

# BTL SERIES

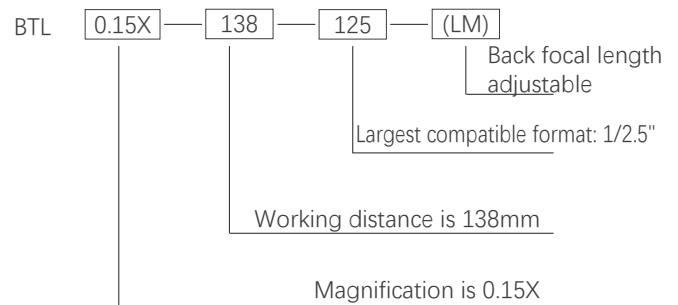
**NEW**



## PRODUCT FEATURES

1. Optimized for 1/2.5"~1.1" C-Mount cameras;
2. Largest FOV from 26mm upto 300mm;
3. Excellent resolution for high pixel cameras;
4. Low distortion, good telecentricity, big aperture and big depth of field for high end application.

## NAMING RULES



## OVERVIEW

BTL Series Magnification Crosstab

Sensor Size FOV (mm) Mag X	1/2.5" BTL-125	1/2" BTL-12	1/1.8" BTL-118	2/3" BTL-23	1" BTL-H1	1.1" BTL-H1.1	4/3" BTL-H2	1.75" BTL-175	2" BTL-21	39mm BTL-71M	44mm BTL-FF	59mm BTL-16K	WD (mm)
26	0.277	0.308	0.346	0.438	0.638	0.708	0.923	1.115	/	/	/	/	73
36	0.2	0.222	0.25	0.317	0.46	0.511	0.67	0.806	0.917	1.083	/	/	110
42	0.171	0.19	0.214	0.271	0.395	0.438	0.571	0.69	0.786	0.929	1.048	/	118
48	0.15	0.167	0.188	0.238	0.346	0.383	0.5	0.604	0.688	0.813	0.92	/	128
56	0.129	0.143	0.161	0.204	0.296	0.329	0.429	0.518	0.589	0.696	0.785	/	138
64	0.113	0.125	0.14	0.178	0.258	0.287	0.375	0.453	0.516	0.609	0.688	/	189
72	0.1	0.111	0.125	0.158	0.231	0.256	0.333	0.403	0.458	0.542	0.611	/	178
80	0.09	0.1	0.113	0.142	0.206	0.23	0.3	0.363	0.41	0.488	0.55	/	228
90	0.08	0.089	0.1	0.127	0.184	0.204	0.267	0.322	0.367	0.433	0.489	0.656	208
100	0.072	0.08	0.09	0.114	0.166	0.184	0.24	0.29	0.33	0.39	0.44	/	258
120	0.06	0.067	0.075	0.095	0.138	0.153	0.2	0.242	0.275	0.325	0.367	/	280
150	0.048	0.053	0.06	0.076	0.11	0.123	0.16	0.193	0.22	0.26	0.293	0.393	300
190	0.038	0.042	0.047	0.06	0.087	0.097	0.126	0.153	0.174	0.205	0.23	0.311	330
240	0.03	0.033	0.038	0.048	0.069	0.077	0.1	0.121	0.138	0.163	0.183	0.246	410
300	0.024	0.027	0.03	0.038	0.055	0.061	0.08	0.097	0.11	0.13	0.147	0.197	465
Mount	C	C	C	C	C	C	C/F	F	F	F	F	M72	

# BTL-118 SERIES

1/1.8"



