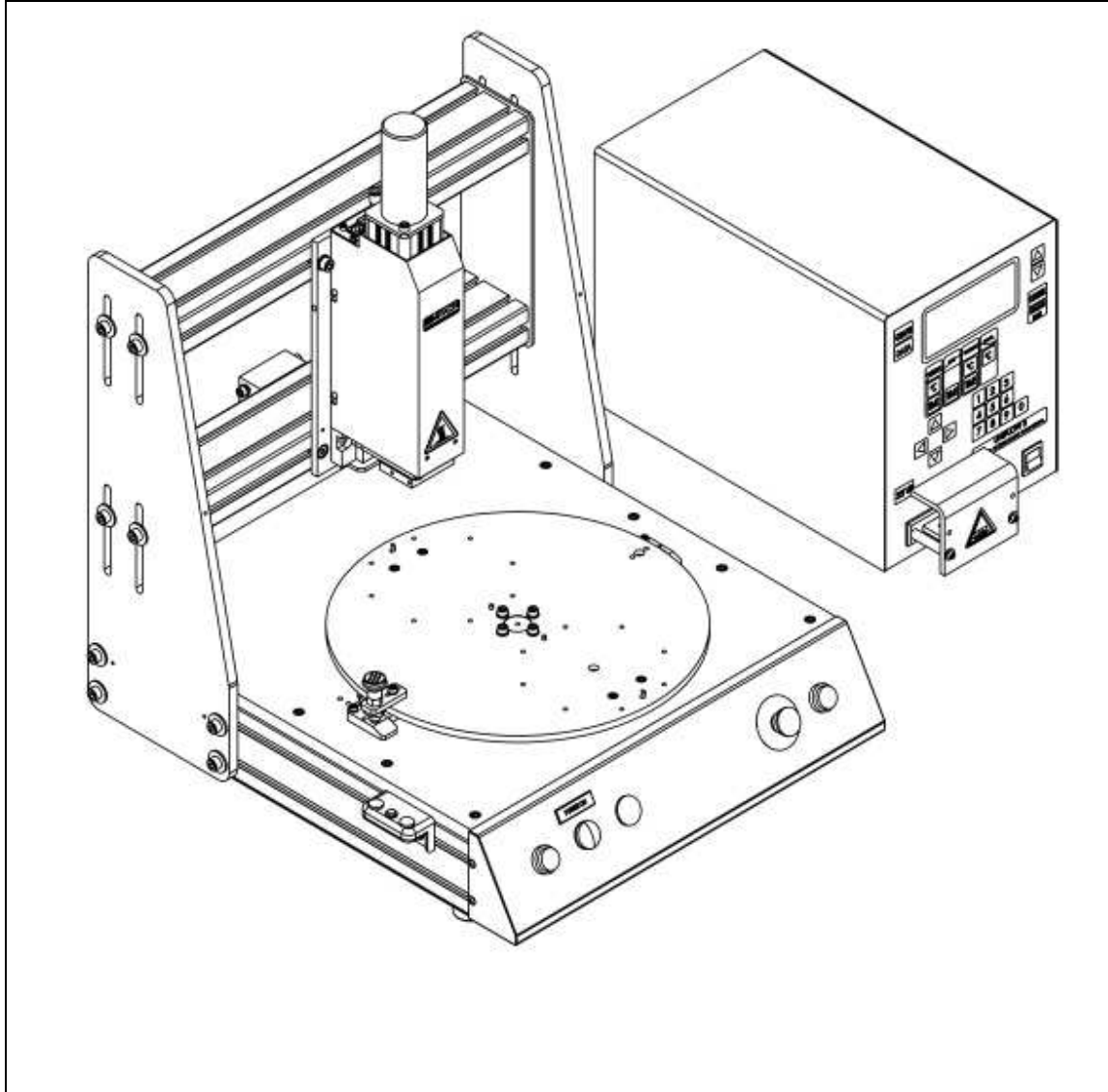
3.3 CERTIFICATION

The Desktop system and this manual have been designed, constructed and tested according to the European directives. During all these phases the relevant European standards have been taken into account. The CE-mark has been mounted on the unit. The directives and the standards mentioned are enumerated in the EC-Declaration of Conformity.



