



## Specifications sheet: Laser incoupler

### Introduction

The laser incoupler comprises a set of two mirrors, mounted off axis in a CF40 cross, at an angle of  $45^\circ$  with the beamline axis. A femtosecond UV laser pulse entering through a quartz window in one of the CF40 flanges can be directed via one mirror towards the photocathode, allowing photoemission at near-normal incidence. The part of the femtosecond beam reflected from the photocathode is guided out of the beamline via the other mirror, through the same quartz window, thus preventing unwanted photoemission from other surfaces. The near-normal incidence of the photoemission femtosecond UV laser pulse allows operation in the bunch blow-out regime which is beneficial for beam quality. The UV laser can be outlined on the center of the photocathode by observation of the (very weak) circular machining grooves, which are visible in the reflected laser light.

### Applications

- Photogun
- Sample pumping

Features
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- High reflectivity
- Ultra High vacuum compatible
- Easy alignment

General
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Enclosure	:	CF40 cross
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Mirror
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Mirror	:	Newport 05SD520AL.2
Coating	:	UV Enhanced Aluminum
Wavelength Range	:	250-600 nm
Size	:	Square 12.7 mm

Viewport
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Glass	:	Fused silica UV grade
Coating	:	None
Thickness	:	3 mm
View diameter	:	35 mm
Flange	:	Stainless steel 316L

Vacuum
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Flange	:	CF40
Material	:	Stainless steel 316L
Leak rate	:	$< 10^{-10}$ mbar/ls

Dimensions
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Size	:	126 × 126 × 126 mm
Weight	:	1.5 kg