

**LV Series Vacuum Reflow Oven**



**Introduction:**

I.C.T LV Series Vacuum reflow oven unparalleled heating performance and temperature control system meets the requirements of various welding processes, LV Series Vacuum Reflow Oven is high-end reflow products committed to keeping up with market demand to enhance customers competitiveness. Its new design concept fully meets the needs of increasingly diverse processes, And considering the future direction of the industry, entirely suitable for communications, automotive electronics, home appliances, computers and other consumer electronic products .

**Features:**

1. Control System: PC + Siemens PLC control system, accurate temperature control and more stable, ensures temperature stability rate to be more than 99.99%.
2. Vacuum system: PCB directly enters the vacuum unit from soldering area. Start the vacuum process to reduce the vacuum pressure to 100mbar-5mbar. The internal gas such as pores and cavities overflows from the molten solder joint, which can reduce the void rate to less than 2%.
3. Hot air system: first-class heating module, the best temperature zone interval design makes optimum temperature uniformity and repeat. The effective utilization and thermal compensation efficiency, it needs less than 20 minutes from temperature control accuracy  $\pm 1^{\circ}\text{C}$  ambient temperature to a temperature stabilization .
4. Monitoring Software: Windows interface, traditional and simplified Chinese and English online free switch, and operator password management, easy to operate. Operation records, temperature curve measurement and analysis functions, virtual simulation, fault self-diagnosis, process monitoring, automatic generate and save process control documents, substrate transport dynamic display.
5. Cooling System: new cooling zone, quick and easy adjustment, easily reach the cooling requirements of different slopes.
6. Temperature protection: I.C.T using third-party over-temperature protection, multiple layers protection to ensure safe operation.
7. Products comply with CE, CCC, UL , other standards and specifications.
8. User-friendly design: fault detection (such as heaters abnormal alarm, etc.), regular maintenance reminders, the economy functions and tool-free maintenance, reducing equipment failure rates.
9. Heating module: Transverse reflow design makes temperature from each zone is not influenced by neighbour to ensure accurate temperature curve, while ensuring a high production capacity and heat exchange capacity to achieve high adaptability (to meet the soldering of automotive, communications, electronics, computers and mobile phones consumer electronics.)
10. Hot air motor with independently inverter controlled, set operating frequencies depending on different technology to meet a variety of lead-free processes.
11. Machine using zero gas source design, furnace cover with motor lifting, safety rod support, providing significant security.
12. Main parts: Imported main parts ensure equipment runs smoothly and lower the maintenance cost.
13. Customers can choose optional flux processing system according to their own production features to ensure furnace chamber clean.

14. Three sections transmission: heating area, vacuum area and cooling area. each section is adjusted independently and the width is adjusted as a whole, step-by-step transportation.closed-loop transmission speed control.

**Product:**



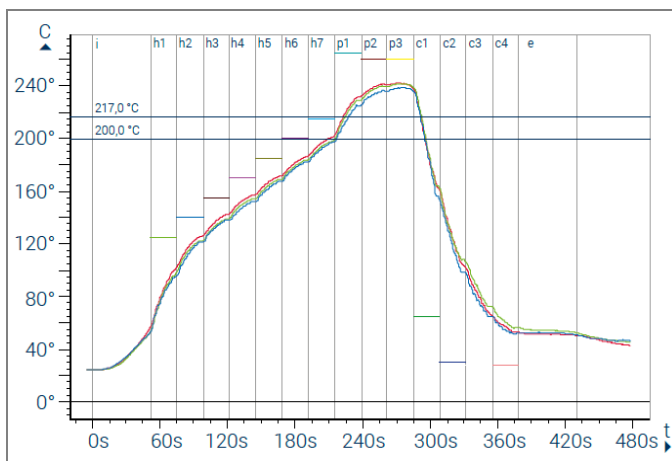
**From zero to 240 °C due to optimized heat transfer**

Each product has its own requirements in the manufacturing process. Optimized heat transfer over the entire soldering process is the basis for best possible results.

The LV-Series offers flexibly controllable preheating zones within which your PCB is preheated and prepared for the actual soldering process.