Typical CE plate

3.4 DT-440 SYSTEM DESCRIPTION



The DT-440 is a system with a manual rotated turntable. The rotary table enables the easy loading, positioning and unloading of the parts. This is done with the fixture at the front of the turntable. The fixture is then manually rotated to the rear position to bond the parts.

For safety reasons, a sensor checks if the table is in the correct position for the bonding process. Only then can the process cycle be started. The bonding position is set at Miyachi so the thermode is positioned exactly above the bonding area.

4 INSTALLATION

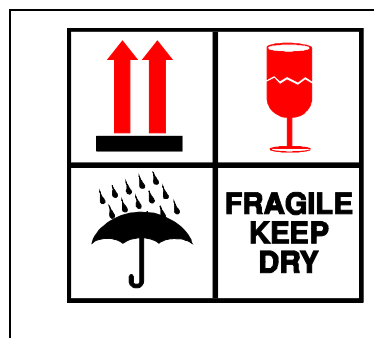
4.1 TRANSPORTATION

The system can easily be transported by two persons, after the separate units are disconnected.

	<p style="text-align: center;">CAUTION</p> <p>The transportation and handling of the desktop system must be carried out carefully to avoid any damage.</p>
---	---

The Desktop system will arrive in a crate. This packaging should be opened carefully.

Follow the steps in section to allow for the safe removal of the system from the shipping crate.




4.2 INSTALLATION

This section describes the installation and adjustment of the Desktop system and is only to be carried out by qualified technicians.

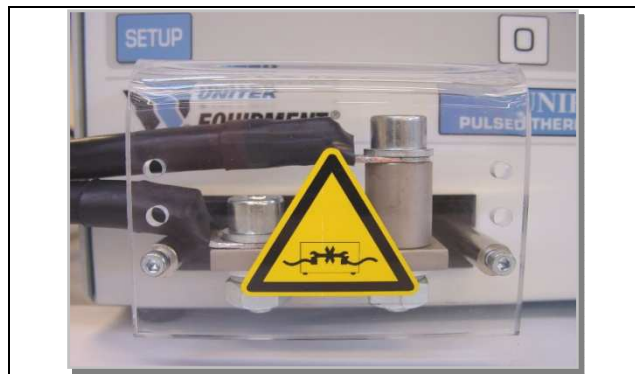
	<p style="text-align: center;">NOTE</p> <p>The illustrations that follow may not be exactly the same as your system, but the process is the same.</p>
---	--

	<p style="text-align: center;">CAUTION</p> <p>The installation and adjustment of the desktop system must only be carried out by a technically trained person.</p>
---	--


1. Remove packaging materials without causing litter in the adjacent areas.
2. Check the unit for possible damage. If any damage is found, contact your supplier.
3. Remove the cable tie from the head.
4. Do a check of the installation area.
5. Install the machine on a level surface and locate the units in an orderly manner.

	<p style="text-align: center;">CAUTION</p> <p>The cables must be connected correctly to ensure optimal current flow.</p>
---	--

6. Remove the Uniflow cable cover if applicable.



7. Clean the cable connectors.
8. Connect the two thermode power cables. Make sure you connect them with the correct nuts and washers.
9. Connect the system and the Uniflow to the electrical power supply. The unit requires one of the following power sources, depending on the country:
 - 230 Vac 50/60 Hz 1-Phase power supply (Europe)
 - 208 Vac 50/60 Hz 2- Phase power supply (US)
 - 120 Vac 50/60 Hz 1- Phase power supply (US).

	<p style="text-align: center;">NOTE</p> <p>The supply must be protected by fuses. Before switching on the unit, make sure the voltage and frequency given on the type label of the unit are in accordance with the local power supply</p>
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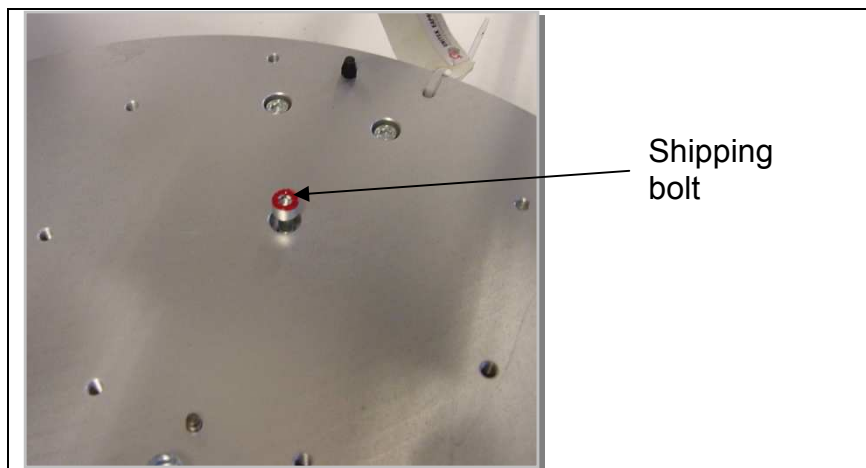
NOTE

