

BTL SERIES

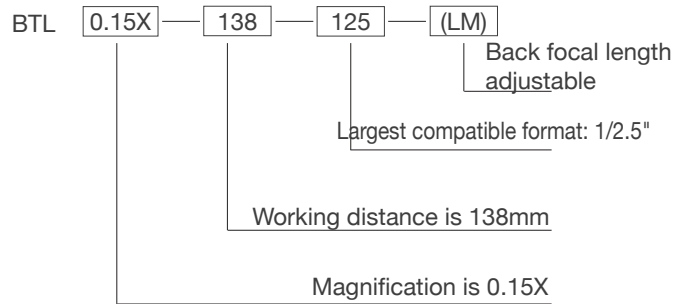
NEW



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-H1 SERIES



1"



Model No. ¹	Optical specs										Mechanical specs		
	FOV (Φmm)	Mag. (x)	WD (mm) ²	Max. Sensor Size (Φmm)	F/#	MTF30 (lp/mm)	DOF (mm) ³	Distortion (% max) ⁴	Telecentricity (° max) ⁵	I/O (mm) ⁶	Length (mm)	Mount	Weight (kg)
BTL-0.638X-73-H1	26	0.638	73±1	16.6(1")	8.7	>90	±1.5@F16	<0.1	<0.1	227±1	136.3	C-Mount	0.4
BTL-0.46X-110-H1	36	0.46	110±2	16.6(1")	7.8	>100	±3.0@F16	<0.1	<0.1	284±2	156.4	C-Mount	0.5
BTL-0.395X-118-H1	42	0.395	118±3	16.6(1")	6.5	>130	±2.80@F11	<0.1	<0.1	278±3	141.9	C-Mount	0.5
BTL-0.346X-128-H1	48	0.346	128±3	16.6(1")	6.5	>130	±5.5@F16	<0.1	<0.1	301±3	155.4	C-Mount	0.5
BTL-0.346X-138-H1(LM)	48	0.346	138±3	16.6(1")	9.8	>90	±5.5@F16	<0.1	<0.1	296±3	140.5	C-Mount	0.5
BTL-0.296X-138-H1(LM)	56	0.296	138±3	16.6(1")	6.5	>130	±5.0@F11	<0.1	<0.1	334±3	178.0	C-Mount	0.7
BTL-0.258X-189-H1(LM)	64	0.258	189±3	16.6(1")	9.8	>85	±9.6@F16	<0.1	<0.1	373±3	166.5	C-Mount	0.9
BTL-0.231X-178-H1(LM)	72	0.231	178±3	16.6(1")	6.5	>135	±8.2@F11	<0.1	<0.1	406±3	210.5	C-Mount	1.1
BTL-0.206X-228-H1(LM)	80	0.206	228±4	16.6(1")	9.8	>90	±15.0@F16	<0.1	<0.1	446±4	200.4	C-Mount	1.6
BTL-0.184X-208-H1(LM)	90	0.184	208±3	16.6(1")	6.5	>135	±13@F11	<0.1	<0.1	461±3	235.5	C-Mount	1.7
BTL-0.166X-258-H1(LM)	100	0.166	258±4	16.6(1")	6.5	>140	±23.2@F16	<0.1	<0.1	534±4	258.8	C-Mount	3.1
BTL-0.138X-280-H1(LM)	120	0.138	280±5	16.6(1")	6.5	>140	±33.6@F16	<0.1	<0.1	597±5	299.2	C-Mount	4.2
BTL-0.111X-300-H1(LM)	150	0.11	300±5	16.6(1")	6.5	>120	±52.8@F16	<0.1	<0.1	660±5	342.4	C-Mount	5.7
BTL-0.087X-330-H1(LM)	190	0.087	330±5	16.6(1")	6.5	>135	±84.5@F16	<0.1	<0.1	779±5	431.7	C-Mount	11.1
BTL-0.069X-410-H1(LM)	240	0.069	410±6	16.6(1")	6.5	>140	±134@F16	<0.1	<0.1	1010±6	582.8	C-Mount	25.6
BTL-0.055X-465-H1(LM)	300	0.055	465±6	16.6(1")	6.5	>135	±145@F11	<0.1	<0.1	1134±6	651.5	C-Mount	46.6

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.

