

RAPID OX

REMOTE PLASMA SOURCE FOR OXYGEN-BASED PROCESSES

The Rapid OX is the perfect RPS for oxygen processes due to its unique user-insertable and removable quartz chamber liner. The liner reduces recombination of oxygen, ensuring effective transportation of reactive species to the process chamber. With 6kW of power, the Rapid OX dissociates oxygen with variable frequency and power control for optimal performance. The removable and replaceable quartz liner reduces downtime and significantly lowers replacement costs when compared to products with full quartz chambers, leading to better tool utilization, reduced particulate matter and overall lower cost of ownership.



PRODUCT HIGHLIGHTS

- Variable frequency tuning and precise power control enables repeatable, controllable processes
- Highly-reliable chamber design and cooling system improves chamber lifetime and reduces service costs
- High dissociation rate and high-density radical generation for improved process performance
- Thermal management in the chamber ensures long, reliable performance
- Resultant reactive species longer lifetime provides improved photoresist strip rates as compared to anodized chamber walls
- Rapid OX ignites and reaches steady state operation rapidly due to low dynamic pressure overshoot

TYPICAL APPLICATIONS

- Photoresist ashing
- Wafer pre-clean
- Carbon chamber clean processes

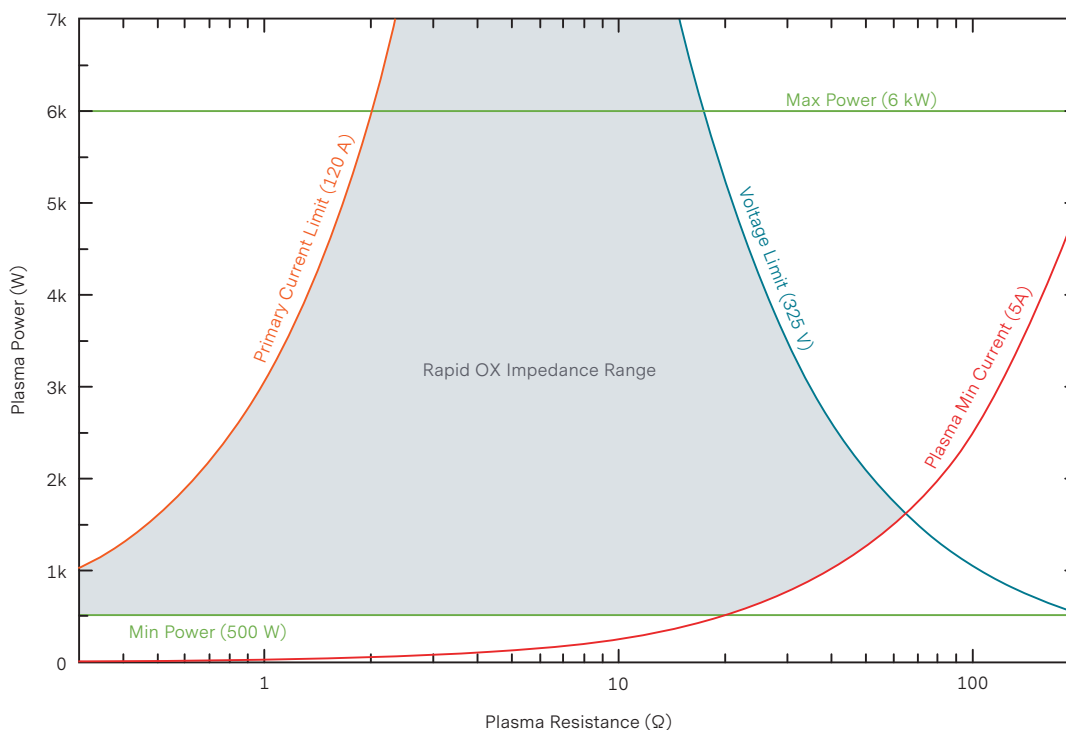
RAPID OX REMOTE PLASMA SOURCE

PRODUCT SPECIFICATIONS

Parameter	Specifications
Plasma Power Range	500 W to 6000 W with power leveling capability within the power supply impedance range
Process Applications	Remote delivery of gases for downstream chamber cleaning, reactive etching processes, and reactive deposition processes
Ignition	100 mTorr to 1 Torr of Oxygen and Nitrogen up to 4 SLM (90% O ₂ and 10% N ₂)
Chemical Compatibility	At this time, AE has only qualified O ₂ and N ₂ chemistries. Other chemistry recipes must be approved by AE.
Consumables	No consumables under O ₂ and N ₂ operation
Flows, Dilutions and Pressure Range during Operation	The verified operating flow range of the unit is 0.2 to 4 SLM of pure O ₂ , and O ₂ with a 10% N ₂ between 100 mTorr and 4 Torr. Other gas pressure / flow combinations may be permitted but must be approved by Advanced Energy prior to use.
RF Frequency	250 to 665 kHz
Power Accuracy	Referenced at plasma load +/- 5% or 200 W whichever is greater
Operational Load Limits	Minimum power: 500 W
	Maximum power: 600 W
	Maximum plasma voltage: 325 V _{rms}
	Minimum plasma current: 5 A _{rms}
	Maximum primary current: 120 A _{rms}

