

Tokina



Machine Vision Lens





With extensive range of optics and filters,
Tokina supports automation industry
being the eyes to project the absolute fact.



Machine Vision Lens

2/3" 3 Mega Pixel Fixed-focal Lens

2/3" 3MP up to 4.4 μm Macro

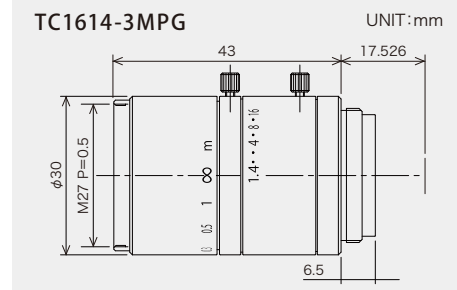
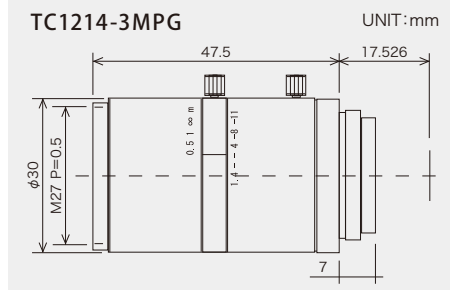
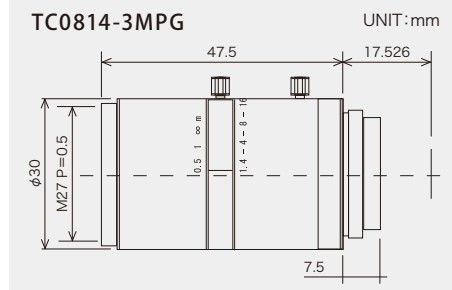
TC0814-3MPG



TC1214-3MPG



TC1614-3MPG



Model Name		TC0814-3MPG	TC1214-3MPG	TC1614-3MPG
Image Format		2/3"	2/3"	2/3"
Mount		C	C	C
Focal Length		8mm	12mm	16mm
Aperture Range		F1.4 - 16	F1.4 - 16	F1.4 - 16
Angle Of View (Horizontal x Vertical)		57.3° x 44.3°	39.6° x 30.2°	30.46° x 23.07°
M.O.D.		0.1m	0.1m	0.1m
Filter Size		M27mm P=0.5	M27mm P=0.5	M27mm P=0.5
Back Focal Length		11.14mm	11.7mm	11.75mm
Dimensions		φ30x47.5mm	φ30x47.5mm	φ30x43mm
Weight		75g	80g	70g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note		3Mega Pixel	3Mega Pixel	3Mega Pixel

Combination with extension tube	Location of focus-ring	TC0814-3MPG			TC1214-3MPG			TC1614-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	109.0x145.3	120.4	0.061	162.5x216.7	285.2	0.041	214.0x285.3	505	0.031
1mm	FAR	54.5x72.7	52.3	0.121	81.2x108.2	133.7	0.081	107.0x142.6	242	0.062
1.5mm (1+0.5)	FAR	36.3x48.4	29.5	0.182	54.1x72.2	83.3	0.122	71.3x95.1	154.4	0.093
5mm	FAR	-	-	-	16.2x21.7	12.7	0.406	21.4x28.5	31.8	0.308
10mm	FAR	-	-	-	-	-	-	10.7x14.3	5.5	0.617
15mm (10+5)	FAR	-	-	-	-	-	-	-	-	-
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

2/3" & 1/1.8" 3 Mega Pixel Fixed-focal Lens

2/3" & 1/1.8" 3MP up to 4.4 μm Compact

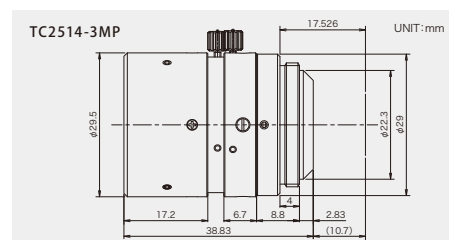
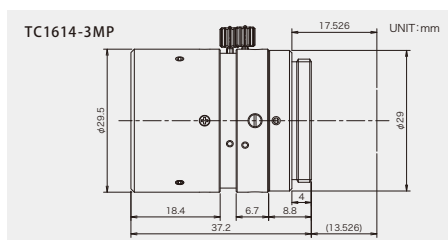
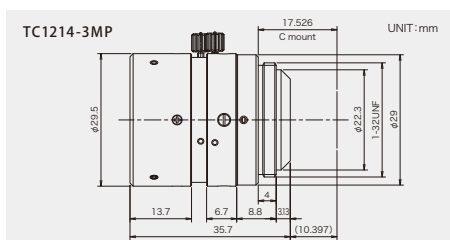
TC1214-3MP



TC1614-3MP



TC2514-3MP



Model Name		TC1214-3MP	TC1614-3MP	TC2514-3MP
Image Format		1/1.8"	2/3"	2/3"
Mount		C	C	C
Focal Length		12mm	16mm	25mm
Aperture Range		F1.4 - 22	F1.4 - 16	F1.4 - 16
Angle Of View (Horizontal x Vertical)		32.38°x 24.58°	30.99°x 23.43°	19.98°x 15.04°
M.O.D.		0.2m	0.25m	0.25m
Filter Size		M27mm P=0.5	M27mm P=0.5	M27mm P=0.5
Back Focal Length		11.46mm	14.59mm	11.52mm
Dimensions		φ29.5x35.7mm	φ29.5x37.2mm	φ29.5x38.9mm
Weight		57g	64g	56g
Operating Temperature Range		-20°C~+55°C	-20°C~+55°C	-20°C~+55°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note		3Mega Pixel	3Mega Pixel	3Mega Pixel

