

Operation Manual

Electrical Upsetting Machine

EUM-30

First of all, thank you for using our products, we believe that you buy products with solid and high precision quality, with appropriate maintenance, in the future, they will bring you more superior quality of processed products.

As we continue to improve the performance of our products and you may have special requirements, you may find that the machine tools delivered to you are somewhat different from this document. This only indicates that the new improvement scheme has been applied to your induction hardening machine. If you have any questions, please feel free to contact us.

All drawings and pictures in the manual are used only for illustrations to help users understand. The actual dimensions or tolerances of all components are not provided in the specification.

The Company has the right to modify or improve the specifications of this product without informing previous users of these modifications or improvements.

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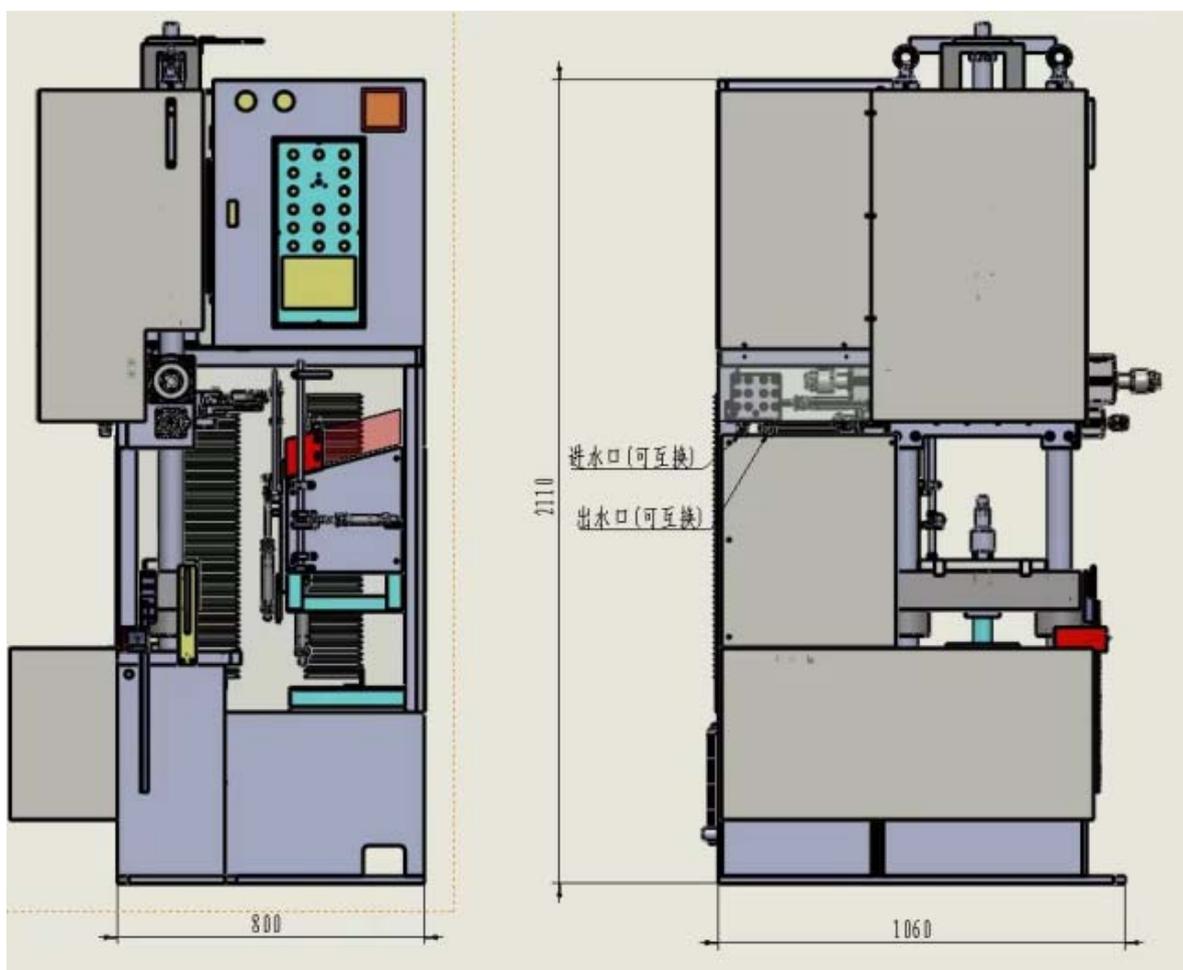
1. Usage & Functions

Main configuration: Mitsubishi control system, Mitsubishi touch screen, Mitsubishi servo feed system, Schneider low voltage electric apparatus and AirTAC pneumatic components.

