

SPECIFICATION

ORIGIN Cap Welding Machine

MODEL JPF-3A-62602

HIGH SPEED TYPE

1. Specifications
2. Drawings

You are requested to return one of the duplicate after signing to acknowledge receipt thereof.

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Specifications

WELDING MACHINE DEPT.,
ORIGIN ELECTRIC CO., LTD.

1. Customer :

2. Machine: Full automatic cap welding machine
Model no:JPF-3A-62602 (High Speed Type)

3. Usage : Light Element Harmeticcshering

4. Machine outline

The arrangement of this welding machine is as follows. Turntable which has header clamping mechanism to center. Header loader, and Header unloader (The final product storage is included) in the left side. Cap loader, and Cap unloader in the right side.

The supply and taking out Header Tray & Cap tray are done outside a dry box on both sides of the machine. The shutter is installed in the loading parts and the unloading part of the header and the cap tray. (It is assumed the structure intercepted by blowing out the N2 gas while the shutter is being opened.)

The operation panel is the right front side of the machine. The air piping part of the pressurizing mechanism system is arranged on a rear center part and on the dry box. The pressure gauge concerning the pressurizing control is arranged at the position confirmed easily from the machine front. The power supply part concerning the electrical charge and discharge is arranged separately.

5. Specifications of work

ITEM	CONTENT	
Work	Header	Two types: TO-56 and TO-46
	Cap	Tow types: To-56, and TO-46
Tray type and Work number	For Header	200 pcs.
	For Cap	200 pcs.
Number of trays which can be installed	For Header	10 trays
	For Cap	20 trays

Noted: This equipment has not equipped the lead reform mechanism. Therefore, a bend of a header lead may be less than $\phi 4.5$ on the basis of the center of a header.

6. Welding quality

The quality of work is assumed to meet the following demand for the specification of the welding quality.

- (1) Rate of quality item: 99.8% or more
- (2) Rate of He Leak : $2.1 \times 10^{-9} \text{ Pa} \cdot \text{m}^3 / \text{sec}$ or less
- (3) Welding combination accuracy : $X - Y \pm 50 \mu\text{m}$ or less (Same ax degree at header and cap center)

7. Tact Time

Tact time is assumed to be 3.3 sec/pc or less.

(The tray exchange time is included in the above-mentioned tact time.)

8. Power supply

ITEM	INPUT	CAPACITY
Input power	Three-phase circuit: AC220V	4.5 kVA
Air source	0.5~0.7 MPa	Max:150NI/min
N ₂ Gas source	0.4MPa	Max:150NI/min

9. Size

ITEM	External Dimension (W × D × H) mm	Weight (kg)
Welding part	About 2200 × 1300 × 2200	1500
Power supply part	470 × 670 × 1110	About 90

10. Specification of welding part

ITEM	SPECIFICATION
Pressuring Method	Compress air pressurizing method / vertical press type
Electrode Pressurizing power	490~2450N (Air supply 0.5MPa)
Electrode stroke	1 st 50mm , 2 nd 10mm
Dimension	Depth: 125mm
Electrode shape	Special type
Welding trance	Type 3 (20T,40T,80T)

11. Specification of Power supply unit

ITEM	SPECIFICATION
Input	Single-phase 200V 1.5KvA
Output	761J
Speed of charge	1.5sec/450V
Adjustment range of charge	50~475V
Rectification method	Single-phase
Polarity switch	Polarity switch is equipped
Cooling method	Air cooling

12. Specification of Capacitor

ITEM	SPECIFICATION
Energy Capacity	761J
Capacitor	6750uF(one bank)

13. Specification of Dry box and dew point

ITEM	SPECIFICATION
Material	Mail body : SUS
	Door(window) : Acrylic
Maintenance squeezing window	8 pcs(Front and back side: each 3 pcs / Both side each 2 pcs)
Dew point	-30°C or less It is necessary to supply the N2 gas continuously at -76°C or less in dew point.
Flux meter	2 PCs
Dew point meter	Sensor : Michelle-20°C~-80°C
Sensor	Maintenance door , Front and back side squeezing window

14. Outline of operation when driving automatically

The automatic operative method starts as the following operation when the worker sets the header tray (left side) and the cap tray (right side) at a prescribed position of the loader part, and push the starter switch.

- (1) The shutter opens after intercepting the shutter at the dry box supply entrance by blowing out N2.
- (2) The lower tray of the header and the cap is recognized, and the tray is transported in the machine.

