



Specifications sheet: Photogun

Introduction

The photogun is equipped with a 100-kV feedthrough designed for the high-voltage cable that comes with a Matsusada computer-controlled 100-kV power supply with breakdown detection. The photogun needs the usual training to withstand 100 kV. For this training it is recommended to apply an automated tool which comes with the Photogun. The DrX laser incoupler can be used to irradiate the DrX cathode that has to be placed in the cathode holder.

Applications

- Single-shot ultrafast electron diffraction
- High brightness ultrafast electron source

Features

- Robust
- High field gradient
- High vacuum compatible ($< 10^{-6}$ mbar)
- Seamless integration with DrX Collimator
- Seamless integration with DrX Photocathode
- Seamless integration with DrX Laser incoupler

General

Accelerator gap	: 11.4 mm
Anode radius	: 8 mm
Maximal electric field	: 12.3 MV/m at cathode for 100 kV potential
Beam energy	: 100 keV
Beam divergence	: Large - Use DrX Collimator to cancel exit-kick
Beam properties	: Depend on laser size, wavelength, power and pulse length

HV

Power supply	: Matsusada 100 kV power supply (Included)
Maximum Potential	: 100 kV (when training 105 kV - use software)
Maximum current	: 10 μ A (when training 100 μ A - use software)

Vacuum

Beam exit flange	: CF40 rotatable
Vessel flange	: KF63
Material	: Stainless steel 316L
Leak rate	: $< 10^{-7}$ mbar/l·s

Dimensions

Size	: 390 × 420 × 520 mm
Weight	: Unknown