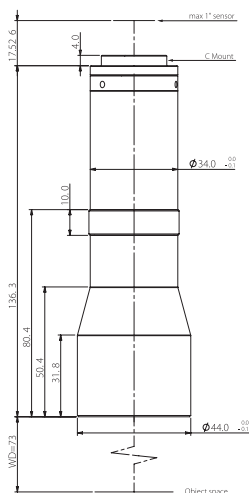
3. At the borders of the field depth the image can be still used for measurement.

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.

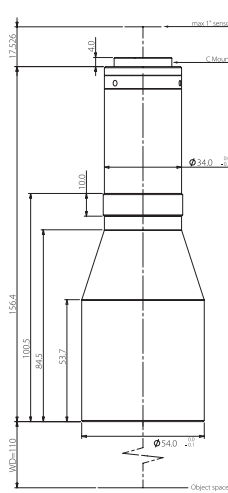
BTL-0.638X-73-H1



FOV(Φmm)	26
Mag.(x)	0.638
WD(mm)	73±1
Max Sensor Size(Φmm)	16.6(1")
F/#	8.7
MTF30(lp/mm)	>90
DoF(mm)	±1.5@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	227±1
Length(mm)	136.3
Mount	C-Mount
Weight(kg)	0.4

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	20.1x15.1
1" CMV4000(11.26x11.26)	17.7x17.7
1" ICX674/694/814(12.5x10.0)	19.6x15.7

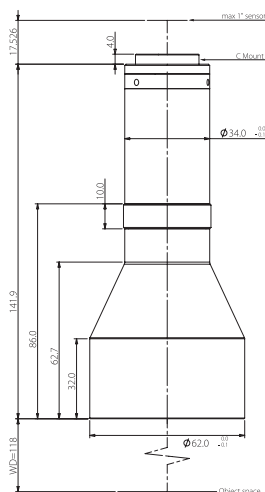
BTL-0.46X-110-H1



FOV(Φmm)	36
Mag.(x)	0.460
WD(mm)	110±2
Max Sensor Size(Φmm)	16.6(1")
F/#	7.8
MTF30(lp/mm)	>100
DoF(mm)	±3.0@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	284±2
Length(mm)	156.4
Mount	C-Mount
Weight(kg)	0.5

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	27.9x21.0
1" CMV4000(11.26x11.26)	24.5x24.5
1" ICX674/694/814(12.5x10.0)	27.2x21.7

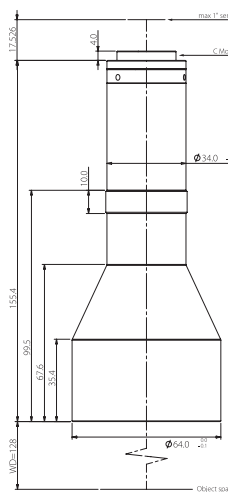
BTL-0.395X-118-H1



FOV(Φmm)	42
Mag.(x)	0.395
WD(mm)	118±3
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>130
DoF(mm)	±2.8@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	278±3
Length(mm)	141.9
Mount	C-Mount
Weight(kg)	0.5

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	32.5x24.4
1" CMV4000(11.26x11.26)	28.5x28.5
1" ICX674/694/814(12.5x10.0)	31.7x25.3