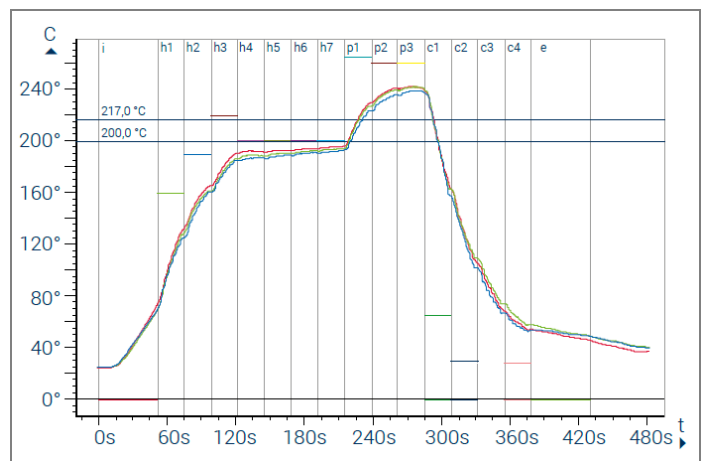
The individual zones can be controlled independently of each other via fan frequency, and assure best possible processes.

The LV-Series is equipped with special nozzle sheets for optimized heat transfer by means of uniform air flow over the PCBs. Flow speeds in the upper and lower heat zones can be separately controlled, assuring that your PCB is heated up.



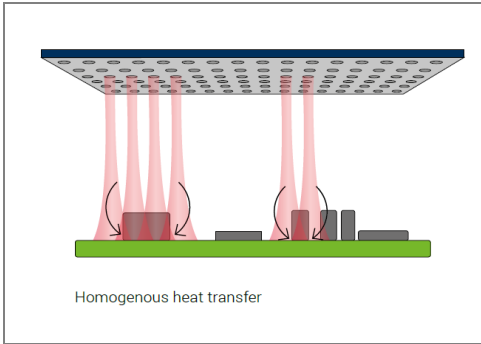
**Saddle profile**

The component is brought to a temperature of at least 240 °C for soldering. Using a saddle profile the board is gradually heated in line with pre-defined, individual temperature ranges. Even components with differing thermal masses are heated homogeneously and temperature differences minimised.



**Linear profile**

With a linear profile, the component is not heated in a stepped manner during soldering, in fact it is heated along an identical linear temperature gradient. Linear profiles can reduce cycle times and can help to reduce soldering errors such as tombstoning