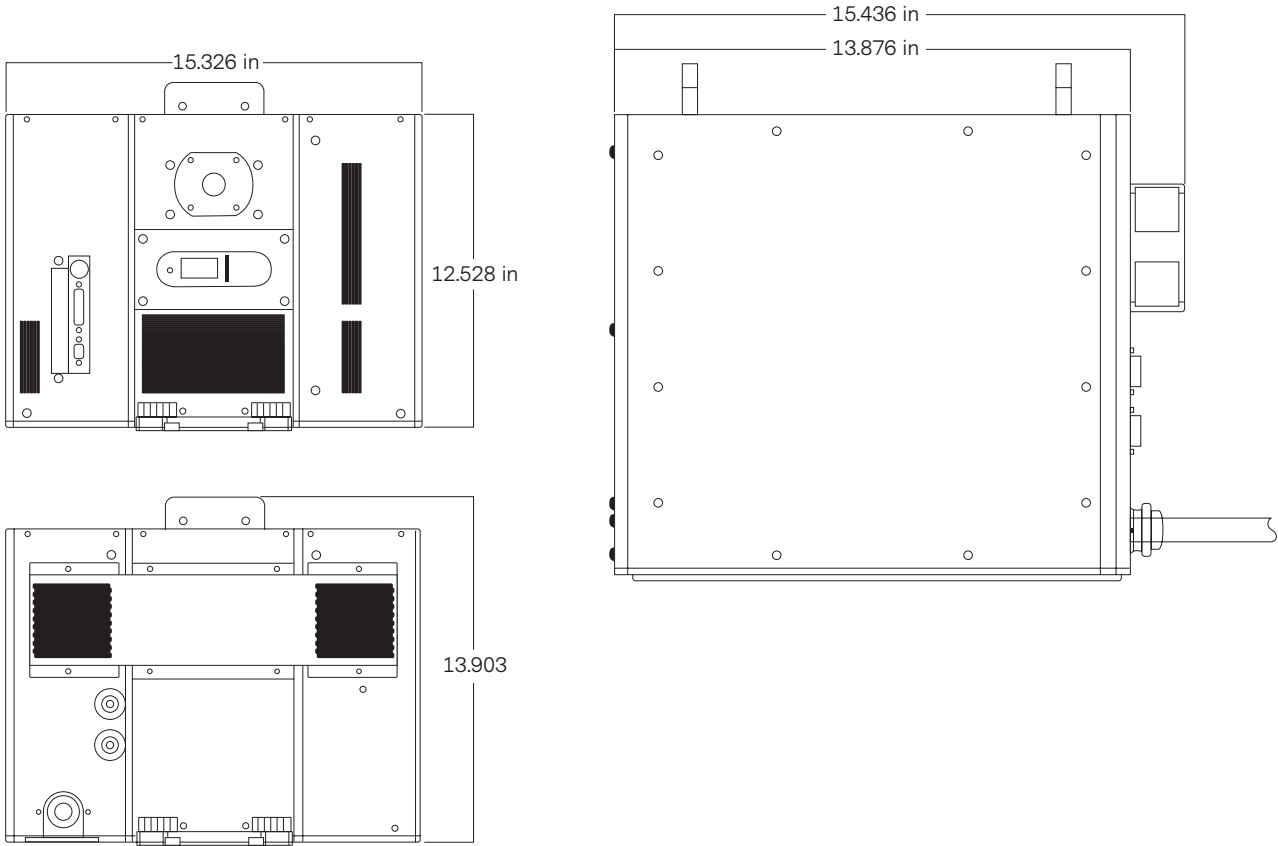
RAPID OX POWER/IMPEDANCE RANGE

Operating Range Under Nominal AC Line and Cooling Conditions



MECHANICAL SPECIFICATIONS

Dimensions	35.3 cm (H) x 41.5 cm (W) x 39.2 cm (D)
	14" (H) x 16.5" (W) x 15.5" (D)
Weight	37.6 kg (83 lb)





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ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

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