

## Shooting distance and coverage with use of extension rings

### Instructions and Cautions

1. Please use the data shown here for your reference only, it is not the actual figure.  
Tamron will not be responsible for any trouble caused using the this figure.
2. The data is calculated figure, not based on real measurements.  
Please be noted that tolerance are not counted in with this calculation.  
There might be small difference between each piece.
3. There may be some loss in image quality by applying the extension ring.  
Tamron will not guarantee the original image performance when use with an extension ring.
4. This data is based on all source available as of August 1, 2009
5. Subjects may change with out notice.


For Reference Only

## Explanation of Text

Here under shows how to read the text.

Size of Extension Ring	Mxxxx (xxmm)		
	Distance	Coverage	
W/O	98.5	101.7 × 74.9	
0.5	119.2	121.7 × 89.6	
	49.8	55.4 × 40.8	
1	55.2	60.8 × 44.8	
	31.6	38.1 × 28.0	
1.5	33.9	40.6 × 29.9	
	22.0	29.0 × 21.4	
5	4.0	12.2 × 9.0	
	3.0	10.9 × 8.0	

→ **Model Number (Focal Length)**  
→ **Object distance from the tip of mechanical end at infinity focusing position**  
→ **Data at infinity focusing position.**  
→ **Data at the minimum focusing position.**  
→ **Object distance from the tip of mechanical end at minimum focusing position**  
→ **Size of Extension Ring**


 In this case, at object distance of 49.8mm the field coverage will be approximately 55.4mm(H) x 40.8mm(V) at MOD.  
 (The data is calculated figure, not based on real measurements.)

- Shooting distance and coverage with use of extension rings -

## Shooting distance and coverage with use of extension ring (Imager Size 2/3")

Unit : mm

Size of Extension Ring	22HA (6.5mm)		219HA/219HB (8.0mm)		25HA/25HB (12mm)		17HD/17HF (16mm)		20HA/20HC (25mm)		35HB (35mm)		21HA/21HC (50mm)		1A1HA/1A1HB (75mm)	
	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance
W/O	2182.4 × 159.7	1499.4	310.7 × 169.6	254.9	209.4 × 155.1	253.6	166.0 × 123.1	290.3	72.7 × 54.4	205.5	68.4 × 51.3	292.5	68.8 × 51.6	442.4	51.4 × 38.6	497.0
0.5mm	126.7 × 91.9	75.2	153.1 × 112.1	124.0	218.6 × 162.1	282.4	293.4 × 217.6	520.6	440.3 × 330.2	1250.9	613.7 × 461.1	2468.1	876.0 × 657.8	5040.8	1285.5 × 964.8	10768.8
			100.9 × 73.8	75.3	104.1 × 77.2	120.3	106.3 × 78.7	181.9	62.5 × 46.8	176.4	61.5 × 46.2	265.2	63.8 × 47.9	413.9	49.5 × 37.1	480.6
1.0mm	63.6 × 46.0	31.6	76.3 × 55.9	56.6	109.1 × 81.0	135.7	146.9 × 108.9	255.5	220.3 × 165.2	625.1	306.9 × 230.6	1241.7	438.2 × 329.2	2547.6	642.6 × 482.3	5418.0
			60.0 × 44.0	40.6	69.2 × 51.3	76.2	78.2 × 57.9	131.1	54.8 × 41.0	154.5	56.0 × 42.0	242.9	59.5 × 44.7	389.4	47.6 × 35.7	465.3
1.5mm	42.6 × 30.7	17.0	50.8 × 37.2	34.2	72.7 × 54.0	86.8	98.1 × 72.7	167.1	147.0 × 110.1	416.6	204.7 × 153.8	833.0	292.4 × 219.5	1715.7	428.4 × 321.5	3634.8
			42.7 × 31.3	25.8	51.8 × 38.4	54.1	61.9 × 45.8	101.5	48.7 × 36.5	137.5	51.3 × 38.5	224.3	55.7 × 41.8	367.9	45.9 × 34.5	451.2
5.0mm			15.0 × 11.1	2.8	21.7 × 16.1	18.4	29.7 × 21.9	43.4	44.3 × 33.1	124.7	61.5 × 46.2	260.8	87.8 × 65.9	550.5	128.6 × 96.5	1138.9
			14.0 × 10.3	1.3	18.7 × 13.9	12.1	25.2 × 18.6	35.4	27.5 × 20.6	77.5	32.4 × 24.3	149.0	38.6 × 29.0	270.4	36.8 × 27.6	374.8
10.0mm					10.8 × 8.0	3.7			22.1 × 16.6	62.2	30.8 × 23.1	138.2	43.9 × 33.0	300.7	64.3 × 48.2	604.1
					9.7 × 7.3	0.7			17.0 × 12.7	47.6	21.2 × 15.9	104.5	26.8 × 20.1	203.4	28.6 × 21.4	306.9
15.0mm									14.8 × 11.0	41.4	20.5 × 15.4	97.3	29.3 × 22.0	217.4	42.9 × 32.2	425.8
									12.3 × 9.2	34.3	15.8 × 11.9	82.8	20.6 × 15.4	167.7	23.4 × 17.5	263.7
20.0mm									11.1 × 8.3	30.9	15.4 × 11.6	76.9	22.0 × 16.5	175.8	32.2 × 24.1	336.7
									9.6 × 7.2	26.8	12.6 × 9.4	70.0	16.7 × 12.5	145.6	19.8 × 14.8	233.8
25.0mm											12.3 × 9.2	64.6	17.6 × 13.2	150.8	25.7 × 19.3	283.2
											10.4 × 7.8	61.5	14.0 × 10.5	130.5	17.2 × 12.9	211.9
30.0mm											10.3 × 7.7	56.5	14.7 × 11.0	134.2	21.4 × 16.1	247.6
											8.9 × 6.7	55.5	12.1 × 9.1	119.6	15.1 × 11.4	195.1
35.0mm											8.8 × 6.6	50.6	12.6 × 9.4	122.3	18.4 × 13.8	222.1
											7.8 × 5.9	51.0	10.6 × 8.0	111.3	13.5 × 10.2	181.9
40.0mm											7.7 × 5.8	46.3	11.0 × 8.2	113.4	16.1 × 12.1	203.0
											6.9 × 5.2	47.5	9.5 × 7.1	104.8	12.3 × 9.2	171.2

