

OPTIMUM THINFILM TECHNOLOGY

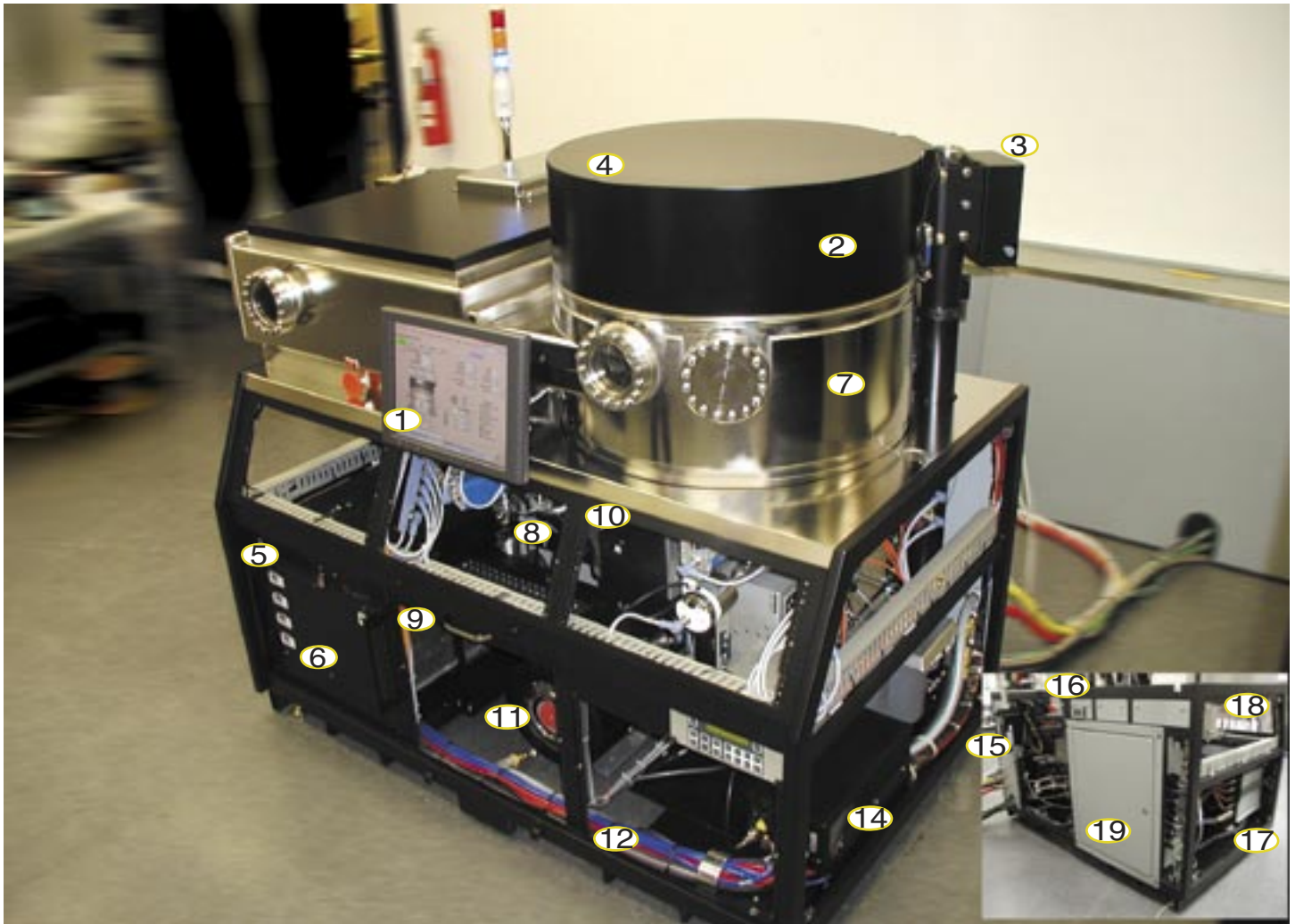
ONLY FROM TES



Perkin-Elmer 4450

Remanufactured Perkin-Elmer 4450 Load Lock Sputtering System, fully upgraded. TES can modify any aspect of our remanufactured process tools to meet individual customer specifications.