2. Main specification

Rod diameter range	5mm to 9 mm
Cut rod length	100 mm - 300 mm
Material	21-4N, EN-52, Titanium
Quality	No bending of rod

3. Layout



4. Electrical safety

4.1 Safety Precautions

This machine is equipped with a number of safety settings to prevent injury or damage. The operator cannot rely solely on these protective devices of this machine, but should understand the following sections before proceeding with operation and maintenance. Do not operate or repair the machine at will. Otherwise it will

greatly increase the possibility of personal injury and machine damage. After reading this manual and combining your knowledge and experience of machine tool operation, it will reduce non-machining time, increase production efficiency and improve the safety of operating machine tools. Additional safety factors must be considered for special applications, please refer to the relevant safety regulations.

4.2 Important rule

- The people who don't have a training can't maintenance and operate the machine;
- It is forbidden for the operator to try to repair the machine;
- Please work carefully and be safe at all times. If your body has been affected by drugs or alcohol, please do not operate or maintain the equipment;
- Do not use compressed air directly on the control panel, electric cabinet;;
- The position of the emergency stop button must be known;
- If the power cut off, the power supply should be shut off immediately;
- Do not change parameters, quantities or other settings. If necessary, please record the relevant changes before amendment;
- Do not allow machine run without people;
- After the daily work, please turn off the main power supply;

5. Electrical Description

Induction hardening machine is mainly composed of Mitsubishi system, Mitsubishi servo motion control system and Schneider low-voltage electrical appliances and AirTAC pneumatic components. According to the process technology, it is controlled by the PLC program. In the process, the signal is provided by the photoelectric switch and the reed switch of the cylinder. The entire work flow is completed by the cooperation of each cylinder, so that the valve meets the requirements.

5.1 Main Electrical Parameter

5.1.1 Power supply: Voltage 3N-380V \pm 10% 50Hz \pm 1Hz

5.1.2 Total Power: 30 KW

5.1.3 Discharge of pump: 20L/min

5.2 Power supply

5.2.1 Main power wire: 6mm²

5.2.2 Grounded wire >4mm²

The total power supply of the machine should meet the above requirements. There should be no high-power equipment in the same power network of the machine tool, so as to avoid grid fluctuations and system malfunctions. If the local power grid fluctuates greatly, it should be equipped with a machine tool AC voltage regulator (the voltage regulator is solved by the user). The grounding of the machine should be good and the grounding resistance is less than 100 ohms.

5.3 Control circuit power supply

5.3.1 AC 220V For DC power supply and AC contactor control power supply

5.3.2 AC 24V For working lamp power supply

5.3.3 DC 24V Voltage stabilized power supply for NC, PLC input and output common power supply

5.5 External Environment

The control unit has certain requirements to the environment, and should avoid the interference of electromagnetic wave on the machine, such as arc welding and discharge processing machine. Otherwise, it will affect the normal operation of machine.

5.5.1 Environmental requirements

Room temperature 0°C~45°C

Storage or shipment -20°C~60°C

Temperature rate: Max. 1.1°C/min

Relative humidity: Common ≤75% short time ≤95%

Vibrate running ≤0.5G

The usual workshop environment (if the dust content in the environment, coolant, or organic solution is too high, need to be considered separately)

6. Operation Instruction

6.1 Main Menu

Here are some displays in this screen: temperature, anvil position, upsetting position, heating voltage, upsetting oil pressure, pressure, heating time and workpiece count.

Alarm reset: Press this button, you can reset the alarm.