Model No. <sup>1</sup>	Optical specs										Mechanical specs		
	FOV (Φmm)	Mag. (x)	WD (mm) <sup>2</sup>	Max. Sensor Size (Φmm)	F/#	MTF30 (lp/mm)	DOF (mm) <sup>3</sup>	Distortion (% max) <sup>4</sup>	Telecentricity (° max) <sup>5</sup>	I/O (mm) <sup>6</sup>	Length (mm)	Mount	Weight (kg)
BTL-0.346X-73-118	26	0.346	73±1	9.0(1/1.8")	4.6	>170	±3.7@F11	<0.1	<0.1	199±1	108.2	C-Mount	0.3
BTL-0.25X-110-118	36	0.250	110±2	9.0(1/1.8")	4.6	>180	±7.0@F11	<0.1	<0.1	256±2	128.3	C-Mount	0.4
BTL-0.214X-118-118	42	0.214	118±3	9.0(1/1.8")	4.6	>195	±9.6@F11	<0.1	<0.1	249±3	113.8	C-Mount	0.4
BTL-0.188X-128-118	48	0.188	128±3	9.0(1/1.8")	5.3	>190	±12.4@F11	<0.1	<0.1	273±3	127.3	C-Mount	0.4
BTL-0.188X-138-118(LM)	48	0.188	138±3	9.0(1/1.8")	4.6	>165	±12.4@F11	<0.1	<0.1	268±3	112.4	C-Mount	0.4
BTL-0.161X-138-118(LM)	56	0.161	138±3	9.0(1/1.8")	5.3	>190	±17.0@F11	<0.1	<0.1	306±3	149.9	C-Mount	0.7
BTL-0.14X-189-118(LM)	64	0.140	189±3	9.0(1/1.8")	4.6	>160	±22.4@F11	<0.1	<0.1	345±3	138.4	C-Mount	0.8
BTL-0.125X-178-118(LM)	72	0.125	178±3	9.0(1/1.8")	5.3	>195	±28.1@F11	<0.1	<0.1	378±3	182.4	C-Mount	1
BTL-0.113X-228-118(LM)	80	0.113	228±4	9.0(1/1.8")	4.6	>160	±34.4@F11	<0.1	<0.1	418±4	172.3	C-Mount	1.5
BTL-0.1X-208-118(LM)	90	0.100	208±3	9.0(1/1.8")	4.6	>195	±44@F11	<0.1	<0.1	433±3	207.4	C-Mount	1.7
BTL-0.09X-258-118(LM)	100	0.090	258±4	9.0(1/1.8")	4.6	>190	±54.3@F11	<0.1	<0.1	506±4	230.8	C-Mount	3
BTL-0.075X-280-118(LM)	120	0.075	280±5	9.0(1/1.8")	4.6	>190	±78.2@F11	<0.1	<0.1	569±5	271.1	C-Mount	4.2
BTL-0.06X-300-118(LM)	150	0.060	300±5	9.0(1/1.8")	4.6	>195	±122@F11	<0.1	<0.1	632±5	314.4	C-Mount	5.7
BTL-0.047X-330-118(LM)	190	0.047	330±5	9.0(1/1.8")	4.6	>195	±199@F11	<0.1	<0.1	751±5	403.6	C-Mount	11
BTL-0.038X-410-118(LM)	240	0.038	410±6	9.0(1/1.8")	4.6	>195	±304@F11	<0.1	<0.1	982±6	554.7	C-Mount	25.5
BTL-0.03X-465-118(LM)	300	0.030	465±6	9.0(1/1.8")	4.2	>190	±488@F11	<0.1	<0.1	1106±6	623.4	C-Mount	46.5

1. The back focal length of model with (LM) is adjustable.

2. Working distance: distance between the front end of the mechanics and the object.  
Set this distance within the nominal value for maximum resolution and minimum distortion.

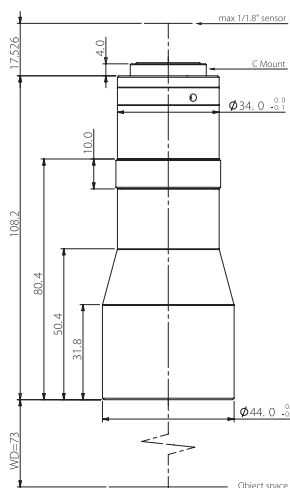
3. At the borders of the field depth the image can be still used for measurement.

4. Percent deviation of the real image compared to an ideal, undistorted image:  
maximum (guaranteed) values are listed.

5. Maximum slope of chief rays inside the lens: when converted to milliradians, it gives the maximum measurement error for any millimeter of object displacement.  
Maximum (guaranteed) values are listed.

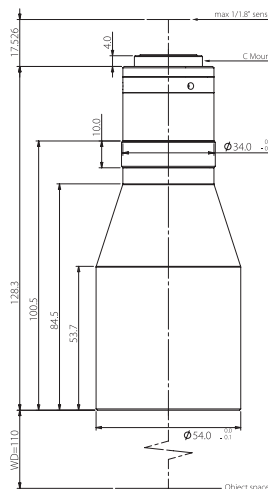
6. I/O: distance between the sensor(image) and the object.

