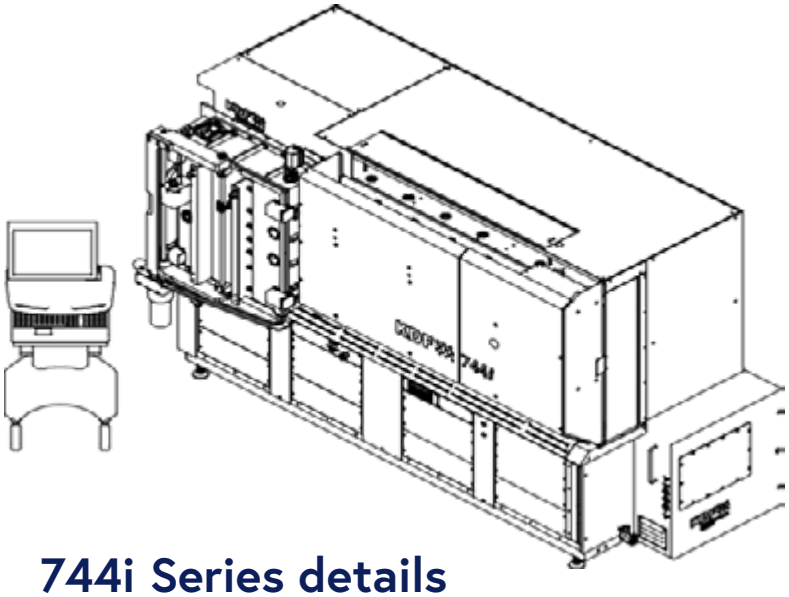
INLINE MAGNETRON SPUTTERING SYSTEMS

744i Series Data Sheet

744i Series overview

The KDF 744i Series is a large area, four-target batch sputtering system, designed for processing high-density interconnect, 200 mm semiconductor wafers, OLED and flat panel displays. The tool was developed to meet increasing customer demand for higher throughput with larger substrates.



Key capabilities

- Vertical side sputtering system
- 19” x 19” pallet size
- Compact footprint that uses less than one third of the space required for competing equipment
- High-vacuum loadlock with quartz heater lamps for efficient degassing of substrates
- Capacity to process up to four 200 mm wafers or multiple smaller wafers at once
- Throughput for 200 mm wafer metallurgy is increased four times over that of a 600i Series system
- Glass sizes up to Gen 2
- Pallet assist tool (PAT) for handling up to 60 lb pallet payloads in a safe and repeatable manner
- Optional OPUS Robot designed for particulate-free, reliable cassette to cassette substrate handling operations
- Optional integrated RGA for process and fault monitoring of gas peaks along with integrated hi vac step
- Optional Rotating Substrate pallet for optical market demands

744i Series details

The tool features a four-target main chamber system. Pallets allow instantaneous change of wafer sizes and the ability to process either the front or backside of the wafer.

The 744i Series is also available with an optional 20 kw DC Pinnacle plus pulse sput and pulse bias configuration.

SYSTEM CAPACITY

744i PALLET 19" x 19"	2" wafers	3" wafers	4" wafers	5" wafers	6" wafers	8" wafers	300mm
	81	36	16	9	9	4	1

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.

Additional Specifications

System hardware features

- 20kW low stored energy DC power supplies (Advanced Energy). Optional Pinnacle Plus power supplies.
- Integrated throttling SS VAT valve allowing for upstream or down stream pressure control.
- MKS multi component “Smart” 390 and 925 gauges for integrated vacuum measurements.
- Loadlock linear sensor – computer controller positioning system for increased loadlock accuracy and more limited fail-safe.
- 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.
- Automated motor driven load lock door.
- Complies with NFPA79 guidelines.
- Optional 3kW RF solid state power supply (Advanced Energy).
- Consult factory for an extensive list of standard options.

Computer subsystem

- Windows® 10-based real-time GUI environment with a 24” LCD touchscreen mounted on an umbilical mobile HMI cart.
- Context-sensitive recipe manager running from a Microsoft® SQL database.
- Integrated software package for real-time data display, data logging, report generation, remote interface, and printing; compatible with Excel® and other Windows® applications.
- Optional connectivity to SECS/GEM communications and Windows® applications through an OPC server interface.
- Distributed Rockwell control system using DeviceNet and EtherNet/IP fieldbus technologies.
- Maintenance test suite with full diagnostic and manual process-control capability.
- Service-friendly, fully enclosed electronics cabinet.

Basic facility requirements

- Power: 208 VAC, 3-phase, 225 Amps.
- Water: 8 GPM, 70 PSIG min., 10°C - 24°C.
- Compressed Air: 85 - 100 PSIG.
- Process Gas: 25 PSIG 99.999%.
- Pure Gas: Dry N2.

Cathodes

The KDF 744i tools can be fitted with a variety of cathodes. There are Inset Cathodes™, which measure 24.5 inches in length, accommodating most metal and all precious metal types while providing higher cathode-to-pallet aspect ratio and improved uniformity. The Magterial Cathode™, a planar-type cathode, is ideal for magnetron sputtering or ferrous metals such as nickel and iron at high rates and high uniformities.

The KDF 744i tools can also be fitted with variety of other cathode styles, Iincluding the Mark II™. For sputtering dielectric materials such as SiO2, or for reactive depositions of material such as indium-tin oxide, the Mark II™ is an ideal cathode for improved magnet design, better uniformity and longer life. The new RF capable KDF LMM™ full face erosion cathode is also available. KDF’s in-house engineering staff models and designs all of our own customer and field proven cathodes. Optional gas delivery systems allow for enhanced reactive processes.