Combination with extension tube	Location of focus-ring	TC1214-3MP			TC1614-3MP			TC2514-3MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	134.0x178.5	291	0.040	211.0x282.0	494	0.031	330.0x440.0	1242	0.020
1mm	FAR	67.8x90.1	139	0.080	105.0x141.0	237	0.063	165.0x220.0	616	0.040
1.5mm (1+0.5)	FAR	44.5x59.3	86	0.121	70.4x93.9	153.6	0.094	110.0x147.0	407	0.060
5mm	FAR	13.4x17.8	15.1	0.403	21.1x28.1	34.3	0.313	33.0x44.0	115.1	0.200
10mm	FAR	-	-	-	10.6x14.1	8.8	0.625	16.5x22.0	52.2	0.400
15mm (10+5)	FAR	-	-	-	-	-	-	11.0x14.7	31.7	0.600
20mm	FAR	-	-	-	-	-	-	8.3x11.0	21.3	0.800
25mm (20+5)	FAR	-	-	-	-	-	-	6.6x8.8	15	1.000
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

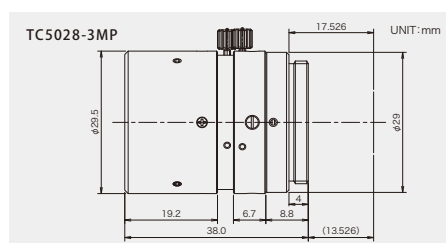
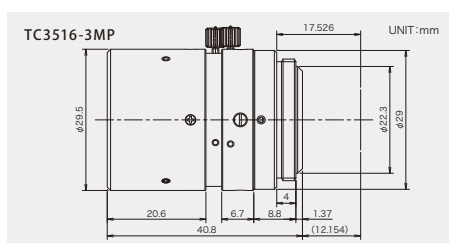
2/3" 3 Mega Pixel Fixed-focal Lens

2/3" 3MP up to 4.4 μm Compact

TC3516-3MP



TC5028-3MP



Model Name		TC3516-3MP	TC5028-3MP
Image Format		2/3"	2/3"
Mount		C	C
Focal Length		35mm	50mm
Aperture Range		F1.6 - 16	F2.8 - 22
Angle Of View (Horizontal x Vertical)		14.74°x 11.08°	10.03°x 7.54°
M.O.D.		0.35m	0.8m
Filter Size		M27mm P=0.5	M27mm P=0.5
Back Focal Length		11.88mm	21.06mm
Dimensions		φ29.5x40.8mm	φ29.5x38.0mm
Weight		65g	55g
Operating Temperature Range		-20°C~+55°C	-20°C~+55°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note		3Mega Pixel	3Mega Pixel

Combination with extension tube	Location of focus-ring	TC3516-3MP			TC5028-3MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	450.0x600.0	2310	0.015	660.0x880.0	5048	0.010
1mm	FAR	223.0x297.0	1140	0.030	330.0x440.0	2547	0.020
1.5mm (1+0.5)	FAR	150.0x199.0	765	0.044	220.0x293.0	1713	0.030
5mm	FAR	44.8x59.7	223	0.147	66.0x88.0	546	0.100
10mm	FAR	22.5x29.9	107.5	0.294	33.0x44.0	296	0.200
15mm (10+5)	FAR	15.0x20.0	68.9	0.441	22.0x29.3	213	0.300
20mm	FAR	11.2x15.0	49.7	0.588	16.5x22.0	170.9	0.400
25mm (20+5)	FAR	9.0x12.0	38.2	0.735	13.2x17.6	145.9	0.500
30mm (20+10)	FAR	7.5x10.0	30.4	0.882	11.0x14.7	129.2	0.600
35mm (20+10+5)	FAR	6.4x8.6	25.4	1.030	9.4x12.6	117.3	0.700
40mm	FAR	-	-	-	8.3x11.0	108.4	0.800
45mm (40+5)	FAR	-	-	-	7.3x9.8	101.4	0.900
50mm (40+10)	FAR	-	-	-	6.6x8.8	95.9	1.000

Design and Specification are subject to change without notice.