If constant heat control is installed, the TTM-04 control panel is as shown below. If this is installed, it is essential that the earth connection of the controller is connected to the thermode.

The constant heat control is an option.



10. Connect the unit to the compressed air system. The connection is located at the right rear of the Desktop system.
11. Make sure the unit is supplied with constant dry, clean air (6 +/- 0.5 bar). The system will work at a minimum pressure of 5.0 bar, but the pressure must not go below this level. A shut off valve must be used to isolate the Desktop system from the compressed air system.




12. For DT-440 systems, if the system is delivered without product supports, **make sure you remove the shipping bolt.**
13. If the customer product supports are installed, remove the cable ties that lock the turntable.

After completion of the installation and adjustment of the system, all the employees concerned must be trained by the installer with regard to:

- construction
- supervision
- functioning of the system
- maintenance
- safety measures
- specifications

All of this information is provided in this user manual.

	<p style="text-align: center;">NOTE</p> <p>Put this manual so that it is easily available when the unit is in operation.</p>
--	--

	<p style="text-align: center;">CAUTION</p> <p>If the system is removed and then installed in another place the safety measures described in this chapter must to be taken into account.</p>
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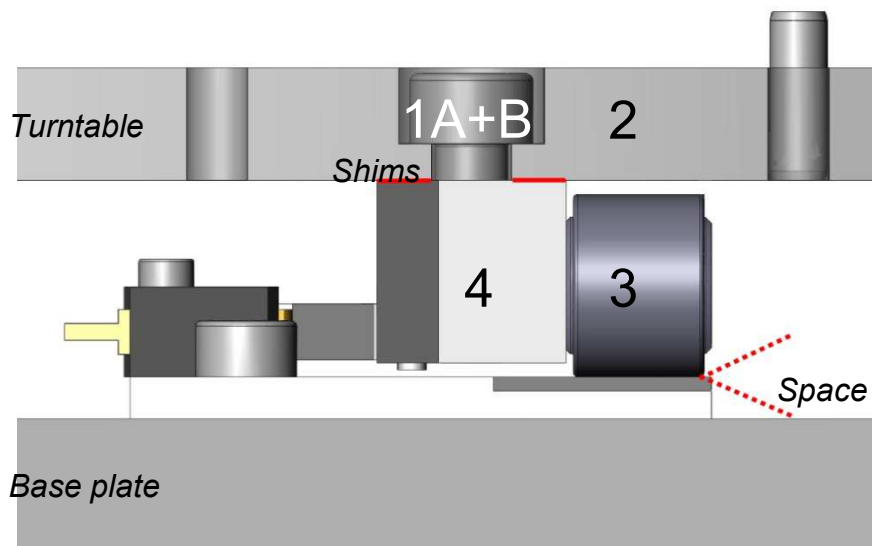
4.3 POST INSTALLATION ADJUSTMENT INSTRUCTIONS

This section describes the post-installation adjustment of the Desktop system and is only to be carried out by qualified technicians.

4.3.1 DT-440 systems


Do the adjustments of the Bond head in accordance with the applicable manual: 69H0082 (80N) or 69H0504 (500N). If a force control option is fitted, refer to chapter 7.2.

The turntable stop positions are set on production. If no product support is provided, the thermode height is set at approximately 40mm above the turntable. The steps that follow show how to set the turntable height. Further adjustments can be made by Miyachi trained persons.



