



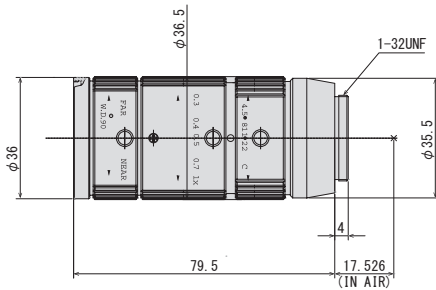
# MACRO ZOOM LENS

- 1/2" and 2/3" format models are ideal for a variety of inspection applications
- Optimal performance at variable working distances
- Highly versatile 3.3x magnification type suitable for megapixel applications
- Compact design

1/2" 1MP MANUAL  
2/3" ZOOM MACRO

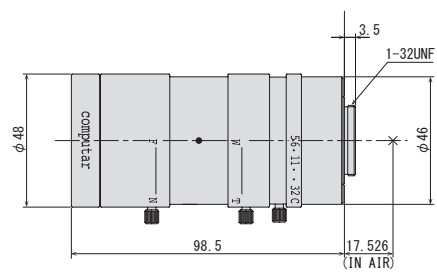
## MLM-3XMP

2/3"  
1MP



## MLH-10X

1/2"



Optical Magnification	0.3x - 1.0x				0.084x - 0.84x						
Max. Aperture Ratio	1:4.5				1:5.6						
Max. Image Format	8.8mm × 6.6mm (φ 11mm)				6.4mm × 4.8mm (φ 8mm)						
Operation Range	Iris	F4.5 - F22C			F5.6 - F32C						
	Focus	90mm			150mm - 450mm						
Control	Iris	Manual			Manual						
	Focus	Manual			Manual						
	Zoom	Manual			Manual						
Angle of View	D	2/3"	14.9° - 2.9°	1/2"	10.7° - 2.8°	1/2"	21.6° - 4.5°	1/3"	17.0° - 3.3°	1/4"	13.0° - 2.5°
	H		11.8° - 2.8°		8.5° - 2.2°		18.0° - 3.6°		13.8° - 2.7°		10.6° - 2.0°
	V		8.8° - 2.3°		6.4° - 1.7°		13.8° - 2.7°		10.6° - 2.0°		8.0° - 1.5°
Operating Temperature	-10° C ~ +50° C				-10° C ~ +50° C						
Optical Distortion	2/3"	+0.12% at 0.3x		1/2"	+0.12% at 0.3x		1/2"	+0.9% at 0.084x			
		+1.78% at 1.0x			+0.77% at 1.0x			+1.6% at 0.84x			
Back Focal Length	20.4mm				23.29mm						
Flange Back Length	17.526mm				17.526mm						
Mount	C-Mount				C-Mount						
Filter Size	M34 P=0.5mm				M46 P=0.75mm						
Dimensions	φ36.5mm × 79.5mm				φ48mm × 98.5mm						
Weight	150g				260g						

# MACRO ZOOM LENS / TELECENTRIC MACRO LENS

## TEC-V7X

Working Distance (mm)	Optical Magnification	Field of View (mm)									
		1"			1"			2/3"			
		D	H	V	D	H	V	D	H	V	
182	Wide	0.2525	69.12	48.74	48.74	63.28	50.32	38.06	43.6	34.88	26.16
	Tele	0.5	34.75	24.6	24.6	31.88	25.4	19.246	22	17.65	13.26
200	Wide	0.2258	76.94	54.52	54.62	70.84	56.3	42.56	48.76	39	29.24
	Tele	0.4451	38.68	27.5	27.5	35.64	28.38	21.51	24.62	19.72	14.81
300	Wide	0.1413	124.06	87.48	87.48	114.1	90.34	68.18	78.178	62.46	46.8
	Tele	0.2784	61.94	44	44	57.46	45.42	34.3	39.38	31.55	23.69
400	Wide	0.1037	169.98	119.47	119.47	156.05	123.4	93.02	106.71	85.2	63.82
	Tele	0.2042	84.52	59.99	59.99	77.82	61.92	46.89	53.7	43	32.28
500	Wide	0.082	215.44	151.25	151.25	197.8	156.25	117.67	135.04	107.78	80.68
	Tele	0.1617	106.89	75.84	75.84	98.4	78.29	59.28	67.88	54.36	40.8
577.5	Wide	0.0708	250.66	175.21	175.21	229.82	181.4	136.35	156.76	125.08	93.62
	Tele	0.1398	124.04	87.99	87.99	114.16	90.8	68.75	78.74	63.06	47.32