Machine Vision Lens

2/3" 10 Mega Pixel Fixed-focal Lens

2/3"

10MP

up to 2.4 μm

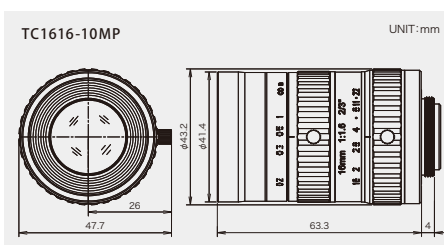
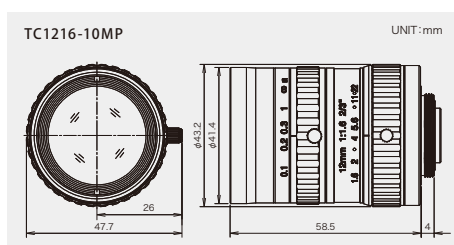
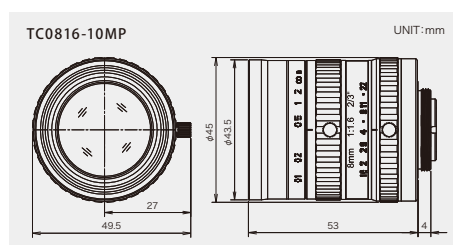
TC0816-10MP



TC1216-10MP



TC1616-10MP



Model Name		TC0816-10MP	TC1216-10MP	TC1616-10MP
Image Format		2/3"	2/3"	2/3"
Mount		C	C	C
Focal Length		8mm	12mm	16mm
Aperture Range		F1.6 - 22	F1.6 - 22	F1.6 - 22
Angle Of View (Horizontal x Vertical)		55.8°x 43.3°	39.8°x 30.4°	30.8°x 23.4°
M.O.D.		0.15m~ ∞	0.1m~ ∞	0.2m~ ∞
Filter Size		M40.5mm P=0.5	M37.5mm P=0.5	M37.5mm P=0.5
Back Focal Length		12.44mm	12.42mm	12.36mm
Dimensions		$\phi 45 \times 53\text{mm}$	$\phi 43.2 \times 58.5\text{mm}$	$\phi 43.2 \times 63.3\text{mm}$
Weight		170g	178g	181g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note		10Mega Pixel	10Mega Pixel	10Mega Pixel

Combination with extension tube	Location of focus-ring	TC0816-10MP			TC1216-10MP			TC1616-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	108.3x145.6	115	0.062	159.2x212.9	270	0.042	208.8x278.5	480	0.032
1mm	FAR	55.1x74.5	48	0.123	80.5x107.8	125	0.083	103.5x138.0	225	0.064
1.5mm (1+0.5)	FAR	36.8x50.1	25	0.185	53.4x71.6	75	0.125	70.3x93.9	145	0.094
5mm	FAR	-	-	-	-	-	-	21.1x28.3	26	0.315
10mm	FAR	-	-	-	-	-	-	-	-	-
15mm (10+5)	FAR	-	-	-	-	-	-	-	-	-
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

2/3" 10 Mega Pixel Fixed-focal Lens

2/3"

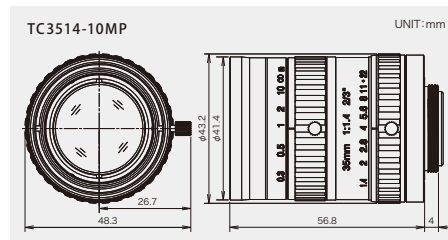
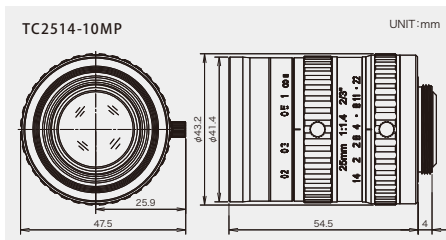
10MP

up to 2.4 μm

TC2514-10MP



TC3514-10MP



Model Name		TC2514-10MP	TC3514-10MP
Image Format		2/3"	2/3"
Mount		C	C
Focal Length		25mm	35mm
Aperture Range		F1.4 - 22	F1.4 - 22
Angle Of View (Horizontal x Vertical)		20°x 15°	14.3°x 10.8°
M.O.D.		0.2m~∞	0.3m~∞
Filter Size		M37.5mm P=0.5	M37.5mm P=0.5
Back Focal Length		12.78mm	12.82mm
Dimensions		φ43.2 x 54.5mm	φ43.2 x 56.8mm
Weight		148g	156g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note		10Mega Pixel	10Mega Pixel

Combination with extension tube	Location of focus-ring	TC2514-10MP			TC3514-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	321.9x429.6	1200	0.021	455.3x607.3	2400	0.015
1mm	FAR	162.5x216.8	595	0.041	229.0x305.4	1200	0.029
1.5mm (1+0.5)	FAR	108.4x144.7	390	0.061	153.5x204.8	800	0.043
5mm	FAR	32.8x43.8	103	0.202	46.0x61.4	230	0.144
10mm	FAR	16.5x22.0	41.5	0.401	23.0x30.7	108	0.288
15mm (10+5)	FAR	11.1x14.7	21	0.598	15.4x20.5	68	0.429
20mm	FAR	-	-	-	11.5x15.4	47.5	0.572
25mm (20+5)	FAR	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

1" 5 Mega Pixel Fixed-focal Lens

1"