### BTL-0.346X-73-118



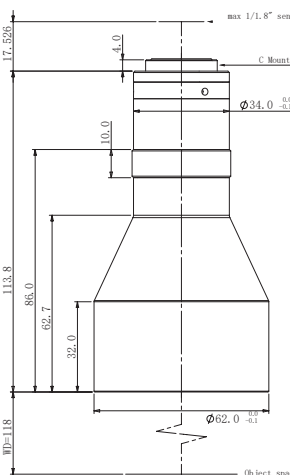
FOV(Φmm)	26
Mag.(x)	0.346
WD(mm)	73±1
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>170
DoF(mm)	±3.7@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	199±1
Length(mm)	108.2
Mount	C-Mount
Weight(kg)	0.3
Field of View(mmxmm)	
1/1.8"	20.7x15.7
ICX274/687(7.16x5.44)	20.7x15.7
1/1.8" EV76C570(7.2x5.4)	20.8x15.6

### BTL-0.25X-110-118



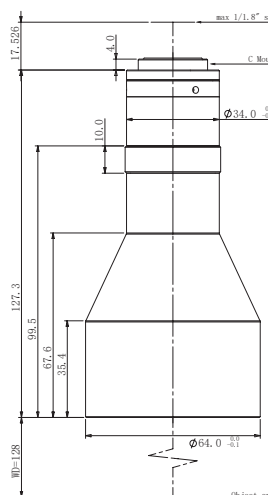
FOV(Φmm)	36
Mag.(x)	0.250
WD(mm)	110±2
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>180
DoF(mm)	±7.0@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	256±2
Length(mm)	128.3
Mount	C-Mount
Weight(kg)	0.4
Field of View(mmxmm)	
1/1.8"	28.6x21.8
ICX274/687(7.16x5.44)	28.6x21.8
1/1.8" EV76C570(7.2x5.4)	28.8x21.6

### BTL-0.214X-118-118



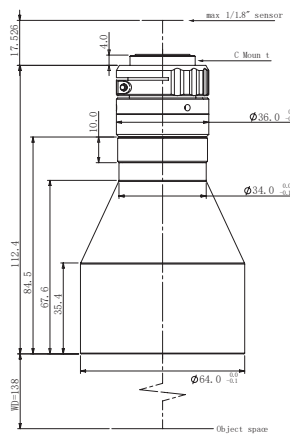
FOV(Φmm)	42
Mag.(x)	0.214
WD(mm)	118±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>195
DoF(mm)	±9.6@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	249±3
Length(mm)	113.8
Mount	C-Mount
Weight(kg)	0.4
Field of View(mmxmm)	
1/1.8"	33.5x25.4
ICX274/687(7.16x5.44)	33.5x25.4
1/1.8" EV76C570(7.2x5.4)	33.6x25.2

### BTL-0.188X-128-118



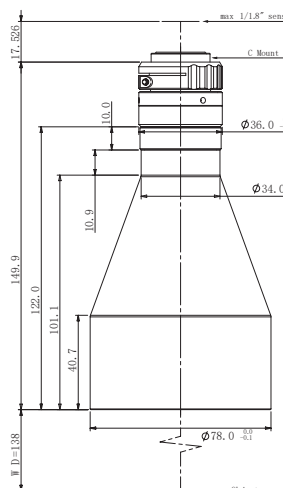
FOV(Φmm)	48
Mag.(x)	0.188
WD(mm)	128±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>190
DoF(mm)	±12.4@F11
Distortion(% max)	<0.15
Telecentricity(° max)	<0.1
I/O(mm)	273±3
Length(mm)	127.3
Mount	C-Mount
Weight(kg)	0.4
Field of View(mmxmm)	
1/1.8"	38.1x29.0
ICX274/687(7.16x5.44)	38.1x29.0
1/1.8" EV76C570(7.2x5.4)	38.3x28.7

### BTL-0.188X-138-118(LM)



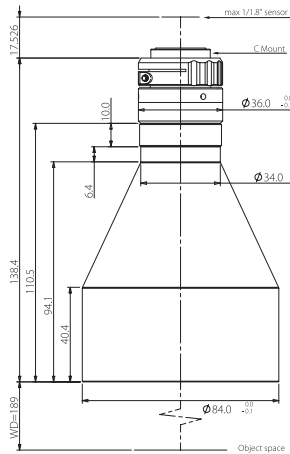
FOV(Φmm)	48
Mag.(x)	0.188
WD(mm)	138±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	5.3
MTF30(lp/mm)	>165
DoF(mm)	±12.4@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	268±3
Length(mm)	112.4
Mount	C-Mount
Weight(kg)	0.4
Field of View(mmxmm)	
1/1.8"	38.1x29.0
ICX274/687(7.16x5.44)	38.1x29.0
1/1.8" EV76C570(7.2x5.4)	38.3x28.7