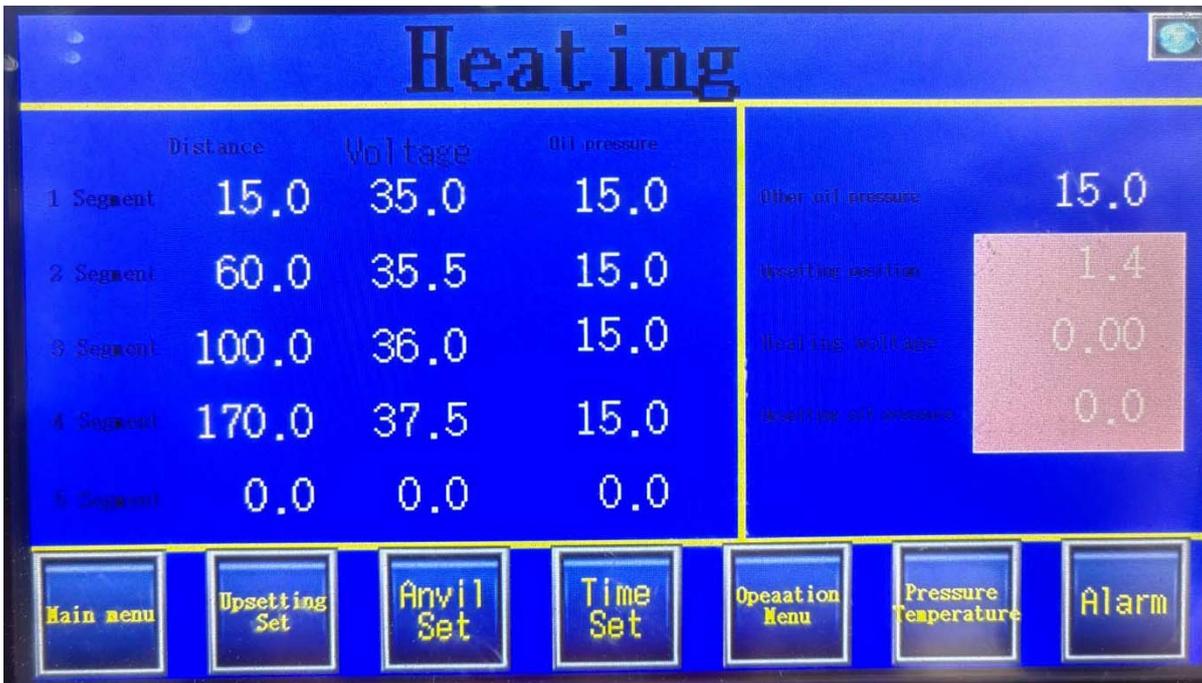
Count clear: Clear the workpiece count to zero.



