

# RIE-1701

## Anisotropic Etch Plasma System



### Affordable reactive ion etching (RIE) in a compact, bench-top configuration

The RIE-1701 anisotropic reactive ion etch (RIE) plasma system from Nordson MARCH is self-contained, and requires minimal bench space. The chassis, which also serves as an integrated safety enclosure, houses the plasma chamber, control electronics, 13.56 MHz RF generator, and automatic matching network. Maintenance access is provided through a front-opening door or easily removed panels.

The plasma chamber is constructed of high-quality anodized aluminum with ceramic fixturing for superior durability. The plasma chamber can be configured with a 6" or 8" powered electrode to accommodate a wide range of wafer sizes, piece-parts, IC packages and other components.

### High performance plasma etching, from Failure Analysis to MEMS and LED device manufacturing

The RIE-1701 plasma system is designed for advanced etching applications such as removal of interlayer films for failure analysis; de-encapsulation and dielectric material removal; etching of oxides, nitrides, polyimides, silicon, metal, III-V and II-VI materials for MEMS, LED, or IC device manufacturing; epoxy removal; photoresist stripping and descum.

The system can accommodate a wide range of process gases, including: Ar, O<sub>2</sub>, H<sub>2</sub>/forming gas, He, CF<sub>4</sub>, SF<sub>6</sub>, Cl<sub>2</sub>, and BCl<sub>3</sub>. Standard are 2 electronic mass flow controllers for optimal gas control, with 2 more available as an option (4 total).

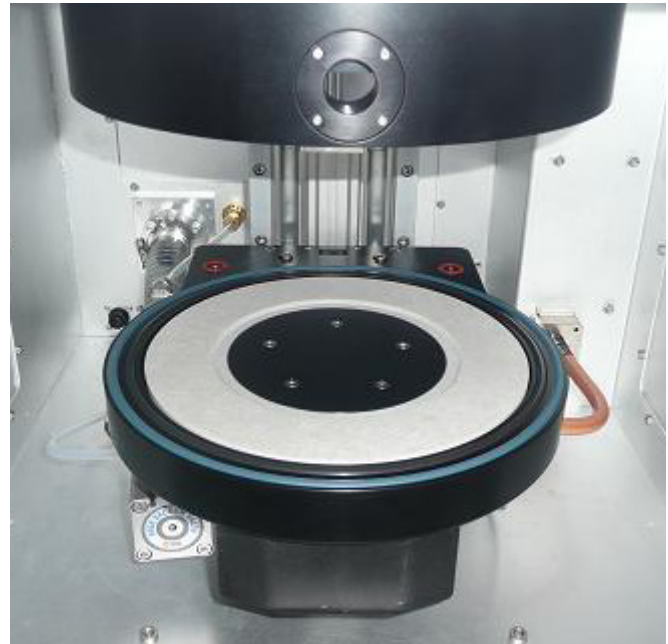
### High etch rates and excellent uniformity

Representative etch rates achievable in the RIE-1701 system:

Al/metals:	1 micron/min.
GaAs:	1 micron/min.
TiW:	5,000 Å/min.
Silicon/Oxide/Nitride:	3,000-7,000 Å/min.

### RIE-1701 advanced design features

- Touch screen control and graphical user interface provides real-time process data and feedback
- 13.56 MHz RF generator with automatic matching network delivers excellent process repeatability
- Temperature control loop integrated into plasma chamber enables precise control run-to-run
- Turbomolecular pump package and butterfly valve pressure control options available

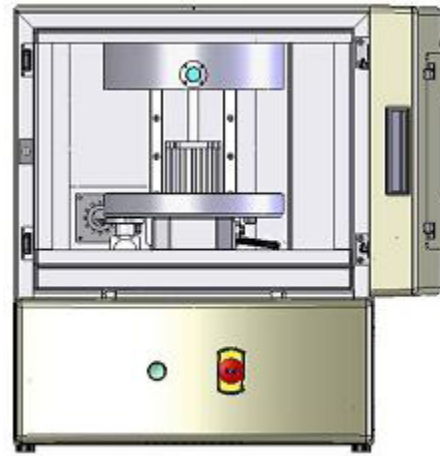


*Plasma Chamber of RIE-1701 Plasma System (6" version)*

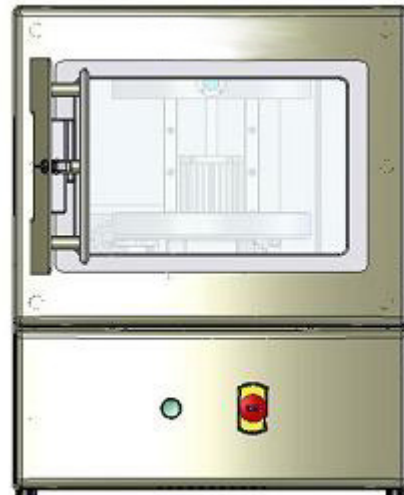


*RIE-1701 Plasma System with Safety Enclosure Door Closed*

System Specifications	
Enclosure	Aluminum frame with thermoplastic panels Completely houses the plasma chamber, control electronics, RF generator, and matching network (pump external)
Dimensions	569 W x 704 H x 869 D (mm) 22.4 W x 27.7 H x 34.2 D (in.)
Chamber	Construction: Anodized aluminum Anodized aluminum and ceramic fixturing Internal chamber dimensions: 254 dia. x 38 H (mm) 10.0 dia. x 1.5 H (in.) Integrated view port (front of top chamber) 6" powered electrode working dimensions: 152 dia. (mm) 6.0 dia. (in.) 8" powered electrode working dimensions: 203 dia. (mm) 8.0 dia. (in.)
RF Power	600 W, solid state 13.56 MHz RF generator Automatic tuning network
Gas Control	2 integrated mass flow controllers
Controller	PLC with touch-screen interface
Pump System	19.5 CFM (@60 Hz) wet pump with oil mist eliminator Prepared, charged and tested with fluid for oxygen use
Facility Requirements	Power: 110-240 VAC, 50-60 Hz, 1-phase, 10A (@208V) Purge Gas: 0.25 in. Swagelok comp. fitting for 10-100 psig Nitrogen or clean dry air (CDA) Process Gas: 0.25 in. Swagelok comp. fitting for 10-15 psig CDA/Nitrogen: 0.25 in. Swagelok comp. fitting for 50-80 psig
Options	Additional mass flow controllers (up to 4 total ) Oil filtration system for wet pump package Oil mist eliminator for corrosive gases 23 CFM dry pump and/or turbomolecular pump package Nitrogen generator / Hydrogen generator PlasmaLink software for remote control and data capture Butterfly valve-type independant pressure control (IPC) Corrosive gas mass flow controller option (external module)  SEMI S2/S8 compliant CE marked



*RIE-1701 Plasma System with Safety Enclosure Door open and Chamber Lid up*



*RIE-1701 Plasma System with Safety Enclosure Door closed, Safety Enclosure Window open, and Chamber Lid up*

## Backed by the Plasma Experts

Nordson MARCH has a global team of scientists and engineers experienced in plasma technology. We work closely with you to determine the right plasma system and process that best fits your specific requirements. Our Applications and Customer Service departments bring you over 25 years of experience in plasma technology.

Nordson MARCH reserves the right to make design changes to products and components to improve their function. These changes may occur between printings.



**Leading Plasma Innovations**

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