### BTL-0.161X-138-118(LM)



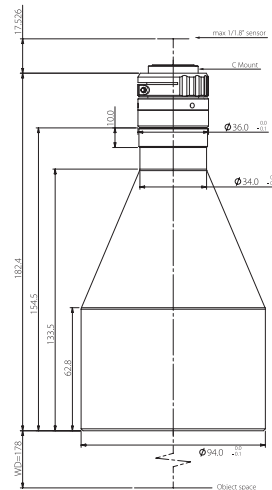
FOV(Φmm)	56
Mag.(x)	0.161
WD(mm)	138±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>190
DoF(mm)	±17.0@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	306±3
Length(mm)	149.9
Mount	C-Mount
Weight(kg)	0.7
Field of View(mmxmm)	
1/1.8"	44.5x33.8
ICX274/687(7.16x5.44)	44.5x33.8
1/1.8" EV76C570(7.2x5.4)	44.7x33.5

### BTL-0.14X-189-118(LM)



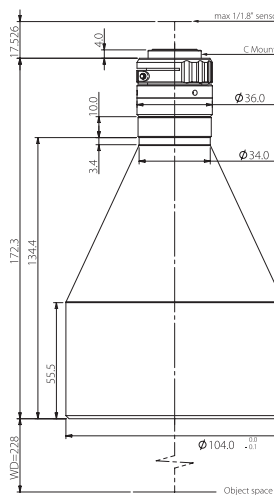
FOV(Φmm)	64
Mag.(x)	0.140
WD(mm)	189±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	5.3
MTF30(lp/mm)	>160
DoF(mm)	±22.4@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	345±3
Length(mm)	138.4
Mount	C-Mount
Weight(kg)	0.8
Field of View(mmxmm)	
1/1.8"	ICX274/687(7.16x5.44) 51.1x38.9
1/1.8" EV76C570(7.2x5.4)	51.4x38.6

### BTL-0.125X-178-118(LM)



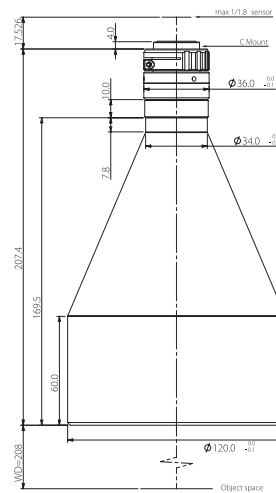
FOV(Φmm)	72
Mag.(x)	0.125
WD(mm)	178±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>195
DoF(mm)	±28.1@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	378±3
Length(mm)	182.4
Mount	C-Mount
Weight(kg)	1.0
Field of View(mmxmm)	
1/1.8"	ICX274/687(7.16x5.44) 57.3x43.5
1/1.8" EV76C570(7.2x5.4)	57.6x43.2

### BTL-0.113X-228-118(LM)



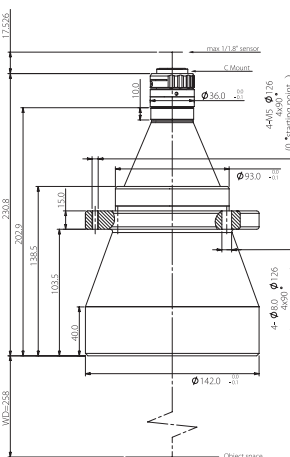
FOV(Φmm)	80
Mag.(x)	0.113
WD(mm)	228±4
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	5.3
MTF30(lp/mm)	>160
DoF(mm)	±34.4@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	418±4
Length(mm)	172.3
Mount	C-Mount
Weight(kg)	1.5
Field of View(mmxmm)	
1/1.8"	ICX274/687(7.16x5.44) 63.4x48.1
1/1.8" EV76C570(7.2x5.4)	63.7x47.8

### BTL-0.1X-208-118(LM)



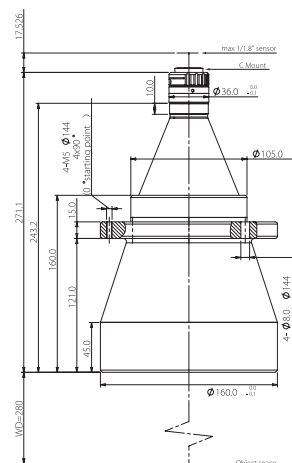
FOV(Φmm)	90
Mag.(x)	0.100
WD(mm)	208±3
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>195
DoF(mm)	±44.0@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	433±3
Length(mm)	207.4
Mount	C-Mount
Weight(kg)	1.7
Field of View(mmxmm)	
1/1.8"	ICX274/687(7.16x5.44) 71.6x54.4
1/1.8" EV76C570(7.2x5.4)	72.0x54.0

