MOOV

EVG850DB Automated Debonding System
(up to 200 mm, up to 4 process modules, automated handling)
Tooled for debonding of 150 mm Device Wafers from 155,6 mm Carrier Wafer



1 1 **Basic Unit**
- Platform enabling fully automated operation with handling system and process modules
- PC controlled Microsoft Windows® based operating environment
- Solid state drive and hard drive for high availability and reliability
- LAN connection for remote connection and diagnostics
- Data backup to USB and/or DVD
- Prepared for installation of filter-fan units
- Interlocked safety doors, signal light tower
- EC Declaration of Conformity (certification done by EVG)

2 1 **Handling Unit**
- Four (4) axis industrial robot for substrate handling

3 1 **Facility connections through machine sidewall**
- Does not require a cleanroom with raised floor / sub floor

4 1 **Software - *EVG CIMFramework***
- Graphical User Interface (GUI) according to SEMI E95
- Flexible process flow definition
- Easy drag and drop recipe programming
- Parallel processing of multiple jobs
- Automated recording of process and machine parameters
- Integrated analysis features for process and machine parameters
- Throughput optimized handling sequence
- Advanced maintenance functionality
- Password protected access levels

5 1 **Ionizer Bar for Handling Area T-Frame**
- Ionization nozzles with power supply for ESD save environment
- Ionizer bars mounted in cleanroom environment or under Minienvironment
- Ionizer bars prepared for purge function with N2 or CDA
- Optimized utilization due to process triggered activation of purge and ion generation (all ionizer bars in a system will be controlled simultaneously)
- Includes maintenance set for Ionizer (charge plate monitor and charge plate not included)

6 1 **User Interface**
- Graphical User Interface (GUI) for automated processing
- User interface including keyboard and monitor
- Effective operation and control of the machine
- Feedback from the machine
- Stand alone unit

CASSETTE STATIONS

7 3 **Fully Automated Ergo Load Cassette Station**
- Cassette present sensor
- Adjustable for different semi standard wafer cassette sizes
- Cassette not included
- Tilt mechanism for wafer cassette according to SEMI S2 and S8

8 3 **Material Mapping Unit (MMU)**
- To detect missing or cross slotted substrates in send cassettes
- to be installed right in front of the Fully Automated Ergo Load Cassette Station

ROBOT UNIT / WAFER AND CARRIER HANDLING

9 1 **Thin Wafer Endeffector (Bernoulli) for 150 mm Substrates**
- Bernoulli Endeffector
- For single wafer size
- Enables enforced wafer transfer from / to system stations
- Additional Vacuum / CDA Supply Unit necessary
  Vacuum / CDA Lines from Supply Unit to endeffector

10 1 **Supply Unit for Thin Wafer Endeffector (Bernoulli)**
- To be implemented onto Robot
- Supply unit for adequate supply of Thin Wafer Endeffector
  including Vacuum / CDA Supply Unit
- Hardware / Software / Process Implementation

11 1 **Thin Wafer Endeffector for 150 mm Thin Wafer**
- Thin wafer handler for transfer of debonded thin wafers to cleaning station
- Wafer handler for transfer of cleaned thin wafer
- **Rotating capability**
- Quick exchange design for thin wafer handlers
- Software functionality to use dedicated endeffector for dedicated transfer processes

12 1 **Standard Pre-Aligner**
- Non-contact, optical pre-aligner
- Including wafer chuck for specified wafer size
- For pre-alignment of standard, round substrates
- With flat/notch detection
- Material selection (opaque, transparent) via software recipe
- Scan area 3" - 8"

13 1 **Wafer Buffer Station for 150 mm Wafer**
- Buffer Station for buffering up to four (4) wafer
- Will be used to buffer carrier wafer prior to cleaning process
- This will clear up Debond Station and thus increase system throughput

Debond Module up to 200 mm

14 1 **Debond Module for up to 200 mm Wafer**
- Tooled for wafer size as per debond chucks below
- Fully recipe controlled debonding of thermal release bonding agents like **"hot-melt" adhesives, waxes or tapes**
- Top and bottom side heater with independent temperature control
- Maximum **350 °C** debond temperature
- Motorized horizontal-axis (Y) for controlled debonding speed during **slide off** debond procedure
- Recipe controlled speed of all axes
- Loading pin unit for loading wafer stacks and unloading carrier wafers

15 1 **Rapid Cooling Capability for Top Side Heater**
- Enabling faster unloading of device substrates
- Forced water cooling
- Silent operation
- Programmable cooling temperature set point
- Requires closed loop cooling water supply according to EVG Specification

16 1 **Rapid Cooling Capability for Bottom Side Heater**
- Enabling faster unloading of carrier substrates
- Forced water cooling
- Silent operation
- Programmable cooling temperature set point
- Requires closed loop cooling water supply according to EVG Specification

17 2 **Debond Chuck Top-Side for 150 mm Substrates**
- Chuck for thermal release debond module
- For usage of **nonperforated** device wafers
- Full area vacuum fixture of wafers
- For up to 350 °C process temperature

18 2 **Debond Chuck Bottom Side for 155,6 mm Substrates**
- Chuck for thermal release debond module
- For usage of **nonperforated** carriers
- Full area vacuum fixture of wafers
- For up to 350 °C process temperature
- Cutouts for loading pins

Clean Module up to 200 mm

19 2 **Clean Module (200 mm)**
- All parts in contact with wafer and cleaning fluid are Polypropylene or Teflon® coated (on customer request)
- Spin drying up to 3000 rpm
- Optional high efficient particle removal with one (1) MHz megasonic system, brush or chemical cleaning
- Bowl wash functionality
- Opaque Polypropylen splash protection for use with chemicals and solvents