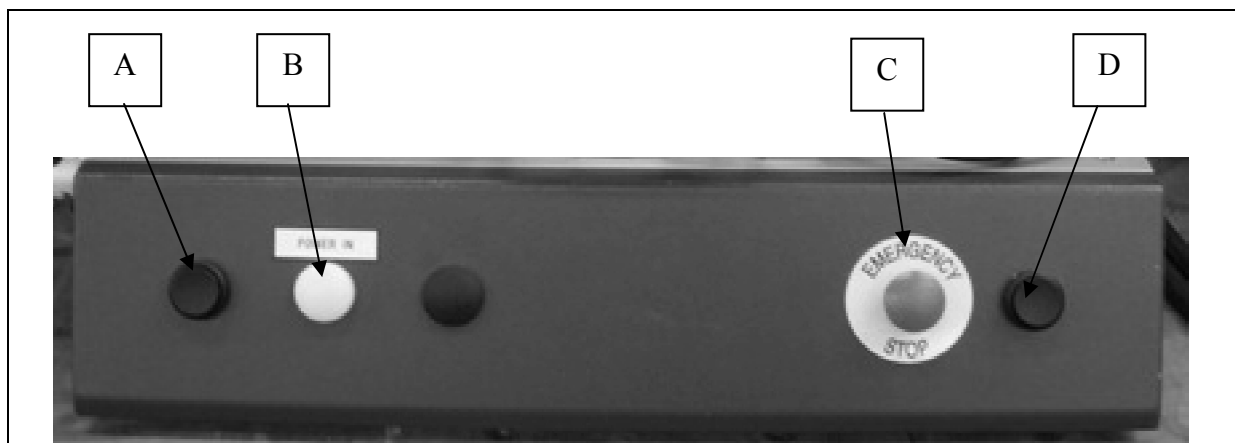
1. Turn the turntable clockwise to position 1 (operators position)
2. Use a feeler gauge to check the gap between the support surface on the base plate and the roll pin (3).
3. Turn the turntable counter-clockwise to position 2.
4. Check the gap (marked 'Space')
5. If the gap > 0.01mm go to step 6. If it is not, no correction is necessary.
6. Remove the two bolts 1A and 1B.
7. Remove the block 4.
8. Fill the space with shims (refer to the red lines in figure 16)
9. Install the block 4.
10. Tighten the two bolts 1A and 1B.
11. Turn the turntable to the corrected position 1 and check the gap.
12. If necessary, repeat the shimming.
13. Do steps 6 thru 12 for the other side.

5 THE CONTROL PANELS

	<p style="text-align: center;">CAUTION</p> <p>The desktop system may only be operated if all components are completely and correctly installed.</p>
---	--

Before the Desktop system is operated, it must first be installed and adjusted in accordance with the instructions in chapter 4.

5.1 MAIN CONTROL PANEL



- A. Left button two-hand control
- B. Power In indicator
- C. Emergency switch
- D. Right button two-hand control