6.2 Heating

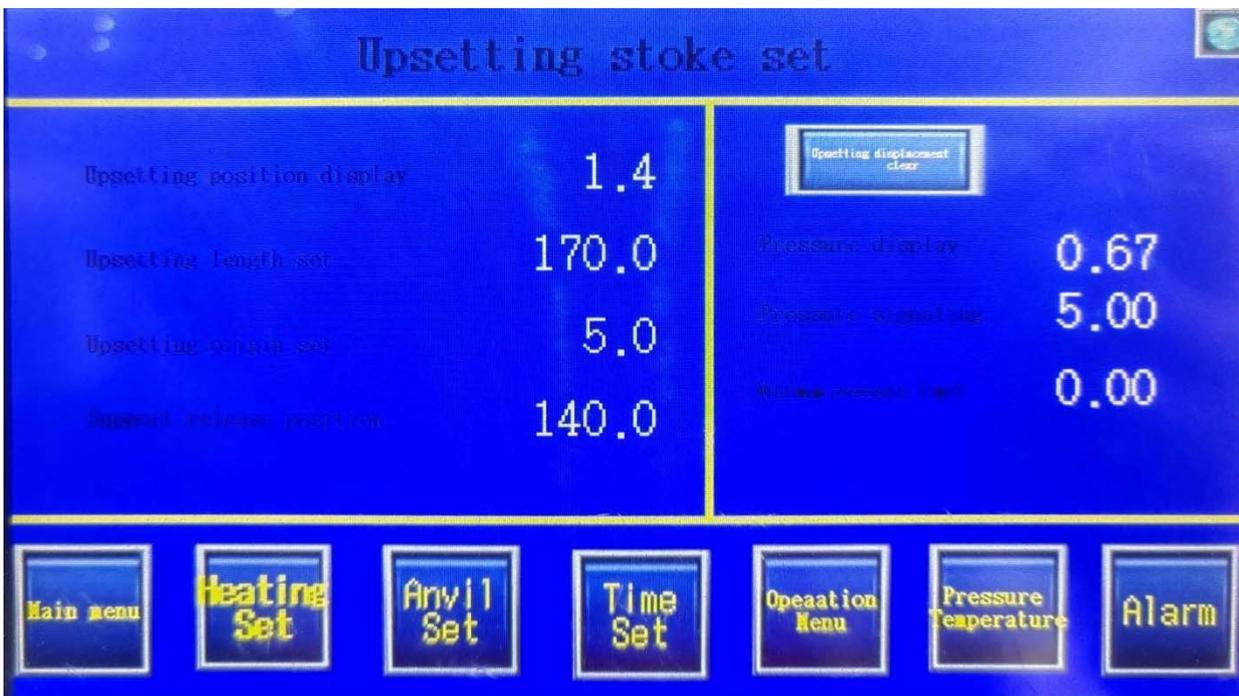
There are 5 segments for the heating, By changing the distance, voltage and oil pressure, you can get the different shapes of heating.

Other oil pressure: The oil pressure for down cylinder before and after heating.



6.3 Upsetting set

Upsetting length set, upsetting origin set, support release position set.
 Pressure display, pressure signaling, mini pressure limit.



6.4 Anvil set

Anvil has 5 segments. The stroke and speed can be set.
 Anvil position, start of neck pulling, neck pulling length, neck pulling speed,
 Pre positioned: anvil's final position.
 After anvil: The distance of the anvil back after upsetting.



6.5 Time set

Anvil down start time, main clamp delay, heating delay time, anvil up delay time, waiting time for upsetting, upsetting down delay time.