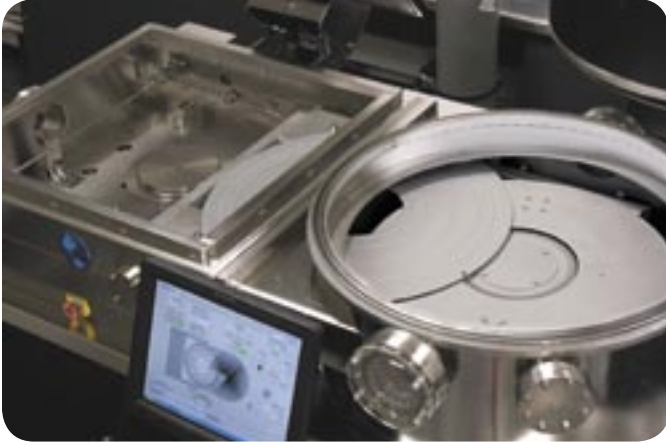
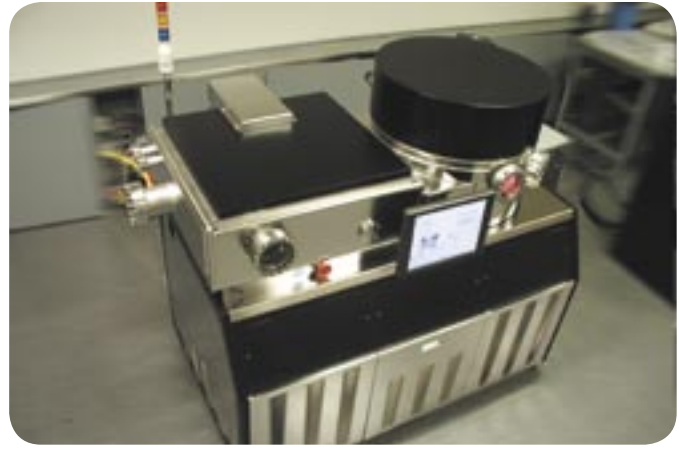
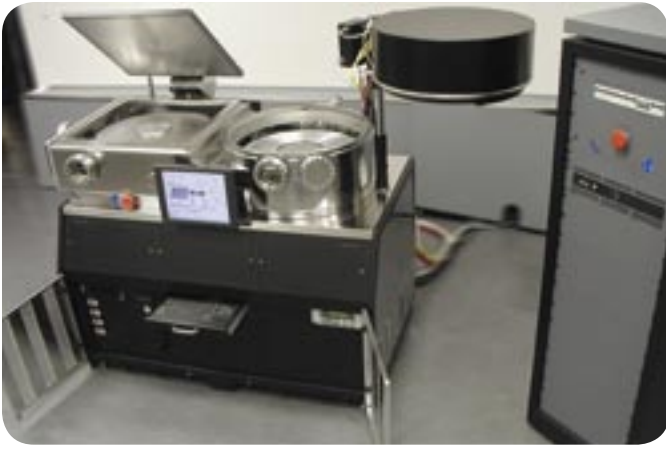