5MP

up to 5.0 μm

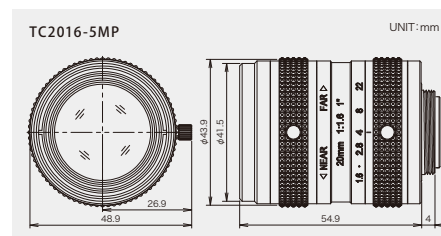
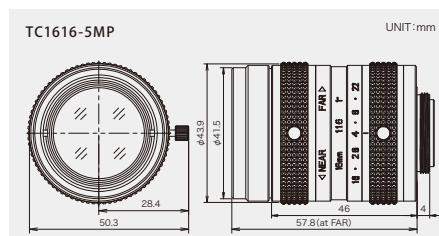
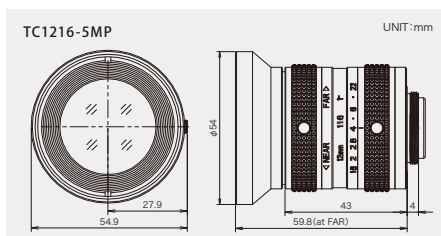
TC1216-5MP



TC1616-5MP



TC2016-5MP



Model Name		TC1216-5MP	TC1616-5MP	TC2016-5MP
Image Format		1"	1"	1"
Mount		C	C	C
Focal Length		12mm	16mm	20mm
Aperture Range		F1.6 - 22	F1.6 - 22	F1.6 - 22
Angle Of View (Horizontal x Vertical)		57.1° x 44.1°	44.2° x 33.5°	36.1° x 27.2°
M.O.D.		0.2m ~ ∞	0.35m ~ ∞	0.45m ~ ∞
Filter Size		M52mm P=0.75	M37.5mm P=0.5	M39mm P=0.5
Back Focal Length		13.54mm	12.17mm	12.19mm
Dimensions		$\phi 54$ x 60.4mm	$\phi 43.9$ x 57.8mm	$\phi 43.9$ x 54.95mm
Weight		185g	201g	163g
Operating Temperature Range		-10°C ~ +50°C	-10°C ~ +50°C	-10°C ~ +50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note		5Mega Pixel	5Mega Pixel	5Mega Pixel

Combination with extension tube	Location of focus-ring	TC1216-5MP			TC1616-5MP			TC2016-5MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	229.1x309.2	260	0.043	312.1x421.1	500	0.031	377.6x508.0	760	0.026
1mm	FAR	115.9x157.0	120	0.085	155.4x209.9	240	0.063	190.9x257.0	375	0.051
1.5mm (1+0.5)	FAR	77.2x104.8	72	0.128	104.1x140.7	155	0.094	127.8x172.2	245	0.076
5mm	FAR	-	-	-	31.7x42.9	35	0.309	38.9x52.5	62	0.251
10mm	FAR	-	-	-	-	-	-	19.4x26.2	22	0.503
15mm (10+5)	FAR	-	-	-	-	-	-	-	-	-
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

1" 5 Mega Pixel Fixed-focal Lens

1"

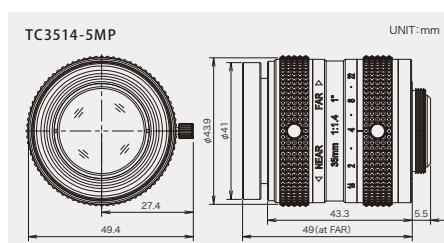
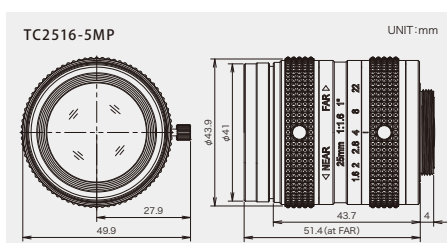
5MP

up to 5.0 μ m

TC2516-5MP



TC3514-5MP



Model Name		TC2516-5MP	TC3514-5MP
Image Format		1"	1"
Mount		C	C
Focal Length		25mm	35mm
Aperture Range		F1.6 - 22	F1.4 - 22
Angle Of View (Horizontal x Vertical)		29.0°x 21.8°	20.7°x 15.6°
M.O.D.		0.45m~ ∞	0.45m~ ∞
Filter Size		M39mm P=0.5	M39mm P=0.5
Back Focal Length		12.69mm	12.83mm
Dimensions		$\phi 43.9 \times 51.38$ mm	$\phi 43.9 \times 48.96$ mm
Weight		157g	154g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note		5Mega Pixel	5Mega Pixel

Combination with extension tube	Location of focus-ring	TC2516-5MP			TC3514-5MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	470.8x631.9	1200	0.021	660.4x880.3	2400	0.015
1mm	FAR	239.0x321.0	600	0.041	331.2x441.5	1200	0.029
1.5mm (1+0.5)	FAR	158.0x212.2	390	0.061	221.4x295.2	800	0.043
5mm	FAR	48.2x64.9	106	0.202	66.4x88.6	235	0.145
10mm	FAR	24.1x32.5	44	0.404	33.5x44.8	116	0.287
15mm (10+5)	FAR	-	-	-	22.3x29.7	75	0.432
20mm	FAR	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

1" 10 Mega Pixel Fixed-focal Lens

1"

