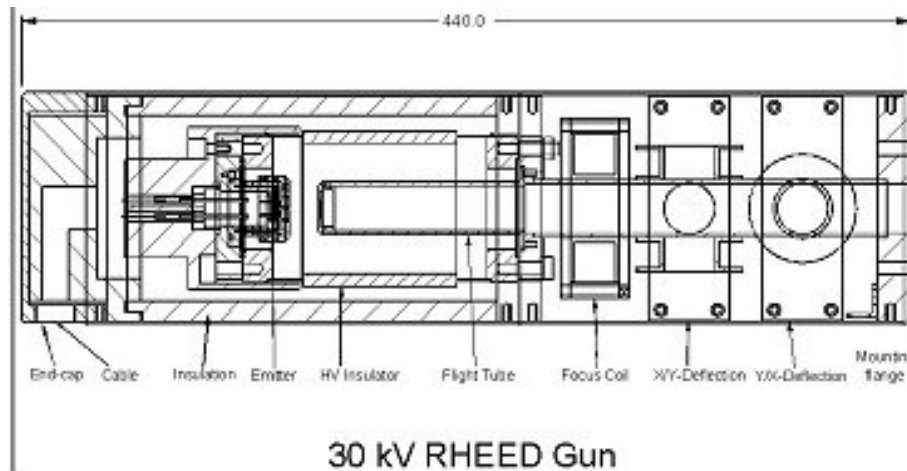


ML 30 keV RHEED Gun

"ML-RHEED" Magnetic Lens Reflection High Energy Electron Diffraction Gun



Features

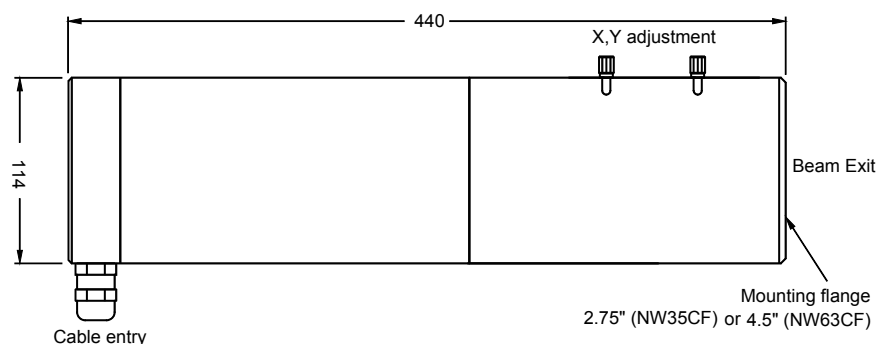
- **Independent grid control:** Full control of the grid voltage (Wehnelt) allows electronic aperturing of the beam and independent control of spot size and intensity unlike self- or auto-bias designs.
- **Air-side lens and deflection system:** Focusing and deflection elements are external to the vacuum and hence immune to coating by materials in the vacuum which can cause instability in electrostatic focus and deflection systems.
- **Adjustable X and Y axes:** Allows the X and Y deflection axes to be aligned with the sample axes regardless of mounting flange orientation.
- **Simple adjustment:** The gun is aligned in the factory and no further adjustments are needed. Filament replacement is very straightforward with an absolute minimum of setting up required.
- **Beam blanking option:** Allows the beam to be extinguished when not required without disturbing the HV and filament settings. This minimises electron load on the sample and permits rapid recovery of the diffraction pattern when needed.

The ML 30kV RHEED electron gun is a fully UHV compatible RHEED gun bakeable to 200°C and includes all the features and options required to take advantage of this powerful analysis technique. Capable of being operated over a wide range of pressures RHEED can be used in a variety of applications such as molecular beam epitaxy, thin film deposition, chemical vapour deposition, sputter deposition (may need differential pumping), and other coating and deposition techniques.

The power supply has been optimised to take advantage of the latest developments in HV electronics, with a modular approach to the design ensuring easy servicing and maintenance should the need arise. Independent control of the grid voltage (Wehnelt) gives complete control of the beam quality and

characteristics, with independent adjustment of spot size and beam current which is not possible in self or auto-bias designs.

Factory alignment of the gun ensures that filament replacement is very straightforward with the minimum of alignment required.



Specifications

| | |
|----------------------|--|
| Electron Energy: | 1-30keV |
| Beam Current: | <0.01 - 50 μ A |
| Focal length: | 200mm – 1m |
| Spot size: | <100 μ m |
| Bakeout temperature: | 200°C |
| X, Y deflection: | +/- 15° |
| Mounting: | 2¾" (NW35CF) or 4.5" (NW63CF) |
| Filament: | Tungsten |
| Length: | 440mm |
| Diameter: | 114mm |
| Operating pressure: | 10 ⁻¹¹ to 10 ⁻⁴ Torr |

Options

Beam Blanking – Allows the beam to be turned off without disturbing the HV and filament settings for rapid beam recovery when required. This allows the electron load on the sample to be minimised.

Beam Rocking: Allows the incidence angle at the sample to be varied without moving the gun. The beam is displaced at the gun by the deflection coils and brought back on target by a second deflection stage synchronised with the first to minimise beam movement. Rocking angle depends on working distance. 10° (+/- 5°) max. at 150mm working distance. Includes power supplies and cables.

Remote Control – Allows the beam to be adjusted from a more convenient position near the RHEED screen.

RHEED screen – For viewing the electron diffraction pattern. Various sizes are available, with aluminium back-coat for improved contrast and reduced sensitivity to stray light inside the chamber.

Viewport Shutter – Protects the screen from being coated by materials in the chamber.

Differential Pumping – Allows the RHEED gun to be used in higher pressure applications.

VIDEO-RHEED: SAFIRE RHEED Data Acquisition and Processing Software

For more information, specifications or a quotation contact:

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