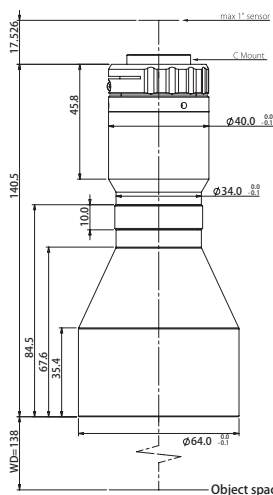
BTL-0.346X-128-H1



FOV(Φmm)	48
Mag.(x)	0.346
WD(mm)	128±3
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>130
DoF(mm)	±5.5@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	301±3
Length(mm)	155.4
Mount	C-Mount
Weight(kg)	0.5

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	37.1x27.9
1" CMV4000(11.26x11.26)	32.5x32.5
1" ICX674/694/814(12.5x10.0)	36.1x28.9

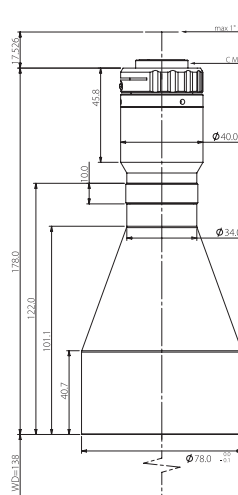
BTL-0.346X-138-H1(LM)



FOV(Φmm)	48
Mag.(x)	0.346
WD(mm)	138±3
Max Sensor Size(Φmm)	16.6(1")
F/#	9.8
MTF30(lp/mm)	>190
DoF(mm)	±5.5@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	296±3
Length(mm)	140.5
Mount	C-Mount
Weight(kg)	0.5

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	37.1x27.9
1" CMV4000(11.26x11.26)	32.5x32.5
1" ICX674/694/814(12.5x10.0)	36.1x28.9

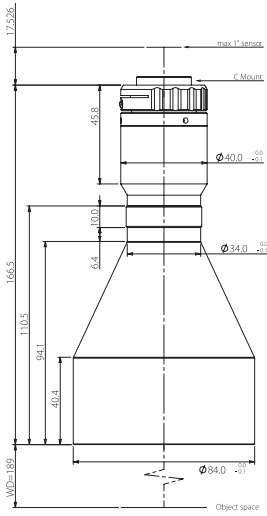
BTL-0.296X-138-H1(LM)



FOV(Φmm)	56
Mag.(x)	0.296
WD(mm)	138±3
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>130
DoF(mm)	±26.4@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	301±3
Length(mm)	145.0
Mount	C-Mount
Weight(kg)	0.7

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	44.2x33.2
1" CMV4000(11.26x11.26)	38.0x38.0
1" ICX674/694/814(12.5x10.0)	42.2x33.8

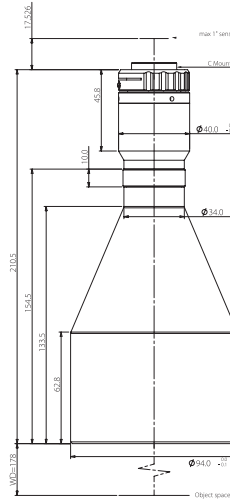
BTL-0.258X-189-H1 (LM)



FOV(Φmm)	64
Mag.(x)	0.258
WD(mm)	189±3
Max Sensor Size(Φmm)	16.6(1")
F/#	9.8
MTF30(lp/mm)	>85
DoF(mm)	±9.6@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	373±3
Length(mm)	166.5
Mount	C-Mount
Weight(kg)	0.9

Field of View(mm xmm)	
1" KAI-04050(12.85x9.64)	49.8x37.4
1" CMV4000(11.26x11.26)	43.6x43.6
1" ICX674/694/814(12.5x10.0)	48.5x38.8

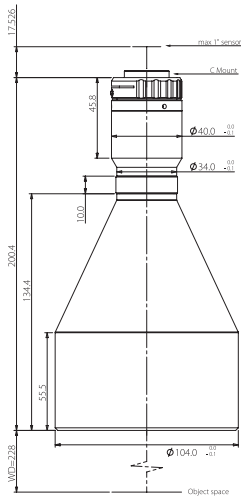
BTL-0.231X-178-H1 (LM)