### BTL-0.09X-258-118(LM)



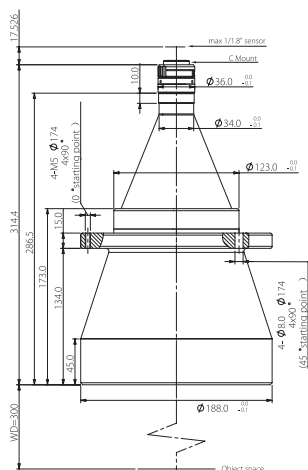
FOV(Φmm)	100
Mag.(x)	0.090
WD(mm)	258±4
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>190
DoF(mm)	±54.3@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	506±4
Length(mm)	230.8
Mount	C-Mount
Weight(kg)	3.0
Field of View(mmxmm)	
1/2.5" 9P001/31(5.7x4.28)	79.6x60.4
1/1.8" EV76C570(7.2x5.4)	80.0x60.0

### BTL-0.075X-280-118(LM)



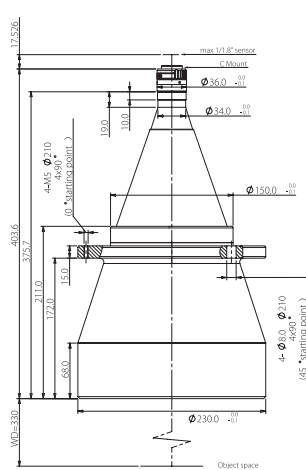
FOV(Φmm)	120
Mag.(x)	0.075
WD(mm)	280±5
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>190
DoF(mm)	±78.2@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	569±5
Length(mm)	271.1
Mount	C-Mount
Weight(kg)	4.2
Field of View(mmxmm)	
1/2.5" 9P001/31(5.7x4.28)	95.5x72.5
1/1.8" EV76C570(7.2x5.4)	96.0x72.0

### BTL-0.06X-300-118(LM)



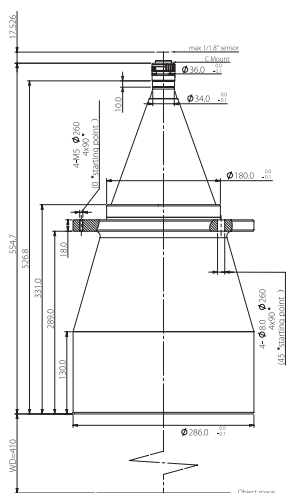
FOV(Φmm)	150
Mag.(x)	0.060
WD(mm)	300±5
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>195
DoF(mm)	±122@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	632±5
Length(mm)	314.4
Mount	C-Mount
Weight(kg)	5.7
Field of View(mm x mm)	
1/1.8"	119.3x90.7
ICX274/687(7.16x5.44)	120.0x90.0
1/1.8" EV76C570(7.2x5.4)	

### BTL-0.047X-330-118(LM)



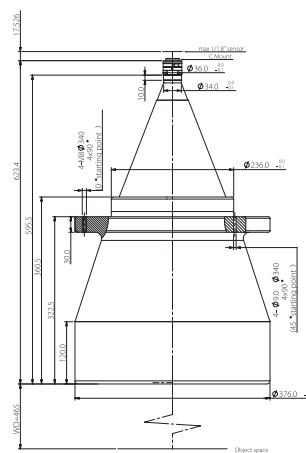
FOV(Φmm)	190
Mag.(x)	0.047
WD(mm)	330±5
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>195
DoF(mm)	±199@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	751±5
Length(mm)	403.6
Mount	C-Mount
Weight(kg)	11.0
Field of View(mm x mm)	
1/1.8"	152.3x115.7
ICX274/687(7.16x5.44)	153.2x114.9
1/1.8" EV76C570(7.2x5.4)	

### BTL-0.038X-410-118(LM)



FOV(Φmm)	240
Mag.(x)	0.038
WD(mm)	410±6
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>195
DoF(mm)	±304@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	982±6
Length(mm)	554.7
Mount	C-Mount
Weight(kg)	25.5
Field of View(mm x mm)	
1/1.8"	188.4x143.2
ICX274/687(7.16x5.44)	189.5x142.1
1/1.8" EV76C570(7.2x5.4)	

### BTL-0.03X-465-118(LM)



FOV(Φmm)	300
Mag.(x)	0.030
WD(mm)	465±6
Max Sensor Size(Φmm)	9.0(1/1.8")
F/#	4.6
MTF30(lp/mm)	>190
DoF(mm)	±488@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1106±6
Length(mm)	623.4
Mount	C-Mount
Weight(kg)	46.5
Field of View(mm x mm)	
1/1.8"	238.7x181.3
ICX274/687(7.16x5.44)	240.0x180.0
1/1.8" EV76C570(7.2x5.4)	