

BTL SERIES

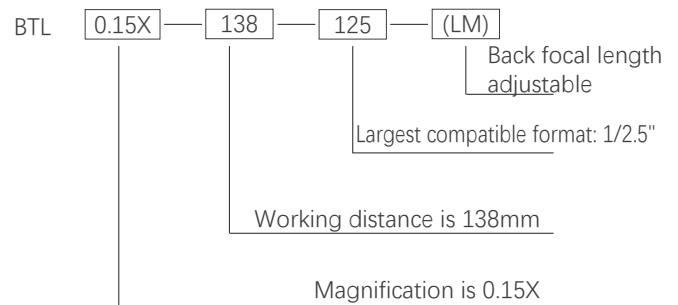
NEW



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-71M SERIES

39mm



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-1.083X-110-71M(LM)	36	1.083	110±2	39	18.3	>43	±0.65@F20	<0.1	<0.1	363±2	206.7	F or other	0.8
BTL-0.929X-118-71M(LM)	42	0.929	118±3	39	15.3	>55	±0.9@F20	<0.1	<0.1	357±3	192.2	F or other	0.8
BTL-0.813X-128-71M(LM)	48	0.813	128±3	39	15.3	>50	±1.2@F20	<0.1	<0.1	380±3	205.7	F or other	0.8
BTL-0.813X-138-71M(LM)	48	0.813	138±3	39	22.9	>35	±1.3@F22.9	<0.1	<0.1	375±3	190.7	F or other	0.8
BTL-0.696X-138-71M(LM)	56	0.696	138±3	39	13.1	>65	±1.6@F20	<0.1	<0.1	413±3	228.2	F or other	1.1
BTL-0.609X-189-71M(LM)	64	0.609	189±3	39	22.9	>35	±2.4@F22.9	<0.1	<0.1	452±3	216.7	F or other	1.2
BTL-0.542X-178-71M(LM)	72	0.542	178±3	39	11.5	>75	±2.7@F20	<0.1	<0.1	485±3	260.7	F or other	1.4
BTL-0.488X-228-71M(LM)	80	0.488	228±4	39	22.9	>35	±3.8@F22.9	<0.1	<0.1	525±4	250.6	F or other	1.9
BTL-0.433X-208-71M(LM)	90	0.433	208±3	39	10.2	>85	±4.2@F20	<0.1	<0.1	540±3	285.7	F or other	2.1
BTL-0.39X-258-71M(LM)	100	0.390	258±4	39	15.3	>55	±5.2@F20	<0.1	<0.1	614±4	309.1	F or other	3.4
BTL-0.325X-280-71M(LM)	120	0.325	280±5	39	13.1	>65	±7.5@F20	<0.1	<0.1	676±5	349.4	F or other	4.6
BTL-0.26X-300-71M(LM)	150	0.260	300±5	39	13.1	>65	±11.8@F20	<0.1	<0.1	739±5	392.7	F or other	6.1
BTL-0.205X-330-71M(LM)	190	0.205	330±5	39	9.2	>100	±15.2@F16	<0.1	<0.1	858±5	481.9	F or other	11.4
BTL-0.163X-410-71M(LM)	240	0.163	410±6	39	9.2	>100	±24@F16	<0.1	<0.1	1090±6	633	F or other	25.9
BTL-0.13X-465-71M(LM)	300	0.130	465±6	39	6.5	>130	±37.8@F16	<0.1	<0.1	1213±6	701.7	F or other	47.0

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.

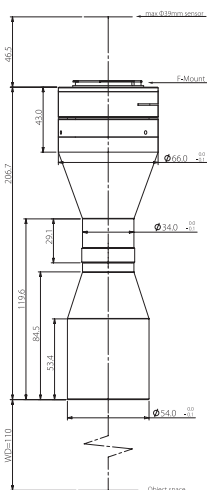
3. At the borders of the field depth the image can be still used for measurement.

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.

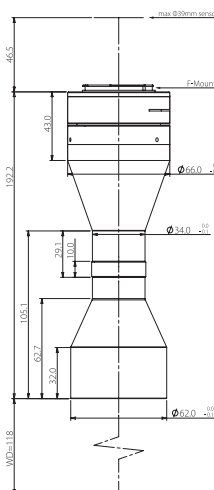
6. I/O: distance between the sensor(image) and the object.