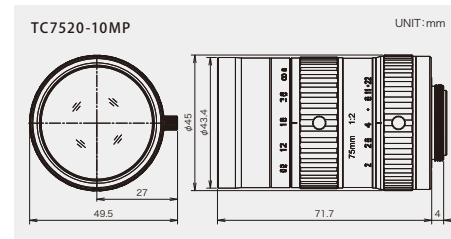
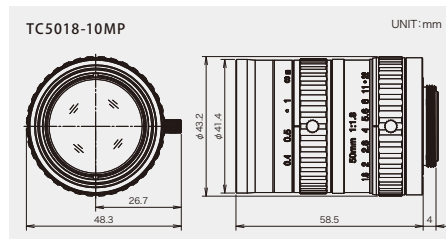
10MP

up to 3.4 μ m

TC5018-10MP



TC7520-10MP



Model Name		TC5018-10MP	TC7520-10MP
Image Format		1"	1"
Mount		C	C
Focal Length		50mm	75mm
Aperture Range		F1.8 - 22	F2.0 - 22
Angle Of View (Horizontal x Vertical)		14.5°x 10.8°	9.7°x 7.3°
M.O.D.		0.4m~∞	0.9m~∞
Filter Size		M37.5mm P=0.5	M40.5mm P=0.5
Back Focal Length		13.63mm	13.76mm
Dimensions		Φ43.2 x 58.5mm	Φ45 x 71.7mm
Weight		173g	223g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note		10Mega Pixel	10Mega Pixel

Combination with extension tube	Location of focus-ring	TC5018-10MP			TC7520-10MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	646.9x862.5	4900	0.010	981.6x1309.0	11200	0.007
1mm	FAR	323.4x431.3	2450	0.020	489.0x652.1	5600	0.014
1.5mm (1+0.5)	FAR	217.8x290.4	1650	0.030	326.2x435.1	3750	0.020
5mm	FAR	65.9x87.9	500	0.100	98.2x131.1	1160	0.067
10mm	FAR	32.9x43.9	250	0.201	49.4x65.9	605	0.134
15mm (10+5)	FAR	21.9x29.3	167	0.302	33.0x44.2	420	0.201
20mm	FAR	16.5x22.0	126	0.401	24.9x33.0	325	0.269
25mm (20+5)	FAR	13.2x17.6	101	0.502	19.8x26.5	270	0.335
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Machine Vision Lens

4/3" 12 Mega Pixel Fixed-focal Lens

4/3"

12MP

up to 4.7 μm

NEW

TC1220-12MP



NEW

TC1620-12MP

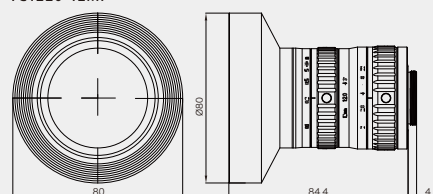


TC2520-12MP



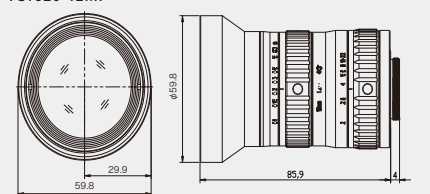
TC1220-12MP

UNIT:mm



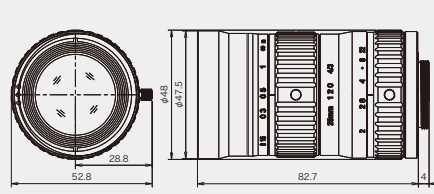
TC1620-12MP

UNIT:mm



TC2520-12MP

UNIT:mm



Model Name		TC1220-12MP	TC1620-12MP	TC2520-12MP
Image Format		4/3"	4/3"	4/3"
Mount		C	C	C
Focal Length		12mm	16mm	25mm
Aperture Range		F2.0-22	F2.0 - 22	F2.0 - 22
Angle Of View (Horizontal x Vertical)		75.46°x61.08°	60.92° x 47.28°	40.6°x 31°
M.O.D.		0.15m~∞	0.1m~∞	0.15m~∞
Filter Size		M77mm P=0.75	M58mm P=0.75	M46mm P=0.75
Back Focal Length		18.93mm	21.00mm	22.43mm
Dimensions		φ80x84.4mm	φ59.8 x 85.9mm	Φ48 x 82.7mm
Weight		447g	338g	250g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw	Manual with Locking screw
Note		12Mega Pixel	12Mega Pixel	12Mega Pixel

Combination with extension tube	Location of focus-ring	TC1220-12MP			TC1620-12MP			TC2520-12MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	339.2x457.2	260	0.042	441.7x594.7	480	0.032	676.6x903.8	1200	0.021
1mm	FAR	168.2x228.0	115	0.085	222.8x300.5	230	0.063	343.9x459.4	600	0.040
1.5mm (1+0.5)	FAR	112.7x153.5	68	0.127	148.4x200.5	145	0.095	232.9x311.2	400	0.060
5mm	FAR	-	-	-	45.4x61.9	27.5	0.314	69.5x92.9	105	0.200
10mm	FAR	-	-	-	-	-	-	34.6x46.3	42	0.402
15mm (10+5)	FAR	-	-	-	-	-	-	23.2x31.0	21.5	0.600
20mm	FAR	-	-	-	-	-	-	-	-	-
25mm (20+5)	FAR	-	-	-	-	-	-	-	-	-
30mm (20+10)	FAR	-	-	-	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-	-	-	-

Design and Specification are subject to change without notice.