Upper column : Data at the infinity focusing position.

Lower column : Data at the nearest focusing position.

Taking distance : From front lenz surface to the object

## Shooting distance and coverage with use of extension ring (Imager Size 1/2")

Unit : mm

Size of Extension Ring	22HA (6.5mm)		219HA/219HB (8.0mm)		25HA/25HB (12mm)		17HD/17HF (16mm)		20HA/20HC (25mm)		35HB (35mm)		21HA/21HC (50mm)		1A1HA/1A1HB (75mm)	
	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance
W/O	1538.4 × 1131.0	1499.4	219.7 × 162.4	254.9	150.3 × 112.0	253.6	119.3 × 89.0	290.3	52.8 × 39.6	205.5	49.8 × 37.3	292.5	50.1 × 37.6	442.4	37.4 × 28.1	497.0
0.5mm	88.9 × 65.3	75.2	108.5 × 80.3	124.0	157.1 × 117.1	282.4	210.9 × 157.3	520.6	320.2 × 240.2	1250.9	447.2 × 335.8	2468.1	637.9 × 478.8	5040.8	935.6 × 702.0	10768.8
			71.4 × 52.8	75.3	74.8 × 55.7	120.3	76.3 × 56.9	181.9	45.3 × 34.0	176.4	44.8 × 33.6	265.2	46.4 × 34.8	413.9	36.0 × 27.0	480.6
1.0mm	44.5 × 32.6	31.6	54.1 × 40.1	56.6	78.5 × 58.5	135.7	105.5 × 78.7	255.5	160.1 × 120.1	625.1	223.6 × 167.9	1241.7	319.2 × 239.6	2547.6	467.7 × 350.9	5418.0
			42.5 × 31.5	40.6	49.7 × 37.1	76.2	56.1 × 41.8	131.1	39.7 × 29.8	154.5	40.7 × 30.6	242.9	43.3 × 32.5	389.4	34.7 × 26.0	465.3
1.5mm	29.7 × 21.8	17.0	36.0 × 26.7	34.2	52.3 × 39.0	86.8	70.4 × 52.5	167.1	106.8 × 80.1	416.6	149.1 × 111.9	833.0	212.9 × 159.8	1715.7	311.8 × 233.4	3634.8
			30.3 × 22.4	25.8	37.3 × 27.8	54.1	44.3 × 33.0	101.5	35.4 × 26.5	137.5	37.3 × 28.0	224.3	40.6 × 30.4	367.9	33.4 × 25.1	451.2
5.0mm			10.7 × 8.0	2.8	15.6 × 11.7	18.4	21.2 × 15.8	43.4	32.1 × 20.0	124.7	44.8 × 33.6	260.8	63.9 × 48.0	550.5	93.6 × 70.2	1138.9
			10.0 × 7.4	1.3	13.5 × 10.1	12.1	18.0 × 13.4	35.4	20.0 × 15.0	77.5	23.6 × 17.7	149.0	28.1 × 21.1	270.4	26.7 × 20.1	374.8
10.0mm					7.8 × 5.8	3.7			16.1 × 12.0	62.2	22.4 × 16.8	138.2	32.0 × 24.0	300.7	46.8 × 35.1	604.1
					7.0 × 5.3	0.7			12.3 × 9.2	47.6	15.5 × 11.6	104.5	19.5 × 14.6	203.4	20.8 × 15.6	306.9
15.0mm									10.7 × 8.0	41.4	14.9 × 11.2	97.3	21.3 × 16.0	217.4	31.2 × 23.4	425.8
									8.9 × 6.7	34.3	11.5 × 8.6	82.8	15.0 × 11.2	167.7	17.0 × 12.8	263.7
20.0mm									8.0 × 6.0	30.9	11.2 × 8.4	76.9	16.0 × 12.0	175.8	23.4 × 17.5	336.7
									7.0 × 5.2	26.8	9.1 × 6.9	70.0	12.1 × 9.1	145.6	14.4 × 10.8	233.8
25.0mm											9.0 × 6.7	64.6	12.8 × 9.6	150.8	18.7 × 14.0	283.2
											7.6 × 5.7	61.5	10.2 × 7.6	130.5	12.5 × 9.4	211.9
30.0mm											7.5 × 5.6	56.5	10.7 × 8.0	134.2	15.6 × 11.7	247.6
											6.5 × 4.9	55.5	8.8 × 6.6	119.6	11.0 × 8.3	195.1
35.0mm											6.4 × 4.8	50.6	9.1 × 6.9	122.3	13.4 × 10.0	222.1
											5.7 × 4.3	51.0	7.7 × 5.8	111.3	9.9 × 7.4	181.9
40.0mm											5.6 × 4.2	46.3	8.0 × 6.0	113.4	11.7 × 8.8	203.0
											5.0 × 3.8	47.5	6.9 × 5.2	104.8	8.9 × 6.7	171.2

