foXXus 0.015-0.047_NA0.8

Multi-focus objectives of patented design, with protective window

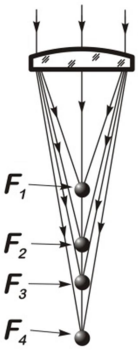
Applications:

- **Glass Cutting**
- **Cutting Sapphire, SiC, other brittle materials**
- **Microprocessing**

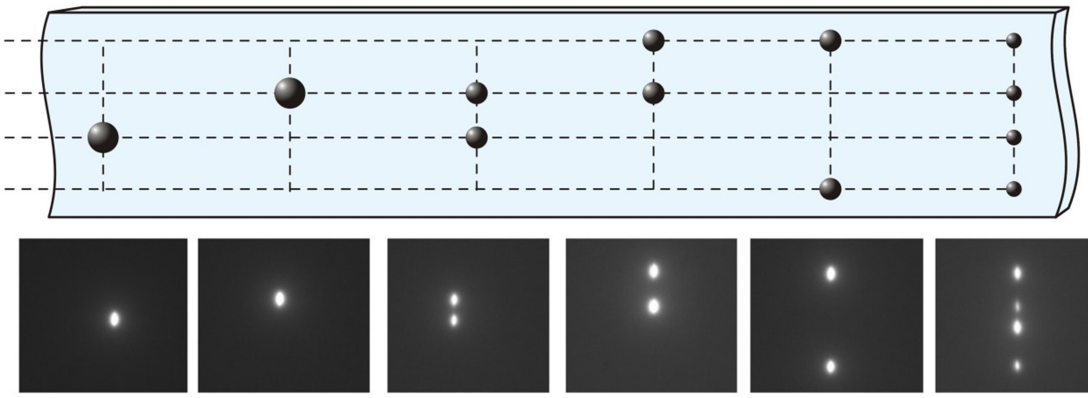
Specifications

Description		Objective lens with multiple foci, with replaceable protective window
Accessories		• Protective Window D12_1064, D12_515/1030 • Adapter (spacer) C-Mount Ext/Int 6 mm
Number of foci		4, 2, 1
Focal length, mm		8.1
Input beam full diameter, mm		12.9
Numerical aperture (NA)		0.8
Angular field of view		±1°
ΔF, µm	air	2 foci: 15, 47 4 foci: 16-15-16
	Glass (x1.5)	2 foci: 24, 72 4 foci: 24-24-24
	Al_2O_3 (x1.76)	2 foci: 28, 86 4 foci: 29-28-29
Spectral band, nm		• _1064: 1020 - 1100 • _532: 510 – 550 • other wavelengths on request
Waist in air 2ω, µm, by TEM_{00} beam of Ø 9 mm ($1/e^2$)	1064 nm	1.22
	532 nm	0.61
Working Distance, mm		• Objective only: 1.1 • Objective + Protective Window: 1.0
Recommended maximum pulse energy		25 mJ at 5 ns
Diameter, mm		34.5
Length, mm		• 39.6 – 40.4 • 45.8 – 46.6 with Adapter (spacer)
Mounting		C-Mount (1”-32 UN 2A)

Focusing in multiple foci never was so easy!



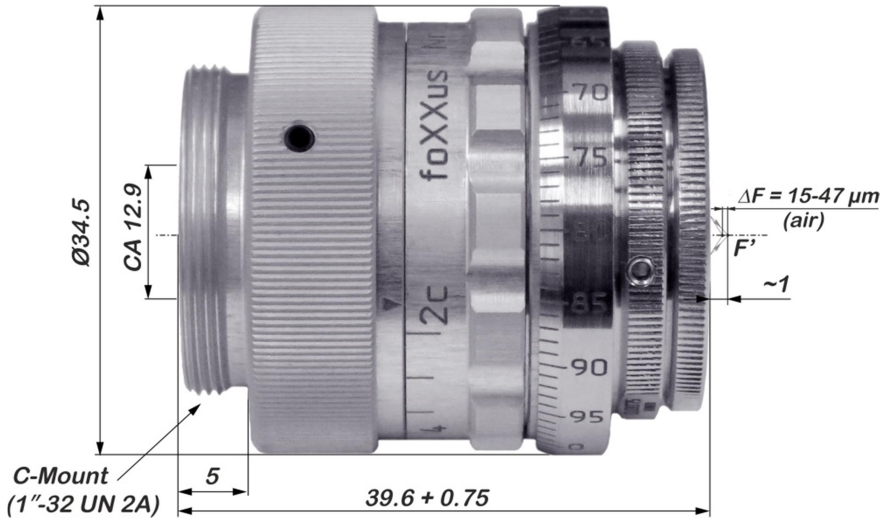
Available combinations of foci by focusing using 4-foci foXXus objective



Example: microphotography of air breakdown
(Courtesy of Evana Technologies, Vilnius, Lithuania)

Comments:

- ΔF in material is *n* times larger than in air, where *n* is refractive index of the material:
  - *n* ≃ 1.76 for sapphire,
  - *n* ≃ 1.5 for glass,
- the foXXus objectives create 1, 2 or 4 foci along the optical axis,
- compensation of spherical aberration induced by focusing inside bulk material,
- the crack inside material is typically longer than ΔF defined by optical design,
- Denomination: foXXus_0.015-0.047_NA0.8_1064
  - ΔF in air, mm
  - Numerical Aperture
  - Wavelength, nm



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