

# MicroMate

## 3:1 Zoom Ratio

- » Designed for 4/3" Sensor (22.5mm Diameter Image)
- » Large Field of View
- » Four Times as Much Data While Retaining Pixel Resolution
- » NA Remains Fixed Over the Entire Zoom Range
- » Fixed Pupil Position
- » Modular Design



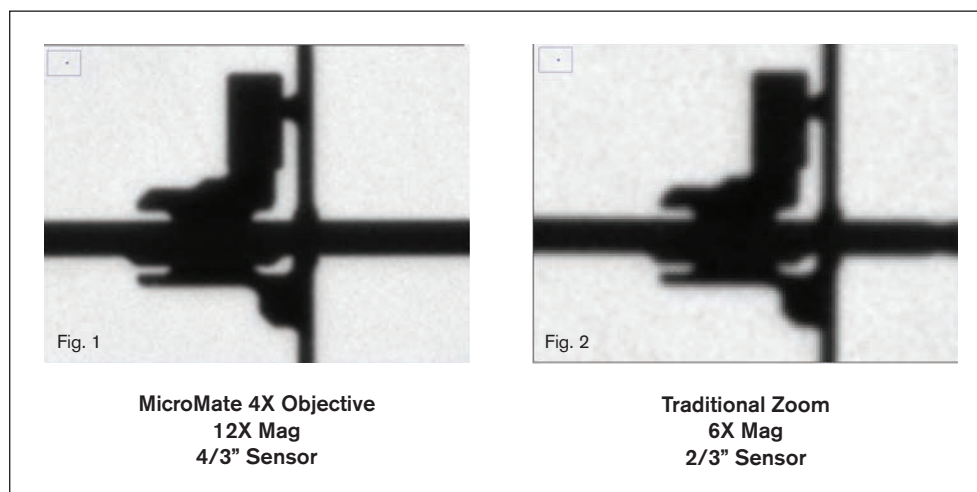
## About the MicroMate System

The MicroMate was designed specifically to work with today's high resolution 4/3" sensor cameras. It images onto a 22.5mm diagonal with no vignetting when combined with Navitar objectives. The modular design allows for seamless integration of traditional microscope options, such as fluorescence, DIC, brightfield and darkfield imaging.

## System Performance Specifications

	Navitar Objective + Zoom			Mitutoyo Objective + Zoom			
	1x + Zoom	2x + Zoom	4x + Zoom	5x + Zoom	10x + Zoom	20x + Zoom	50x + Zoom
Objective Magnification	1.00	2.00	4.00	5.00	10.00	20.00	50.00
Objective Focal Length (mm)	200.00	100.20	50.00	40.00	20.00	10.00	4.00
Working Distance (mm)	15	39	20	34	33	20	13
Afocal Magnification	1x - 3x	1x - 3x	1x - 3x	1x - 3x	1x - 3x	1x - 3x	1x - 3x
System Mag (200mm Tube Lens)	1x - 3x	2x - 6x	4x - 12x	5x - 15x	10x - 30x	20x - 60x	50x - 150x
Object Field Low Mag (mm)	22.50	11.25	5.63	4.40	2.20	1.10	0.44
Object Field High Mag (mm)	7.30	3.70	1.80	1.50	0.73	0.37	0.15
Object NA Low Mag	0.04	0.08	0.20	0.14	0.28	0.42	0.55
Object NA High Mag	0.04	0.08	0.20	0.14	0.28	0.42	0.55
Resolution Low Mag ( $\mu$ )	8.30	4.20	1.68	2.40	1.20	0.80	0.60
Resolution High Mag ( $\mu$ )	8.30	4.20	1.68	2.40	1.20	0.80	0.60
Pixel Match Low Mag ( $\mu$ )	4.15	2.10	3.30	5.90	5.90	7.90	15.00
Pixel Match High Mag ( $\mu$ )	12.45	6.30	10.10	18.00	18.00	24.00	45.00
DOF Low Mag ( $\mu$ )	$\pm 160\mu\text{m}$	$\pm 80\mu\text{m}$	13.60	26.00	6.40	2.80	1.70
DOF High Mag ( $\mu$ )	$\pm 160\mu\text{m}$	$\pm 80\mu\text{m}$	13.60	26.00	6.40	2.80	1.70

