

Zoom 6000

Field of View Matrix

Zoom 6000 Field of View Matrix (in mm at nominal W.D.)

Lens Attachment	Working Distance (mm)	Camera Format/Parameters	.5X Adapter Low - High	.67X Adapter Low - High	1X Adapter Low - High	1.33X Adapter Low - High	2X Adapter Low - High	3.3X Adapter Low - High	5X Adapter Low - High (2)	Resolve Limit (μm) Low-High	Depth of Field (mm) Low-High
0.25X 0.006 - 0.018 NA 1-6044	300 (nominal) 220-390 (1) W.D. range	Mag.	0.09X - 0.56X	0.12X - 0.75X	0.18X - 1.13X	0.24X - 1.50X	0.35X - 2.25X	0.59X - 3.73X	0.88X - 5.62X	55.56 - 18.52	13.89 - 1.54
		1/3" Sensor	68.64 - 10.64	51.12 - 8.04	34.32 - 5.32	25.80 - 4.00	17.16 - 2.66	10.40 - 1.61	6.88 - 1.08	55.56 - 18.52	13.89 - 1.54
		1/2" Sensor	91.36 - 14.16	68.06 - 10.66	45.68 - 7.08	34.34 - 5.32	22.84 - 3.54	13.84 - 2.14	9.12 - 1.44	55.56 - 18.52	13.89 - 1.54
		2/3" Sensor	91.40 - 19.52	93.62 - 14.66	62.84 - 9.76	47.25 - 7.34	31.42 - 4.88	19.04 - 2.96	12.56 - 1.96	55.56 - 18.52	13.89 - 1.54
		1" Sensor (3)	182.72 - 28.32	136.12 - 21.32	91.36 - 14.16	68.68 - 10.64	45.68 - 7.08	27.68 - 4.28	18.24 - 2.88	55.56 - 18.52	13.89 - 1.54
0.5X 0.011 - 0.035 NA 1-60110	175 (nominal) 143-187 (1) W.D. range	Mag.	0.18X - 1.13X	0.24X - 1.50X	0.35X - 2.25X	0.46X - 2.99X	0.70X - 4.50X	1.16X - 7.40X	1.75X - 11.25X	30.30 - 9.52	4.13 - 0.41
		1/3" Sensor	34.32 - 5.32	25.56 - 4.00	17.16 - 2.67	12.90 - 2.01	8.58 - 1.33	5.20 - 0.81	3.43 - 0.53	30.30 - 9.52	4.13 - 0.41
		1/2" Sensor	45.68 - 7.08	34.03 - 5.33	22.85 - 3.56	17.18 - 2.68	11.42 - 1.77	6.92 - 1.08	4.57 - 0.71	30.30 - 9.52	4.13 - 0.41
		2/3" Sensor	45.70 - 9.76	46.81 - 7.33	31.43 - 4.89	23.63 - 3.68	15.71 - 2.44	9.52 - 1.48	6.29 - 0.98	30.30 - 9.52	4.13 - 0.41
		1" Sensor (3)	91.36 - 14.16	68.06 - 10.66	45.70 - 7.12	34.36 - 5.36	22.84 - 3.54	13.84 - 2.16	9.14 - 1.42	30.30 - 9.52	4.13 - 0.41
0.75X 0.017 - 0.053 NA 1-60111	113 (nominal) 100-119 (1) W.D. range	Mag.	0.27X - 1.69X	0.35X - 2.25X	0.53X - 3.38X	0.70X - 4.49X	1.05X - 6.75X	1.75X - 11.15X	2.63X - 16.88X	19.60 - 6.28	1.73-0.18
		1/3" Sensor	22.86 - 3.56	17.04 - 2.67	11.43 - 1.78	8.59 - 1.34	5.72 - 0.89	3.46 - 0.54	2.29 - 0.35	19.60 - 6.28	1.73-0.18
		1/2" Sensor	30.46 - 4.74	22.69 - 3.56	15.23 - 2.37	11.45 - 1.78	7.62 - 1.19	4.62 - 0.72	3.05 - 0.47	19.60 - 6.28	1.73-0.18
		2/3" Sensor	30.50 - 6.52	31.21 - 4.89	20.95 - 3.26	15.75 - 2.45	10.48 - 1.63	6.35 - 0.99	4.19 - 0.65	19.60 - 6.28	1.73-0.18