BTL-1.083X-110-71M(LM)



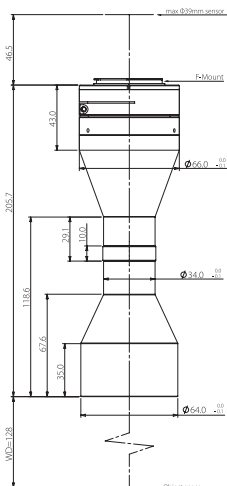
FOV(Φmm)	36
Mag.(x)	1.083
WD(mm)	110±2
Max Sensor Size(Φmm)	39
F/#	18.3
MTF30(lp/mm)	>43
DoF(mm)	±0.65@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	363±2
Length(mm)	206.7
Mount	F-Mount/Other
Weight(kg)	0.8
Field of View(mm×mm)	
CHR70M(31.0x21.7)	28.6x20.0

BTL-0.929X-118-71M(LM)



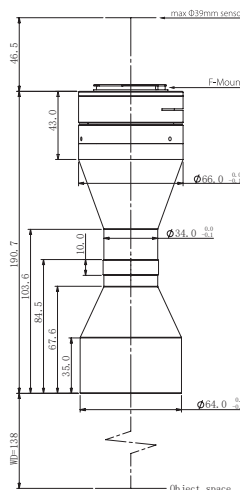
FOV(Φmm)	42
Mag.(x)	0.929
WD(mm)	118±3
Max Sensor Size(Φmm)	39
F/#	15.3
MTF30(lp/mm)	>55
DoF(mm)	±0.9@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	357±3
Length(mm)	192.2
Mount	F-Mount/Other
Weight(kg)	0.8
Field of View(mm×mm)	
CHR70M(31.0x21.7)	33.4x23.4

BTL-0.813X-128-71M(LM)



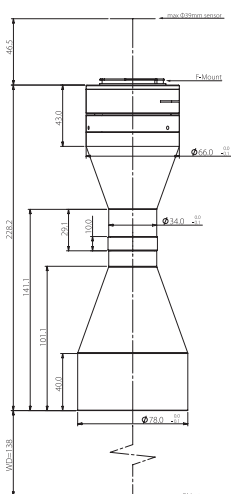
FOV(Φmm)	48
Mag.(x)	0.813
WD(mm)	128±3
Max Sensor Size(Φmm)	39
F/#	15.3
MTF30(lp/mm)	>50
DoF(mm)	±1.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	380±3
Length(mm)	205.7
Mount	F-Mount/Other
Weight(kg)	0.8
Field of View(mm×mm)	
CHR70M(31.0x21.7)	38.1x26.7

BTL-0.813X-138-71M(LM)



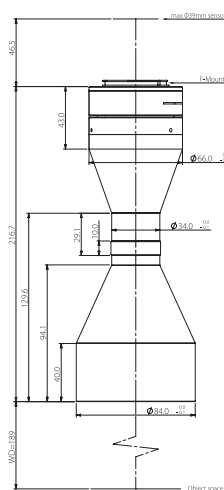
FOV(Φmm)	48
Mag.(x)	0.813
WD(mm)	138±3
Max Sensor Size(Φmm)	39
F/#	22.9
MTF30(lp/mm)	>35
DoF(mm)	±1.3@F22.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	375±3
Length(mm)	190.7
Mount	F-Mount/Other
Weight(kg)	0.8
Field of View(mm×mm)	
CHR70M(31.0x21.7)	38.1x26.7

BTL-0.696X-138-71M(LM)



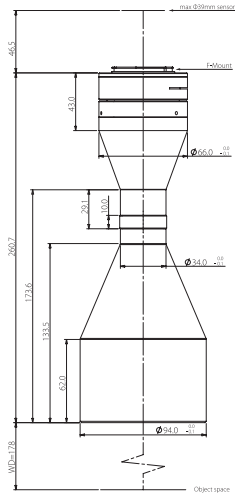
FOV(Φmm)	56
Mag.(x)	0.696
WD(mm)	138±3
Max Sensor Size(Φmm)	39
F/#	13.1
MTF30(lp/mm)	>65
DoF(mm)	±1.6@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	413±3
Length(mm)	228.2
Mount	F-Mount/Other
Weight(kg)	1.1
Field of View(mm×mm)	
CHR70M(31.0x21.7)	44.5x31.2