Upper column : Data at the infinity focusing position.

Lower column : Data at the nearest focusing position.

Taking distance : From front lens surface to the object

# Shooting distance and coverage with use of extension ring (Imager Size 1/3")

Unit : mm

Size of Extension Ring	22HA (6.5mm)		219HA/219HB (8.0mm)		25HA/25HB (12mm)		17HD/17HF (16mm)		20HA/20HC (25mm)		35HB (35mm)		21HA/21HC (50mm)		1A1HA/1A1HB (75mm)	
	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance	Coverage	Distance
W/O	1131.0 × 838.0	1499.4	162.4 × 120.7	254.9	112.0 × 83.7	253.6	89.0 × 66.5	290.3	39.6 × 29.7	205.5	37.3 × 28.0	292.5	37.6 × 28.2	442.4	28.1 × 21.1	497.0
0.5mm	65.3 × 48.4	75.2	80.3 × 59.7	124.0	117.1 × 87.6	282.4	157.3 × 117.7	520.6	240.2 × 180.1	1250.9	335.8 × 252.0	2468.1	478.8 × 359.2	5040.8	702.0 × 526.6	10768.8
1.0mm	32.6 × 24.2	31.6	40.1 × 29.8	56.6	58.5 × 43.8	135.7	78.7 × 58.8	255.5	120.1 × 90.1	625.1	167.9 × 126.0	1241.7	239.6 × 179.7	2547.6	350.9 × 263.2	5418.0
1.5mm	21.8 × 16.1	17.0	26.7 × 19.9	34.2	39.0 × 29.2	86.8	52.5 × 39.2	167.1	80.1 × 60.0	416.6	111.9 × 84.0	833.0	159.8 × 119.9	1715.7	233.9 × 175.5	3634.8
5.0mm			8.0 × 5.9	2.8	11.7 × 8.7	18.4	15.8 × 11.8	43.4	24.0 × 18.0	124.7	33.6 × 25.2	260.8	48.0 × 36.0	550.5	70.2 × 52.6	1138.9
			7.4 × 5.5	1.3	10.1 × 7.5	12.1	13.4 × 10.0	35.4	15.0 × 11.2	77.5	17.7 × 13.3	149.0	21.1 × 15.8	270.4	20.1 × 15.0	374.8
10.0mm					5.8 × 4.4	3.7			12.0 × 9.0	62.2	16.8 × 12.6	138.2	24.0 × 18.0	300.7	35.1 × 26.3	604.1
					5.3 × 3.9	0.7			9.2 × 6.9	47.6	11.6 × 8.7	104.5	14.6 × 11.0	203.4	15.6 × 11.7	306.9
15.0mm									8.0 × 6.0	41.4	11.2 × 8.4	97.3	16.0 × 12.0	217.4	23.4 × 17.5	425.8
									6.7 × 5.0	34.3	8.6 × 6.5	82.8	11.2 × 8.4	167.7	12.8 × 9.6	263.7
20.0mm									6.0 × 4.5	30.9	8.4 × 6.3	76.9	12.0 × 9.0	175.8	17.5 × 13.2	336.7
									5.2 × 3.9	26.8	6.9 × 5.1	70.0	9.1 × 6.8	145.6	10.8 × 8.1	233.8
25.0mm											6.7 × 5.0	64.6	9.6 × 7.2	150.8	14.0 × 10.5	283.2
											5.7 × 4.3	61.5	7.6 × 5.7	130.5	9.4 × 7.0	211.9
30.0mm											5.6 × 4.2	56.5	8.0 × 6.0	134.2	11.7 × 8.8	247.6
											4.9 × 3.7	55.5	6.6 × 4.9	119.6	8.3 × 6.2	195.1
35.0mm											4.8 × 3.6	50.6	6.9 × 5.1	122.3	10.0 × 7.5	222.1
											4.3 × 3.2	51.0	5.8 × 4.3	111.3	7.4 × 5.5	181.9
40.0mm											4.2 × 3.2	46.3	6.0 × 4.5	113.4	8.8 × 6.6	203.0
											3.8 × 2.8	47.5	5.2 × 3.9	104.8	6.7 × 5.0	171.2