		1" Sensor (3)	60.92 - 9.48	45.38 - 7.12	30.46 - 4.74	22.90 - 3.56	15.24 - 2.38	9.24 - 1.44	6.10 - 0.94	19.60 - 6.28	1.73-0.18
None 0.023 - 0.071 NA	92 (nominal) 81-93 (1) W.D. range	Mag.	0.35X - 2.25X	0.47X - 3.00X	0.70X - 4.50X	0.93X - 5.89X	1.40X - 9.00X	2.31X - 14.85X	3.50X - 22.50X	14.5 - 4.70	0.95 - 0.10
		1/3" Sensor	17.16 - 2.67	12.77 - 2.01	8.58 - 1.33	6.45 - 1.00	4.29 - 0.67	2.60 - 0.40	1.72 - 0.27	14.5 - 4.70	0.95 - 0.10
		1/2" Sensor	22.85 - 3.56	17.01 - 2.67	11.42 - 1.77	8.59 - 1.33	5.71 - 0.89	3.46 - 0.54	2.28 - 0.36	14.5 - 4.70	0.95 - 0.10
		2/3" Sensor	22.90 - 4.89	23.40 - 3.65	15.71 - 2.44	11.81 - 1.83	7.86 - 1.22	4.76 - 0.74	3.14 - 0.49	14.5 - 4.70	0.95 - 0.10
		1" Sensor (3)	45.70 - 7.12	34.02 - 5.34	22.84 - 3.54	17.18 - 2.66	11.42 - 1.78	6.92 - 1.08	4.56 - 0.72	14.5 - 4.70	0.95 - 0.10
1.5X 0.034 - 0.106 NA 1-60112	51 (nominal) 48-52 (1) W.D. range	Mag.	0.53X - 3.38X	0.71X - 4.50X	1.05X - 6.75X	1.40X - 8.98X	2.10X - 13.50X	3.47X - 22.28X	5.25X - 33.75X	9.80 - 3.14	0.43 - 0.04
		1/3" Sensor	11.43 - 1.78	8.52 - 1.33	5.72 - 0.89	4.3 - 0.67	2.86 - 0.44	1.73 - 0.27	1.14 - 0.18	9.80 - 3.14	0.43 - 0.04
		1/2" Sensor	15.23 - 2.37	11.34 - 1.77	7.62 - 1.19	5.73 - 0.89	3.81 - 0.59	2.31 - 0.36	1.52 - 0.24	9.80 - 3.14	0.43 - 0.04
		2/3" Sensor	15.00 - 3.26	15.60 - 2.44	10.48 - 1.63	7.88 - 1.22	5.24 - 0.81	3.18 - 0.49	2.10 - 0.33	9.80 - 3.14	0.43 - 0.04
		1" Sensor (3)	30.46 - 4.74	22.68 - 3.54	15.24 - 2.38	11.46 - 1.78	7.62 - 1.18	4.62 - 0.72	3.04 - 0.48	9.80 - 3.14	0.43 - 0.04
2.0X 0.040 - 0.142 NA 1-60113	36 (nominal) 34-37 (1) W.D. range	Mag.	0.70X - 4.50X	0.94X - 6.00X	1.40X - 9.00X	1.86X - 11.97X	2.80X - 18.00X	4.62X - 29.70X	7.00X - 45.00X	7.24 - 2.34	0.24 - 0.02
		1/3" Sensor	8.58 - 1.33	6.39 - 1.00	4.29 - 0.67	3.22 - 0.50	2.15 - 0.33	1.30 - 0.14	0.86 - 0.13	7.24 - 2.34	0.24 - 0.02
		1/2" Sensor	11.42 - 1.77	8.51 - 1.33	5.71 - 0.89	4.29 - 0.67	2.86 - 0.44	1.73 - 0.27	1.14 - 0.18	7.24 - 2.34	0.24 - 0.02
		2/3" Sensor	11.40 - 2.44	11.70 - 1.83	7.86 - 1.22	5.91 - 0.92	3.93 - 0.61	2.38 - 0.37	1.57 - 0.24	7.24 - 2.34	0.24 - 0.02
		1" Sensor (3)	22.84 - 3.54	17.02 - 2.66	11.42 - 1.78	8.58 - 1.34	5.72 - 0.88	3.46 - 0.54	2.24 - 0.36	7.24 - 2.34	0.24 - 0.02

The above fields of view are measured diagonally in millimeters (Horizontal = Diagonal x 0.8 and Vertical = Diagonal x 0.6).