FOV(Φmm)	72
Mag.(x)	0.231
WD(mm)	178±3
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>135
DoF(mm)	±8.2@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	406±3
Length(mm)	210.5
Mount	C-Mount
Weight(kg)	1.1

Field of View(mm xmm)	
1" KAI-04050(12.85x9.64)	55.6x41.7
1" CMV4000(11.26x11.26)	48.7x48.7
1" ICX674/694/814(12.5x10.0)	54.1x43.3

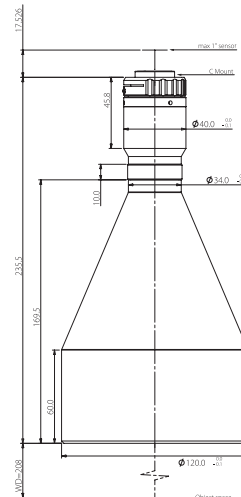
BTL-0.206X-228-H1 (LM)



FOV(Φmm)	80
Mag.(x)	0.206
WD(mm)	228±4
Max Sensor Size(Φmm)	16.6(1")
F/#	9.8
MTF30(lp/mm)	>90
DoF(mm)	±15@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	446±4
Length(mm)	200.4
Mount	C-Mount
Weight(kg)	1.6

Field of View(mm xmm)	
1" KAI-04050(12.85x9.64)	62.4x46.8
1" CMV4000(11.26x11.26)	54.7x54.7
1" ICX674/694/814(12.5x10.0)	60.7x48.5

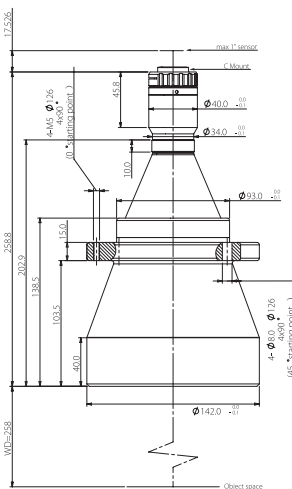
BTL-0.184X-208-H1 (LM)



FOV(Φmm)	90
Mag.(x)	0.184
WD(mm)	208±3
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>135
DoF(mm)	±13@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	461±3
Length(mm)	235.5
Mount	C-Mount
Weight(kg)	1.7

Field of View(mm xmm)	
1" KAI-04050(12.85x9.64)	69.8x52.4
1" CMV4000(11.26x11.26)	61.2x61.2
1" ICX674/694/814(12.5x10.0)	67.9x54.4

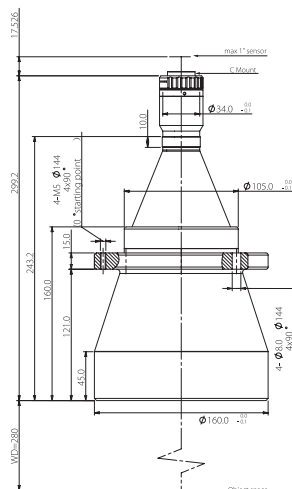
BTL-0.166X-258-H1 (LM)



FOV(Φmm)	100
Mag.(x)	0.166
WD(mm)	258±4
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>140
DoF(mm)	±23.2@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	534±4
Length(mm)	258.8
Mount	C-Mount
Weight(kg)	3.1

Field of View(mm xmm)	
1" KAI-04050(12.85x9.64)	77.4x58.1
1" CMV4000(11.26x11.26)	67.8x67.8
1" ICX674/694/814(12.5x10.0)	75.3x60.2

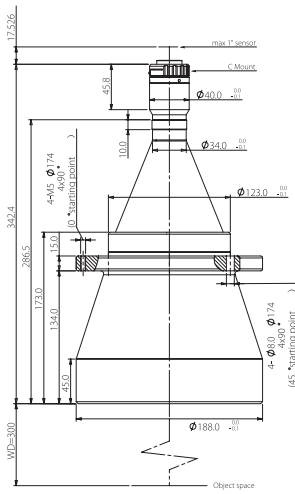
BTL-0.138X-280-H1 (LM)