4/3" 12 Mega Pixel Fixed-focal Lens

1"

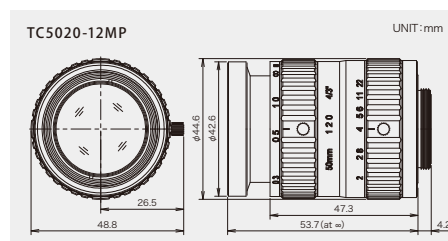
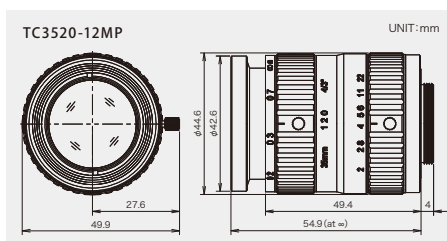
12MP

up to 4.7 μm

TC3520-12MP



TC5020-10MP



Model Name		TC3520-12MP	TC5020-12MP
Image Format		4/3"	4/3"
Mount		C	C
Focal Length		35mm	50mm
Aperture Range		F2.0 - 22	F2.0 - 22
Angle Of View (Horizontal x Vertical)		29.6°x 22.4°	20.9°x 15.7°
M.O.D.		0.2m~∞	0.3m~∞
Filter Size		M40.5mm P=0.5	M40.5mm P=0.5
Back Focal Length		18.65mm	20.29mm
Dimensions		Φ44.6 x 54.9mm	Φ44.6 x 53.7mm
Weight		173g	170g
Operating Temperature Range		-10°C~+50°C	-10°C~+50°C
Operating	Iris	Manual with Locking screw	Manual with Locking screw
	Focus	Manual with Locking screw	Manual with Locking screw
Note		12Mega Pixel	12Mega Pixel

Combination with extension tube	Location of focus-ring	TC3520-12MP			TC5020-12MP		
		FOV (VxH)	W.D.	Magnification	FOV (VxH)	W.D.	Magnification
0.5mm	FAR	969.7x1295.1	2450	0.014	1374.8x1834.1	5000	0.010
1mm	FAR	482.7x644.7	1220	0.029	684.5x913.3	2500	0.020
1.5mm (1+0.5)	FAR	320.4x428.0	810	0.043	455.4x607.6	1670	0.030
5mm	FAR	96.6x129.0	245	0.144	136.4x182.1	515	0.102
10mm	FAR	48.3x64.5	123	0.287	68.6x91.7	270	0.202
15mm (10+5)	FAR	32.1x42.9	82	0.432	45.9x61.3	188	0.302
20mm	FAR	24.1x32.2	62	0.574	34.5x46.1	147	0.401
25mm (20+5)	FAR	-	-	-	27.6x36.8	122	0.502
30mm (20+10)	FAR	-	-	-	-	-	-
35mm (20+10+5)	FAR	-	-	-	-	-	-
40mm	FAR	-	-	-	-	-	-
45mm (40+5)	FAR	-	-	-	-	-	-
50mm (40+10)	FAR	-	-	-	-	-	-

Design and Specification are subject to change without notice.

Line Scan Lens

φ45mm, φ43mm F-mount Line Scan Lens

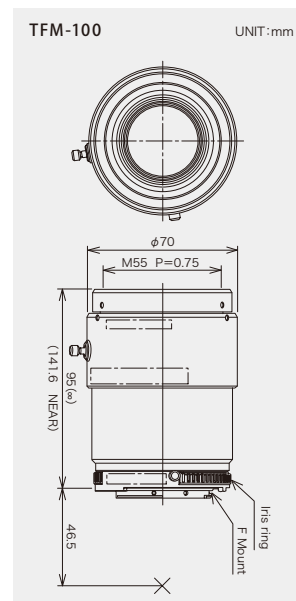
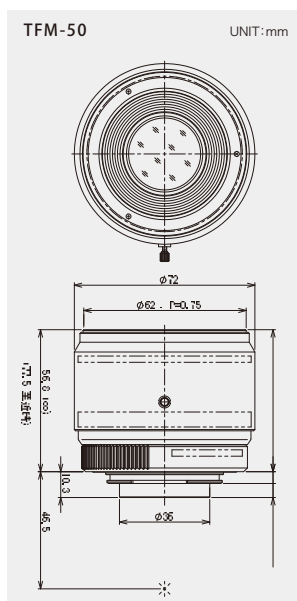
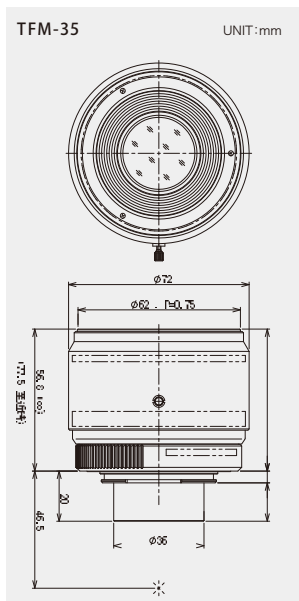
TFM-35



TFM-50



TFM-100



Model Name	TFM-35	TFM-50	TFM-100
Image Format	φ45mm	φ45mm	φ43mm
Mount	F	F	F
Focal Length	35mm	50mm	100mm
Aperture Range	F2.8-22	F2.8-22	F2.8 - 32
Angle Of View (Horizontal x Vertical)	64.4°	47.6°	24.5
M.O.D.	0.19m	0.25m	0.3m
Filter Size	M62mm P=0.75	M62mm P=0.75	M55mm P=0.75
Back Focal Length	33.22mm	36.99mm	44.18mm
Dimensions	φ72×56.8mm	φ72×56.8mm	φ70 x 95.0mm
Weight	380g	370g	514g
Operating Temperature Range	-20°C~+50°C	-20°C~+50°C	-20°C~+50°C
Operating	Iris	Manual	Manual
	Focus	Manual	Manual

