

EQS-10

Compact, Reliable, Electrodeless Z-Pinch™ 40-Watt EUV Source

Overview

Revolutionizing Performance and Cost Efficiency

Unleash cutting-edge performance with the EQS-10 Electrodeless Z-Pinch DPP light source, designed to deliver more than double the output of our current model while reducing cost per watt by up to 25%. Whether you're pushing the boundaries of EUV metrology, resist development, or defect inspection, the EQS-10 offers unparalleled power and flexibility.

- **Unmatched Energy Output:** Powered by a state-of-the-art charging system, the EQS-10 delivers up to 4 times the energy per pulse, allowing you to achieve maximum performance for the most demanding applications.
- **High-Frequency Operation:** With solid-state switching, the EQS-10 can reach an operating frequency of up to 5 kHz, setting a new benchmark in the industry.
- **Optimized Efficiency:** Our unique pre-ionization control enhances z-pinch efficiency and gives you the flexibility to work with a variety of gases, enabling customization to achieve the perfect pinch.

Efficiency That Saves You More

Thanks to our advanced direct fueling system, enjoy the **lowest cost of ownership** with up to a 60% reduction in gas usage with large collection apertures. The EQS-10 provides increased performance without sacrificing bore lifetime, ensuring that your operations stay efficient and cost-effective.

Trusted Worldwide

With over 60 units deployed globally and a production capacity of more than 50 units per year from our newly expanded cleanroom manufacturing facility, Energetiq's Electrodeless Z-Pinch light sources have become the go-to choice for EUV applications. Coupled with regional support worldwide, it's not just a product—it's a trusted solution that evolves with your needs



Typical Performance

40 W into 2 π using xenon
3 kHz typical pulse rate (up to 5 KHz)
< 450 μm
Low debris

Cost of Ownership

Low xenon usage
Minimized consumable cost
Small footprint
Minimized downtime

Proven Reliability

Patented Electrodeless Z-Pinch technology
CE Mark and SEMI S2-0715 compliant

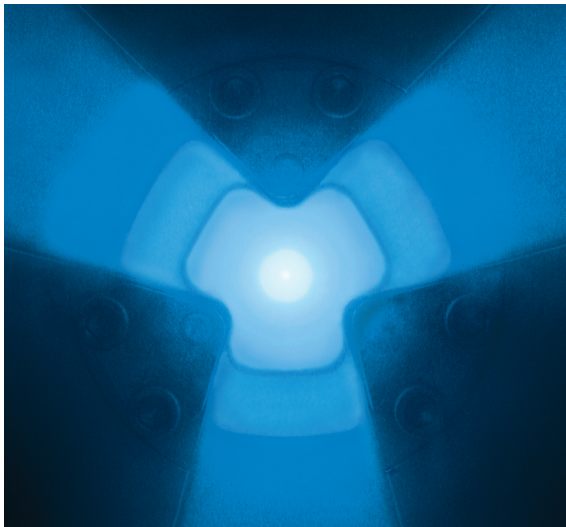
Applications

EUV Metrology
EUV Resist Development
Defect Inspection
EUV Microscopy

Electrodeless Z-Pinch Technology

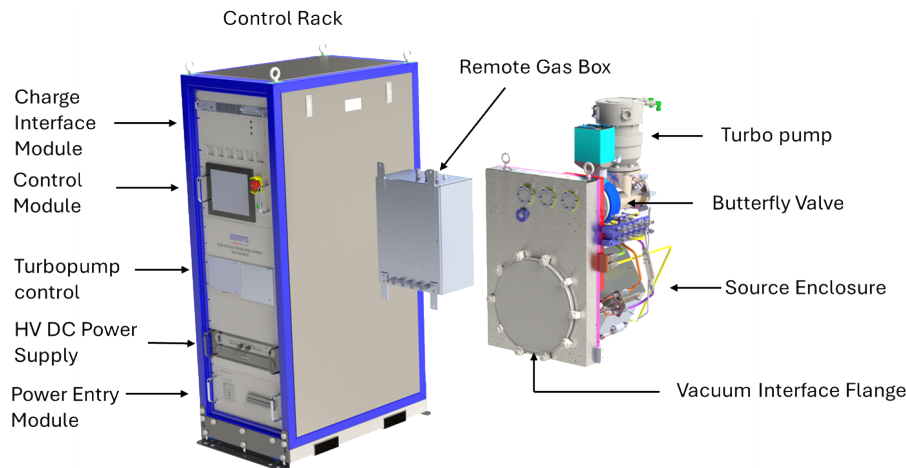
Z-pinch plasmas have been shown to be effective at producing EUV and SXR light. However, all the implementations to date have involved conducting high-discharge currents into the plasma using electrodes. These electrodes, which are typically in contact with high-temperature plasma, can melt and produce significant debris.

Energetiq's unique technology is also based on a Z-pinch plasma; however, it avoids electrodes entirely by inductively coupling the current into the plasma. The plasma in the Energetiq source is magnetically confined away from the source walls, minimizing the heat load and reducing debris. Energetiq's Electrodeless Z-Pinch technology has excellent spatial stability and stable repeatable power output.



Electrodeless Z-Pinch source – view of visible light

EQS-10 System Components



www.energetiq.com/patents

Specifications

EUV Power Output	40 Watts into 2 π steradians (13.5 nm, $\pm 1\%$ bandwidth)
Pulse Repetition Rate	3 kHz, up to 5 kHz
Source Operating Pressure	20 to 150 mTorr typical
Xenon Flow Rate	5 to 15 sccm typical

Physical Specifications

Component	Dimensions (H x W x D)	Weight
Instrument Rack	1,740 x 611 x 915 mm	281 kg
Charge Interface Modulator	498 x 415 x 213 mm	22.6 kg
Remote Source	632 x 645 x 798 mm	158.4 kg
Scroll Pump	643 x 259 x 460 mm	25.8 kg
Remote Gas Box	584 x 361 x 203 mm	16.8 kg

Utility Requirements

Electrical	400VAC, 3 ϕ , 50/60 Hz, 60A
Cooling Water	60 PSIG (0.41 MPa), 9.5 lpm, 30°C max. inlet
Clean Dry Air or Nitrogen	Clean Air: 80–100 PSIG (0.55–0.69 MPa)
Xenon	15–40 PSIG (0.10–0.28 MPa), 20 sccm max. (10 sccm typ.)

Compliance

EQS-10 Series	CE Mark, SEMI S2-0715
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