

Precise Eye Field of View Matrix

Precise Eye Field of View Matrix (in mm at nominal W.D.)

Lens Attachment	W.D. (mm)	Camera Format & Parameters	0.5X Adapter 1-62088	0.67X Adapter 1-61453	1.0X Adapter 1-61445	1.33X Adapter 1-61448	2.0X Adapter 1-61450
0.25X 0.018 N.A. DOF 1.59 mm 1-6044	310 (nominal)	Mag.	0.22X	0.30X	0.45X	0.60X	0.90X
		Field 1/4"	14.2(h) 10.6(v)	10.7(h) 8.0(v)	7.1(h) 5.3(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)
	282-351 (1) W.D. Range	Field 1/3"	21.4(h) 16.0(v)	15.9(h) 11.9(v)	10.7(h) 8.0(v)	8.0(h) 6.0(v)	5.3(h) 4.0(v)
		Field 1/2"	28.4(h) 21.4(v)	21.2(h) 15.9(v)	14.2(h) 10.7(v)	10.6(h) 8.0(v)	7.1(h) 5.3(v)
		Field 2/3"	—	—	19.6(h) 14.7(v)	14.7(h) 11.0(v)	—
0.5X 0.035 N.A. DOF 0.40 mm 1-60110	175 (nominal)	Mag.	0.45X	0.60X	0.90X	1.2X	1.8X
		Field 1/4"	7.2(h) 5.2(v)	5.3(h) 4.0(v)	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)
	170-190 (1) W.D. Range	Field 1/3"	10.6(h) 8.0(v)	8.0(h) 6.0(v)	5.3(h) 4.0(v)	4.0(h) 3.0(v)	2.7(h) 2.0(v)
		Field 1/2"	14.2(h) 10.6(v)	10.6(h) 8.0(v)	7.1(h) 5.3(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)
		Field 2/3"	—	—	9.8(h) 7.3(v)	7.3(h) 5.5(v)	—
0.75X 0.054 N.A. DOF 0.18 mm 1-60111	113 (nominal)	Mag.	0.7X	0.90X	1.4X	1.8X	2.7X
		Field 1/4"	4.6(h) 3.6(v)	3.6(h) 2.7(v)	2.3(h) 1.8(v)	1.8(h) 1.3(v)	1.2(h) 0.9(v)
	110-120 (1) W.D. Range	Field 1/3"	7.2(h) 5.4(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)
		Field 1/2"	9.4(h) 7.2(v)	7.1(h) 5.3(v)	4.7(h) 3.6(v)	3.6(h) 2.7(v)	2.4(h) 1.8(v)
		Field 2/3"	—	—	6.5(h) 4.9(v)	4.9(h) 3.7(v)	—
None 0.070 N.A. DOF 0.10 mm	92 (nominal)	Mag.	0.9X	1.2X	1.8X	2.4X	3.6X
		Field 1/4"	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)
	90-93 (1) W.D. Range	Field 1/3"	5.4(h) 4.0(v)	4.0(h) 3.0(v)	2.7(h) 2.0(v)	2.0(h) 1.5(v)	1.3(h) 1.0(v)
		Field 1/2"	7.2(h) 5.4(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)
		Field 2/3"	—	—	4.9(h) 3.7(v)	3.7(h) 2.8(v)	—
1.5X 0.104 N.A. DOF 0.04 mm 1-60112	51 (nominal)	Mag.	1.35X	1.8X	2.7X	3.6X	5.4X
		Field 1/4"	2.4(h) 1.8(v)	1.8(h) 1.3(v)	1.2(h) 0.9(v)	0.9(h) 0.7(v)	0.6(h) 0.4(v)
	49-51 (1) W.D. Range	Field 1/3"	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)
		Field 1/2"	4.8(h) 3.6(v)	3.6(h) 2.7(v)	2.4(h) 1.8(v)	1.8(h) 1.3(v)	1.2(h) 0.9(v)
		Field 2/3"	—	—	3.3(h) 2.4(v)	2.4(h) 1.8(v)	—
2.0X 0.141 N.A. DOF 0.02 mm 1-60113	36 (nominal)	Mag.	1.8X	2.4X	3.6X	4.8X	7.2X
		Field 1/4"	1.8(h) 1.4(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)	0.7(h) 0.5(v)	0.5(h) 0.3(v)
	35-36 (1) W.D. Range	Field 1/3"	2.6(h) 2.0(v)	2.0(h) 1.5(v)	1.3(h) 1.0(v)	1.0(h) 0.8(v)	0.7(h) 0.5(v)
		Field 1/2"	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)
		Field 2/3"	—	—	2.4(h) 1.8(v)	1.8(h) 1.4(v)	—

(1) Working distance range when using 3 mm fine focus. Field of view will be shorter.