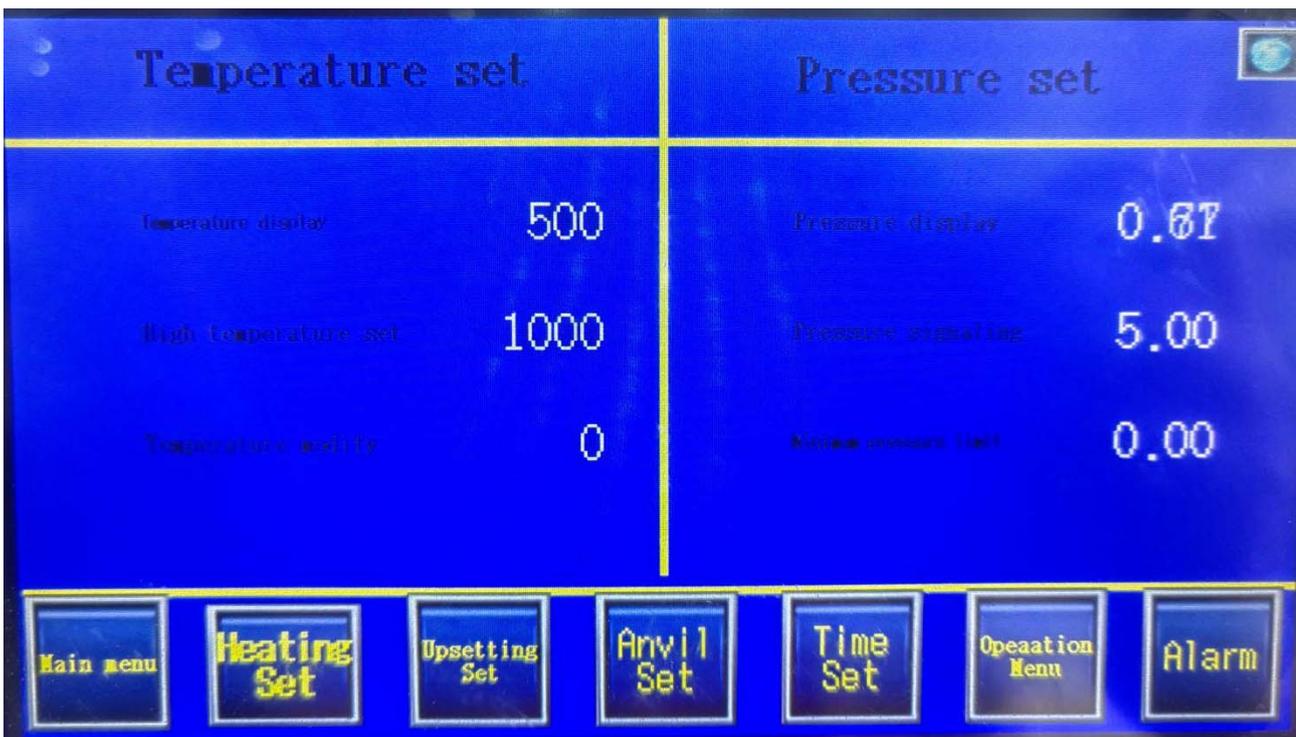
6.6 Operation menu

Supporting, erecting, feeding clamping, jacking, retaining, feeding rotary.



6.7 Temperature & pressure

Temperature display, high temperature set, temperature modify.
 Pressure display, pressure signaling, Mini pressure limit.



6.8 Alarm



7. Common fault analysis

- 1) The relay and contactor should be clean in appearance, the contact is flat and reliable; the armature is flexible and has no sticky card phenomenon; the three-phase contact can be synchronously turned on and off, and can operate reliably under the rated voltage. The reversible contactor should have reliable mechanical interlocking. The stroke of the electromagnet does not exceed the specified distance. The working armature is flexible and reliable, and there is no abnormal noise. It should be able to operate reliably under the rated voltage.
- 2) All kinds of stroke switches, buttons and other movements are flexible, accurate and reliable.
- 3) The conductor color shall conform to the regulations. The insulation resistance of each conductive part to the ground should be not less than 1 megabyte.

When the machine breaks down, the operator should be given a detailed understanding of the situation before the failure, so that the maintenance can more accurately judge the position where the fault may occur, and quickly troubleshoot the fault.

Does the fault occur before or after the start of the operation? Is it automatically stopped in production or stopped by the operator after abnormal conditions?

When failure occurs, the machine is in what working state, which button was pressed, which switch was pulled.

What are the abnormal phenomena before and after the failure (such as sound, odor, arc, etc.)

Whether there has been a similar failure in the past and how to deal with it?

When listening to the introduction of faults, it is necessary to correctly analyze and judge whether mechanical fault, hydraulic fault, electrical fault or comprehensive fault.

According to the investigation situation, referring to the electrical schematic diagram and related technical specifications, combining with the fault phenomenon to carry on the circuit analysis, the judgment, the preliminary estimate has the possible fault place, is the main circuit or the control circuit, is the alternating current circuit or the direct current circuit, Identify the nature of the fault and gradually narrow it down so

that the point of failure can be quickly identified and eliminated

For complex electrical circuits, complex lines can be divided into several units for analysis and correct fault points.

8. Wearing Parts

#	Item	Specification	Qty	Usage	Brand
1	Cylinder	MAJ25-125-20S	2	(Un)Loading	AirTAC
2	Cylinder	SDAJ63-40-30B	2	Supporting	AirTAC
3	Cylinder	SDAJ100X40-30B	1	Clamping	AirTAC
4	Cylinder	SDA100X40B	1	Clamping	AirTAC
5	Cylinder	MA32-125SCA	1	Lifting	AirTAC
6	Cylinder	MA20X50SCA	1	Retaining	AirTAC
7	Cylinder	MA25*100SCA	1	Erecting	AirTAC
8	Cylinder	SDA32*30SB	1	Lifting	AirTAC