Upper column : Data at the infinity focusing position.  
 Lower column : Data at the nearest focusing position.  
 Taking distance : From front lenz surface to the object

## 2/3" CCD SIZE      Shooting Distance and Coverage When Used With Extension Rings

Unit: mm

Size of Extension Ring	23FM16SP (16mm)			23FM25SP (25mm)			23FM50SP (50mm)		
	Distance	Coverage		Distance	Coverage		Distance	Coverage	
w/o Ext. Ring M.O.D.	142.2	87.1	× 65.0	148.3	57.1	× 42.7	191.8	30.2	× 22.7
0.5	494.6	283.6	× 212.2	1231.6	440.6	× 330.3	5012.4	878.9	× 659.2
	105.4	67.0	× 50.0	129.9	50.8	× 38.0	186.1	29.2	× 21.9
1	239.0	142.1	× 106.2	606.8	220.4	× 165.2	2517.5	439.6	× 329.7
	82.4	54.5	× 40.7	115.1	45.7	× 34.2	180.8	28.3	× 21.2
1.5	153.7	94.8	× 70.9	398.6	147.0	× 110.1	1685.5	293.1	× 219.8
	66.7	45.9	× 34.3	103.0	41.6	× 31.1	175.8	27.4	× 20.5
5	34.3	28.7	× 21.4	107.2	44.3	× 33.1	520.2	88.0	× 66.0
	22.8	22.0	× 16.3	55.9	25.5	× 19.0	148.0	22.5	× 16.9
10	8.7	14.5	× 10.7	44.7	22.3	× 16.6	270.5	44.0	× 33.0
	5.8	12.7	× 9.4	29.6	16.4	× 12.3	122.0	17.9	× 13.4
15	0.2	9.8	× 7.2	23.9	14.9	× 11.1	187.2	29.3	× 22.0
				17.1	12.2	× 9.1	104.8	14.9	× 11.1
20				13.5	11.2	× 8.4	145.6	22.0	× 16.5
				9.8	9.7	× 7.2	92.6	12.7	× 9.5
25				7.2	9.0	× 6.7	120.6	17.6	× 13.2
				5.0	8.0	× 6.0	83.5	11.1	× 8.3
30				3.1	7.6	× 5.6	103.9	14.7	× 11.0
				1.7	6.9	× 5.1	76.5	9.8	× 7.4
35				0.1	6.5	× 4.8	92.0	12.6	× 9.4
							70.8	8.9	× 6.6
40							83.1	11.0	× 8.2
							66.2	8.0	× 6.0

Higher Column:      Data at the infinity focusing position  
Lower Column:      Data at the nearest focusing position  
Distance:              From front lens surface to the object