Ultra Precise Eye Field of View Matrix

Ultra Precise Eye Field of View Matrix (in mm at nominal W.D.)

Infinity Corrected Objective (Mitutoyo)	W.D. (mm)	Camera Format & Parameters	0.5X Adapter 1-62088	0.67X Adapter 1-61453	1.0X Adapter 1-61445	1.33X Adapter 1-61448	2.0X Adapter 1-61450
5X 0.14 N.A. 1-60226	34	Mag.	2.22X	2.97X	4.44X	5.90X	8.87X
		Field 1/4"	1.44(h) 1.08(v)	1.08(h) 0.81(v)	0.72(h) 0.54(v)	0.54(h) 0.41(v)	0.36(h) 0.27(v)
		Field 1/3"	2.16(h) 1.62(v)	1.61(h) 1.21(v)	1.08(h) 0.81(v)	0.81(h) 0.61(v)	0.54(h) 0.41(v)
		Field 1/2"	2.88(h) 2.16(v)	2.15(h) 1.61(v)	1.44(h) 1.08(v)	1.08(h) 0.81(v)	0.72(h) 0.54(v)
		Field 2/3"	3.97(h) 2.97(v)	2.96(h) 2.22(v)	1.98(h) 1.49(v)	1.49(h) 1.12(v)	0.99(h) 0.74(v)
10X 0.28 N.A. 1-60227	33	Mag.	4.44X	5.95X	8.87X	11.8X	17.7X
		Field 1/4"	0.72(h) 0.54(v)	0.54(h) 0.40(v)	0.36(h) 0.27(v)	0.27(h) 0.20(v)	0.18(h) 0.14(v)
		Field 1/3"	1.08(h) 0.81(v)	0.81(h) 0.61(v)	0.54(h) 0.41(v)	0.41(h) 0.31(v)	0.27(h) 0.20(v)
		Field 1/2"	1.44(h) 1.08(v)	1.08(h) 0.81(v)	0.72(h) 0.54(v)	0.54(h) 0.41(v)	0.36(h) 0.27(v)
		Field 2/3"	1.98(h) 1.49(v)	1.48(h) 1.11(v)	0.99(h) 0.74(v)	0.75(h) 0.56(v)	0.50(h) 0.37(v)
20X 0.42 N.A. 1-60228	20	Mag.	8.87X	11.9X	17.7X	23.6X	35.5X
		Field 1/4"	0.36(h) 0.27(v)	0.27(h) 0.20(v)	0.18(h) 0.14(v)	0.14(h) 0.10(v)	0.09(h) 0.07(v)
		Field 1/3"	0.54(h) 0.41(v)	0.40(h) 0.30(v)	0.27(h) 0.20(v)	0.20(h) 0.15(v)	0.14(h) 0.10(v)
		Field 1/2"	0.72(h) 0.54(v)	0.54(h) 0.40(v)	0.36(h) 0.27(v)	0.27(h) 0.20(v)	0.18(h) 0.14(v)
		Field 2/3"	0.99(h) 0.74(v)	0.74(h) 0.56(v)	0.50(h) 0.37(v)	0.37(h) 0.28(v)	0.25(h) 0.19(v)
50X 0.55 N.A. 1-60229	13	Mag.	22.19X	29.7X	44.4X	59.0X	88.7X
		Field 1/4"	0.14(h) 0.11(v)	0.11(h) 0.08(v)	0.07(h) 0.05(v)	0.05(h) 0.04(v)	0.04(h) 0.03(v)
		Field 1/3"	0.22(h) 0.16(v)	0.16(h) 0.12(v)	0.11(h) 0.08(v)	0.08(h) 0.06(v)	0.05(h) 0.04(v)
		Field 1/2"	0.29(h) 0.22(v)	0.22(h) 0.16(v)	0.14(h) 0.11(v)	0.11(h) 0.08(v)	0.07(h) 0.05(v)
		Field 2/3"	0.40(h) 0.30(v)	0.30(h) 0.22(v)	0.20(h) 0.15(v)	0.15(h) 0.11(v)	0.10(h) 0.07(v)

