REMOTE PLASMA SOURCES

INNOVATIVE CHAMBER CLEAN SOLUTIONS

REMOTE PLASMA SOURCES

LEADING EDGE TECHNOLOGY FOR IMPROVED PRODUCTIVITY

Semiconductor and Electronic Thin Film applications use plasma sources to generate low-energy ions and radicals to react with material surfaces and chamber walls to remove contaminants and act as a precursor to aid in material deposition. MKS provides multiple options for radical generation including Toroidal and Microwave based Remote Plasma Sources supporting Fluorine, NF_3, Oxygen, Nitrogen and Hydrogen process chemistries.

- Provides increased throughput and repeatable process results
- Provides EtherCAT® communication with Industry 4.0
- Improves on-wafer cleaning and deposition throughput
- Provides fast, reliable plasma ignition

Paragon®

Intelligent Remote Plasma Source

- Up to 8 slm NF_3 flow, in a compact size enables faster clean times
- Best in Class dissociation (>95%) for efficient uniform cleaning results
- EtherCAT intelligent data reporting for faster, tighter device operation
- Compatible with O_2 and NF_3 mixed gases
- Proprietary PEO plasma block design offers greater process performance

RPS-CH24P1

Remote Plasma Source For High Flow Applications

- Compact split applicator power design provides easy integration to OEM process chambers
- Increased Fluorine radical output shortens clean time cycles
- EtherCAT communication enables fast, reliable data streaming and unit control
- A new plasma block assembly results in fast turn maintenance

RPS-CM12P1

Remote Plasma Source For ALD, CVD and PVD Chambers

- Compact design enables easy integration to OEM process chambers
- Increased Fluorine radical output shortens clean time cycle
- EtherCAT communications provides fast, reliable, data streaming and unit control
- A new plasma block assembly results in fast turn maintenance

R*evolution®

Remote Plasma Source

- Integrated, self-contained unit designed for on-chamber installation
- Quartz plasma applicator, high density for oxygen species
- Up to 6 kW of plasma power
- Fast, reliable plasma ignition
- High THD resistance to protect from power facility disturbances in the fab

Remote Plasma Sources for Clean Applications

Thin film deposition generates by-products which adhere to process chamber walls, resulting in potential process and product contamination. Our Toroidal Remote Plasma Sources for NF_3 and fluorine-based gases clean deposits from CVD, PVD, PE-ALD, and ALD process chambers. With high dissociation rates and a proprietary plasma block design, our remote plasma sources provide increased process throughput and repeatable process results. Equipped with EtherCAT communication to enable data streaming, our remote plasma sources support Industry 4.0.

Remote Plasma Sources for Process Applications

MKS remote plasma sources deliver high density reactive radicals improving on-wafer cleaning and deposition throughput. Solutions consist of a fully integrated, self-contained unit designed for quick on-chamber installation providing fast, reliable plasma ignition of O_2, Hydrogen and Nitrogen gases in a customer configurable package. All solutions are equipped with intelligent power control and EtherCAT diagnostics supporting Industry 4.0.

High Power Microwave Plasma System

- High power microwave plasma system @ 2.45 GHz
- Advanced closed loop power control with <1% output accuracy variation
- Instant plasma ignition
- Auto tune system within <1.5 seconds

High Power Microwave Plasma Source

- Higher productivity compatible with 6kW MKS microwave generator
- High power technology enables processes with high output of H* radicals
- Wider operating range and higher flow capability for higher throughput
- Delivers a high concentration of radicals at low electron temperature for advanced applications
- Brass-free component design
- Backward compatible with existing 3kW SmartPower® installed base

Chemical Downstream Plasma Source

- Sapphire or quartz discharge tubes for Fluorine and non-fluorine chemistries
- Patented conductively-cooled design with high power and throughput
- Easy integration
- Wide application range

AX2600 and AX2700 Microwave Plasma Subsystems

- 3 kW Power
- Accurate power measurement, closed loop control and automatic plasma tuning
- Precise microwave generator with closed loop control power regulation
- Delivers high productivity with fast tune times <1 sec in various chemistries
- Quartz and Sapphire version to adapt multiple chemistries
- Fully integrated and tested for true turnkey implementation

WHY MKS?

CRITICAL TECHNOLOGIES

World-class technology and development capabilities for leading-edge processes

PROVEN PARTNER

Recognized leader delivering innovative, reliable solutions for our customers' most complex problems

OPERATIONAL EXCELLENCE

Consistent execution across all aspects of our business

COMPREHENSIVE PORTFOLIO

Extensive offering of products and services for the markets we serve

MKS Plasma & Reactive Gas Solutions
90 Industrial Way
Wilmington, MA 01887
+1 978.284.4000

MKS Corporate Headquarters
2 Tech Drive, Suite 201
Andover, MA 01810
+1 978-645-5500
+1 800-227-8766 (in USA)

MKS INSTRUMENTS, INC. enables technologies that transform our world. We deliver foundational technology solutions to leading edge semiconductor manufacturing, electronics and packaging, and specialty industrial applications.

We apply our broad science and engineering capabilities to create instruments, subsystems, systems, process control solutions and specialty chemicals technology that improve process performance, optimize productivity and enable unique innovations for many of the world's leading technology and industrial companies.

Our solutions are critical to addressing the challenges of miniaturization and complexity in advanced device manufacturing by enabling increased power, speed, feature enhancement, and optimized connectivity. Our solutions are also critical to addressing ever-increasing performance requirements across a wide array of specialty industrial applications.

Additional information can be found at **www.MKS.com**.