

Wafer Bonder



FOR HIGH RELIABILITY WAFER BONDING

Models 3180 and 3190 are programmable wafer bonders offered by SST International for high-reliability bonding of silicon, gallium-arsenide and glass wafers up to 6 inches (150 mm) in diameter.

Both systems provide precise automatic control of heating and cooling at temperatures up to 500 °C (1000 °C optional). Bellows actuated clamping platens present uniform mechanical bonding forces up to 750 pounds (5,000 pounds optional) to the wafer pair. The 3190 also provides anodic (electrostatic) bonding capabilities with a user-selected high-voltage power supply and chamber feed-through. Vacuum levels down to 50 millitorr are provided in the 3180 by a two-stage mechanical pump. Vacuum levels below 1×10^{-6} torr are provided in the 3190 by a cryogenic vacuum pumping system combined with a dry mechanical forepump. Digital vacuum level gauging is provided to monitor and control vacuum levels. Machine control is provided by an embedded control system operating in a Microsoft Windows® environment. An unlimited number of process profiles can easily be created and stored in the controller. Run data is archived for quality control and off-line data analysis. Internet and intranet network connectivity is available as an option, permitting remote monitoring, troubleshooting and maintenance capabilities.

TYPICAL APPLICATIONS

- Silicon to Glass Wafer Bonding
- Anodic Wafer Bonding
- Eutectic Wafer Bonding
- MEMS Wafer Bonding
- Pressure Sensor Bonding
- High Temperature/Pressure Glass Flow

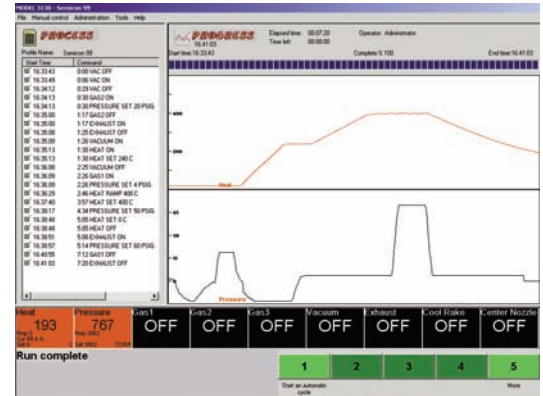


SST International

"World Leader in Package Assembly"

CONTROL SYSTEM

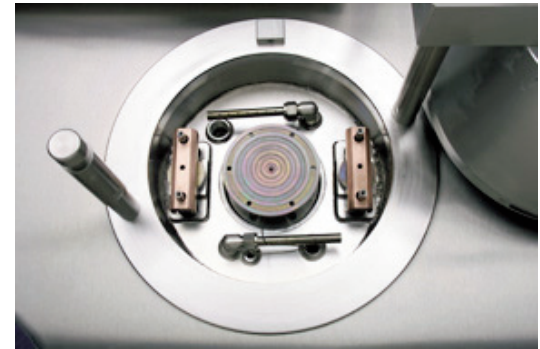
Models 3180 and 3190 utilize distributed logic systems that link intelligent temperature and pressure controllers to a Microsoft Windows® based central control. All process parameters are controlled automatically with user-edited programs for each application. Multiple temperature ramp and soak cycles, vacuum and pressure cycling, mechanical wafer clamping force and anodic power supply settings are easily programmed as time-based events. Furnace operating characteristics are continuously monitored and the operator is alerted to any fault conditions. The operator interface features a color touch-screen display and PC keyboard. All process file results, including ultimate vacuum levels, are stored directly on the system hard drive.



Color Touch-Screen Display

SELECTED 3180/3190 OPTIONS

- Custom Graphite Tooling
- Extended Temperature Range (1000 °C)
- High Clamping Force (5,000 pounds)
- Residual Gas Analyzer (RGA)
- Multiple Zone Temperature Recording
- Moisture Level Recording
- Internet Connectivity
- Cooling Water Chiller/Pump
- Light Tree
- Color Inkjet Printer



3180 Process Chamber

SPECIFICATIONS *

| | 3180 | 3190 |
|--------------------------------------|--|---|
| Vacuum Pump Type | Mechanical | Cryogenic |
| Minimum Vacuum Level | 50 millitorr (.065 mbar) | 1 x 10 ⁻⁶ torr (1 x 10 ⁻⁶ mbar) |
| Operating Temperature Range | RT to 500 °C (1000 °C option) | |
| Thermal Work Zone | 6 in (150 mm) diameter | |
| Adjustable Mechanical Clamping Force | 0 - 750 lb (0 - 3 kN) or 0 - 5,000 lb (0 - 20 kN) option | |
| Maximum Chamber Gas Pressure Level | 50 psig (4.5 bar) | 15 psig (2 bar) |
| Process Gasses (three inputs) | N ₂ required, (Ar, He, forming gas optional) @ 90 psig (7 bar) minimum pressure | |
| Electrical Service | 208-240 volts, 60 amps, 60/50 Hz, 1 phase, 5 kilowatt average, 25 kilowatt peak | |
| Cooling Water Required | 2 GPM (8 lpm) @ 20-25 °C, 2 kilowatt capacity minimum | |
| Compressed Air Required | 90 psig (7 bar), ¼ in (6.5 mm) inside diameter line | |
| Overall Size (W x D x H) | 58 x 54 x 53 in (147 x 137 x 135 cm) | 94 x 54 x 53 in (239 x 137 x 135 cm) |
| Helium Compressor Size (W x D x H) | not applicable | 20 x 22 x 17 in (50 x 57 x 43 cm) |
| Total Weight | 1400 lb (650kg) | 2400 lb (1100 kg) |

* Specifications subject to change



SST International

9801 Everest Street
Downey, CA 90242
Website: www.sstinternational.com

"World Leader in Package Assembly"

Tel: (562) 803-3361
Fax: (562) 803-4043
E-mail: info@sstinternational.com