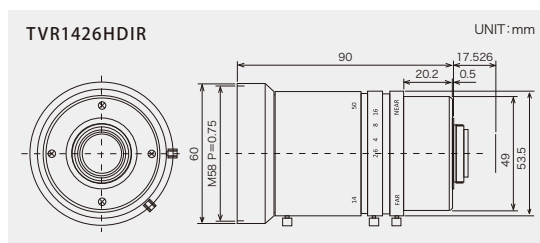
Vari-focal Lens for Specific Application

1" 8 Mega Pixel Vari-focal Lens

1"

8MP

TVR1426HDIR



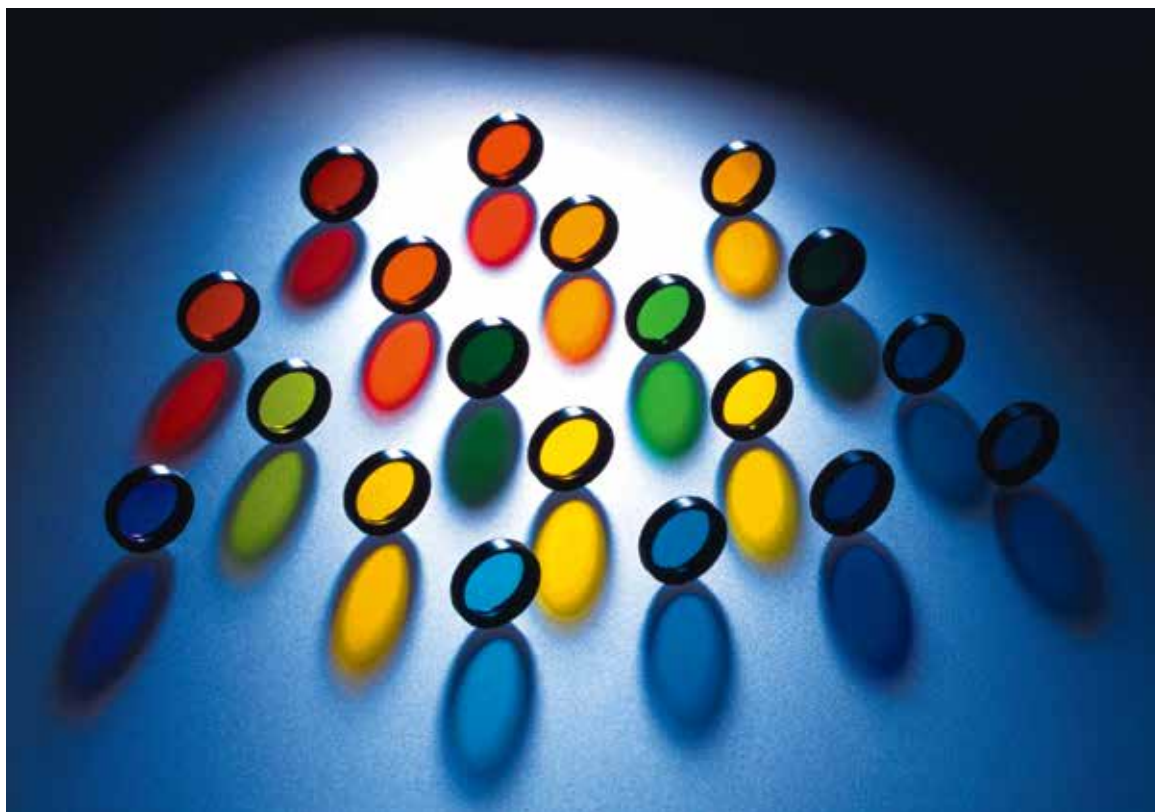
Optimum solution for ITS,
Automatic Number Plate Recognition Systems.

Model Name		TVR1426HDIR
Image Format		1"
Mount		C
Focal Length		14-50mm
Aperture Range		F2.6 - 16
Angle Of View (Horizontal)	Wide	50.5°x 38.0°
	Tele	14.5°x 11.1°
M.O.D.		1.2m
Back Focal Length		13.995mm
Dimensions (W x H x L)		φ60 x 90mm
Weight		390g
Operating Temperature Range		-10°C ~ +50°C
Operating	Iris	Manual
	Focus	Manual
	Zoom	Manual
Note		IR (Day/Night) , 8Mega Pixel

Design and Specification are subject to change without notice.

Filters for Machine Vision / Industrial Application

TOKINA prepares Bandpass and Polarizing Filters for Machine Vision / Industrial application.
Please contact us for the details.



Technical Information

Working Distance for Close-up Application

Working Distance is calculated by the relation of Object, Lens and Image Sensor as shown below.

■ Calculation of Working Distance

$$W.D. = O/I - (d + f \cdot m) \quad \dots\dots ①$$

① m (magnification) and O/I (distance of object and image sensor) is calculated by the following.

