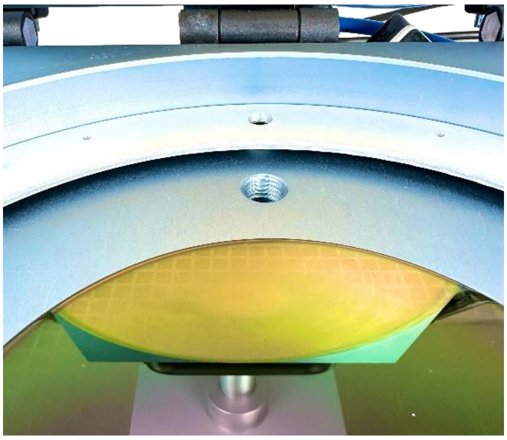
POWATEC

Semi-Automatic TAIKO Wafer Vacuum Mounters

V-200T & V-300T

The Powatec V-200T and V-300T are semi-automatic vacuum wafer mounters designed for TAIKO wafers, sensitive substrates, and structured surfaces that cannot be processed using conventional lamination methods. Using a membrane-assisted mounting process, the tape is applied from above in a controlled, radially symmetric manner. This approach enables uniform, bubble-free mounting while minimizing mechanical stress on delicate wafer edges and surface features.

Description



POWATEC's V-200T and V-300T employ a membrane-based mounting principle specifically developed for wafers with reduced thickness, complex topography, or sensitive edge structures. The wafer is placed on a fixed bottom chuck, while the tape-mounted frame is supported above by a spring-loaded ring. During the automated mounting cycle, a flexible membrane in the upper chamber is pressurized, bringing the tape into contact with the wafer from the center outward under vacuum.

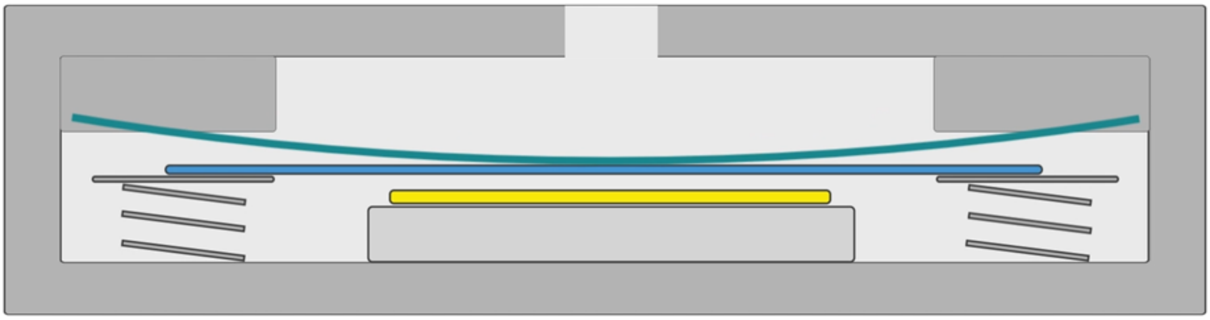
This radially symmetric mounting sequence allows the tape to conform naturally to TAIKO edges and surface variations, significantly reducing air entrapment, stress concentrations, and edge damage. The vacuum environment ensures consistent adhesion quality without requiring elevated temperatures, making the V-T Series well suited for applications using standard adhesive tapes or temperature-sensitive materials.

The system is optimized for efficient single-operator use, achieving throughputs of up to 60 mounts per hour via an intuitive touchscreen interface. Process parameters can be adjusted during development and secured with password protection for stable production operation. As with all Powatec V-Series systems, adhesive tape must be applied to the frame in a separate preparatory step using a frame mounter.

Key Product Features

- ✓ Membrane-based mounting process for TAIKO, sensitive, and curved wafers
- ✓ Tape contact applied from center outward for uniform lamination
- ✓ Minimal mechanical force on fragile wafers and substrates
- ✓ Supports silicon, glass, ceramics, polymers, and specialty substrates
- ✓ 10" touchscreen display
- ✓ Adjustable vacuum and mounting parameters
- ✓ Password-locked parameters for production runs
- ✓ Designed and manufactured by Powatec GmbH, with over a decade of field use in cleanroom semiconductor applications.
- ✓ Table-top device
- ✓ Clean room application

Visualization of the mounting process in the vacuum chamber



Technical Specification

	V-200T	**V-300T**
Frame size	8”	12”
Frame Type	Disco or K&S	Disco or K&S
Wafer size	up to Ø 8”	up to Ø 300mm
Wafer Type	Flat, Curved	Flat, Curved
Wafer Thickness	80 µm – 3 mm	80 µm – 3 mm
Mechanical Dimensions		
Width	360 mm (14.2”)	470 mm (18.5”)
Depth	600 mm (23.6”)	750 mm (29.5”)
Height	815 mm (32.1”)	893 mm (35.2”)
Weight	29 kg (64 lbs)	40 kg (88.2 lbs)
Required ultimate vacuum (absolute)	2 mbar (1.5 Torr)	2 mbar (1.5 Torr)
Vacuum connection	Festo PUN-10, Ø10 mm	Festo PUN-10, Ø10 mm
Pumping speed (recommended)[1]	19 m^3/h (11.2 ACFM)	19 m^3/h (11.2 ACFM)
Required compressed air pressure[2]	4-6 bar (60-90 psi)	4-6 bar (60-90 psi)
Compressed air connection	Festo PUN-4, Ø4 mm	Festo PUN-4, Ø4 mm
Input voltage/frequency	100-240 VAC, 50/60 Hz	100-240 VAC, 50/60 Hz
Clean Room Application	Up to ISO 4-5	Up to ISO 4-5
Conformity	CE Certified	CE Certified

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

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