5.2 **CONSTANT HEAT CONTROL PANEL (OPTION)**

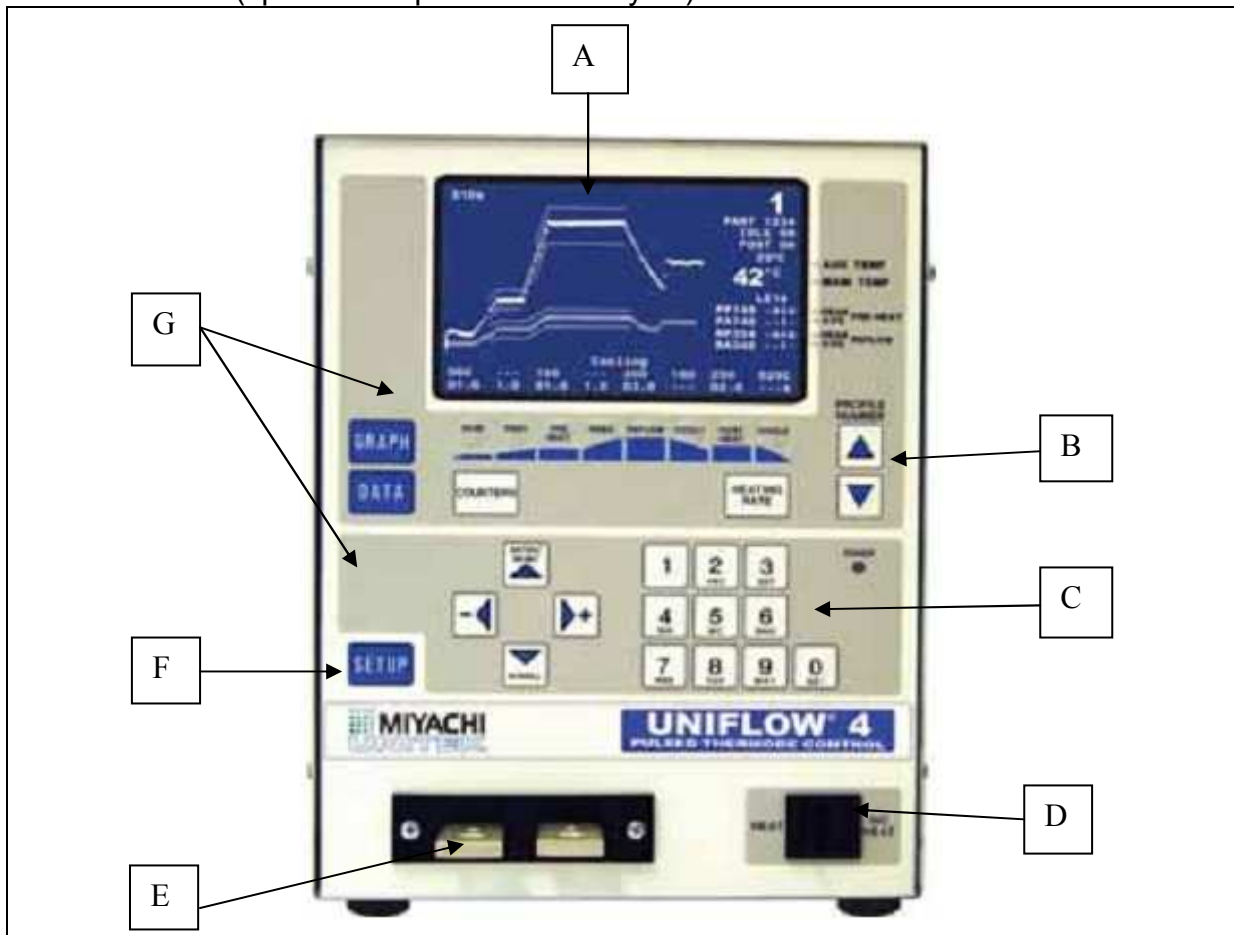
If constant heat control is installed, the TTM-04 control panel is as shown below. It can be installed at various positions on the system, but it is essential that the earth connection of the controller is connected to the thermode.



Refer to the TOHO TTM-004 manual for setting instructions.

5.3 UNIFLOW CONTROL PANEL

This control panel is used to enter and readout parameters for the joining characteristics (specific temperature time cycle).



Uniflow4

- H. LCD display
- I. Profile number selection
- J. Keypad
- K. Heat/No heat switch
- L. Transformer connections
- M. Set up switch
- N. Data edit areas

Refer to the Uniflow operating manual to set the parameters.

6 GENERAL OPERATION OF THE DESKTOP SYSTEM

	<p style="text-align: center;">NOTE</p> <p style="text-align: center;">The detailed operation is customer dependent</p>
---	---

The Desktop system is operated in combination with a two-hand control.


1. Make sure the air supply is set to on.
2. If applicable, set the vacuum supply to on.
3. On pulsed heat systems, raise the Uniflow power source main switch to the on position. On constant heat systems, make sure the correct temperature for the product cycle is set.
4. Make sure the emergency stop is deactivated. If it is not, turn it counter-clockwise to deactivate it.
5. Clean the parts to be connected.
6. Position the parts to be connected on the fixture block. Make sure they are correctly aligned with the thermode.
7. Press the two-hand control to start the bonding cycle.
8. After the bonding cycle is completed, remove the finished product.
9. Do steps 4 thru 7 for the next product.
10. When production is completed, press the emergency stop button (D, figure 9).
11. Lower the Uniflow power source main switch to the off position
12. Set the air pressure supply to off.
13. If applicable, set the vacuum supply to off.

7 MAINTENANCE AND REPAIR

7.1 ADJUSTMENTS

These are described in the related manuals, but force and speed adjustments can be done by a qualified operator.

