

# *MICRO WELDER INSTRUCTION MANUAL*



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# 1. Safety

## 1.1 Safety instructions

The accident prevention regulations (VBG) of the responsible professional associations must be observed!

### **Warning!**

It is strictly prohibited to make safety devices inoperable!

## 1.2 Safety measures (undertaken by the operator)

- These operating instructions are an integral part of the machine.
- They must be available to the operating personnel at all times.
- They must be read and understood before the machine is set into operation.
- The corresponding references to danger and information must be observed.
- Requirements of the owner regarding the machine operators and maintenance personnel:
- They must be instructed with regard to the machine's protective devices.
- They must be trained with regard to safe working methods.
- The observation of safety measures must be monitored.
- Personnel must be provided with the appropriate tools and testing facilities.

## 1.3 Safety regulations

The system was built in compliance with EC regulations.

### **Harmonised standards:**

EN 50199:1995 EN 61000-3-2:2000 EN 61000-3-3:1995+A1: 2001

## 1.4 Built-in safety systems

There is a main switch on the front side of the system. It separates the system from the power supply

# 2. General danger information

## 2.1 Danger areas

- A distance of at least 0.5 m from the machine is defined as a danger area as this is the space that it required by operating personnel to complete their work.

### **Note**

The protection of the machine becomes unreliable if it is not operated in keeping with these operating instructions.

The object to be worked on can be positioned freely inside the welding chamber.

The position of the object can be optimized manually, monitored by microscope.

The user's eyes are protected from flashes by a special shutter inside the microscope.

## 2.2 Operating and maintenance personnel

- Operating personnel are people who are responsible for the transport, installation, and operation and cleaning of the machine and for remedying faults.
- The machine must only be operated by competently trained and authorized personnel.
- The responsibilities associated with the operation of the machine must be clearly defined and observed to ensure that there are no uncertainties regarding competence in connection with the safety aspects.
- The switching-off procedure defined in these operating instructions must be observed in connection with all work (operation, cleaning, exchanging spare and accessory parts).
- The work to clean the machine and exchange spares and accessories has been described in these operating instructions in such a manner that they can be understood by people with specialist training in:

Electrical engineering / electronics  
Mechanics / cleaning

- Operators must refrain from all work that could impair the safety of the machine.
- The operator must ensure that no unauthorized people work with the machine.
- The operator must immediately notify the owner of any changes to the machine that could impair its safety.
- The owner is obliged to always maintain a perfect state of the device.

## 2.3 Installation of spare and wearing parts

- We explicitly point out that spare and accessory parts that have not been supplied by RDO Induction have not been tested and released by us. Consequently, the installation and / or use of such products can have a negative influence on the operating characteristics of the machine. The manufacturer cannot be held liable for damage resulting from the use of non-original parts and accessories.

### **Note**

Spare and wearing parts are always replaced completely. They cannot and will not be repaired.  
Return any deficient components to RDO Induction.

## 2.4 Switching the device off

### **Caution!**

Adhere to the following switching-off procedure prior to doing any cleaning or replacement of components:

Set the main switch to OFF or disconnect the device from the mains.

Non-compliance will cause danger to the life of your staff.

### **3. Short description**

The RDO Induction "Micro Welder" was developed to enable everyone to weld and fill small objects with similar-to-laser quality, but with much less financial engagement.

"Micro Welder" enables you to connect and repair all conventional alloys as well as titanium and electro-formed objects.

RDO Induction will not be liable for any use of the system other than the applications described in this manual. RDO Induction will also not be liable for the produced welds. Each user is responsible for checking the quality of their welds.

### **4. Technical Data**

Dimensions:

Width: 390 mm (15 in)

Height: 450 mm (17.7 in)

Depth: 460 mm (18 in)

Weight: 23 kg (50 lbs)

Electrical Ratings:

Mains voltage: 110 V~ 1-Phase

Frequency: 50/60 Hz

Power consumption 1000 W

Disposal of the unit. This unit has been assembled mostly from electronic parts and therefore must be disposed of according to local environmental regulations.

Disposal of material residue. These materials must be disposed of in accordance to the manufacturers' instructions and local regulations.

### **5. Transport and packaging**

RDO Induction's machines and equipment are carefully inspected before they are packed and dispatched. Even so, damage during transport cannot be excluded.

#### **Incoming inspection:**

Check the completeness of the consignment against the delivery note!

Has the packaging been damaged:

Visually inspect the delivery for damage!