The All-In-One Productivity System from TES

PERKIN-ELMER 4450

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| <ol style="list-style-type: none"> 1. Color touch-screen 2. Cathode select relays are Jennings Vacuum rated at 5kw 3. DeviceNet™ optical shutter position sensors 4. Simplified sputter head design 5. Industrial PC with RW CD Drive 6. DeviceNet™ Controlled water/pneumatic distribution box 7. Electro polished chamber and components 8. VAT throttling gate valve and controller 9. Keyboard with hula mouse 10. DeviceNet™ controlled precision table motor and controller 11. Oil free scroll type mechanical pump 12. Color coded air and water lines | <ol style="list-style-type: none"> 13. DeviceNet™ mass flow controller (capacity-up to four MFC's) 14. Advanced Energy® RF power supply and matching network 15. RGA (Residual Gas Analyzer) 16. Cryo temp read out with feed to PLC 17. Quick disconnects and mounted rails for easy access 18. DeviceNet™ input/output module 19. PLC (Process Logic Controller) |
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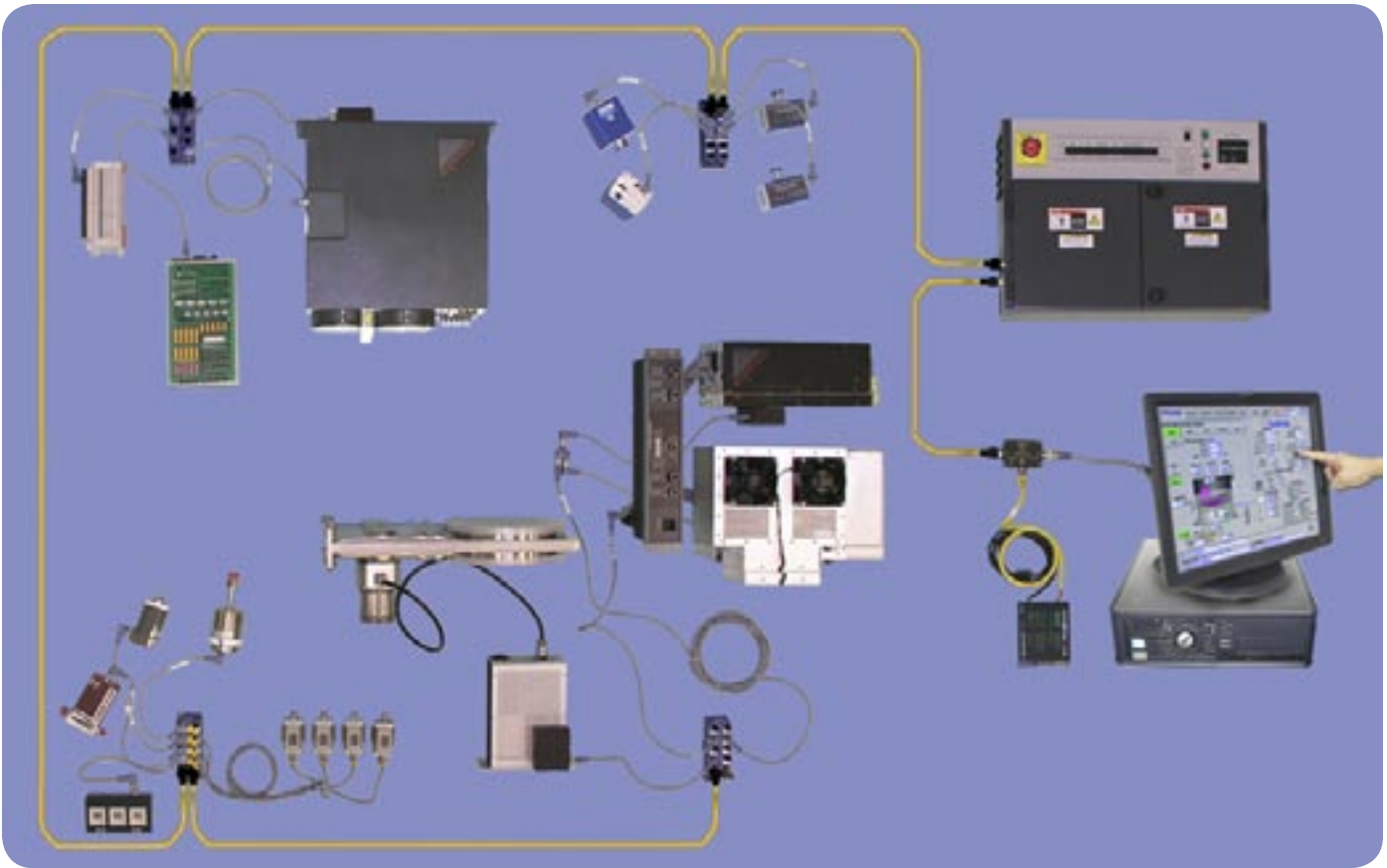