It is possible for the operator to manually set the head vertical speeds. The speed up is set as part of the production cycle. The speed the head moves down is very important to prevent damage to the product.

	<p style="text-align: center;">CAUTION</p> <p style="text-align: center;">Make sure the head down speed is adjusted before you move the fixture under the thermode. If you do not obey this instruction, you may cause serious damage to the system.</p>
---	--

7.2 FORCE CONTROL (OPTION)

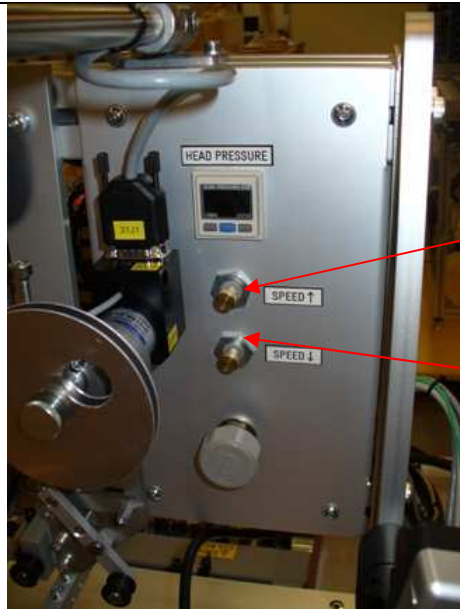
7.2.1 Head down speed after very low to very high force changes

This is applicable when the force is typically adjusted from <100N to >100N and the descent and lifting speeds will be very high.



CAUTION

Make sure both the head up and head down speed adjustment knobs are fully closed before the adjustment. If you do not obey this instruction, you may cause serious damage to the system.



A

B

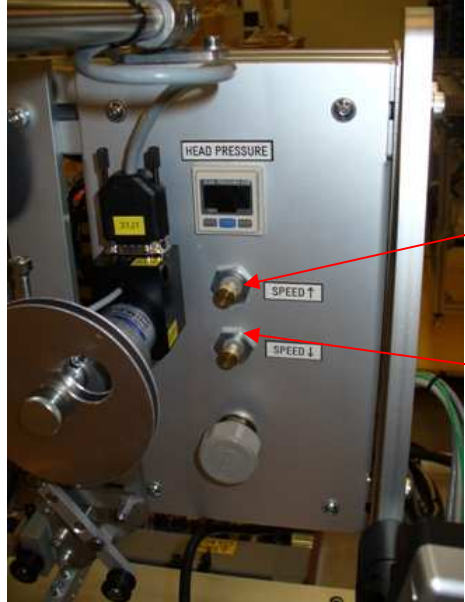
1. Turn the Speed up knob (A) on the control panel fully clockwise to close it.
2. Turn the Speed down adjustment knob (B) on the control panel fully clockwise to close it

1. Press the two hand controls. The head will move down. Observe the speed down.
2. Release the two hand controls and observe the speed up.
3. Gradually turn the Speed down adjustment knob (B) counterclockwise to increase the down speed.
4. When the head is down.
5. Gradually turn the Speed down adjustment knob (B) counterclockwise to increase the up speed.
6. Do steps 3 thru 7 until both the down and up speeds are optimal.

7.2.2 Head down speed after very high to very low force changes

This is applicable when the force is typically adjusted from :200N to <100N and the descent speed will be very low.

1. Press the two hand controls. The head will move down. Observe the speed down.
2. Release the two hand controls and observe the speed up.
7. Gradually turn the Speed down adjustment knob (B) counterclockwise to increase the down speed.
8. Gradually turn the Speed down adjustment knob (B) counterclockwise to increase the up speed.
9. Do steps 1 thru 8 until both the down and up speeds are optimal.

	<ol style="list-style-type: none"> 1. Gradually turn the Speed down adjustment knob (B) counterclockwise to increase the down speed. 2. When the head is down. Press the F5 button again. 3. If necessary, adjust the HEAD UP speed adjustment knob (A) to set the up speed
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7.3 **PREVENTIVE MAINTENANCE**

It is essential for high level performance of the system to do regular maintenance in accordance with the manufacturer's instructions. This will prevent unplanned downtime.