In the event of complaints:

If the consignment has been damaged during transport:

Immediately contact the last forwarder and RDO to register the damage.

Please keep the packaging (for possible verification by the forwarder or to return the consignment)

## Packaging for return transport

- If possible use the original package and original packaging material for return transport. If these are no longer available then ensure that the item is packed in a shockproof cardboard box. Please contact RDO Induction if there are any questions concerning the packaging and possible transport.

Storage:

- The packaging for the supplied item is not intended for an extended storage period (up to 1 month).

## 6. Set up / Starting the operation

- Remove the packaging.
- Set up the system on an even, non-skid surface.
- Connect the system to a 110 V~ power supply.
- Connect the system to compressed air supply.
- Connect the system to argon gas supply.

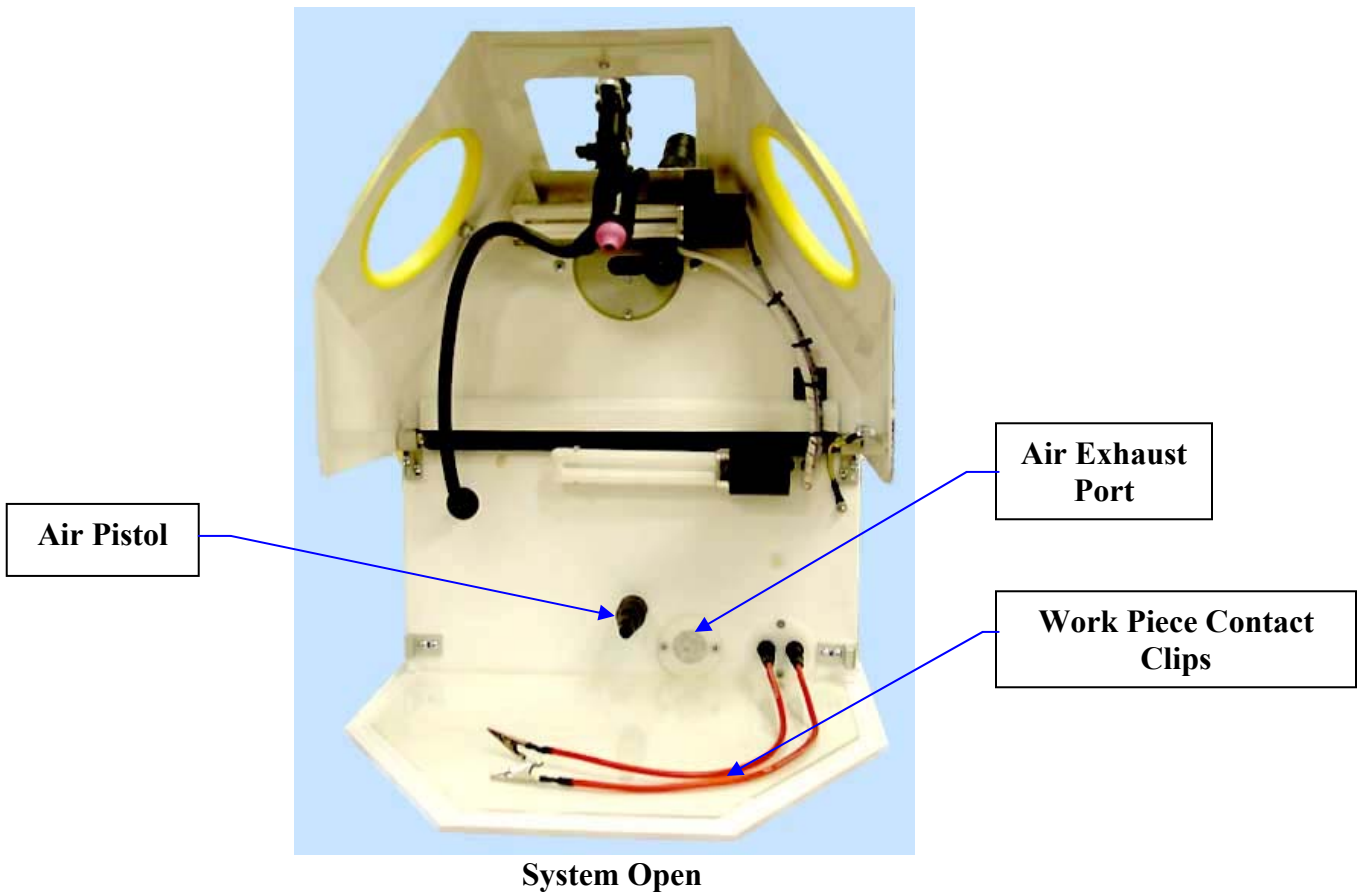
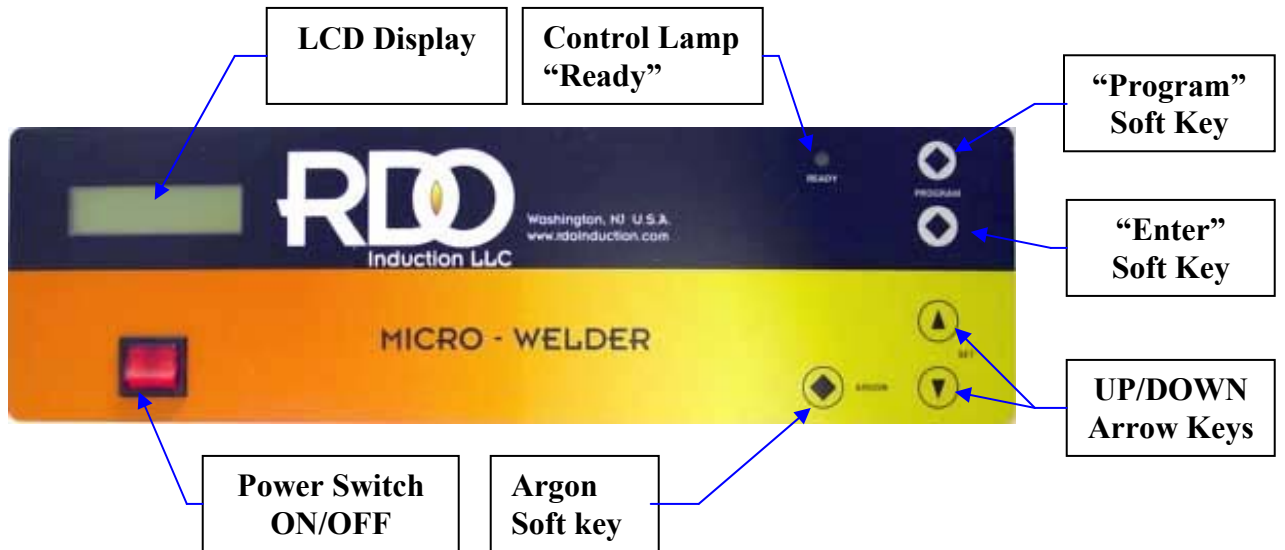