# 1/2" CCD SIZE      Shooting Distance and Coverage When Used With Extension Rings

Unit: mm

Size of Extension Ring	23FM16SP (16mm)			23FM25SP (25mm)			23FM50SP (50mm)		
	Distance	Coverage		Distance	Coverage		Distance	Coverage	
w/o Ext. Ring M.O.D.	142.2	63.1	x 47.2	148.3	41.4	x 31.0	191.8	22.0	x 16.5
0.5	494.6	205.7	x 154.0	1231.6	320.3	x 240.1	5012.4	639.2	x 479.4
	105.4	48.5	x 36.3	129.9	36.8	x 27.6	186.1	21.2	x 15.9
1	239.0	103.0	x 77.0	606.8	160.1	x 120.1	2517.5	319.7	x 239.8
	82.4	39.4	x 29.5	115.1	33.1	x 24.8	180.8	20.6	x 15.4
1.5	153.7	68.7	x 51.4	398.6	106.8	x 80.0	1685.5	213.2	x 159.9
	66.7	33.2	x 24.8	103.0	30.1	x 22.6	175.8	19.9	x 14.9
5	34.3	20.7	x 15.5	107.2	32.1	x 24.0	520.2	64.0	x 48.0
	22.8	15.8	x 11.8	55.9	18.4	x 13.8	148.0	16.3	x 12.3
10	8.7	10.4	x 7.8	44.7	16.1	x 12.0	270.5	32.0	x 24.0
	5.8	9.1	x 6.8	29.6	11.9	x 8.9	122.0	13.0	x 9.8
15	0.2	7.0	x 5.2	23.9	10.8	x 8.0	187.2	21.3	x 16.0
				17.1	8.8	x 6.5	104.8	10.8	x 8.1
20				13.5	8.1	x 6.0	145.6	16.0	x 12.0
				9.8	7.0	x 5.2	92.6	9.2	x 6.9
25				7.2	6.5	x 4.8	120.6	12.8	x 9.6
				5.0	5.8	x 4.3	83.5	8.1	x 6.1
30				3.1	5.4	x 4.0	103.9	10.7	x 8.0
				1.7	4.9	x 3.7	76.5	7.2	x 5.4
35				0.1	4.7	x 3.5	92.0	9.1	x 6.9
							70.8	6.4	x 4.8
40							83.1	8.0	x 6.0
							66.2	5.9	x 4.4

Higher Column:      Data at the infinity focusing position  
Lower Column:      Data at the nearest focusing position  
Distance:              From front lens surface to the object

**1/3" CCD SIZE**      Shooting Distance and Coverage  
When Used With Extension Rings

Unit: mm

Size of Extension Ring w/ o Ext. Ring M.O.D.	23FM16SP (16mm)			23FM25SP (25mm)			23FM50SP (50mm)		
	Distance	Coverage		Distance	Coverage		Distance	Coverage	
	142.2	47.2	x 35.3	148.3	31.0	x 23.2	191.8	16.5	x 12.4
0.5	494.6	154.0	x 115.3	1231.6	240.1	x 180.0	5012.4	479.4	x 359.6
	105.4	36.3	x 27.1	129.9	27.6	x 20.7	186.1	15.9	x 12.0
1	239.0	77.0	x 57.7	606.8	120.1	x 90.0	2517.5	239.8	x 179.9
	82.4	29.5	x 22.1	115.1	24.8	x 18.6	180.8	15.4	x 11.6
1.5	153.7	51.4	x 38.5	398.6	80.0	x 60.0	1685.5	159.9	x 119.9
	66.7	24.8	x 18.6	103.0	22.6	x 16.9	175.8	14.9	x 11.2
5	34.3	15.5	x 11.6	107.2	24.0	x 18.0	520.2	48.0	x 36.0
	22.8	11.8	x 8.8	55.9	13.8	x 10.3	148.0	12.3	x 9.2
10	8.7	7.8	x 5.8	44.7	12.0	x 9.0	270.5	24.0	x 18.0
	5.8	6.8	x 5.0	29.6	8.9	x 6.6	122.0	9.8	x 7.3
15	0.2	5.2	x 3.9	23.9	8.0	x 6.0	187.2	16.0	x 12.0
				17.1	6.5	x 4.9	104.8	8.1	x 6.1
20				13.5	6.0	x 4.5	145.6	12.0	x 9.0
				9.8	5.2	x 3.9	92.6	6.9	x 5.2
25				7.2	4.8	x 3.6	120.6	9.6	x 7.2
				5.0	4.3	x 3.2	83.5	6.1	x 4.5
30				3.1	4.0	x 3.0	103.9	8.0	x 6.0
				1.7	3.7	x 2.7	76.5	5.4	x 4.0
35				0.1	3.5	x 2.6	92.0	6.9	x 5.1
							70.8	4.8	x 3.6
40							83.1	6.0	x 4.5
							66.2	4.4	x 3.3

Higher Column: Data at the infinity focusing position  
Lower Column: Data at the nearest focusing positin  
Distance: From front lens surface to the object