	<p>CAUTION</p> <p>Do not replace parts yourself but contact a qualified technician</p>
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	<p style="text-align: center;">WARNING</p> <p>Preventive maintenance may only be done by qualified, trained persons</p>
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The materials, parts, and tools necessary for the maintenance of the Desktop system are not provided by **Miyachi Europe Corporation**. Cleaning and preventive checks however, could identify possible problems.

Cleaning and preventive checks though could identify and prevent possible problems.

7.3.1 Daily Maintenance

Item	Maintenance	Action
Fixture	- Clean and remove dust from parts:	- Use damp cloth / vacuum cleaner
Thermode	- Remove contamination: - Check plan parallelism:	- Thermode cleaning module 61W0002; - Polishing disk 69C0000 Use pressure paper 67W0003 or use low pressure paper; 67W0023
Control box	- Clean and remove dust from parts	- Disconnect system from power supply; - Use clean cloth (& tweezer).
Thermode head	- Clean and remove dust from parts:	- Disconnect system from power supply; - Use damp cloth
Power supply	- Clean and remove dust from parts:	- Disconnect system from power supply; - Use damp cloth
Emergency control system	- Make sure the complete system is disconnected from the power supply	- Press all emergency stop push buttons in sequence.

7.3.2 Weekly Maintenance

Item	Parts	Action/maintenance
Electrical cables and wiring	<ul style="list-style-type: none"> - Clean and remove dust from parts - Check: <ul style="list-style-type: none"> - weak connections: - bad fuses: - error messages: 	<ul style="list-style-type: none"> - Disconnect system from power supply; - Use clean cloth / clear water. - Disconnect system from power supply: - Make new / better connection. - Replace fuse. - Consult user's manual.
Sensors - Position - Mechanical functions	<ul style="list-style-type: none"> - Check sealing: - Bad connection: 	<ul style="list-style-type: none"> - Disconnect system from compressed air supply; - Use appropriate tools. - Use clean cloth / compressed air.
Slides & bearings	<ul style="list-style-type: none"> - Clean and remove dust from parts - Rust: 	<ul style="list-style-type: none"> - Use compressed air, clean cloth, lubricants or clean water. - Use lubricants to grease (check slide & bearing specifications!)
Mechanical connections	<ul style="list-style-type: none"> - Check all mechanical connections on the system: 	<ul style="list-style-type: none"> - Use appropriate tools.
Performance	<ul style="list-style-type: none"> - Check positions and settings 	<ul style="list-style-type: none"> - Consult: <ul style="list-style-type: none"> - setting parameters power source; - table parameter list power source - machine parameter list; - machine calibration data

7.3.3 Monthly maintenance

Item	Parts	Action/maintenance
Calibration	<ul style="list-style-type: none"> - Force calibration: - Temperature calibration: - Check plane parallelism thermode: 	<ul style="list-style-type: none"> - Use load cell 67W000-0-1-2; - Consult user's manual. - Use readout 67W0007 / 67W0008 with the related Miyachi thermocouple - Consult user's manual. <p>Use pressure paper 67W0003 or use low pressure paper 67W0023</p> <ul style="list-style-type: none"> - Consult user's manual.

7.4 TECHNICAL MAINTENANCE

7.4.1 Fuse checks



WARNING:
The fuse checks may only be done by qualified, trained persons




WARNING:
The main switch must be set to the on position.

If a red light shows, the glass fuse is broken. Refer to the electrical drawings for details.

8.3 Lubrication

The Desktop system has no parts that need service / adjustment / lubrication during normal operation.

	<p style="text-align: center;">WARNING</p> <p>The removal and installation of parts, technical maintenance and repair may only be done by qualified, trained persons, unless specified otherwise.</p>
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Contact **Amada Miyachi Europe** for maintenance activities. Conditions will be provided after receipt of the information or requirements.

8 CALL AMADA MIYACHI EUROPE

After receipt of an emergency call at **Amada Miyachi Europe**, the caller will be informed of the start of the action necessary to solve the problem.

At all times the first attempt at solving the problems will be by telephone with an **Amada Miyachi Europe** authorised person. We have highly qualified technicians who can help you to solve your problem.

Amada Miyachi Europe
Schootense Dreef 21
P.O. box 164
NL-5700 AD HELMOND
The Netherlands
Phone: +31 (0) 492 54 22 25
Fax: +31 (0) 492 53 62 22
E-mail: info@amadamiyachieurope.com
Internet: www.amadamiyachieurope.com