NUV-VIS ZOOM

6.2:1 Zoom Ratio

- » Protein Crystal Imaging / Identification
- » High Magnification Hyperspectral Imaging
- » Forensic Evidence Analysis
- » Custom NUV-VIS Microscopy
- » Defect Inspection

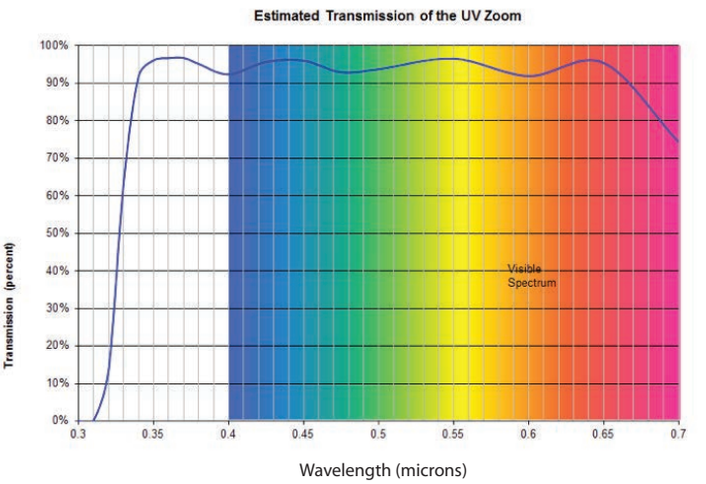
NAVITAR®

NUV-VIS Zoom Specification

The NUV-VIS Zoom is a motorized imaging lens system that operates within a spectral range of 330nm to 700nm and offers a 6.2:1 zoom ratio. It is an ideal digital imaging solution for high magnification microscopy and OEM applications such as protein crystallography, forensic evidence analysis and surface defect inspection.

- Designed for a 2/3" sensor
- Focal length range of 80-497 mm
- Motorized for easy magnification adjustments
- Combine with infinity corrected imaging microscope objectives, Plan Apo NUV long working distance microscope objectives, and high power UV focusing objectives
- Operates within 330nm to 700nm spectral range
- Can be modified for manual actuation

Zoom Ratio	6.2:1
Magnification	0.4x - 2.5x
Focal Length Range (mm)	80 - 497
Spectral Range (nm)	330 - 700
Numerical Aperture: Image Side	0.019 - 0.024
Distortion	< 0.2% across entire field
Max. Sensor Coverage	2/3"
Camera Mount	C-Mount
Zoom Drive Mechanism	2 Phase Stepping Motor Hall-Effect Limit Sensors



Case Study – UV Protein Crystallography

The Navitar NUV-VIS lens system was coupled with standard diffuse back-lighting and captured clear, well defined crystal images (Fig. 1). The illumination method was then switched to a single UV LED and successfully captured clear images of UV crystal fluorescence (Fig 2.).

When viewing a droplet in the UV spectrum, crystals that might otherwise be overlooked in the visible spectrum become very clearly distinguishable.

System Components:
- Navitar NUV-VIS zoom lens assembly
- 5X objective optimized for wavelength range (325nm - 500nm) NA=0.13
- 2/3" CCD camera
- UV bandpass filter
- 285nm UV LED illumination