INNOVATIVE FEATURES

PERKIN-ELMER 4450

- Fast-cycle load lock
- Sputter down configuration
- Sputtering head configured with three delta cathodes (other configurations are available)
- State of the art PLC with color touch screen control system
- DeviceNet™ digital communication network between system components
- Ferrofluidic® table drive assembly with precision motor for rotation also has the ability to pass the pallet in alternating directions under a cathode if a single wafer or a small batch is required, minimizing target waste.
- Pinnacle 6 kw Advanced Energy® DC power supply.
- Advanced Energy® RF power supply with automatic impedance match box to be used for RF magnetron sputtering and substrate etching.
- Gas distribution manifold is low RMS stainless steel and is equipped for up to three process gases - VCR fittings are used throughout.
- Temperature compensated capacitance manometer.
- System is configured for downstream, closed-loop pressure control.
- Process chamber is pumped by model CTI-8 cryo pump.
- 21 CFM oil free scroll type mechanical pump.
- Odd shapes and irregular substrates can be easily processed.
- Optional turbo molecular pump load lock.





INNOVATIVE FEATURES

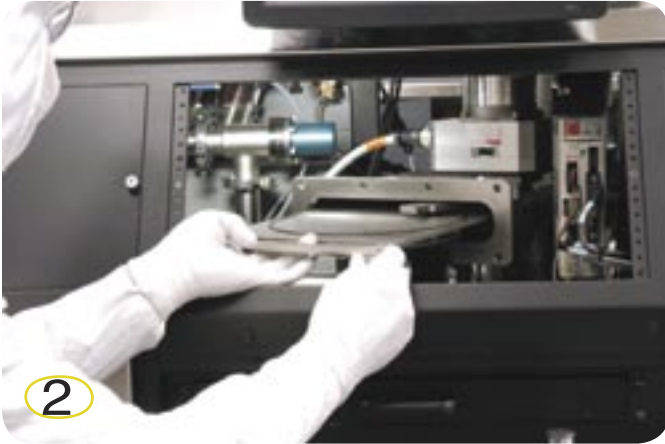
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The DeviceNet™ digital communication network is used between system components. This single cable, serial communication method simplifies the system design and reduces traditional wiring by over 75%. Built-in network diagnostics make troubleshooting, maintenance and upgrades quick and easy, reducing downtime and increasing productivity.

DeviceNet™ gauges, mass flow controllers, motor controllers, input modules, and fiber optic sensing units all have individual diagnostic indicator lamps to show current status.

Each of these components has been conveniently placed for easy viewing and access for servicing. This allows the maintenance technician to readily view and diagnose the status of any module.



