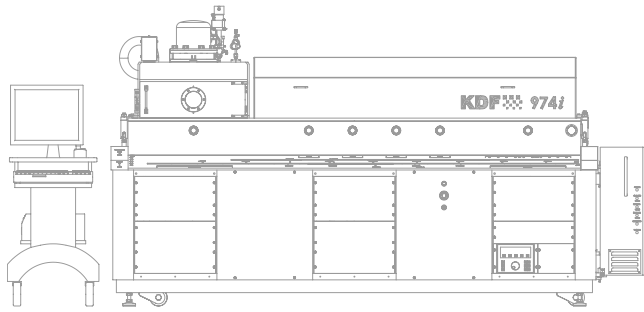


974i SERIES



974i Series:

Designed to meet today's stringent production requirements, the *974i Series* offers process flexibility typically found in R&D systems. The *974i Series* surpasses the criteria for deposition of thin films in application critical devices and other applications requiring the absolute in uniformity.

- **Horizontal cathode and substrate orientation for gentle substrate fixturing and varied substrate sizes**
- **20" x 20" substrate area**
- **Capacity to process dimensional substrates up to 2" thick**
- **High-rate DC magnetron sputtering and single / multiple-pass deposition features**
- **Capacity to process up to one Gen 2.5 substrate on the pallet**
- **Throughput for 200mm wafer metallurgy is increased four times over that of a 900i Series system**
- **High vacuum loadlock with quartz heater lamps for efficient degassing of substrates**
- **Optional planetary substrate pallet for unsurpassed film uniformity**
- **Optional integrated RGA for process and fault monitoring of gas peaks along with integrated hi vac step**
- **New in situ pallet optical measurement hardware with integrated software allowing operators to program and control actual pallet temperature**

The *974i Series* systems can be equipped with KDF's exclusive and innovative Enhanced Rotary Planetary Pallet (ERPP™), which provides greatly improved wafer uniformities. In tandem with KDF's cathodes, this pallet option can achieve better than $\pm 1\%$ uniformities across the pallet and better than 0.5% repeatability between runs for dielectrics such as SiO_2 and TiO_2 , compared with traditional pallet uniformities of $\pm 15\text{-}20\%$ for such materials.

For special applications the *974i Series* family also features KDF's Focest Cathode™, originally developed for high-aspect ratio deep trench fills. This cathode is capable of increasing uniformity, rate and material utilization.

KDF
in line with your process

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.



The **974i** is targeted at contact metallurgy processing because of its pure metal target deposition and convenient wafer to pallet loading abilities, for sputter down applications.

The **974i** is ideally suited for manufacture of application critical thin films for hybrid circuits for defense, aerospace and space telecommunications applications. These applications normally require repeatable, high-throughput process for producing uniform films.

The **974i** is designed for processing GaAs and other compound semiconductor applications. It is a four-target batch sputtering tool for both front and backside deposition, providing high utilization that increases cost-effectiveness and productivity.

The **974i** features the latest KDF cathode designs, which have been lengthened to 24.5 inches, offering improved uniformity over the entire pallet. Cathodes are available in both Planar™ and Inset™ cathode form.

974i Series Vacuum Specifications

- Chamber ultimate $\leq 1 \times 10^{-7}$ torr.
- Chamber leak rate, 20 minutes to 1×10^{-4} torr.
- High vacuum dome ultimate $\leq 1 \times 10^{-7}$ torr.
- High vacuum dome leak rate, 15 minutes to 1×10^{-4} torr.
- Pump down from atmosphere 110 minutes or less to 1×10^{-6} torr or 2×10^{-7} torr overnight.
- Load-lock high vacuum pressures utilizing CTI[®] cryo pump.

974i Series System Hardware Features

- 20kW 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.
- Fully automated self locking top plate support system.
- Stepper motor pallet carrier drive with optical encoder providing accurate programmable pallet carrier positioning, scan velocity profiling available.
- Loadlock linear sensor – computer controller positioning system for increased loadlock accuracy and more limited fail-safe.
- Low pressure hydraulics system for safety and smooth operation.
- Optional 3kW/RF solid state power supply (Advanced Energy).
- Complies with Semi S2-0706 guidelines.
- Consult factory for an extensive list of standard options.

974i Series Computer Sub-System

- Windows™ XP Pro real-time GUI Environment, coupled with SAW touch screen and 19" LCD monitor mounted on an umbilical 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.

974i Series Basic Facility Requirements

- Power: 208 VAC, 3-phase, 200 Amps.
- Water: 8.5 GPM, 60 PSIG min., 10°C - 24°C.
- Compressed Air: 85 - 100 PSIG.
- Process Gas: 25 PSIG 99.999%.
- Pure Gas: Dry N₂

SYSTEM CAPACITY							
974i PALLET 20" x 20"	2" wafers	3" wafers	4" wafers	5" wafers	6" wafers	8" wafers	300mm
	81	36	16	9	9	4	1

* Contact KDF for details on the many optional features available for **974i** series systems. Specifications subject to change.