**ENERGETIQ**

Features & Benefits

- Unique electrodeless design
  - Low debris / low consumable cost
- Up to 10W EUV into 2pi using Xenon
  - Sufficient power for a wide variety of applications
- 2-4nm Soft X-Rays produced using Nitrogen
  - Enables tabletop SXR microscope applications
- Small plasma size
  - <1mm diameter for high brightness
- Cost–effective and compact
  - Low cost per EUV & SXR watt
  - Small footprint

Applications

- EUV Metrology
- EUV Resist Development
- Defect Inspection
- EUV & Soft X-Ray Microscopy
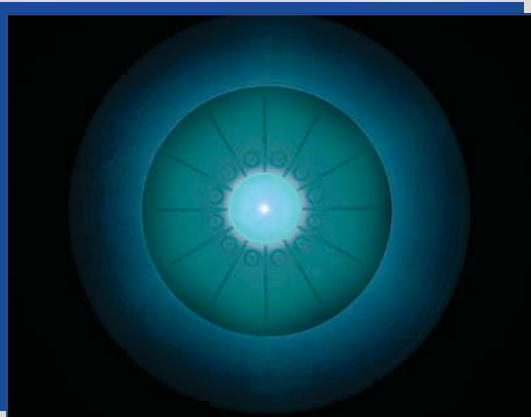
Electrodeless Z-Pinch™ 10 Watt EUV Source

Product Description

Researchers into the emerging technology of EUV lithography need a source of EUV photons for a variety of applications. Existing sources of light are often too low in power, unreliable in operation, large, costly and complex. Soft x-rays (SXR) for water-window microscopy are not readily available today outside synchrotron facilities.

The EQ-10M is a compact, easy-to-use, reliable and cost-effective EUV and SXR light source system, based on Energetiq's unique Electrodeless Z-pinch™ technology using either Xenon or Nitrogen gas.

The Energetiq EQ-10M is integrated into a single 19" rack format to minimize the system footprint. The system includes the electrodeless Z-pinch source assembly, vacuum and gas subsystems, power delivery subsystem and control electronics. The EQ-10M is capable of delivering up to 10 watts of in-band EUV into 2pi steradians and will run continuously at pulse repetition rates of up to 1kHz or in bursts of up to 1kHz pulses if required.

To accommodate the differing requirements of the various applications, the source operating conditions are user-adjustable. The light output can be optimized for peak power or for peak brightness as required by the user. Plasma size is typically below 1mm in diameter under typical operating conditions.

A simple and flexible optical interface is provided to the user on the side of the system enclosure to connect to the application equipment. Custom interfaces are available to meet specific customer requirements.

The user interface operates by a color touch screen display, and incorporates menus allowing manual and automatic operation.

The EQ-10M is easy to install, requiring only electrical power, a chilled water supply, clean dry compressed air and a supply of

Electrodeless Z-Pinch™ Technology

Z-pinch plasmas have been shown in literature 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, but 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.

About Energetiq . . .

Energetiq Technology, Inc. is a developer and manufacturer of advanced short wavelength light products for use in high technology applications. The Energetiq team combines its deep understanding of high power plasma physics needed for short wavelength light generation with its long experience in building rugged, industrial and scientific products. The result is that users can expect the highest levels of performance combined with the highest reliability.

Specifications

EUV Specifications

- EUV Power Output — Up to 10 Watts into 2pi steradians in-band (13.5nm, 2% bandwidth)

- SXR Power Output (Preliminary Data) — Up to 10^{16} Photons/Second into 2pi steradians (2.88nm)

- Pulse Repetition Rate — Variable, up to 1kHz

Physical Specifications

- System Dimensions — 600mm (W) 900mm (D) 1100mm (H)

- Weight — 250 kg

Utility Requirements

- Electrical — 208V 3-phase 30A

- Water — 8 liters/minute

Ordering Information

Contact Energetiq for a detailed quotation for your application.

EQ-10M

Specifications are subject to change without notice.