## MLH-10X

Working Distance (mm)	Optical Magnification	Field of View (mm)												
		1/2"			Magnification on Monitor	1/3"			Magnification on Monitor	1/4"			Magnification on Monitor	
		D	H	V		D	H	V		D	H	V		
150	Wide	0.084	95.2	76.2	57.1	3.73X	71.4	57.1	42.9	4.98X	53.6	42.9	32.1	6.64X
	Tele	0.84	9.5	7.6	5.7	37.34X	7.1	5.7	4.3	49.78X	5.4	4.3	3.2	66.38X
200	Wide	0.06	133.3	106.7	80.0	2.67X	100.0	80.0	60.0	3.56X	75.0	60.0	45.0	4.74X
	Tele	0.60	13.3	10.7	8.0	26.67X	10.0	8.0	6.0	35.56X	7.5	6.0	4.5	47.41X
250	Wide	0.045	177.8	142.2	106.7	2.00X	133.3	106.7	80.0	2.67X	100.0	80.0	60.0	3.56X
	Tele	0.45	17.8	14.2	10.7	20.00X	13.3	10.7	8.0	26.67X	10.0	8.0	6.0	35.56X
300	Wide	0.036	222.2	177.8	133.3	1.60X	166.7	133.3	100.0	2.13X	125.0	100.0	75.0	2.84X
	Tele	0.36	22.2	17.8	13.3	16.00X	16.7	13.3	10.0	21.34X	12.5	10.0	7.5	28.45X
350	Wide	0.03	266.7	213.3	160.0	1.33X	200.0	160.0	120.0	1.78X	150.0	120.0	90.0	2.37X
	Tele	0.30	26.7	21.3	16.0	13.34X	20.0	16.0	12.0	17.78X	15.0	12.0	9.0	23.71X
400	Wide	0.025	320.0	256.0	192.0	1.11X	240.0	192.0	144.0	1.48X	180.0	144.0	108.0	1.98X
	Tele	0.25	32.0	25.6	19.2	11.11X	24.0	19.2	14.4	14.82X	18.0	14.4	10.8	19.76X
450	Wide	0.022	363.6	290.9	218.2	0.98X	272.7	218.2	163.6	1.30X	204.5	163.6	122.7	1.74X
	Tele	0.22	36.4	29.1	21.8	9.78X	27.3	21.8	16.4	13.04X	20.5	16.4	12.3	17.38X

## TEC-M55MPW

Working Distance (mm)	Optical Magnification	Field of View (mm)					
		2/3"		1/2"		1/3"	
		H	V	H	V	H	V
1000	0.057	154.4	115.8	112.3	84.2	84.2	63.2
950	0.060	146.7	110.0	106.7	80.0	80.0	60.0
900	0.064	137.5	103.1	100.0	75.0	75.0	56.3
850	0.067	131.3	98.5	95.5	71.6	71.6	53.7
800	0.072	122.2	91.7	88.9	66.7	66.7	50.0
750	0.077	114.3	85.7	83.1	62.3	62.3	46.8
700	0.083	106.0	79.5	77.1	57.8	57.8	43.4
650	0.089	98.9	74.2	71.9	53.9	53.9	40.4
600	0.097	90.7	68.0	66.0	49.5	49.5	37.1
550	0.106	83.0	62.3	60.4	45.3	45.3	34.0
500	0.118	74.6	55.9	54.2	40.7	40.7	30.5
450	0.132	66.7	50.0	48.5	36.4	36.4	27.3
400	0.150	58.7	44.0	42.7	32.0	32.0	24.0
350	0.173	50.9	38.2	37.0	27.7	27.7	20.8
300	0.204	43.1	32.4	31.4	23.5	23.5	17.6
250	0.251	35.1	26.3	25.5	19.1	19.1	14.3
200	0.323	27.2	20.4	19.8	14.9	14.9	11.1
150	0.456	19.3	14.5	14.0	10.5	10.5	7.9
140	0.504	17.5	13.1	12.7	9.5	9.5	7.1

## MLM-3XMP

Optical Magnification	Field of View (mm)											
	2/3"			Magnification on Monitor	1/2"			Magnification on Monitor	1/3"			Magnification on Monitor
	D	H	V		D	H	V		D	H	V	
0.3	36.7	29.3	22.0	9.7X	26.7	21.3	16.0	13.3X	20.0	16.0	12.0	17.8X
0.4	27.5	22.0	16.5	12.9X	20.0	16.0	12.0	17.8X	15.0	12.0	9.0	23.7X
0.5	22.0	17.6	13.2	16.2X	16.0	12.8	9.6	22.2X	12.0	9.6	7.2	29.6X
0.6	18.3	14.7	11.0	19.4X	13.3	10.7	8.0	26.7X	10.0	8.0	6.0	35.6X
0.7	15.7	12.6	9.4	22.6X	11.4	9.1	6.9	31.1X	8.6	6.9	5.1	41.5X
0.8	13.8	11.0	8.3	25.9X	10.0	8.0	6.0	35.6X	7.5	6.0	4.5	47.4X
0.9	12.2	9.8	7.3	29.1X	8.9	7.1	5.3	40.0X	6.7	5.3	4.0	53.3X
1.0	11.0	8.8	6.6	32.3X	8.0	6.4	4.8	44.5X	6.0	4.8	3.6	59.3X

