

ORIGIN Condenser Type Projection Welding Machine

Model: LA-1000

Specification sheet

1) Specification Sheet

2) System Appearance Drawing

Specification Sheet

Spec No. 4550
Origin Electric Co., Ltd.

1. Customer

2. Model Name Origin condenser type projection welding machine
Model No. : LA-1000
[with a jig & a vidicon camera for optical alignment]

3. Application Optical device welding

4. Outline

This system is a manual welding system, which hermetically seals a LD header and a lens cap (with lens) after optical axis alignment under N₂ gas atmosphere. This system is composed from (a) Welding system body and (b) Visual monitoring system.

5. Specification of Work and Tray

Applicable works

Items	Drawing No.	
LD Header		φ 5.6 Lead Length : ***mm Applicable work : 1 type
Lens Cap		

6. Quality of weld

The case of work failure shall be exception of this quality.

- (1) Gas tight : He-leak rate of 1×10^{-9} Pa·m³/sec or less
- (2) Welding Accuracy : +/- 10 μ m or less

Accuracy reference is the center of Laser beam and the center of lens cap. This doesn't include a tilt of laser axis against the header bottom.

7. Utilities

Items	Rated Input	Capacity / Volume
Input power source	Single phase AC200V, 50/60Hz	4.5kVA
Compressed Air	0.5 to 0.7 MPa	Max 30NI/min
N ₂ Gas	0.2MPa	Max 50NI/min

8. System Composition & Appearance

Items	Dimension (W x D x H (mm))	Weight (kg)
Welding system (with jig)	1,320 x 900 x 1,800	Approx. 560
Visual monitoring system	600 x 700 x 1,325	Approx. 50

9. Specification of Welding

Items	Specification
Pressing method	Vertical direction pressing by compressed air
Electrode pressing force	Forging force : 539 to 1,470N (with 0.5MPa of Compressed Air)
	Electrifying force : 392 to 1,176N (with 0.5MPa of Compressed Air)
Electrode stroke	1 st step : 80mm 2 nd step : 10mm (Sum: 90mm max.)
Electrode depth	100mm
Shape of electrode	Die set type custom made electrode
Transformer for Welding	Type 3 With a switch for winding number ratio. (20, 30, 40 and 60T)

10. Specification of power source

Items	Specification
Rated Input	Single phase 200V 1.5kVA
Rated Output	761J
Charging time	Approx. 4.5sec / 450V
Adjusting range of voltage charged	50V~475V
Rectification method	Single phase, full-wave rectification
Switching of Polar characteristic	Available, (Blade shaped switch)
Cooling method	Air cooling
Starting method	Button switch pushed by both hands
Charging controller monitoring circuit	Detection circuit for completion of charging

11. Specification of Condenser

Items	Specification
Energy capacity	761J
Condenser capacity	6,750 μ F (1 bank)

12. Specification of Alignment

Items	Specification
Alignment Method	Manual alignment with a micrometer
Alignment Range	X-Y \pm 200 μ m
Lock mechanism (Stage)	By knurling knob
LD driving power source	ACC, with Limit setting function
Monitoring	Vidicon Camera
Adjustment of optical system	By X-Y-Z stage
Output of alignment image	To 15" color LCD with electron line generator

13. Specification of Dry box and Dew point

Items	Specification
Material	Body : SUS Front window : Glass Maintenance door : Antielectricity acrylic
Grove	6", 2 pcs
Pass Box	1 set
Dew Point	- 45 degrees C or less (When N2 gas, whose dew point is - 76 degrees C at the supply port, is continuously supplied.)
Flow-meter	1 pce
Dew point meter	Sensor : -20 degrees C to - 80 degrees C

14. Outline of System operation

This system contains die set jig and vidicon camera in order to align optical axis. Operator shall select "A mode" for welding with alignment, and "B mode" for welding without alignment.

- (1) A lens cap is set to the upper collet electrode of the die set jig, by tapered nut handle.
- (2) A LD header is set to the center of the air collet electrode with a lead guide, which is located lower. At this time, LD can get conduction by the lead guide and the contact probe. (The contact probe needs to be changed if you use the lead length is different.)
- (3) The air collet electrode fixes the LD Header by pushing "CLAMP" button switch.
- (4) When Operator selects "A mode", the upper collet electrode moves downward by 1

step by pushing the starting button switch with both hands, LD power source turns ON after the upper electrode touches with the lower electrode, LD illuminates. Then, Operator aligns the optical axis by operating X & Y-stage micrometer as watching monitor.

- (5) After the alignment, Operator locks the stages and push "WELDING" switch to start welding of the lens cap and the LD header.
- (6) When Operator selects "B mode", the upper collet electrode moves downward by 1 step by pushing the starting button switch with both hands, a welding of the lens cap and the LD header is conducted as a series of motion.

15. Others

- (1) Supplied products from the Customer

- a) Work (Samples) for adjustment More than 50pcs each.

- (2) Accessories and Spare Parts

Accessories

Item	Q'ty
Upper Collet electrode	1 pce
Taper Nut	1 pce
Lower collet electrode	1 pce
Contact probe with lead guide	1 pce
Grove for dry box	1 set
Center gauge	1 pce
Standard Tools	1 set

Spare Parts

Item	Q'ty
Upper Collet electrode	1 pcs
Taper Nut	1 pce
Lower collet electrode	1 pcs
Lead guide	1 pcs
Contact probe	12 pcs
Grove for dry box	1 set

16. Manuals 2 sets

17. Coloring Munsell color 5Y7/1

18. Installation, Wiring, and Piping

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.

19. 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.

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.