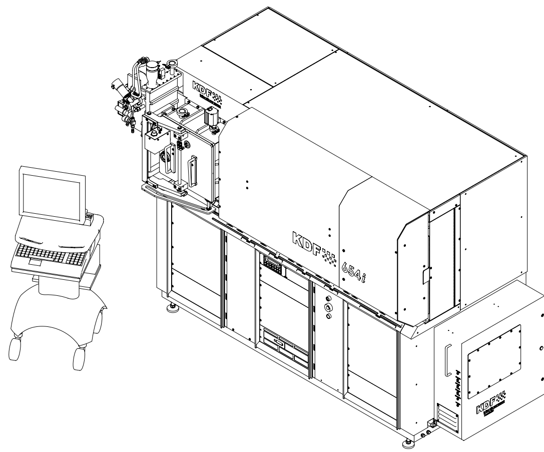
600i SERIES



600i Series:

603i, 643i, 643ix, 654i **and** ***654ix***

The ***600i Series*** is targeted towards sensitive applications using both standard materials and those that produce particulate contamination. The tools in this family surpass the criteria for deposition of thin films in high-density devices and other applications requiring absolutely minimal defects.

- **Vertical side sputtering systems**
- **13” x 13” pallet size**
- **Small footprint**
- **Dual-process loadlock**
- **Optional OPUS Robot designed for particulate-free, reliable cassette to cassette substrate handling operations**
- **Multiple bias types enable denser films and planarization**
- **Multi-size capability enables rapid change from one substrate to another; substrate size can be changed run to run (pallet based)**
- **Optional integrated RGA for process and fault monitoring of gas peaks along with integrated hivac step**
- **New in situ pallet optical measurement hardware with integrated software allowing operators to program and control actual pallet temperature**

The ***600i Series*** features multi-process sputtering for increased process flexibility and higher throughput. The ***600ix Series*** family also features a special application Linear Moving Magnetron™ Cathode. The patented design of the LMM™ Cathode is engineered for efficiency in today’s most demanding applications by providing bulletproof high-rate reactive process, full face erosion and low particle generation. In addition, the ***600i Series*** can handle one 8” wafer and as many as thirty-six 2” wafers. Optional gas delivery systems allow for enhanced reactive processes.

In line with your process

The most reliable in-line sputtering tools in the industry are developed and manufactured by KDF. All of KDF’s systems are engineered to meet versatility and high throughput demands across a number of markets at the industry’s lowest cost of ownership.

- **Mainstream silicon**
- **Emerging materials**
- **Flat panel displays**
- **Optical communications**
- **Medical devices**

Across all platforms, KDF’s in-line batch sputtering systems are easier to use and maintain than cluster tools. KDF’s solutions provide users with increased:

- **Film uniformity**
- **Throughput run to run**
- **Process stability**
- **ROI**
- **Automation**
- **Tool uptime**
- **Reliability**
- **Environmental health and safety benefits**

KDF meets the needs of its customers by quickly developing tailored solutions and building on its core competencies. KDF can specifically engineer its tools for increased throughput, ROI or time to market. All existing KDF equipment is supported with upgrades and retrofits. In addition, as the OEM for MRC batch systems, KDF sustains all MRC batch products offering complete parts and service support on a world wide basis.

603i
The *603i* is typically used for sensitive applications that utilize target material that produces unusually high particulate contamination. The base *603i* with its rough pumped load lock allows users to achieve fast production exchange cycles. The *603i* is typically used in telecommunications manufacturing, chip resistor and resistor network applications, along with a host of other manufacturing processes.

643i
The *643i*'s advanced mechanical and electrical design features results in tight process control, high reliability and extremely low defect rate. The *643i* builds on the 603 base by adding a high vacuum pumped load lock with quartz heat lamps. Process control features include palletized batch processing area that allows instantaneous changing of wafer sizes, enabling a change of pallets to occur on any given run. For example, either front or back side GaAs wafer process can be accommodated. KDF maintains a large pallet library, offering clients pallets that are optimized for a wide range of applications.

654i
Developed for the rapidly growing telecommunications and compound semiconductor markets, the four-target versatility of *654i* tools can be applied to full range of leading edge microelectronic component manufacturing applications. The system provides enhanced etch and deposition uniformity and high-speed batch processing.

643ix and *654ix*
The *643ix* and *654ix* are two of KDF's *x Series™* products. They feature the latest KDF cathode designs, which have been lengthened to 17 inches, offering improved uniformity over the entire pallet. *x Series™* cathodes are available in both Planar™ and Inset™ cathode form, along with others in the KDF cathode family

600i Series Vacuum Specifications

- Chamber ultimate ≤1 x 10^{-7} torr.
- Chamber leak rate, 20 minutes to 1 x 10^{-4} torr.
- High vacuum dome ultimate ≤1 x 10^{-7} torr.
- High vacuum dome leak rate, 15 minutes to 1 x 10^{-4} torr.
- Pump down from atmosphere 110 minutes or less to 1 x 10^{-6} torr or 2 x 10^{-7} torr overnight.

SYSTEM CAPACITY							
	2" wafers	3" wafers	4" wafers	5" wafers	6" wafers	8" wafers	300mm wafers
600i PALLET 13" x 13"	36	16	9	5	4	1	1

600i Series System Hardware Features

- 12kW low stored energy DC power supplies (Advanced Energy).
- Integrated throttling SS VAT valve allowing for upstream or downstream pressure control.
- MKS multi component "Smart" 999 and 925 gauges for integrated vacuum measurements.
- Process gas control with up to four gas controllers; feedback controlled capacitance manometer; master/slave gas select ability; and gas ratio control.
- Stepper motor pallet carrier drive with optical encoder providing accurate programmable pallet carrier positioning, scan velocity profiling available.
- Low pressure hydraulics system for safety and smooth operation.
- Loadlock linear sensor – computer controller positioning system for increased loadlock accuracy and more limited fail-safe.
- Optional 1.25 or 3.0 kW RF solid state power supply (Advanced Energy).
- Complies with Semi S2-0706 guidelines.
- Consult factory for an extensive list of standard options.

600i Series Computer Sub-System

- Windows™ XP Pro real-time GUI Environment, coupled with SAW touch screen and 19" LCD monitor mounted on an umbilicaled mobile HI cart.
- Context sensitive recipe manger running out of Microsoft® Access™ database.
- Fully integrated package for real-time data display, data logging fully compatible with Excel™, Lotus™ and other Windows™ applications, report generation, remote interface and printing.
- Connectivity to SECS/GEM communication and Windows™ applications through and OPC server interface.
- Distributed Rockwell Control System utilizing Device Net and Ethernet IP field bus technologies.
- Maintenance test suite with full diagnostic and manual process control capability.
- Service friendly fully enclosed electronic cabinet.

600i Series Basic Facility Requirements

- Power: 208 VAC, 3-phase, 100 Amps.
- Water: 6.5 GPM, 60 PSIG min., 10°C - 24°C.
- Compressed Air: 85 - 100 PSIG.
- Process Gas: 25 PSIG 99.999%.
- Pure Gas: Dry N_2.

* Contact KDF for details on the many optional features available for *600i* series systems. Specifications subject to change.

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