## TEC-M55

### TEC-M55

Working Distance (mm)	Optical Magnification	Field of View (mm)					
		2/3"		1/2"		1/3"	
		H	V	H	V	H	V
5000	0.011	796.2	597.8	579.7	435.0	435.0	326.3
4000	0.014	636.1	477.6	463.1	347.5	347.5	260.7
3000	0.018	476.0	357.4	346.6	260.1	260.1	195.1
2000	0.028	315.9	237.2	230.0	172.6	172.6	129.5
1500	0.037	235.9	177.1	177.1	128.9	128.9	96.7
1000	0.056	155.8	117.0	113.4	85.1	85.1	63.9
950	0.059	147.8	111.0	107.6	80.7	80.7	60.6
900	0.063	139.8	105.0	101.8	76.4	76.4	57.3
850	0.067	131.8	99.0	96.0	72.0	72.0	54.0
800	0.071	123.8	92.9	90.1	67.6	67.6	50.7
750	0.076	115.8	86.9	84.3	63.2	63.2	47.4
700	0.081	107.8	80.9	78.5	58.9	58.9	44.2
650	0.088	99.8	74.9	72.6	55.5	55.5	40.9
600	0.096	91.8	68.9	66.8	50.1	50.1	37.6
550	0.105	83.8	62.9	61.0	45.8	45.8	34.3
500	0.116	75.8	56.9	55.2	41.4	41.4	31.0
450	0.130	67.8	50.9	49.3	37.0	37.0	27.8
400	0.147	59.8	44.9	43.5	32.6	32.6	24.5
350	0.170	51.8	38.8	37.7	28.3	28.3	21.2
300	0.201	43.8	32.8	31.8	23.9	23.9	17.9
250	0.246	35.7	26.8	26.0	19.5	19.5	14.6
200	0.317	27.7	20.8	20.2	15.1	15.1	11.4
150	0.446	19.7	14.8	14.3	10.8	10.8	8.1
140	0.486	18.1	13.6	13.2	9.9	9.9	7.4

### TEC-M55 with 0.75X Converter

Working Distance (mm)	Optical Magnification	Field of View (mm)					
		2/3"		1/2"		1/3"	
		H	V	H	V	H	V
5000	0.008	1066.2	797.6	773.3	579.2	579.2	434.0
4000	0.010	851.9	637.3	617.8	462.7	462.7	346.8
3000	0.014	637.6	476.9	462.4	346.3	346.3	259.5
2000	0.021	423.2	316.6	306.9	229.9	229.9	172.3
1500	0.028	316.1	236.4	229.2	171.7	171.7	128.6
1000	0.423	208.9	156.2	151.5	113.4	113.4	85.0
950	0.045	198.2	148.2	143.7	107.6	107.6	80.6
900	0.047	187.4	140.2	135.9	101.8	101.8	76.3
850	0.050	176.7	132.2	128.1	96.0	96.0	71.9
800	0.053	166.0	124.2	120.4	90.1	90.1	67.5
750	0.057	155.3	116.1	112.6	84.3	84.3	63.2
700	0.061	144.6	108.1	104.8	78.5	78.5	58.8
650	0.066	133.8	100.1	97.0	72.7	72.7	54.5
600	0.072	123.1	92.1	89.3	66.8	66.8	50.1
550	0.079	112.4	84.1	81.5	61.0	61.0	45.7
500	0.087	101.7	76.0	73.7	55.2	55.2	41.4
450	0.097	90.9	68.0	65.9	49.4	49.4	37.0
400	0.110	80.2	60.0	58.2	43.6	43.6	32.6
350	0.127	69.5	52.0	50.4	37.7	37.7	28.3
300	0.151	58.7	43.9	42.6	31.9	31.9	23.9
250	0.184	48.0	35.9	34.8	26.1	26.1	19.5
200	0.238	37.3	27.9	27.0	20.2	20.2	15.2
150	0.334	26.5	19.8	19.2	14.4	14.4	10.8
140	0.363	24.4					