## Heating System

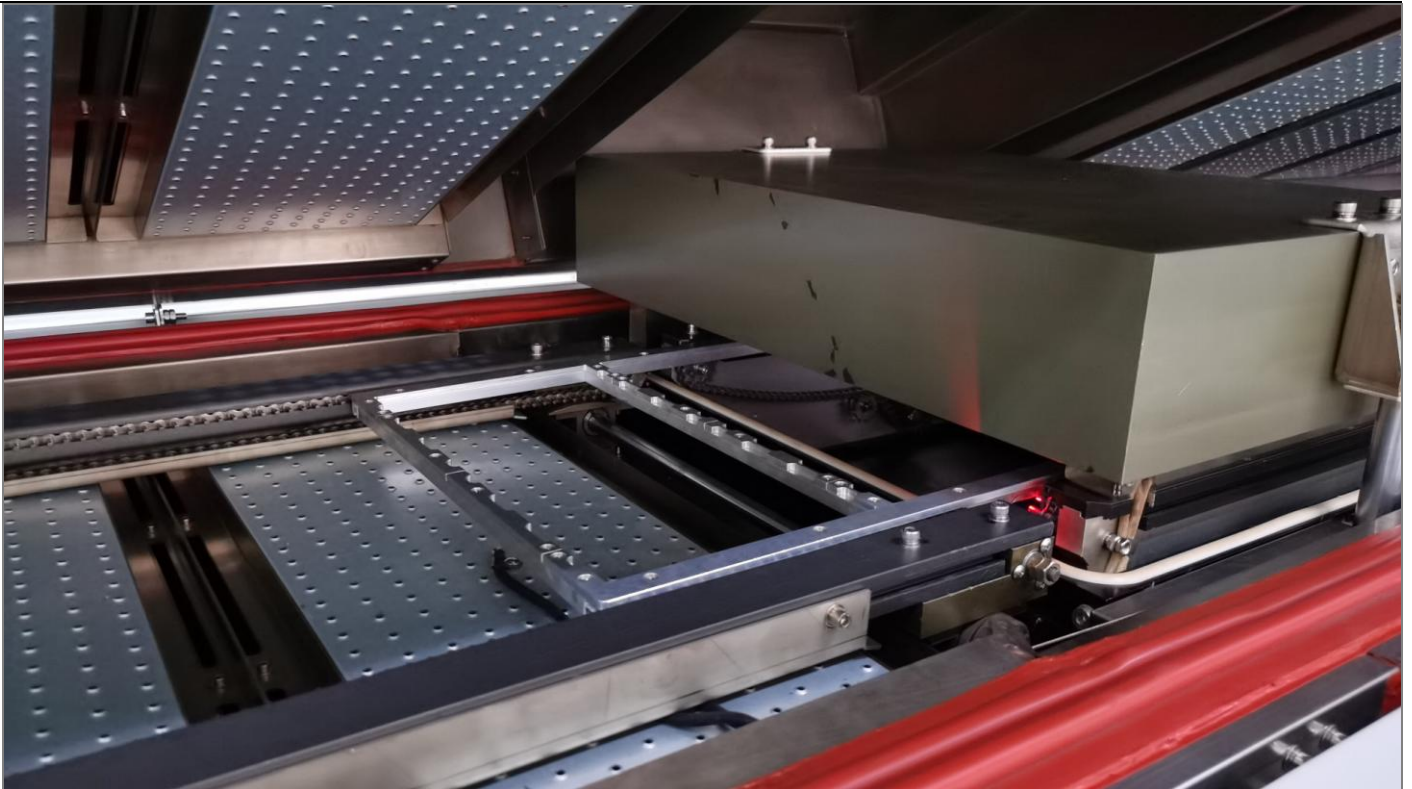
- < Separately adjustable heating zones
- < Reproducible temperature profile
- < Outstanding process stability with the smallest possible  $\Delta T$
- < Homogenous heat input over the entire PCB thanks to specially designed nozzles
- < Low maintenance effort



## Transport System

- < Reliable, failure-free production guaranteed by absolutely parallel transport.
- < Precise and repeatable adjustment of the transport width.
- < Reduced maintenance, transport drive mechanism is outside of the process chamber.
- < Ideal for any application due to various transport systems.





### Vacuum System

- < Independent transmission vacuum system
- < Ensure the reduction of bubble rate
- < Efficient production cycle time
- < Larger PCB size



## Effective Residue Management

As is the case with all industrial processes, substances are generated during SMT production which have to be removed from the process cycle because they contaminate the system. Our highly effective residue management function purifies the process gas safely and reliably, and keeps your system clean and dry.

## Cooling System

Stress-free cooling using individually adjustable ventilators  
 Gentle cooling through extended cooling tract  
 Flexible combination possibilities through a range of different options  
 New, sustainable cooling principle as a result of liquid nitrogen cooling

### Materials List :

No.	Item	Brand	Original
1	Computer	Lenovo	China
2	PLC	Siemens	Germany
3	Servo motor	Panasonic	Japan
4	Servo controller	Panasonic	Japan
5	Vacuum Pump	Import	Germany/UK
6	Solid relay	Carlogavazzi	Switzerland
7	Contactore	Schneider	France
8	Transmission motor	Panasonic	Japan
9	High Temp. Motor	Sanyue	Taiwan
10	Heating wire	Hotset	Germany
11	Guide rail	I.C.T	China
12	Chain& Chian shackle	KMC	Taiwan
13	Heat cotton	RockWool	Germany
14	Frequency converter	Delta	Taiwan
15	Button	Schneider	France
16	UPS	STK	USA
17	High Temp. Wire	Hotset	Germany
18	Cooling motor	Sanyue	Taiwan