To obtain m (magnification)

$$m = y / Y' = (\text{image sensor size}) / (\text{size of object}) \quad \dots\dots ②$$

To obtain distance of object and image plane

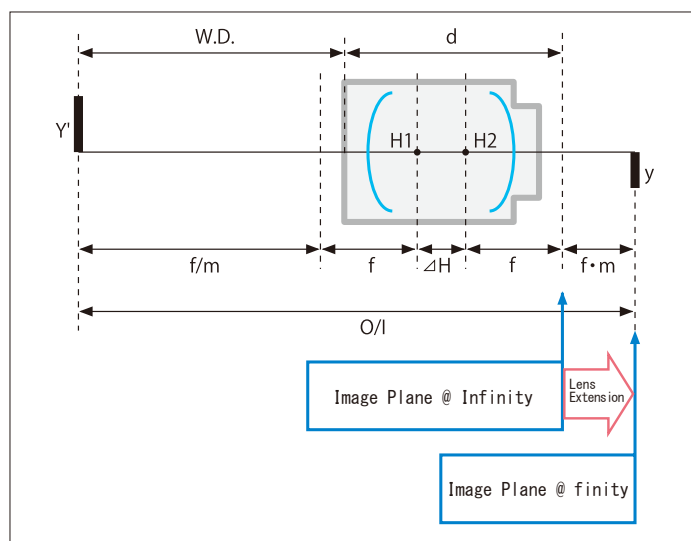
Inputting magnification obtained by ② and lens' optical data into formula ③

$$O/I = f / m + f + f + \Delta H + f \cdot m \quad \dots\dots ③$$

f : Actual Focal Length

ΔH : Interval of Principle Points

m : magnification



Working Distance is obtained by inputting the values of ② and ③ into formula ①

■ Structure of lens extension and Extension Rings

For Close-Up application, when the Object (Y') is coming closer to the Lens, Image (y) is formed away from the Lens in proportion to the magnification. When the positions of Lens and Image Sensor stay, Image (y) is formed behind the Image Sensor, and the actual image will be out of focus. Therefore, using lens' extension structure, adjusting to have Image (y) formed on the Image Sensor by extending the interval between Lens and Image Sensor.

$$\text{Amount of extension} = f \cdot m$$

As the amount of extension by the structure of the Lens is limited, Extension Rings are used together to support and adjust to have Image (y) formed on the Image Sensor.

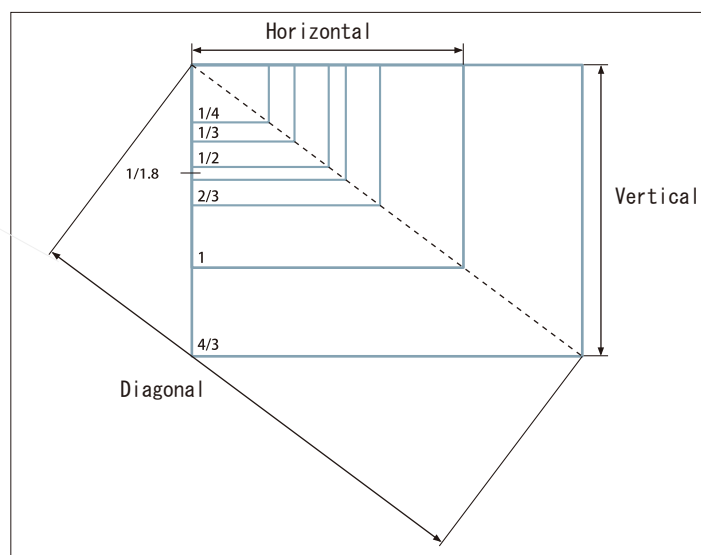
Optical Data

Product Code	f (focal length)	ΔH (Interval of Principle points)	H1 (Primary Principle Point)	H2 (Secondary Principle Point)	d (Length)	f b (Backfocus)	max. extension amount
TC1214-3MP	12.4	5.36	-17.7	-12.4	46.1	11.46	1.5
TC1614-3MP	16.0	1.96	-17.9	-16.0	50.7	14.59	1.5
TC2514-3MP	25.0	-10.57	-14.5	-25.0	49.5	11.52	3.5
TC3516-3MP	34.0	-23.15	-10.9	-34.0	53.0	11.88	3.5
TC5028-3MP	50.0	-2.66	-47.4	-50.0	51.5	21.06	3.5

- (minus): the direction from Image Plane to Object

■ Size of Area Sensor

Image Size	Vertical	Horizontal	Diagonal
	[mm]		
4/3"	13.8	18.4	23
1"	9.6	12.8	16
2/3"	6.6	8.8	11
1/1.8"	5.4	7.2	9
1/2"	4.8	6.4	8
1/3"	3.6	4.8	6





Kenko Tokina

2017.08.1000

■Kenko Tokina Co., Ltd.

KT Nakano Building 5F, 5-68-10 Nakano
Nakano-ku, Tokyo 164-8616 JAPAN

TEL : +81-3-6840-3024

FAX : +81-3-6840-2918

[http://www.tokina.co.jp/en/security/machine-vision-lenses/
cctv@tokina.co.jp](http://www.tokina.co.jp/en/security/machine-vision-lenses/cctv@tokina.co.jp)