Operation testing and images courtesy of Square One Systems Design

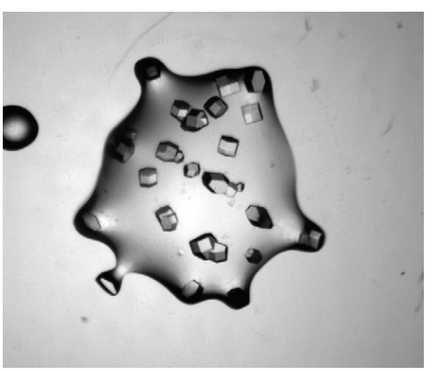


Fig 1. Drop Image in Visible Spectrum with Backlighting

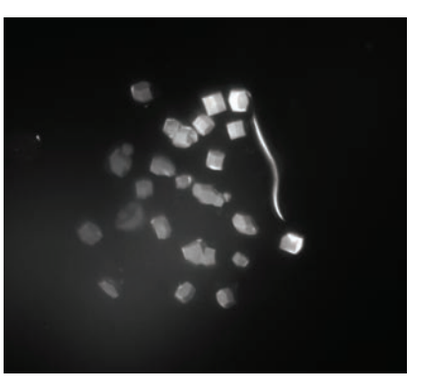
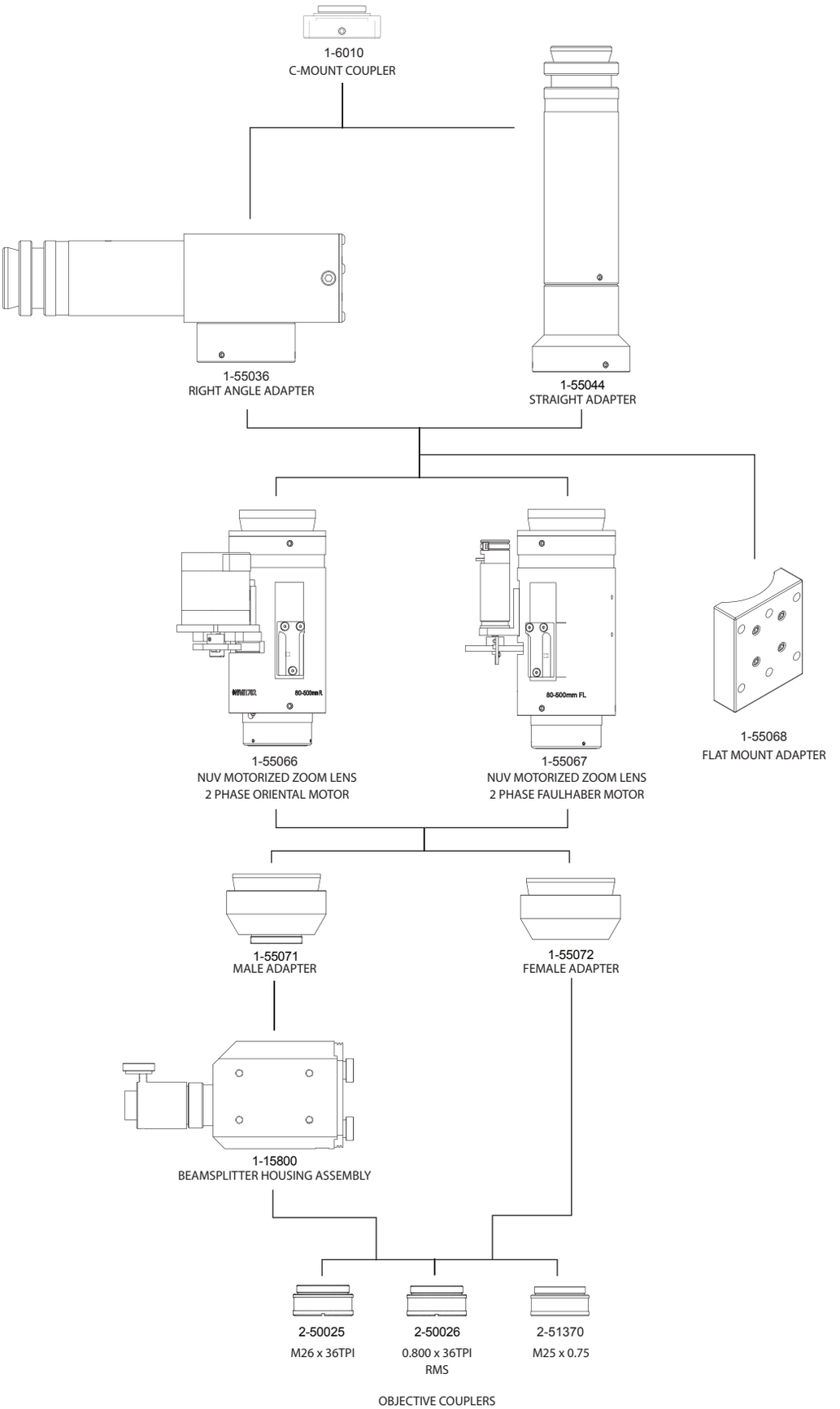


Fig 2. Drop Image with UV (285nm) LED lighting

NUV-VIS Zoom System Diagram



NUV-VIS Zoom Matrix

Objective Lens (Mitutoyo) Plan Apo NUV	Working Distance (mm)	Numerical Aperture	Depth of Field (µ)	Camera Format	1.0x Adapter	
					Low Mag.	High Mag.
10X	30.5	0.28	6.4	Mag.	4.0x	24.9x
				Sensor 1/4″	0.80h 0.60v	0.13h 0.10v
				Sensor 1/3″	1.20h 0.90v	0.19h 0.14v
				Sensor 1/2″	1.60h 1.20v	0.26h 0.19v
				Sensor 2/3″	2.20h 1.65v	0.35h 0.27v
20X	17.0	0.40	3.1	Mag.	8.0x	49.7x
				Sensor 1/4″	0.40h 0.30v	0.06h 0.05v
				Sensor 1/3″	0.60h 0.45v	0.10h 0.07v
				Sensor 1/2″	0.80h 0.60v	0.13h 0.10v
				Sensor 2/3″	1.10h 0.83v	0.18h 0.13v
50X	15.0	0.42	2.8	Mag.	20.0x	124.3x
				Sensor 1/4″	0.16h 0.12v	0.03h 0.02v
				Sensor 1/3″	0.24h 0.18v	0.04h 0.03v
				Sensor 1/2″	0.32h 0.24v	0.05h 0.04v
				Sensor 2/3″	0.44h 0.33v	0.07h 0.05v

NAVITAR
200 Commerce Dr. Rochester, NY 14623
585.359.4000 • info@navitar.com • navitar.com