SAMCO's RIE-110iP™ is an inductively coupled, reactive ion etching system capable of highly precise etching. The system was specially designed for R&D customers requiring performance, versatility, and value.

Leveraging SAMCO's 3rd Generation Tornado Coil, the system offers the most advanced Si and III-V compound semiconductor etching and provides precision profile, smoothness, depth and etch stop control.

When configured with the Dielectric Etching Module, the RIE-110iP can perform high selectivity, high rate etching of $\text{SiO}_2$ and SiC materials.
## SPECIFICATIONS

### PROCESS CHAMBER
- Aluminum, 320mm inner diameter, 37mm viewport (right side of chamber), 2 auxiliary ports port for end point detection
- Rubber heater (max. 60°C)

### LOADLOCK CHAMBER
- Aluminum, 340(W) x 445(D) x 144(H) (mm)
- Automatic opening/closing of LL chamber lid
- Rectangular gate valve
- Automated sample transfer
- Direct sample transfer under vacuum

### ELECTRODES
- ICP Electrode:
  - Tornado Coil Type C for precision processing

- Lower Electrode:
  - Aluminum 106mm diameter
  - Alumina anti-sputter cover
  - Electrostatic chuck for 4” wafers
  - Helium backside cooling

### RF POWER
- ICP Electrode:
  - 13.56 MHz, Max. 1kW, crystal oscillator
  - Automatic matching

- Lower Electrode:
  - 13.56 MHz, Max. 300W, crystal oscillator
  - Automatic matching

### VACUUM SYSTEM
- Process Vacuum Line:
  - Chemical series, compound turbo molecular pump, 1300 liters/second
  - Backed by a dry pump, 1000 liters/min.

- Loadlock Chamber:
  - Same dry pump used for TMP backing
  - Pendulum control gate valve with variable conductance (connected to diaphragm gauge)

### PRESSURE MEASUREMENT AND CONTROL
- Process Chamber:
  - Diaphragm gauge (1.33x10⁻¹ to 1.33x10⁻⁳ Pa)
  - Diaphragm gauge (1.33x10⁻³ to 1.33x10⁻¹ Pa)
  - Ionization gauge (1.3x10⁻¹ to 1x10⁻⁵ Pa)

- Loadlock Chamber:
  - Crystal gauge (Atmospheric to 10⁻² Pa)

### GAS INLET LINES
- 4 mass flow controllers standard (6 MFCs max.)

### SYSTEM OPERATION
- Fully automatic "one button" or completely manual operation
- Safety interlocks
- Touch panel display
- Recipe storage (max. 100 recipes total)
- Multi-step processing (10 steps per recipe)
- Cycle purge
- Data logging function

### FACILITY REQUIREMENTS
- **Power:** 200 VAC, 3 phase, 60 A
- **Ground:** Type D ground
- **Process Gases:** 0.1 MPa, 1/4” VCR fittings x 4

- **Nitrogen Supply (1/4” SWL x 1) for:**
  - Chamber Purge: 0.1 MPa, 40 l/min., including loadlock chamber (20 l/min.)
  - Dry Pump Purge: 0.1-0.7 MPa, Max. 30 l/min.

- **Helium:**
  - 0.1 MPa, 1/4” VCR fittings x 1
  - Compressed Air: 0.5-0.7 MPa (1/4” SWL x 1)

- **Cooling water:**
  - Main Unit: <0.3 MPa, more than 2 l/min.
  - Dry Pump: 0.2-0.5 MPa, >4-8 l/min.

- **Exhaust Duct:** NW40 x 1

- **Duct Connection:** Ø150mm x 100mm (L), main unit

### DIMENSIONS (W x D x H)
- **Main Unit:** 986 x 1792 x 1883 (mm)
- **Pump Unit:** 370 x 690 x 551 (mm)
- **Chiller:** 354 x 384 x 910 (mm)

Specifications subject to change without notice

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