

Powatec Advanced Vacuum Bonder

VA-200



The POWATEC VA-200 combines heated bonding chucks with high-vacuum lamination to deliver precise, void-free bonding of wafers, substrates, carriers, and films for demanding semiconductor applications. Independently controlled chuck temperatures up to 150°C and a sub-5 mbar vacuum chamber ensure uniform contact, minimize voids and bonding defects, and produce highly repeatable results. Compact and process-flexible, the VA-200 is built for cleanroom R&D and production environments working with advanced films and substrate materials.

VA-200

Web Page Link



YouTube Link



Description

Manufactured and developed in Switzerland, the POWATEC VA-200 is a semi-automatic heated vacuum bonder engineered for precise, void-free bonding of substrates, films, carriers, and wafers. Coordinated heating, vacuum, and bonding force deliver reliable results even on structured wafers, brittle substrates, and advanced tapes or films that need thermal support to achieve uniform adhesion.

A signature VA-200 feature is its adjustable bonding duration — holding the contact surface at a precise temperature before advancing the process, for an extremely high-quality, repeatable bond every time. At its core, a precision-controlled vacuum chamber optimizes placement and adhesion, minimizing defects and improving yield.

Two control modes fit both R&D and production: Develop Process gives engineers full manual control to tune new processes, while Select Recipe locks operators into a validated, PIN-protected recipe — with up to 10 recipes stored on the device.

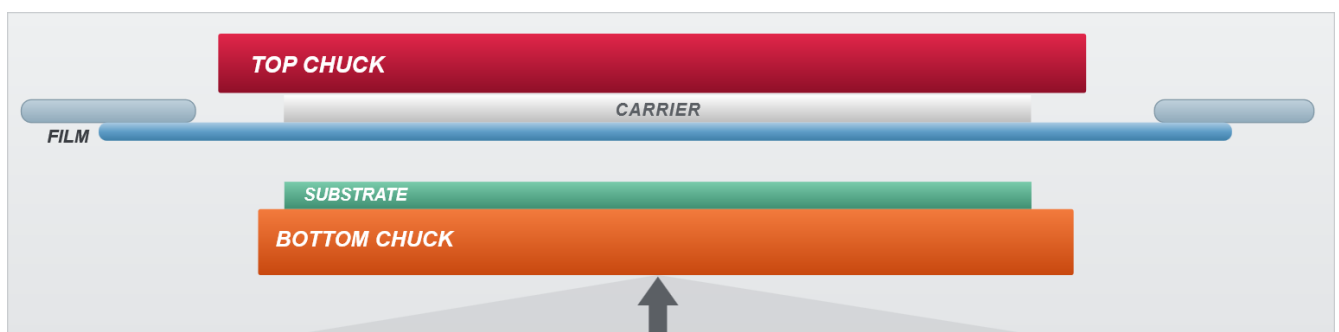
Originally developed for Silicon Carbide (SiC) bonding, the VA-200's versatility now extends to silicon, glass, ceramics, polymers, and other specialty substrates, with custom configurations available for non-standard applications.



Key Product Features

- ✓ Heated vacuum bonding with controlled, void-free contact
- ✓ Adjustable bonding duration to reach a precise temperature gradient at the contact surface
- ✓ Independent top and bottom chuck temperature control, up to 150°C / 300°F
- ✓ Compact vacuum chamber operating under 5 mbar (2 mbar absolute)
- ✓ Minimal mechanical force on fragile wafers and substrates
- ✓ “Recipe” system stores up to 10 validated bonding programs
- ✓ Develop Process / Select Recipe modes with PIN-protected process control
- ✓ Suitable for silicon, glass, ceramics, polymers, SiC, and custom substrates
- ✓ Table-top device for cleanroom lab and production environments
- ✓ Clean room application up to ISO 4-5

Visualization of the bonding process in the VA-200



Technical Specification

VA-200

Substrate size	up to Ø 8"
Substrate Type	Flat
Substrate Thickness	80 µm – 3 mm
Max Structure / Bump Height	170 µm
Frame size	up to Ø8" (DTF 2-8-1)
Frame Type	Disco or K&S, Steel only
Maximum Temperature	Up to 150 °C / 300 °F

MECHANICAL DIMENSIONS

Width	402 mm (15.8")
Depth	670 mm (26.4")
Height	686 mm (27.0")
Weight	46 kg (101 lbs)

UTILITIES

Required ultimate vacuum (absolute)	2 mbar (1.5 Torr), ≥16 m³/h pumping speed
Vacuum connection	Festo PUN-10, Ø10 mm
Pumping speed (recommended) ¹	19 m³/h
Required compressed air pressure ²	2 mbar (1.5 Torr), ≥16 m³/h pumping speed
Compressed air connection	Festo PUN-4, Ø4 mm
Cooling water	Up to 4 bar, 10–20 °C, Ø6 mm connection
Input voltage/frequency	100-240 VAC, 50/60 Hz
Peak power consumption	1190 W

COMPLIANCE

Clean Room Application	Up to ISO 4-5
Conformity	CE Certified, IEC 60204-1 safety standard

¹Pumping speed specified at atmospheric inlet conditions; SCFM and ACFM are equivalent at these conditions.

²Customer to supply dry, oil-free compressed air.