(1) Working distance range when using 12 mm fine focus. Field of view will change with shorter or longer working distances.

(2) When using 5X Adapter image quality is greatly reduced. Contact your Navitar sales representative for detailed specifications.

(3) All systems using a 1" sensor should be discussed with a Navitar applications expert.

NA varies depending on system magnification.

Zoom 6000 UltraZoom

Field of View Matrix

Zoom 6000 UltraZoom Field of View Matrix
(for part number's I-60190, I-60191, I-60349 and I-60350 in mm)

Objective Lens (Mitutoyo) Long W.D	Working Distance (mm)	Camera Format/ Parameters	1X Adapter Low - High	1.33X Adapter Low - High	2X Adapter Low - High	3.3X Adapter Low - High
4X 1.4 NA* 1-55075	20	Mag.	1.99X - 9.14X	1.79X - 12.16X	2.78X - 18.29X	4.59X - 30.18X
		1/4" Sensor	2.01 - 0.44	2.24 - 0.33	1.44 - 0.22	0.87 - 0.13
		1/3" Sensor	3.02 - 0.66	3.35 - 0.49	2.16 - 0.33	1.31 - 0.20
		1/2" Sensor	(1) 5.15 - 0.87	4.47 - 0.66	2.87 - 0.44	1.74 - 0.27
		2/3" Sensor	(1) 5.15 - 1.20	6.15 - 0.90	3.95 - 0.60	2.39 - 0.36
5X 0.14 NA* 1-60226	34	Mag.	1.74X - 11.43X	2.30X - 15.00X	3.48X - 22.86X	5.74X - 37.72X
		1/4" Sensor	2.30 - 0.35	1.74 - 0.26	1.15 - 0.17	0.70 - 0.11
		1/3" Sensor	3.45 - 0.52	2.61 - 0.40	1.72 - 0.26	1.04 - 0.16
		1/2" Sensor	(1) 4.05 - 0.70	3.48 - 0.54	2.30 - 0.35	1.39 - 0.21
		2/3" Sensor	(1) 4.02 - 0.96	4.00 - 0.74	3.16 - 0.48	1.92 - 0.29
10X 0.28 NA* 1-60227	33	Mag.	3.48X - 22.86X	4.63X - 29.90X	6.96X - 45.72X	11.48X - 75.44X
		1/4" Sensor	1.15 - 0.17	0.86 - 0.13	0.57 - 0.09	0.35 - 0.05
		1/3" Sensor	1.72 - 0.26	1.30 - 0.20	0.86 - 0.13	0.52 - 0.08
		1/2" Sensor	(1) 2.10 - 0.35	1.73 - 0.27	1.15 - 0.17	0.70 - 0.11
		2/3" Sensor	(1) 2.10 - 0.48	2.10 - 0.37	1.58 - 0.24	0.96 - 0.15
20X 0.42 NA* 1-60228	20	Mag.	6.96X - 45.72X	9.30X - 59.90X	13.92X - 91.40X	22.97X - 150.88X
		1/4" Sensor	0.57 - 0.09	0.43 - 0.07	0.29 - 0.04	0.17 - 0.03
		1/3" Sensor	0.86 - 0.13	0.65 - 0.10	0.43 - 0.07	0.26 - 0.04
		1/2" Sensor	(1) 1.00 - 0.17	0.86 - 0.14	0.57 - 0.09	0.35 - 0.05
		2/3" Sensor	(1) 1.03 - 0.24	1.00 - 0.19	0.79 - 0.12	0.48 - 0.07
50X 0.55 NA* 1-60229	13	Mag.	17.40X - 114.30X	23.00X - 150.00X	34.80X - 228.60X	57.42X - 377.19X
		1/4" Sensor	0.23 - 0.03	0.17 - 0.03	0.11 - 0.02	0.07 - 0.011
		1/3" Sensor	0.30 - 0.05	0.26 - 0.04	0.17 - 0.03	0.10 - 0.020
		1/2" Sensor	(1) 0.31 - 0.07	0.30 - 0.05	0.23 - 0.04	0.14 - 0.020
		2/3" Sensor	(1) 0.30 - 0.10	(1) 0.30 - 0.07	(1) 0.30 - 0.05	0.19 - 0.030

NOTE: (1) Entire zoom range is not used. *NA at high mag. NA varies with zoom settings.