# 1/4" CCD SIZE      Shooting Distance and Coverage When Used With Extension Rings

Unit: mm

Size of Extension Ring	23FM16SP (16mm)			23FM25SP (25mm)			23FM50SP (50mm)		
	Distance	Coverage		Distance	Coverage		Distance	Coverage	
w/o Ext. Ring M.O.D	142.2	35.3	× 26.5	148.3	23.2	× 17.4	191.8	12.4	× 9.3
0.5	494.6	115.3	× 86.4	1231.6	180.0	× 135.0	5012.4	359.6	× 269.7
	105.4	27.1	× 20.3	129.9	20.7	× 15.5	186.1	12.0	× 9.0
1	239.0	57.7	× 43.2	606.8	90.0	× 67.5	2517.5	179.9	× 134.9
	82.4	22.1	× 16.5	115.1	18.6	× 13.9	180.8	11.6	× 8.7
1.5	153.7	38.5	× 28.8	398.6	60.0	× 45.0	1685.5	119.9	× 89.9
	66.7	18.6	× 13.9	103.0	16.9	× 12.7	175.8	11.2	× 8.4
5	34.3	11.6	× 8.7	107.2	18.0	× 13.5	520.2	36.0	× 27.0
	22.8	8.8	× 6.6	55.9	10.3	× 7.7	148.0	9.2	× 6.9
10	8.7	5.8	× 4.3	44.7	9.0	× 6.8	270.5	18.0	× 13.5
	5.8	5.0	× 3.8	29.6	6.6	× 5.0	122.0	7.3	× 5.5
15	0.2	3.9	× 2.9	23.9	6.0	× 4.5	187.2	12.0	× 9.0
				17.1	4.9	× 3.7	104.8	6.1	× 4.6
20				13.5	4.5	× 3.4	145.6	9.0	× 6.7
				9.8	3.9	× 2.9	92.6	5.2	× 3.9
25				7.2	3.6	× 2.7	120.6	7.2	× 5.4
				5.0	3.2	× 2.4	83.5	4.5	× 3.4
30				3.1	3.0	× 2.3	103.9	6.0	× 4.5
				1.7	2.7	× 2.1	76.5	4.0	× 3.0
35				0.1	2.6	× 1.9	92.0	5.1	× 3.9
							70.8	3.6	× 2.7
40							83.1	4.5	× 3.4
							66.2	3.3	× 2.5

Higher Column: Data at the infinity focusing position  
 Lower Column: Data at the nearest focusing position  
 Distance: From front lens surface to the object

Shooting distance and coverage with use of extension rings (Imager Size 1/1.8")

Unit : mm

Size of Extension Ring	M118FM08 (8mm)				M118FM16 (16mm)				M118FM25 (25mm)				M118FM50 (50mm)			
	Distance	Coverage			Distance	Coverage			Distance	Coverage			Distance	Coverage		
W/0	98.5	101.7	x	74.9	97.0	50.5	x	37.6	88.6	28.0	x	20.9	184.4	21.4	x	16.1
0.5	119.2	121.7	x	89.6	498.3	235.8	x	176.0	1242.1	364.7	x	273.2	5039.6	727.1	x	545.7
	49.8	55.4	x	40.8	77.8	41.7	x	31.0	81.8	26.0	x	19.5	180.2	20.8	x	15.6
1	55.2	60.8	x	44.8	242.0	118.2	x	88.1	617.6	182.5	x	136.7	2538.4	363.6	x	272.9
	31.6	38.1	x	28.0	64.4	35.6	x	26.4	75.9	24.3	x	18.2	176.2	20.2	x	15.2
1.5	33.9	40.6	x	29.9	156.6	78.9	x	58.8	409.4	121.7	x	91.1	1704.6	242.4	x	181.9
	22.0	29.0	x	21.4	54.4	31.0	x	23.0	70.8	22.8	x	17.0	172.4	19.7	x	14.8
5	4.0	12.2	x	9.0	37.0	23.9	x	17.7	118.0	36.6	x	27.4	537.3	72.8	x	54.6
	3.0	10.9	x	8.0	22.7	16.4	x	12.1	47.2	15.9	x	11.9	150.9	16.6	x	12.4
10					11.4	12.1	x	8.9	55.5	18.3	x	13.7	287.2	36.4	x	27.3
					8.6	9.8	x	7.2	30.9	11.1	x	8.3	129.8	13.5	x	10.1
15					2.8	8.1	x	6.0	34.7	12.2	x	9.1	203.8	24.3	x	18.2
					2.6	7.0	x	5.2	22.1	8.5	x	6.4	115.3	11.4	x	8.5
20									24.3	9.1	x	6.8	162.2	18.2	x	13.7
									16.6	6.9	x	5.2	104.7	9.8	x	7.4
25									18.1	7.3	x	5.5	137.1	14.6	x	10.9
									12.9	5.8	x	4.3	96.7	8.7	x	6.5
30									13.9	6.1	x	4.6	120.5	12.1	x	9.1
									10.2	5.0	x	3.7	90.3	7.8	x	5.8
35									10.9	5.2	x	3.9	108.6	10.4	x	7.8
									8.1	4.4	x	3.3	85.2	7.0	x	5.3
40									8.7	4.6	x	3.4	99.6	9.1	x	6.8
									6.5	3.9	x	2.9	81.0	6.4	x	4.8

Upper column : Data at the infinity focusing position.  
 Lower column : Data at the nearest focusing position.  
 Taking distance : From front lenz surface to the object

2007.10.11.