### Specification:

LV Series Vacuum Reflow Oven	I.C.T-LV733	I.C.T-LV733N
<b>DIMENSIONS AND WEIGHTS</b>		
Dimensions	7000*1430*1530mm	
Required area	10.05m <sup>2</sup>	
Weight	ca. 3200 kg	ca. 3300 kg
Load per unit area 400 kg/m <sup>2</sup>	400 kg/m <sup>2</sup>	
<b>PROCESS CHAMBER HEATING</b>		
Length of heating zones	3730mm	
Quantity of preheating zones	7	
Length of preheating zones	2675mm	
Quantity of peak zones	3	

Length of peak zones	1155mm
Max. soldering temperature	pre-heating zones 300 °C and peak zones 350 °C
Heat transfer through	Forced convection
Warm up time	ca. 20 min
<b>VACUUM ZONE</b>	
Vacuum maximum pressure	0.1-12kpa
Vacuum pump flow	1500/min
Pressure relief time	≤10S
Product time	≥40S
<b>COOLING ZONE</b>	
Quantity of cooling zones	3(top 3/bottom 3)
Length of cooling zones	1460mm
<b>CONVEYOR</b>	
Transport Level	900 ±20 mm
PCB Width	L500 - W400mm
Conveyor control	3-stage, independent control
Conveyor Number	1
Adjustable conveyor speed	300 - 1800 mm/min
<b>OPERATING DATA</b>	
Maximum noise level	ca. 55 dBA
Room temperature	between 15 °C und 32 °C
Humidity	between 30 % und 75 %
Oxygen of peak zones	< 500 ppm
<b>INTERFACES</b>	
Type	SMEMA
<b>VOLTAGE SUPPLY CONSUMPTION</b>	
Type of power system	(L1, L2, L3, N, PE) / 5-Wire-System
Voltage supply	5-Wire System 3P,N,PE 380 VAC ± 5 % 50 Hz Other voltages upon request
Energy consumptions standby-mode	ca. 12KW
Connected load	65KW
Operating capacity	16 KW
As the operating efficiency depends on the settings of the process parameters, the values reached actually can differ from the values indicated here.	
<b>COOLING WATER AT EXTERNAL COOLING</b>	
Connection	System specific, please see layout plan
Cooling water flow	between 25 - 35 l/min (according to temperature)
Operating pressure	2 –5 bar

<b>NITROGEN SUPPLY</b>	
Connection	System specific, please see layout plan
Nitrogen supply pressure	6 –10 bar / 6 - 10 bar
Operating pressure	5 bar
Nitrogen consumption single conveyor at < 500 ppm in peak zone,max. pcb width 200 mm . PCB gap 50mm.	733: ca.30 m <sup>3</sup> /h
Nitrogen consumption with N2-control in Standby Mode 200 mm transport width.	733: ca. 27 m <sup>3</sup> /h
<p>As the nitrogen consumption depends on the PCB-width and the throughput, the values reached actually can differ from the values indicated here.</p> <p>Set-up indications: The system should not be exposed to draught.</p> <p>Devices generating a flow to the system or from the system away should not be installed directly in front of the system or behind the system.</p>	
<b>EXHAUST PROCESS</b>	
Exhaust socket: diameter	2 x 145 mm
Exhaust at min. 5 mbar under pressure	2 x 20-25 m <sup>3</sup> /min
Exhaust internal Cooling	1 x 1300 m <sup>3</sup> /h ( No Water Connection )
Exhaust internal Chiller System	1 x 3500 m <sup>3</sup> /h ( Power Cooling )
Exhaust temperature	< 45 °C

**Standard Accessories:**

1	Computer	1 set
2	Operation Software	1 set
3	Heating	1 pcs
4	Fuse	1 pcs
5	Relay	2 pcs
6	Solid State Relay	1 pcs
7	K-type Test Line	1 pcs
8	Manual	1 book
9	Tool Case	1 set

\* Attachments may change with product upgrade. If different, please follow the new list.

**Thanks for choosing I.C.T.**  
**I.C.T looks forward to win-win cooperation.**