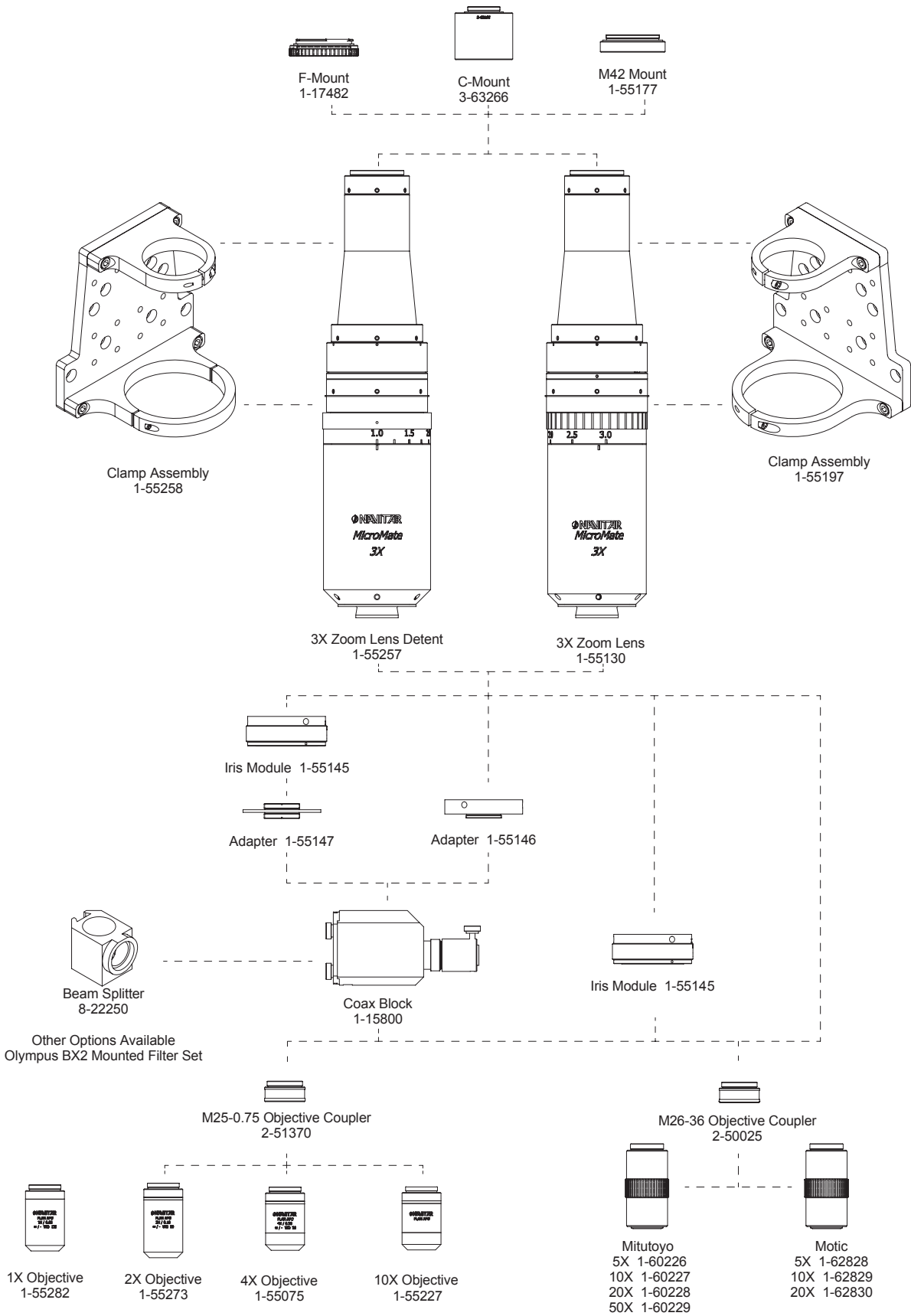
## Why Choose the Navitar MicroMate Over a Traditional Lens System?



Images taken with a Vieworks, VA Series Advanced High Speed 8M CCD Camera 5.5um pixel.

The MicroMate allows you to capture and process four times as much critical data at the camera sensor. When compared to a traditional optical system set to the same field of view (FOV), the result is fewer pixels per captured detail. (In figure 2 the pixels are more visible). This corresponds to less information that can be extracted from the image.

# MicroMate 3:1X System Diagram



## Navitar Microscope Objectives

Navitar Plan Apochromat Microscope Objectives (1X, 2X, 4X and 10X magnifications) fill a 22.5mm diagonal image space. The 3X MicroMate by design limits the vignetting. Microscope objectives on their own with a tube lens will not have vignetting.

	Navitar Objective Magnification			
	<b>1X</b> 1-55282	<b>2X</b> 1-55273	<b>4X</b> 1-55075	<b>10X</b> 1-55227
Numerical Aperture	0.04	0.08	0.20	0.40
Working Distance (mm)	15	39	20	10
Focal Length (mm)	200	100	50	20
Resolving Power (µm)	8.3	4.2	1.7	0.8
Depth of Field (µm)	±160 (320 range)	±40 (80 range)	±7 (14 range)	±1.6 (3.2 range)
FOV, 4/3" Sensor* (mm)	18.0 x 13.5	9.0 x 6.8	4.5 x 3.4	1.8 x 1.4
FOV, 2/3" Sensor (mm)	8.8 x 6.6	4.4 x 3.3	2.2 x 1.7	0.9 x 0.7
FOV, 1/2" Sensor (mm)	6.4 x 4.8	3.2 x 2.4	1.6 x 1.2	0.6 x 0.5
FOV, Ø22mm Eyepiece	22	11	5.5	2.2
Compatible Tube Lens	EFL=200mm	EFL=200mm	EFL=200mm	EFL=200mm
Maximum Diameter (mm)	33	31	31	39
Length Excluding Threads (mm)	80	56	45	85
Mounting Threads	M26 x 36 TPI	M26 x 36 TPI	M25 x 0.75	M26 x 36 TPI
Weight (g)	218	131	100	272
RoHS	Yes	Yes	Yes	Yes



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