Shooting distance and coverage with use of extension rings (Imager Size 1/2")

Unit : mm

Size of Extension Ring	M118FM08 (8mm)				M118FM16 (16mm)				M118FM25 (25mm)				M118FM50 (50mm)			
	Distance		Coverage		Distance		Coverage		Distance		Coverage		Distance		Coverage	
W/0	98.5	88.6	x	65.5	97.0	44.2	x	33.0	88.6	24.6	x	18.4	184.4	18.8	x	14.1
0.5	119.2	106.0	x	78.4	498.3	206.8	x	154.5	1242.1	320.4	x	240.1	5039.6	639.4	x	479.8
	49.8	48.2	x	35.7	77.8	36.5	x	27.2	81.8	22.8	x	17.1	180.2	18.3	x	13.7
1	55.2	53.0	x	39.2	242.0	103.5	x	77.3	617.6	160.3	x	120.1	2538.4	319.7	x	239.9
	31.6	33.2	x	24.5	64.4	31.1	x	23.2	75.9	21.3	x	16.0	176.2	17.8	x	13.3
1.5	33.9	35.3	x	26.1	156.6	69.1	x	51.6	409.4	106.9	x	80.1	1704.6	213.2	x	160.0
	22.0	25.3	x	18.7	54.4	27.1	x	20.2	70.8	20.0	x	15.0	172.4	17.3	x	13.0
5	4.0	10.6	x	7.8	37.0	20.9	x	15.5	118.0	32.1	x	24.0	537.3	64.0	x	48.0
	3.0	9.5	x	7.0	22.7	14.3	x	10.6	47.2	13.9	x	10.4	150.9	14.6	x	10.9
10					11.4	10.5	x	7.8	55.5	16.1	x	12.0	287.2	32.0	x	24.0
					8.6	8.5	x	6.3	30.9	9.7	x	7.3	129.8	11.9	x	8.9
15					2.8	7.0	x	5.2	34.7	10.7	x	8.0	203.8	21.3	x	16.0
					2.6	6.1	x	4.5	22.1	7.5	x	5.6	115.3	10.0	x	7.5
20									24.3	8.0	x	6.0	162.2	16.0	x	12.0
									16.6	6.0	x	4.5	104.7	8.7	x	6.5
25									18.1	6.4	x	4.8	137.1	12.8	x	9.6
									12.9	5.1	x	3.8	96.7	7.6	x	5.7
30									13.9	5.3	x	4.0	120.5	10.7	x	8.0
									10.2	4.4	x	3.3	90.3	6.8	x	5.1
35									10.9	4.6	x	3.4	108.6	9.1	x	6.9
									8.1	3.9	x	2.9	85.2	6.2	x	4.6
40									8.7	4.0	x	3.0	99.6	8.0	x	6.0
									6.5	3.4	x	2.6	81.0	5.6	x	4.2

Upper column : Data at the infinity focusing position.  
 Lower column : Data at the nearest focusing position.  
 Taking distance : From front lenz surface to the object

2007.10.11.

Shooting distance and coverage with use of extension rings (Imager Size 1/3")