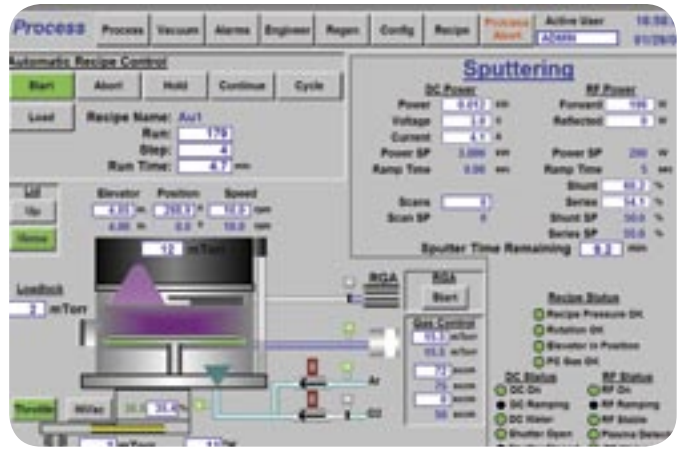
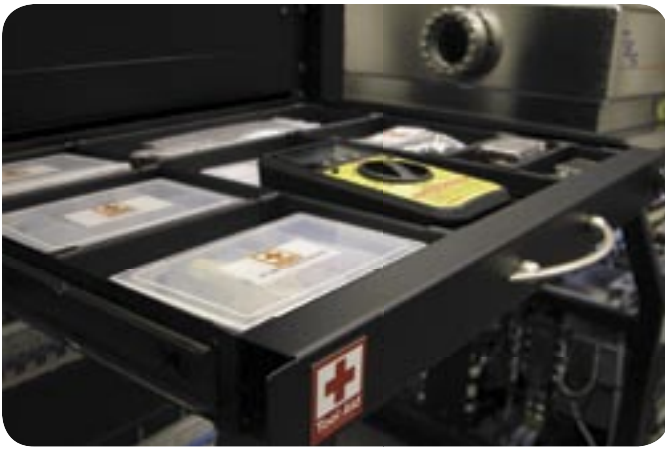


INNOVATIVE FEATURES

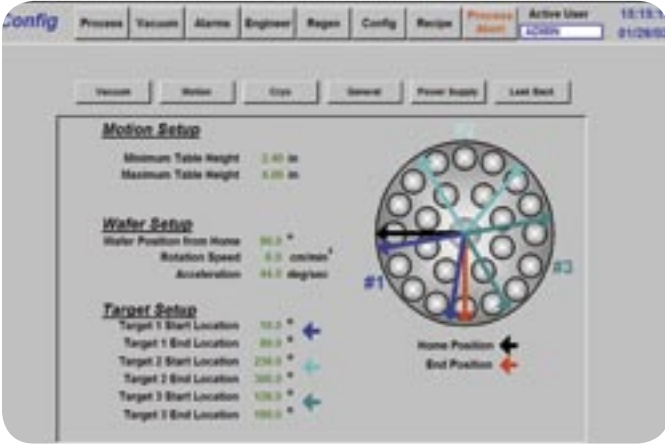
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- ① TES has redesigned and remanufactured this system with ease of maintenance as a priority. The removable panels and covers on the system can be provided in electro-polished stainless steel or powder coat to match your facility color scheme, which reduces particulate contamination and improves and increases long-term appearance.
- ② TES has selected the most efficient and highest quality components to use throughout the system, such as the VAT series 64 throttling gate valve. Using this valve reduces components, simplifies service and greatly improves reliability. It has been positioned so that maintenance personnel can remove one access panel and completely service this valve in well under ten minutes. We use Nupro stainless steel type valves, also contributing to overall reliability.
- ③ We use GE Fanuc or Allen Bradley PLC control and support systems, which are conveniently located in a single sealed box. Components are positioned and labeled for serviceability.