### 6.1 Starting the operation

- Switch on with main switch (acoustic signal, control lamp on).
- Open the main valve of the argon gas container.
- Set the pressure-reducing valve on the argon gas (quality 4.6) container to 4-6 l per minute.
- Press the button "argon" and flood for about 1 sec., if the system has not been in use for some time.

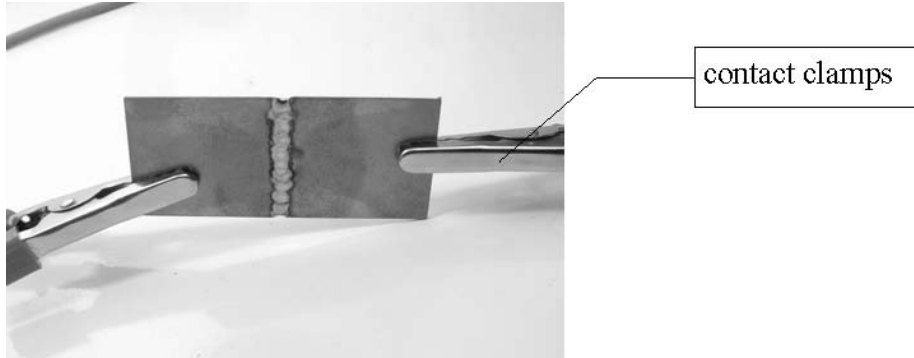
## 7. Operating Elements

### 7.1 Operational field



## 8. Operation

- a) For objects, which are in one piece, only one contact clamp is necessary.
- b) One contact clamp should be applied to objects, which are in two pieces - one contact clamp on each piece.



### 8.1 Selecting the program

Select the desired program by pressing, "program", select with "set" and confirm with "enter".