FOV(Φmm)	120
Mag.(x)	0.138
WD(mm)	280±5
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>140
DoF(mm)	±33.6@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	597±5
Length(mm)	299.2
Mount	C-Mount
Weight(kg)	4.2

Field of View(mm xmm)	
1" KAI-04050(12.85x9.64)	93.1x69.9
1" CMV4000(11.26x11.26)	81.6x81.6
1" ICX674/694/814(12.5x10.0)	90.6x72.5

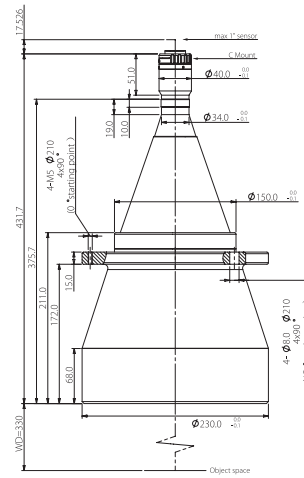
BTL-0.11X-300-H1 (LM)



FOV(Φmm)	150
Mag.(x)	0.110
WD(mm)	300±5
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>120
DoF(mm)	±52.8@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	660±5
Length(mm)	324.4
Mount	C-Mount
Weight(kg)	5.7

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	116.8x87.6
1" CMV4000(11.26x11.26)	102.4x102.4
1" ICX674/694/814(12.5x10.0)	113.6x90.9

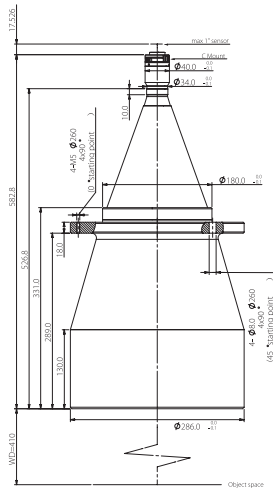
BTL-0.087X-330-H1 (LM)



FOV(Φmm)	190
Mag.(x)	0.087
WD(mm)	330±5
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>135
DoF(mm)	±84.5@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	779±5
Length(mm)	431.7
Mount	C-Mount
Weight(kg)	11.1

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	147.7x110.8
1" CMV4000(11.26x11.26)	129.4x129.4
1" ICX674/694/814(12.5x10.0)	143.7x114.9

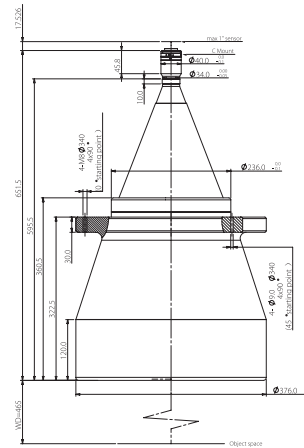
BTL-0.069X-410-H1 (LM)



FOV(Φmm)	240
Mag.(x)	0.069
WD(mm)	410±6
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>140
DoF(mm)	±134@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1010±6
Length(mm)	582.8
Mount	C-Mount
Weight(kg)	25.6

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	186.2x139.7
1" CMV4000(11.26x11.26)	163.2x163.2
1" ICX674/694/814(12.5x10.0)	181.2x144.9

BTL-0.055X-465-H1 (LM)



FOV(Φmm)	300
Mag.(x)	0.055
WD(mm)	465±6
Max Sensor Size(Φmm)	16.6(1")
F/#	6.5
MTF30(lp/mm)	>135
DoF(mm)	±145@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1134±6
Length(mm)	651.5
Mount	C-Mount
Weight(kg)	46.6

Field of View(mm x mm)	
1" KAI-04050(12.85x9.64)	233.6x175.3
1" CMV4000(11.26x11.26)	204.7x204.7
1" ICX674/694/814(12.5x10.0)	227.3x181.8