BTL-0.609X-189-71M(LM)



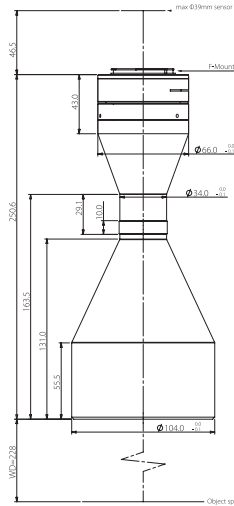
FOV(Φmm)	64
Mag.(x)	0.609
WD(mm)	189±3
Max Sensor Size(Φmm)	39
F/#	22.9
MTF30(lp/mm)	>35
DoF(mm)	±2.4@F22.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	452±3
Length(mm)	216.7
Mount	F-Mount/Other
Weight(kg)	1.2
Field of View(mm×mm)	
CHR70M(31.0x21.7)	50.9x35.6

BTL-0.542X-178-71M(LM)



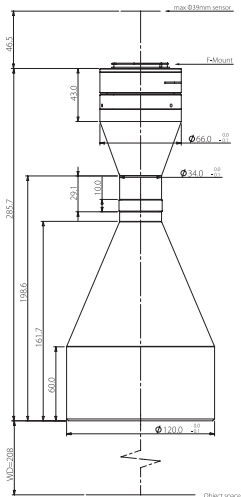
FOV(Φmm)	72
Mag.(x)	0.542
WD(mm)	178±3
Max Sensor Size(Φmm)	39
F/#	11.5
MTF30(lp/mm)	>75
DoF(mm)	±2.7@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	485±3
Length(mm)	260.7
Mount	F-Mount/Other
Weight(kg)	1.4
Field of View(mmxmm)	
CHR70M(31.0x21.7)	57.2x40.0

BTL-0.488X-228-71M(LM)



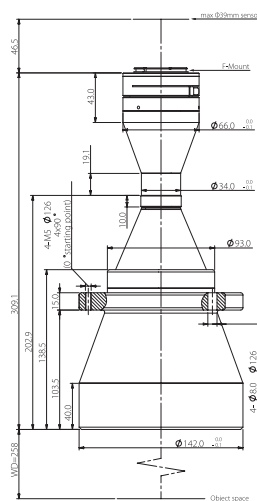
FOV(Φmm)	80
Mag.(x)	0.488
WD(mm)	228±4
Max Sensor Size(Φmm)	39
F/#	22.9
MTF30(lp/mm)	>35
DoF(mm)	±3.8@F22.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	525±4
Length(mm)	250.6
Mount	F-Mount/Other
Weight(kg)	1.9
Field of View(mmxmm)	
CHR70M(31.0x21.7)	63.5x44.5

BTL-0.433X-208-71M(LM)



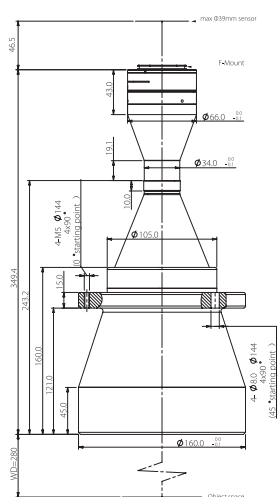
FOV(Φmm)	90
Mag.(x)	0.433
WD(mm)	208±3
Max Sensor Size(Φmm)	39
F/#	10.2
MTF30(lp/mm)	>85
DoF(mm)	±4.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	540±3
Length(mm)	285.7
Mount	F-Mount/Other
Weight(kg)	2.1
Field of View(mmxmm)	
CHR70M(31.0x21.7)	71.6x50.1

BTL-0.39X-258-71M(LM)



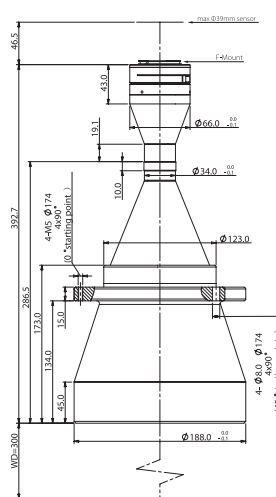
FOV(Φmm)	100
Mag.(x)	0.390
WD(mm)	258±4
Max Sensor Size(Φmm)	39
F/#	15.3
MTF30(lp/mm)	>55
DoF(mm)	±5.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	614±4
Length(mm)	309.1
Mount	F-Mount/Other
Weight(kg)	3.4
Field of View(mmxmm)	
CHR70M(31.0x21.7)	79.5x55.6