Program 0 = free selection

Program 1 = basic program titanium/titanium

Program 2 = basic program non-precious alloy/non-precious alloy

Program 3 = basic program high-precious alloy/high-precious alloy

Program 4 = basic program high-precious alloy/non-precious alloy

Program 5 = free selection

### 8.2 Changing a programm

- Press "program"
- Select desired program with "set"
- Call up each parameter by repeatedly pressing "program", they can be changed with "set"

### 8.3 Save programm

- Select desired program with "set"
- Call up each parameter by repeatedly pressing "program", they can be changed with "set"
- Press "program" for 3 sec., an acoustic signal will sound in confirmation

### 8.4 Microscope

Adjust inter-ocular distance and sharpness in order to see the object well.



## 8.5 Sequence of operations

- Set the object into the correct position. The distance to the electrode should be about 1 mm.

### **Attention!**

- If the electrode should be oxidized, the layer must be removed with a surface planing stone.
- The electrode may not come into contact with the object.
- After positioning the object and, if necessary, position the joining material, start the process with the foot switch (control lamp "ready" turns off).
- After the control lamp relights respectively after the acoustic signal, the next shot can be initiated. If the user keeps pressing the footswitch, follow-up shots are possible.

## Pre-Set Programs

| Program  | Power 1 - 10 | Argon 0,5 – 1,5 | Time delay<br>Impulsduration 3ms -<br>99ms |
|--|--------------|-----------------|--|
| Basic program 0 -<br>freely selectable                           |              |                 |  |
| Basic programm 1<br>titanium/titanium                            | 5            | 1,0             | 20 ms                                      |
| Basic programm 2<br>non-precious alloy /<br>non-precious alloy   | 7            | 1,0             | 25 ms                                      |
| Basic programm 3<br>high-precious alloy /<br>high-precious alloy | 9            | 1,0             | 40 ms                                      |
| Basic programm 4<br>non-precious alloy /<br>high-precious alloy  | 9            | 1,0             | 35 ms                                      |
| Basic programm 5 -<br>freely selectable                          |              |                 |  |

### **Note**

If the objects are very delicate (e. g. clasp arms) respectively very large, power and impulse duration must be changed accordingly. Check the preset programmes and modify them according to your wishes:

- Power 1 = lowest output
- Power 10 = highest output
- Impulse: longer impulse duration = longer flow of energy

## **9. Maintenance / Cleaning**

### **Danger!!!**

Before doing maintenance or exchanging parts, always turn off the unit as follows:

- Switch off with main switch
- Pull plug from wall socket

**Non-observances of these guidelines could cause danger for life and limb.**

### **9.1 Cleaning**

The unit is best cleaned with a damp cloth.

#### **Note!**

Do not use soluble's to clean the unit. Solubles could damage the acrylic parts.

## **10. Emergency**

- Switch off unit with main switch.
- Pull plug from wallsocket

## **11. Demounting / disposal**

Demounting and disposal are to be carried out in compliance with local environmental guidelines.

## **12. Spare parts**

For any questions concerning spare parts, please contact RDO Induction LLC  
at fax: 908-835-7272, phone: 908-835-7222 or e-mail: [info@rdoinduction.com](mailto:info@rdoinduction.com).

### 13. Guarantee

This unit has been constructed and manufactured under consideration of all safety regulations. Should the unit show any manufacturing errors or irregularities during the guarantee period, they will be fixed by the manufacturer according to our standards. For any guarantee claim, the invoice or delivery note must be provided as proof. The guarantee is limited to the replacement of the part or parts, which show the manufacturing error or irregularity.

Excluded from guarantee are: personnel costs, expenses of the technical staff, transport costs, packaging, etc. The claim of the following is absolutely ruled out: light bulbs, fuses, glass. Furthermore, errors or other problems, which the manufacturer cannot be blamed for or parts, which are subject to normal wear, may not be claimed under guarantee.

Direct or indirect damage claims towards any persons or things may not be derived from this guarantee, even if the reason for the damage could be traced back to the unit. This guarantee will automatically be terminated, if the unit is repaired, changed or opened by force by the user/buyer or any unauthorized third party.

Should any problem occur during the guarantee period, the user/buyer must only contact the manufacturer or an authorized service center named by the manufacturer.

The right to exchange the complete unit for a new one is excluded. Any parts replaced during the guarantee period must be returned to RDO Induction, who will supply a new part. Should the replaced part not be returned, it will be billed to the user/buyer.