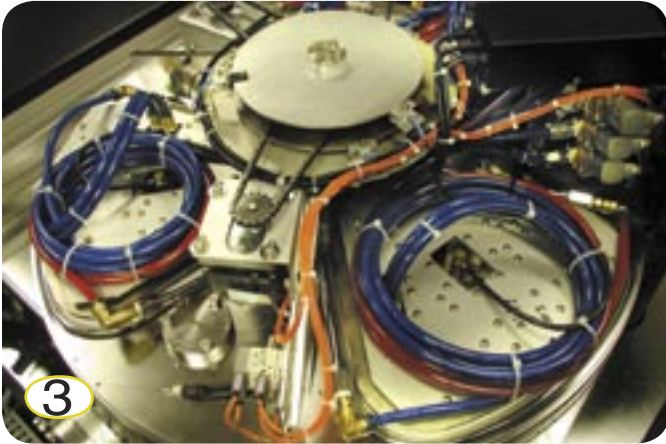
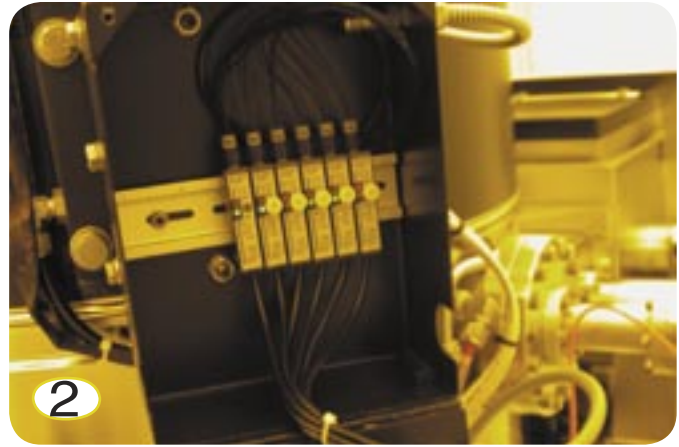
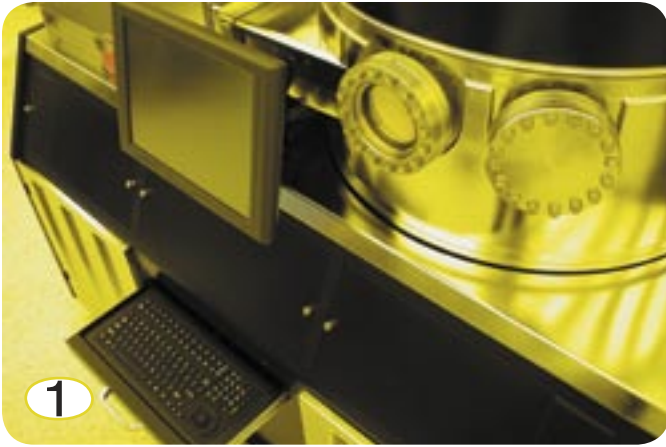
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INNOVATIVE FEATURES

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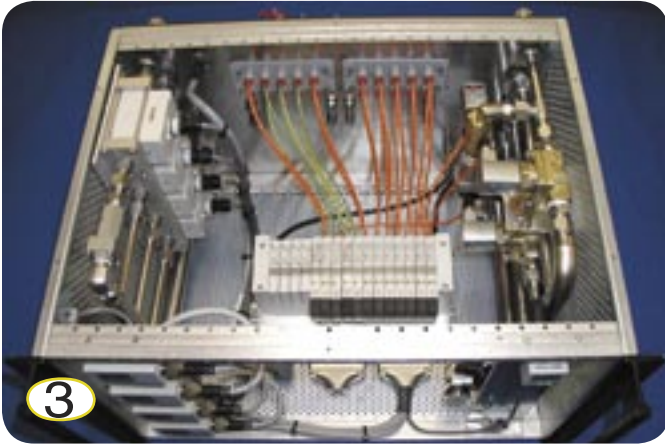
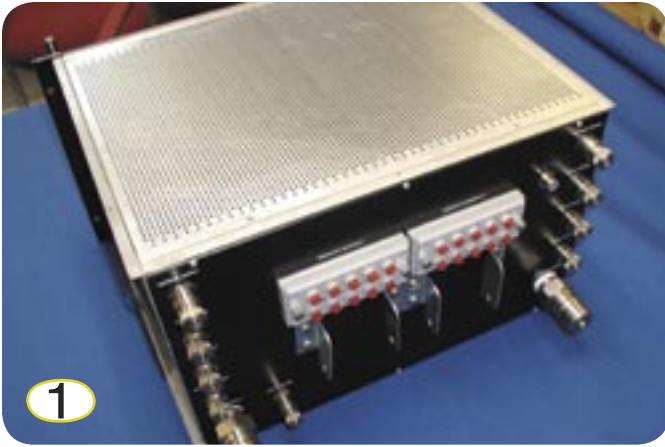


INNOVATIVE FEATURES

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- 1 Color touch-screen and keyboard with hula mouse. Industrial PC network ready.
- 2 To reduce electrical noise, we can use a DeviceNet™ optical shutter position sensing system, remotely mounted on the head.
- 3 This system is offered with the original Perkin-Elmer Delta type magnetron cathodes. An enhanced magnetron magnet assembly is offered as an option. Other cathode configurations can be incorporated. It can be configured with the latest DC, DC pulsed or RF power supplies. The head is half the size of the original, and access has been improved by eliminating the original electronics. We use quality Jennings vacuum relays to distribute selected power to each cathode.