BTL-0.325X-280-71M(LM)



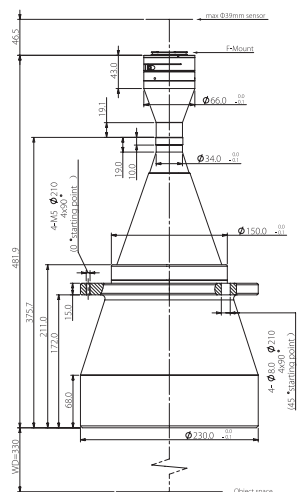
FOV(Φmm)	120
Mag.(x)	0.325
WD(mm)	280±5
Max Sensor Size(Φmm)	39
F/#	13.1
MTF30(lp/mm)	>65
DoF(mm)	±7.5@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	676±5
Length(mm)	349.4
Mount	F-Mount/Other
Weight(kg)	4.6
Field of View(mmxmm)	
CHR70M(31.0x21.7)	95.4x66.8

BTL-0.26X-300-71M(LM)



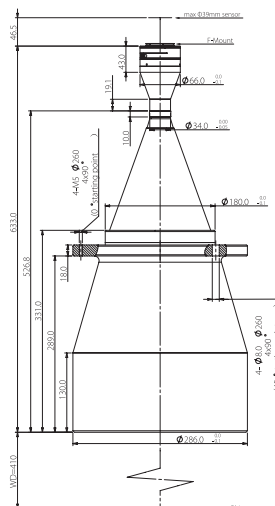
FOV(Φmm)	150
Mag.(x)	0.260
WD(mm)	300±5
Max Sensor Size(Φmm)	39
F/#	13.1
MTF30(lp/mm)	>65
DoF(mm)	±11.8@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	739±5
Length(mm)	392.7
Mount	F-Mount/Other
Weight(kg)	6.1
Field of View(mmxmm)	
CHR70M(31.0x21.7)	119.2x83.5

BTL-0.205X-330-71M(LM)



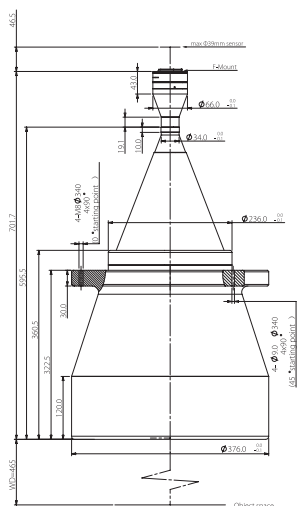
FOV(Φmm)	190
Mag.(x)	0.205
WD(mm)	330±5
Max Sensor Size(Φmm)	39
F/#	9.2
MTF30(lp/mm)	>100
DoF(mm)	±15.2@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	858±5
Length(mm)	481.9
Mount	F-Mount/Other
Weight(kg)	11.4
Field of View(mm x mm)	
CHR70M(31.0x21.7)	151.2x105.9

BTL-0.163X-410-71M(LM)



FOV(Φmm)	240
Mag.(x)	0.163
WD(mm)	410±6
Max Sensor Size(Φmm)	39
F/#	9.2
MTF30(lp/mm)	>100
DoF(mm)	±24@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1090±6
Length(mm)	633.0
Mount	F-Mount/Other
Weight(kg)	25.9
Field of View(mm x mm)	
CHR70M(31.0x21.7)	190.2x133.1

BTL-0.13X-465-71M(LM)



FOV(Φmm)	300
Mag.(x)	0.130
WD(mm)	465±6
Max Sensor Size(Φmm)	39
F/#	6.5
MTF30(lp/mm)	>130
DoF(mm)	±37.8@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1213±6
Length(mm)	701.7
Mount	F-Mount/Other
Weight(kg)	47.0
Field of View(mm x mm)	
CHR70M(31.0x21.7)	238.5x166.9