Zoom 6000 with Co-axial Illumination Field of View Matrix

Zoom 6000 with Co-axial Illumination Field of View Matrix 1-60123 (in mm at nominal W.D.)

Lens Attachment	W.D. (mm)	Camera Format/Parameters	.5X Adapter Low - High	.67X Adapter Low - High	1X Adapter Low - High	1.33X Adapter Low - High	2X Adapter Low - High	3.3X Adapter Low - High	5X Adapter Low - High
None 0.023-0.071 NA	92 (nominal) 90-93 (1) W.D. range	Mag.	0.35X - 2.25X	0.47X - 3.00X	0.70X - 4.50X	0.93X - 6.00X	1.40X - 9.00X	2.45X - 15.75X	3.50X - 22.50X
		1/4" Sensor	11.43 - 1.78	8.51 - 1.33	5.71 - 0.89	4.30X - 0.67	2.86 - 0.45	1.63 - 0.25	1.14 - 0.18
		1/3" Sensor	(2) 11.10 - 2.67	(2) 11.40 - 2.01	8.58 - 1.33	6.45 - 1.00	4.29 - 0.67	2.45 - 0.38	1.72 - 0.27
		1/2" Sensor	(2) 11.20 - 3.56	(2) 11.46 - 2.62	11.42 - 1.77	8.60 - 1.33	5.71 - 0.89	3.27 - 0.51	2.28 - 0.36
		2/3" Sensor	(2) 11.06 - 4.89	(2) 11.54 - 3.60	11.40 - 2.44	11.00 - 1.83	7.86 - 1.22	4.49 - 0.70	3.14 - 0.49
1.5X 0.034-0.106 NA 1-60112	51 (nominal) 51-53 (1) W.D. range	Mag.	0.53X - 3.38X	0.71X - 4.50X	1.05X - 6.75X	1.40X - 9.00X	2.10X - 13.50X	3.70X - 23.60X	5.25X - 33.75X
		1/4" Sensor	7.62 - 1.18	5.67 - 0.89	3.81 - 0.59	2.85 - 0.44	1.91 - 0.30	1.08 - 0.17	0.76 - 0.120
		1/3" Sensor	11.32 - 1.78	8.52 - 1.33	5.72 - 0.89	4.29 - 0.67	2.86 - 0.44	1.62 - 0.25	1.14 - 0.18
		1/2" Sensor	(2) 11.20 - 2.37	11.34 - 1.77	7.62 - 1.19	5.71 - 0.89	3.81 - 0.59	2.16 - 0.34	1.52 - 0.24
		2/3" Sensor	(2) 11.20 - 3.25	(2) 11.20 - 2.44	10.48 - 1.63	7.86 - 1.22	5.24 - 0.81	2.97 - 0.47	2.10 - 0.33
2.0X 0.046-0.1421 NA 1-60113	36 (nominal) 36-37 (1) W.D. range	Mag.	0.70X - 4.50X	0.94X - 6.00X	1.40X - 9.00X	1.86X-12.00X	2.80X - 18.00X	4.90X-31.50X	7.00X - 45.00X
		1/4" Sensor	5.71 - 0.89	4.26 - 0.67	2.86 - 0.45	2.15 - 0.33	1.43 - 0.23	0.82 - 0.13	0.57 - 0.09
		1/3" Sensor	8.57 - 1.33	6.39 - 1.00	4.29 - 0.67	3.22 - 0.50	2.15 - 0.33	1.22 - 0.19	0.86 - 0.13
		1/2" Sensor	(2) 11.20 - 1.77	8.51 - 1.33	5.71 - 0.89	4.30 - 0.67	2.86 - 0.44	1.63 - 0.25	1.14 - 0.18
		2/3" Sensor	(2) 11.20 - 2.44	(2) 11.70 - 1.83	7.86 - 1.22	5.91 - 0.92	3.93 - 0.61	2.24 - 0.35	1.57 - 0.24

NOTE:

The internal coax will illuminate a circular area of about 11 mm in diameter. Any field of view larger than 11 mm will have darkened corners.

Low power lens attachments can be used but produce increasing vignetted.

(1) Working distance range when using 3 mm fine focus.

(2) Entire zoom range is not used.