Unit : mm

Size of Extension Ring	M118FM08 (8mm)				M118FM16 (16mm)				M118FM25 (25mm)				M118FM50 (50mm)			
	Distance		Coverage		Distance		Coverage		Distance		Coverage		Distance		Coverage	
W/0	98.5	65.5	x	48.7	97.0	33.0	x	24.6	88.6	18.4	x	13.8	184.4	14.1	x	10.6
0.5	119.2	78.4	x	58.3	498.3	154.5	x	115.6	1242.1	240.1	x	180.0	5039.6	479.8	x	360.0
	49.8	35.7	x	26.5	77.8	27.2	x	20.3	81.8	17.1	x	12.8	180.2	13.7	x	10.3
1	55.2	39.2	x	29.1	242.0	77.3	x	57.8	617.6	120.1	x	90.0	2538.4	239.9	x	180.0
	31.6	24.5	x	18.2	64.4	23.2	x	17.3	75.9	16.0	x	12.0	176.2	13.3	x	10.0
1.5	33.9	26.1	x	19.4	156.6	51.6	x	38.6	409.4	80.1	x	60.0	1704.6	160.0	x	120.0
	22.0	18.7	x	13.9	54.4	20.2	x	15.1	70.8	15.0	x	11.2	172.4	13.0	x	9.7
5	4.0	7.8	x	5.8	37.0	15.5	x	11.6	118.0	24.0	x	18.0	537.3	48.0	x	36.0
	3.0	7.0	x	5.2	22.7	10.6	x	7.9	47.2	10.4	x	7.8	150.9	10.9	x	8.2
10					11.4	7.8	x	5.8	55.5	12.0	x	9.0	287.2	24.0	x	18.0
					8.6	6.3	x	4.7	30.9	7.3	x	5.4	129.8	8.9	x	6.7
15					2.8	5.2	x	3.9	34.7	8.0	x	6.0	203.8	16.0	x	12.0
					2.6	4.5	x	3.4	22.1	5.6	x	4.2	115.3	7.5	x	5.6
20									24.3	6.0	x	4.5	162.2	12.0	x	9.0
									16.6	4.5	x	3.4	104.7	6.5	x	4.9
25									18.1	4.8	x	3.6	137.1	9.6	x	7.2
									12.9	3.8	x	2.9	96.7	5.7	x	4.3
30									13.9	4.0	x	3.0	120.5	8.0	x	6.0
									10.2	3.3	x	2.5	90.3	5.1	x	3.8
35									10.9	3.4	x	2.6	108.6	6.9	x	5.1
									8.1	2.9	x	2.2	85.2	4.6	x	3.5
40									8.7	3.0	x	2.3	99.6	6.0	x	4.5
									6.5	2.6	x	1.9	81.0	4.2	x	3.2

Upper column : Data at the infinity focusing position.

Lower column : Data at the nearest focusing position.

Taking distance : From front lens surface to the object

2007.10.11.

Shooting distance and coverage with use of extension rings (Imager Size 1/4")

Unit : mm

Size of Extension Ring	M118FM08 (8mm)				M118FM16 (16mm)				M118FM25 (25mm)				M118FM50 (50mm)			
	Distance	Coverage			Distance	Coverage			Distance	Coverage			Distance	Coverage		
W/0	98.5	48.7	x	36.3	97.0	24.6	x	18.4	88.6	13.8	x	10.3	184.4	10.6	x	8.0
0.5	119.2	58.3	x	43.5	498.3	115.6	x	86.6	1242.1	180.0	x	135.0	5039.6	360.0	x	270.0
	49.8	26.5	x	19.8	77.8	20.3	x	15.2	81.8	12.8	x	9.6	180.2	10.3	x	7.7
1	55.2	29.1	x	21.7	242.0	57.8	x	43.3	617.6	90.0	x	67.5	2538.4	180.0	x	135.0
	31.6	18.2	x	13.6	64.4	17.3	x	12.9	75.9	12.0	x	9.0	176.2	10.0	x	7.5
1.5	33.9	19.4	x	14.5	156.6	38.6	x	28.9	409.4	60.0	x	45.0	1704.6	120.0	x	90.0
	22.0	13.9	x	10.4	54.4	15.1	x	11.3	70.8	11.2	x	8.4	172.4	9.7	x	7.3
5	4.0	5.8	x	4.3	37.0	11.6	x	8.7	118.0	18.0	x	13.5	537.3	36.0	x	27.0
	3.0	5.2	x	3.9	22.7	7.9	x	5.9	47.2	7.8	x	5.9	150.9	8.2	x	6.1
10					11.4	5.8	x	4.3	55.5	9.0	x	6.8	287.2	18.0	x	13.5
					8.6	4.7	x	3.5	30.9	5.4	x	4.1	129.8	6.7	x	5.0
15					2.8	3.9	x	2.9	34.7	6.0	x	4.5	203.8	12.0	x	9.0
					2.6	3.4	x	2.5	22.1	4.2	x	3.1	115.3	5.6	x	4.2
20									24.3	4.5	x	3.4	162.2	9.0	x	6.8
									16.6	3.4	x	2.5	104.7	4.9	x	3.7
25									18.1	3.6	x	2.7	137.1	7.2	x	5.4
									12.9	2.9	x	2.1	96.7	4.3	x	3.2
30									13.9	3.0	x	2.3	120.5	6.0	x	4.5
									10.2	2.5	x	1.8	90.3	3.8	x	2.9
35									10.9	2.6	x	1.9	108.6	5.1	x	3.9
									8.1	2.2	x	1.6	85.2	3.5	x	2.6
40									8.7	2.3	x	1.7	99.6	4.5	x	3.4
									6.5	1.9	x	1.5	81.0	3.2	x	2.4

Upper column : Data at the infinity focusing position.  
 Lower column : Data at the nearest focusing position.  
 Taking distance : From front lenz surface to the object

2007.10.11.