20 2 **Spinner Chuck for 150 mm Thin Wafers**
- Dedicated for processing thin wafers (Si, compound materials, etc.)
- Compatible with BSR of wafer edge
- Large area vacuum fixture keeps device wafer flat
- Requires venturi ring and BSR system to avoid wafer back side contamination

21 2 **Venturi Ring for 150 mm Wafers**
- To reduce wafer back side contamination during slow spin processes
- Limited compatibility with BSR / back side cleaning functionality
- Requires additional N_2 utility supply
- Automatic switchable via software recipe
- Use in combination with thin wafer chuck and BSR system

22 1 **Toolkit for Easy Chuck Exchange**
- 6" tool
- Required for fast exchange if thin wafer chuck and venturi ring is installed

23 1 **Venturi Ring Adjustment Unit**
- 6" tool
- Required for accurate leveling of venturi ring

24 2 **Wafer Transfer Unit for Clean Module**
- For 150 mm substrates
- To be integrated onto cleaning chamber
- For single wafer size
- For enforced wafer transfer from/to endeffector / chuck
- Vacuum pads mounted on external swivel unit
- Homing position outside of active wafer area
- Pneumatically actuated

25 6 **Back Side Rinse (BSR) System for 200 mm Wafers**
- For BSR on wafer edge
- Software for fully programmable back side rinse process
- **BSR system for one (1) rinse media**
- Rinse media to be defined prior PO

26 6 **Digital Flow Meter**

- For flow rates from 0.05 l / min - 6 l / min
- Including software implementation of readout and set point evaluation
- System will give alarm if set flow will be below or above the minimum or maximum value set in the software
- This can happen in idle as well as in process mode of the system

27 6 **Back Side Rinse (BSR) Nozzle for 150 mm Wafers**

- One (1) nozzle in chamber insert for **150 mm** wafers

28 2 **Support Part for Back Side Rinse Nozzle**

- Enables BSR function
- Can hold up to three (3) nozzles at same diameter

29 6 **Chemistry Line**

- Consisting of valve, needle valve and software integration
- For use with diluted chemicals, solvents or removers
- Compatibility to other chemicals on request
- To be connected to house chemical supply system (not included) or use options "Pressurized Tank for Diluted Chemistry or Solvents" AND "Chemistry Cabinet for up to 2 or 6 Chemicals"

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31 2 **Ionizer Bar for one Process Module**

- Ionization nozzles with power supply for ESD save environment
- Ionizer bars mounted in cleanroom environment or under Minienvironment
- Ionizer bars prepared for purge function with N2 or CDA
- Optimized utilization due to process triggered activation of purge and ion generation (all ionizer bars in a system will be controlled simultaneously)
- Available on open substrate processing module

Thin Wafer Carrier Output Format

32 1 **Mounter Station**

- **For up to 200 mm wafer, tooled for 150 mm wafer**
- Transfers incoming (thinned) wafer to a Thin Wafer Carrier (as specified)
- Loading pins (vacuum pads) for (thinned) wafer
- Motorized loading pins for thin wafer carrier
- Pressure disk for up to 500 N contact force

33 50 **Thin Wafer Carrier for 150 mm Substrates**

- Vacuum release trays
- Active area for 150 mm thin wafer
- Round shape without notch or flat
- Polyester back plate
- Temperature capability up to 70 °C

34 4 **Cassette for Thin Wafer Carriers**

- **For 150 mm substrates**
- Dedicated cassette for storage and transfer of thin wafer carriers
- For storage of thin Wafer carriers as specified
- 13 Slots

CHEMICAL SUPPLY AND DRAIN AND EXHAUST

35 3 **Tank for Solvents and Removers**

- Pressurized SS tank for use with:
  - Solvents or Removers
- Including valve for vent and pressurizing
- Level sensing system for display in software
- For only use on chemistry dispense line (rinse)
- Storage of diluted chemicals in pressurized tank as well as the refilling procedure is to be verified with safety standards at installation site

36 1 **Chemistry Cabinet for up to Three (3) Chemicals**

- Housing with front door access
- Exhaust port
- Second containment and spill sensor
- For up to three pressurized SS tanks of 20 l / 5 gal volume
- Degassing module for each chemistry line

37 3 **Tank Refill**

- Connection to cleanroom supply line
- Automated refill if warning level in tank is reached

38 1 **Closed Loop Cooling Water Supply**
Water to Water Heat Exchanger

- Adjustable temperature control from 15 °C to 35 °C (dependent on building water temperature)
- Temperature stability: ± 1 °C
- Removes up to **15 kW**
- Positive displacement pump (9 l / min up to 2.9 bar)
- High temperature and low level safety switches with external contacts to wire to an alarm (optional)
- Reservoir volume: 1 gallon, 3.8 liters
- Tap or building water inlet temperature 15 - 25 °C
- **This unit requires an external source of tap or building water**

39 1 **Language options for GUI and EVG User Manual (Automated System)**

- English

40 1 **Packing - EVG850DB**

No.	Description
1	EVG Upgrade: Upgrade for processing 6" Device Wafer - 90000190 Tool will be able to process 6" on 6" wafer Loading pins for DB will be redesigned to handle 6" and 6,125" List of included hardware: 1 X Material Mapping unit (MMU) - To detect missing or cross slotted substrates in send cassettes - To be installed right in front of the Fully Automated Ergo Load Cassette Station. 1x Fully Automated Ergo Load Cassette Station - Cassette present sensor - Adjustable for different SEMI standard wafer cassette sizes - Cassette not included - Tilt mechanism for wafer cassette according to SEMI S2 and S8 - Cassette Types specified on order - Wafer chuck debonder - Centering part for cassette SW changes included: - There will be two tooling profiles to choose in the SW - 6 inch and 6,125 inch - Configuration