

Fully Automatic Reactive Ion Etching System

RIE-10NR

FEATURES

- Highly selective anisotropic etching meets demanding process requirements
- Fully automatic "one button" operation with full manual override
- Easy-to-use computerized touch panel for parameter control and recipe entry and storage
- Processes wafers up to 8" in diameter
- Sleek, compact design uses minimal cleanroom space

APPLICATIONS

- Anisotropic etching of all types of silicon based thin films, compound semiconductors and refractory metals including: Si, SiO₂, Poly-Si, Si₃N₄, GaAs and Mo
- Manufacturing micromachines
- Failure analysis

SAMCO's RIE-10NR™ is a low-cost, high-performance, fully automatic, dry etching system which meets the most demanding process requirements for fluorine chemistries. A computerized touch panel provides a user-friendly interface for parameter control and recipe storage. Etching is performed with minimum side-wall deterioration and a high selectivity between materials. With its sleek, compact design, the RIE-10NR requires minimal clean room space.



SPECIFICATIONS

- PROCESS CHAMBER**
- Aluminum, 340 mm diameter
 - Two 40 mm diameter viewports for viewing plasma and wafer/substrate during processing
- ELECTRODES**
- Parallel plate, cathode coupling
 - 55mm fixed gap between electrodes
- Lower Electrode:*
- Aluminum, 240 mm diameter, liquid-cooled
 - Anti-sputter quartz cover with 8" recess (Ø250mm)
- Upper Electrode:*
- Aluminum, 240 mm diameter, shower head
- SUBSTRATE SIZE**
- Up to 200 mm in diameter
- RF POWER**
- 13.56 MHz, 300 W solid state generator
 - Automatic impedance matching
- VACUUM SYSTEM**
- Chemical series, compound turbo molecular pump, 200 liters/second
 - Chemical series, 2-stage backing/roughing pump, 250 liters/min., with nitrogen gas ballast and exhaust line purge
 - Automatic closed-loop pressure control via motorized gate valve
- PRESSURE MEASUREMENT**
- Full range gauge, 5×10^{-7} ~ 10^5 Pa, (base pressure)
 - Capacitance manometer, 2.66×10^{-2} ~ 2.66×10^2 Pa, (process pressure)
 - Atmospheric pressure sensor
- GAS INLET LINES**
- Two non-corrosive series mass flow controllers (up to six MFCs available)
- OPERATION**
- Fully automatic "one button" or completely manual operation
 - Recipe storage via computerized touch panel (10 recipes total)
 - Setpoint and process parameters displayed during process
 - Four-step sequential process recipes

FLOW SHEET

- MFC 1-2 Mass flow controllers
 GV 1-2 Gas inlet valves
 LV Leak valve
 BV 1-2 Evacuation valves
 ISOV 1-2 Isolation valves
 CM Capacitance manometer
 FRG Full range gauge
 TMP Compound turbo molecular pump
 RP Rotary pump
 AM Automatic impedance matching unit
 RFG Radio frequency generator
 APC Automatic pressure controller

UTILITIES REQUIREMENTS

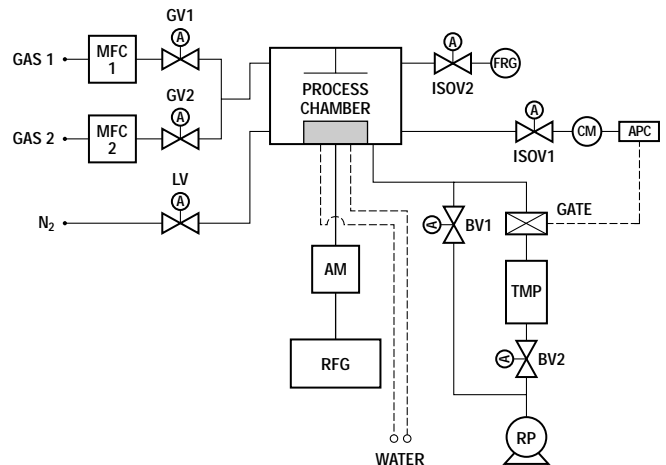
- Power:*
- 200 VAC, 3 phase, 20 A
- Process Gases:*
- 0.1 MPa (G)
- Nitrogen Purge:*
- 0.1 MPa (G), 12 liters/min.
- Compressed air:*
- 0.5-0.7 MPa (G), filtered
- Cooling Water:*
- 0.3-0.5 MPa (G), 2-3 liters/min.
- Exhaust Duct:*
- For backing/roughing pump effluent, NW 25

DIMENSIONS WxDxH (mm)

- Main Unit:*
- 500 x 920 x 1510
- Pump:*
- 522 x 163 x 216

OPTIONS

- Additional gas lines
- End point detection system
- Exhaust gas treatment unit
- dry backing/roughing pump



Specifications subject to change without notice.

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