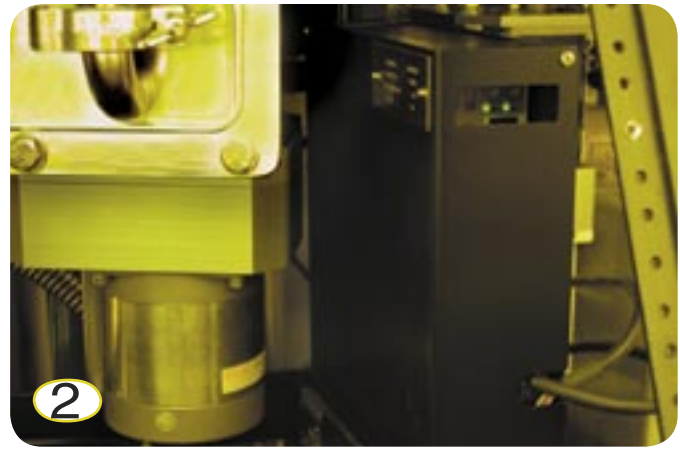
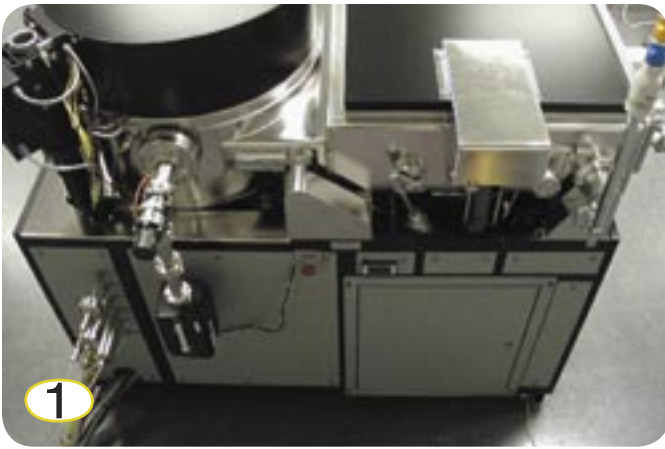


INNOVATIVE FEATURES

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- 1 Pneumatic valve solenoid, control block and complete water cooling system with quick disconnect controls are mounted in a self-contained console with flex conduit on pull-out rails for easy access.
- 2 Sensor monitor and display water flow rates and air pressure. A single DeviceNet™ manages all components within this console.
- 3 Quality SMC valves, pneumatic and flow pressure sensors are used within the box. Tubing is color coded for easy troubleshooting and maintenance. SMC products are superbly designed and are readily available worldwide.





INNOVATIVE FEATURES

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- ① A single location is used for all facilities connections to the system. The optional RGA is conveniently located. A scroll type mechanical pump guarantees completely oil-free operations.
- ② Panasonic's servo motor/encoder with DeviceNet™ controller replace the original table rotation motor, providing precision inertia, speed, and position control. The single 120 VAC power cord and DeviceNet™ connection allow this device to be easily replaced.
- ③ The removable panels and covers on the system can be provided in electro-polished stainless steel or powder coated to match the facility color scheme, which reduces particulate contamination and improves and increases long-term appearance.
- ④ A two-part training CD is provided, the first portion of which offers a detailed demonstration of system operation. The maintenance portion of the training CD provides visual and audio assistance in regular maintenance tasks, helping to clarify the written instruction and mechanical prints provided in the manual.





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