- (3) Each tray is set at a prescribed position on Y axis robot with the tray supply handler. The tray is transported to the work taking out position.
- (4) The reversing handler on the header side takes out the header& the final product of lower electrode at the same time. After the handler rotates 180 degree, the handler does the HEADER supply and the final product exhaust to a lower electrode at the same time.
- (5) X axis handler at the cap side takes out the work on the tray by the vacuum chuck. And then, the work is transported to the welding position, the cap is transported to the part of electrode, and it returns to take the next cap.
- (6) The center part of the header is clamped with the clamping mechanism. The turntable reverses by 180 degrees and the header is transported under the part electrode afterwards.
- (7) The presence of the cap in the electrode and the header are confirmed with the vacuum sensor.
- (8) The movement of the upper electrode is done by the stroke in two stages (The first time: about 50mm and times second: about 10mm) .
- (9) Work is taken out of each tray by repeating (4)-(8) clause. The tray on Y axis moves to the interior side, and afterwards, the tray returns to former position.
- (10) After it is taken out of the header tray or the cap tray (Collecting the final product), The shutter opens after intercepting the shutter at the dry box supply entrance by blowing out N2.

15. Operation panel

- (1) Necessary switches for operate and control are arranged in the touch panel
- (2) The message of abnormal operation and warning is displayed on the touch panel.
- (3) The color of display or light illumination switch shall be ORIGIN's standard color.
- (4) The charge voltmeter shall be digital type.
- (5) Number of the counter shall be three and is arranged in the touch panel.
 - ① Total production number(Welding number)
 - ② Using number of upper electrode. (With Priset)
 - ③ Using number of lower electrode. (With Priset)

16. Operation

- (1) Necessary switches for operate and control are arranged in the touch panel. The movement of each switch at an automatic mode is as follows.

① Start:

The automatic operative start when each parts being in the state of starting point and any abnormality not found. The screen in a defective starting point is displayed when there is UNIT which does not meet the starting point requirement when the operator selects an automatic mode. In this case, the worker should return it to the starting point by the manual operation.

② Stop:

The operation of each part will stop in the state of the starting point when the operator operates the stop in the automatic operative method.

③ Cycle Stop:

The machine stops under the following of operation. In this case, there are no work in the electrode and handler.

[Stop]→[Cycle]→[Start]

④ Header taking out

In case of that the taking out header does not go well constancy, The header is exhausted automatically by the following operation.

[Reset]→[Auto mode]→[Header ending]→[Start]

(2) The machine stops after the alarm rings when the air pressure and the gas pressure become below a set value. When the current becomes it besides a set value, the machine also stop.

(3) The machine and the cylinder drive unit stop when the emergency stop switch is pushed.

※After completed of welding, the machine stops to prevent machine being damaged

17. Special notice:

- (1) All the parts of the machine shall be Origin's standard parts.
- (2) Signal tower(Red , Yellow, Green) is equipped.

18. Others

(1) Customer supply

① Work for machine adjustment-----above 3,000pcs/each parts

(2) Spare parts and accessory

(2)-1 Spare parts

① Upper Tip-----4pcs/one type

② Lower Tip-----4pcs/ one type

- ③ Nozzle of work handler-----1 set/ one type
- ④ Header clasper-----2 sets/ one type
- ⑤ Cable for work handler and sensor-----1pc
- ⑥ Shutter for maintenance window-----8pcs

※The above parts need to change continuously because of the use frequency of the parts.

(2)-2 Accessory

- ① Header tray for TO-56----- pcs.
- ② Header tray for TO-46----- pcs.
- ③ Cap tray for TO-56----- pcs.
- ④ Cap tray for TO-46----- pcs.
- ⑤ Dew point meter(Sensor $-20^{\circ}\text{C}\sim-80^{\circ}\text{C}$)-----1 set
- ⑥ Current monitor-----1 set
- ⑦ Vacuum pump-----1 set
- ⑧ Standard tool-----1 set
- ⑨ Operation manual(Clean Paper)-----2 copies

19. Machine Color

Ivory

20. Installation, piping etc.

In this specification, any wiring works and any piping works between your facility and this system, nor a foundation works of customer's facility for this system installation are not included.

21. Warranty

Warranty period of this system is either of following periods reached earlier under the condition that the customer maintains the system in accordance with maintenance & cleaning procedures described in the manual.

- a) 1 year after system acceptance by the customer.
- b) 4,000 hours after system acceptance by the customer.

Malfunction and/or damages happened under normal operation, which is not the case of the user's responsibility, is covered by warranty and required replacement part is supplied at free of charge during the above mentioned warranty period, however, any expenses for adjustment work and/or replacement work shall be borne by the customer.

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In regard to consumption parts, maintenance parts and/or kind of light bulbs included in the spare parts shall be exception of this warranty service.