NOTE: The I-O remains constant for each body tube (main assembly) regardless of which infinity corrected objective and adapter are selected: 1-61517 I-O = 219 mm, 1-61521 I-O = 243 mm, 1-61522 I-O = 263 mm

Precise Eye Field of View Matrix for Internal Coaxial

Field of View Matrix for Internal Co-axial Zoom (in mm at nominal W.D)

Lens Attachment	W.D. (mm)	Camera Format & Parameters	0.5X Adapter 1-62088	0.67X Adapter 1-61453	1.0X Adapter 1-61445	1.33X Adapter 1-61448	2.0X Adapter 1-61450
0.5X 0.035 NA DOF 0.40 mm 1-60110	175 (nominal)	Mag.	0.45X	0.60X	0.90X	1.2X	1.8X
		Sensor 1/4"	7.2(h) 5.2(v)	5.3(h) 4.0(v)	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)
	170-190 (1) W.D. Range	Sensor 1/3"	—	8.0(h) 6.0(v)	5.3(h) 4.0(v)	4.0(h) 3.0(v)	2.7(h) 2.0(v)
		Sensor 1/2"	—	—	7.1(h) 5.3(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)
		Sensor 2/3"	—	—	—	7.3(h) 5.5(v)	—
0.75X 0.054 NA DOF 0.17 mm 1-60111	113 (nominal)	Mag.	0.7X	0.90X	1.4X	1.8X	2.7X
		Sensor 1/4"	4.6(h) 3.6(v)	3.6(h) 2.7(v)	2.3(h) 1.8(v)	1.8(h) 1.3(v)	1.2(h) 0.9(v)
	110-120 (1) W.D. Range	Sensor 1/3"	7.2(h) 5.4(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)
		Sensor 1/2"	—	7.1(h) 5.3(v)	4.7(h) 3.6(v)	3.6(h) 2.7(v)	2.4(h) 1.8(v)
		Sensor 2/3"	—	—	6.5(h) 4.9(v)	4.9(h) 3.7(v)	—
None 0.070 NA DOF 0.10 mm	92 (nominal)	Mag.	0.9X	1.2X	1.8X	2.4X	3.6X
		Sensor 1/4"	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)
	90-93 (1) W.D. Range	Sensor 1/3"	5.4(h) 4.0(v)	4.0(h) 3.0(v)	2.7(h) 2.0(v)	2.0(h) 1.5(v)	1.3(h) 1.0(v)
		Sensor 1/2"	7.2(h) 5.4(v)	5.3(h) 4.0(v)	3.6(h) 2.7(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)
		Sensor 2/3"	—	—	4.9(h) 3.7(v)	3.7(h) 2.8(v)	—
1.5X 0.104 NA DOF 0.046 mm 1-60112	51 (nominal)	Mag.	1.35X	1.8X	2.7X	3.6X	5.4X
		Sensor 1/4"	2.4(h) 1.8(v)	1.8(h) 1.3(v)	1.2(h) 0.9(v)	0.9(h) 0.7(v)	0.6(h) 0.4(v)
	49-51 (1) W.D. Range	Sensor 1/3"	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)
		Sensor 1/2"	4.8(h) 3.6(v)	3.6(h) 2.7(v)	2.4(h) 1.8(v)	1.8(h) 1.3(v)	1.2(h) 0.9(v)
		Sensor 2/3"	6.6(h) 4.8(v)	—	3.3(h) 2.4(v)	2.4(h) 1.8(v)	—
2.0X 0.141 NA DOF 0.025 mm 1-60113	36 (nominal)	Mag.	1.8X	2.4X	3.6X	4.8X	7.2X
		Sensor 1/4"	1.8(h) 1.4(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)	0.7(h) 0.5(v)	0.5(h) 0.3(v)
	35-36 (1) W.D. Range	Sensor 1/3"	2.6(h) 2.0(v)	2.0(h) 1.5(v)	1.3(h) 1.0(v)	1.0(h) 0.8(v)	0.7(h) 0.5(v)
		Sensor 1/2"	3.6(h) 2.6(v)	2.7(h) 2.0(v)	1.8(h) 1.3(v)	1.3(h) 1.0(v)	0.9(h) 0.7(v)
		Sensor 2/3"	4.8(h) 3.6(v)	—	2.4(h) 1.8(v)	1.8(h) 1.4(v)	—

Notes:

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.

(1) Working distance range when using 3 mm fine focus. Field of view will change with shorter or longer working distance.