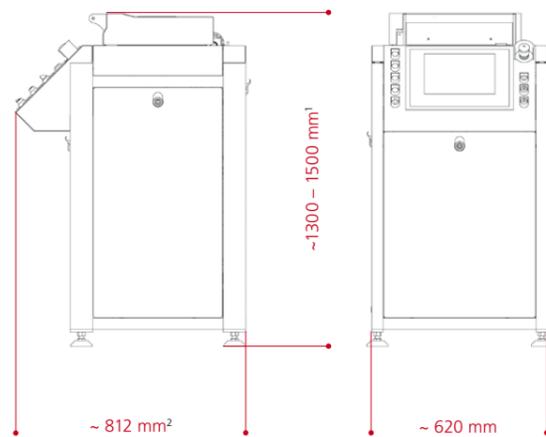


# VLO 6 | VLO 12

Vacuum Soldering System  
for Advanced Packaging and R&D

## Dimensions



<sup>1</sup> H<sub>2</sub> version torch height: ~2230 mm

<sup>2</sup> H<sub>2</sub> and HCOOH version length: ~950 mm

## Key Data

Model	VLO 6	VLO 12
Field of application	R&D, start-ups	
Plate size	200 x 200 mm <sup>2</sup>	300 x 300 mm <sup>2</sup>
Heating system	1 heating plate	
Max. substrate height	50 mm [optional 100 mm]	
Max. load per plate	1 kg	3 kg
Possible process gases	N <sub>2</sub> , H <sub>2</sub> up to 100%, N <sub>2</sub> /H <sub>2</sub> 95/5, HCOOH	
Plasma option	MW Plasma [2,45 GHz] [gases: H <sub>2</sub> , N <sub>2</sub> H <sub>2</sub> , ArH <sub>2</sub> , Ar, O <sub>2</sub> ]	
Power supply *	3~/N/PE 230/400V 50 Hz	
Cooling water	15 l/min @ 15 – 25 °C	
Max. heat up ramp**	100 K/min	max. 80 K/min
Max. cool down ramp	80 K/min	max. 70 K/min
Vacuum level	0,1 mbar [opt. 10 <sup>-5</sup> mbar]	
Vacuum pump	4 m <sup>3</sup> /h	8 m <sup>3</sup> /h
Process temperature	up to 450 °C	
System weight	150kg	180kg

\* optional: 3~/N/PE 277/480V 60Hz or 3~/N/PE 120/280V 60Hz

\*\* up to 250K/min with lamp heating option

## Options

- 100% H<sub>2</sub> gas line with safeguard level 2
- Integrated HCOOH bubbler with safeguard level 1
- In-situ microwave plasma
- 4 thermocouples for surface temperature recording
- Lamp heating for VLO 6 with radiation heat transfer and fast heat-up ramp [max. 250K/min]
- Substrate height up to 100 mm

centrotherm thermal solutions GmbH & Co. KG reserves the right to make changes in the product specifications at any time and without notice | Z | H | VLO 6 | VLO 12 | 03 | E | 11 | 03 | © centrotherm 2011

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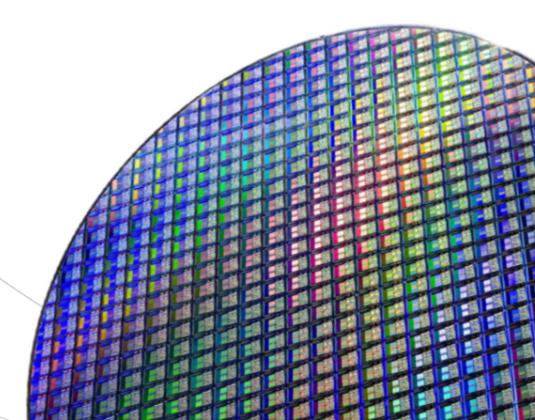


**centrotherm**  
thermal solutions

Equipment  
Process  
Solutions

# VLO 6 | VLO 12

Vacuum Soldering System  
for Advanced Packaging and R&D

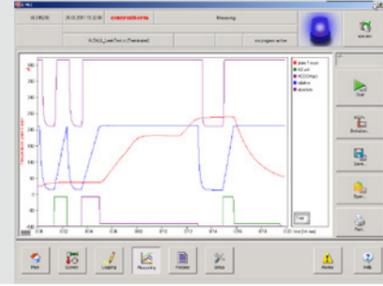




Process area up to 12"x12"



Door with viewport



User-friendly software

# VLO 6 | VLO 12

Vacuum Soldering System  
for Advanced Packaging and R&D

## Description

The centrotherm VLO 6 and VLO 12 vacuum soldering systems have been designed for Advanced Packaging and Power Semiconductor applications and achieve very high heating and cooling rates. The systems meet the highest demands of start-ups and R&D departments which use vacuum to achieve voidless soldering joints.

VLO 6 | VLO 12 is the small-size entry level system of the centrotherm VLO family yet offering the full functionality like the other VLOs. With the VLO 6 | VLO 12, the soldered area affected by voids can be reduced to less than 2%, typical reflow soldering systems range at 20%.

This system is ideally suited for production facilities and start-ups which run fluxless and voidless soldering processes with various gas atmospheres [N<sub>2</sub>, H<sub>2</sub> 100, N<sub>2</sub>/H<sub>2</sub> 95/5]. The centrotherm VLO 6 | VLO 12 optionally provides chemical activation with HCOOH or dry activation with MW plasma for ultra clean soldering joints. Even lead free paste or pre-forms can be used without additional flux.

The process control computer comes with a user-friendly touch screen for operating, process profile editing and recipe storing. Accessibility through Ethernet and USB interfaces allows connection with printers, external storage devices and remote access.



## Typical Applications

- Advanced Packaging
- Power Semiconductors
- Hybrid Microelectronic Assemblies
- Optoelectronic Packaging
- Hermetic Package Sealing
- Wafer Level Packaging
- UHB LED Packaging
- MEMS Package Sealing

## Customer Benefits

- Process temperature up to 450 °C
- Excellent temperature uniformity
- Vacuum level up to 10<sup>-5</sup> mbar
- Very short cycle times
- centrotherm-soldering laboratory for soldering tests
- Remote access for service