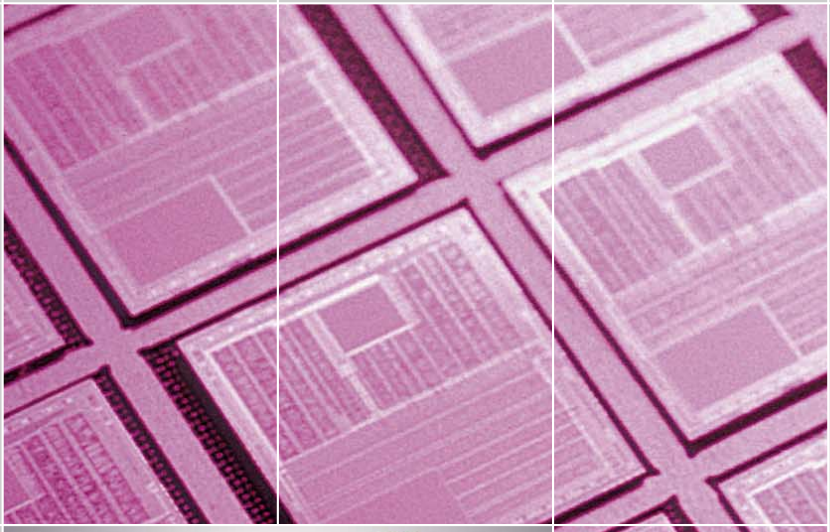
MICROWAVE PLASMA SYSTEM 400 AND 660 SERIES

Plasma Cleaning in Chip Assembly

- improved wire bonding
- improved mold adhesion
- improved underfill



The only plasma equipment for processing in unslotted magazines

- Chip scale packages
- Plastic ball grid arrays
- Chip array PBGAs
- Enhanced PBGAs
- Tape BGAs
- Flex BGAs
- Chip on board
- Hybrids
- Quad flat packages
- Flip chip

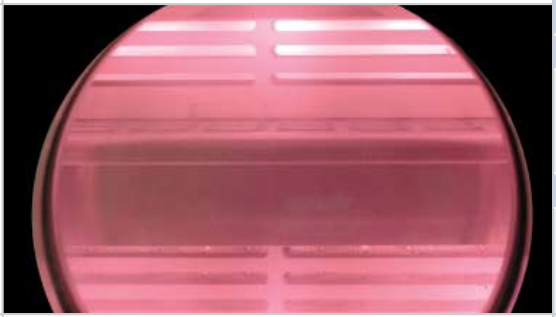
PVA TePla

SEMICONDUCTOR | PCB/CHIP PACKAGING | INDUSTRIAL/MEDICAL

Microwave Plasma Excellence

Plasma systems 400 and 660 are low-pressure microwave plasma systems for cleaning advanced chip packages prior to die attach, wire bond and encapsulation. The electrode-free energy feeding is the key factor for processing substrates in their original, unslotted magazines. Microwaves of 2.45 GHz are simply applied through a window in the wall of the vacuum chamber producing a largely extended plasma there. Unslotted magazines are processed in a downstream configuration, slotted magazines are more properly placed on a rotating platform. Any size of magazine can be processed.

Due to the use of microwaves the plasma systems 400 and 660 provide for fast and damage-free plasma processing. In these plasma systems the plasma cleaning effect is based on chemical reactions of reactive plasma particles (radicals) guided through the substrate carriers. The systems are easy to operate and feature simpliest loading and unloading, manually as well as automatically. System software complies with standards in semiconductor industries. The systems are available as a table-top or all-in-one frame model.



Technical Data

Process Chamber	
Material:	Aluminum
Volume:	64 liters
Inner dimensions:	400 x 400 x 400 mm
	No RF-electrodes inside chamber
Vacuum System	
Vacuum connection:	DN 63 ISO K
Process gas control:	2 gas channels standard, each with MFC and solenoid valve
Base pressure:	Approx. 2 x 10^{-2} mbar
Process pressure:	Approx. 0.2–2 mbar
Evacuation time:	Approx. 1 minute
Vacuum gauge:	Capacitance manometer, 10^{-3} to 10 mbar
Venting:	Solenoid valve
Microwave Generator	Adjustable magnetron, air-cooled, proprietary antenna and coupling geometry
Frequency:	2.45 GHz
Power output:	0–1.000 W
Performance Data	
Uptime:	>95%
MTBF:	>500 h
MTTR:	<2 h
System Control	Main switch, system switch and emergency-off
Microprocessor Controller	Numerical keys, cursor keys and function keys for system operation
	Illuminated LC-display
	Centronics printer interface
	Parameter modification interlocked via key switch
Software	Menue-driven system software
	Manual and automatic operation, multiple recipe storage, system checks,
	warnings, actual/programmed parameter comparison with error messages,
	safety interlocks, etc.
	Process recipe memory for up to 100 recipes, each with 1–5 subprograms
Supplies	
Electricity:	230 V, single-phase, 16 A, 50/60 Hz
Process gas:	1/4“ Swagelok connector, input pressure 1–2 bar
Compressed air:	1/4“ Swagelok connector, input pressure 4–6 bar
Dimensions	
W/H/D:	Approx. 900 x 600 x 760 mm (Plasma System 400)
	Approx. 1.050 x 1.720 x 770 mm (Plasma System 660)
Weight:	150 kg (Plasma System 400)
	180 kg (Plasma System 660 excluding pump)
Options	
Pumping system:	Vacuum pump system comprising rotary vane pump or combination of
	rotary vane pump and 250 m^3/h (145 cfm) rootsblower, 400 V, 3 phase, 16 A
Rotary platform:	Aluminum, 350 mm Ø
Gas channels:	3–4
ECR setup	

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