

BTL SERIES

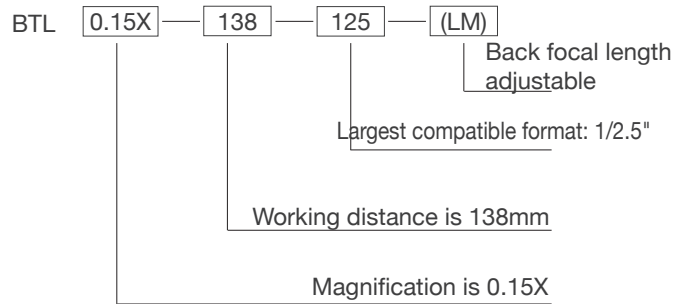
NEW



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-FF SERIES

44mm



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-1.048X-118-FF(LM)	42	1.048	118±3	44(35mm Full)	17.2	>45	±0.7@F20	<0.1	<0.1	366±3	201.1	F or other	0.8
BTL-0.92X-128-FF(LM)	48	0.92	128±3	44(35mm Full)	17.2	>45	±0.9@F20	<0.1	<0.1	389±3	214.6	F or other	0.8
BTL-0.92X-138-FF(LM)	48	0.92	138±3	44(35mm Full)	25.9	>30	±1.2@F25.9	<0.1	<0.1	384±3	199.6	F or other	0.9
BTL-0.785X-138-FF(LM)	56	0.785	138±3	44(35mm Full)	14.8	>55	±1.2@F20	<0.1	<0.1	422±3	237.1	F or other	1.1
BTL-0.688X-189-FF(LM)	64	0.688	189±3	44(35mm Full)	25.9	>30	±2.1@F25.9	<0.1	<0.1	461±3	225.6	F or other	1.2
BTL-0.611X-178-FF(LM)	72	0.611	178±3	44(35mm Full)	12.9	>65	±2.1@F20	<0.1	<0.1	494±3	269.6	F or other	1.4
BTL-0.55X-228-FF(LM)	80	0.55	228±4	44(35mm Full)	25.9	>30	±3.4@F25.9	<0.1	<0.1	534±4	259.5	F or other	1.9
BTL-0.489X-208-FF(LM)	90	0.489	208±3	44(35mm Full)	11.5	>65	±3.3@F20	<0.1	<0.1	549±3	294.6	F or other	2.1
BTL-0.44X-258-FF(LM)	100	0.44	258±4	44(35mm Full)	17.2	>45	±4.1@F20	<0.1	<0.1	622±4	317.9	F or other	3.4
BTL-0.367X-280-FF(LM)	120	0.367	280±5	44(35mm Full)	14.8	>55	±5.9@F20	<0.1	<0.1	685±5	358.3	F or other	4.6
BTL-0.293X-300-FF(LM)	150	0.293	300±5	44(35mm Full)	14.8	>60	±9.3@F20	<0.1	<0.1	748±5	401.5	F or other	6.1
BTL-0.23X-330-FF(LM)	190	0.23	330±5	44(35mm Full)	10.3	>85	±15.1@F20	<0.1	<0.1	867±5	490.8	F or other	11.4
BTL-0.183X-410-FF(LM)	240	0.183	410±6	44(35mm Full)	10.3	>85	±23.8@F20	<0.1	<0.1	1098±6	641.9	F or other	25.9
BTL-0.147X-465-FF(LM)	300	0.147	465±6	44(35mm Full)	10.3	>85	±37@F20	<0.1	<0.1	1222±6	710.6	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.

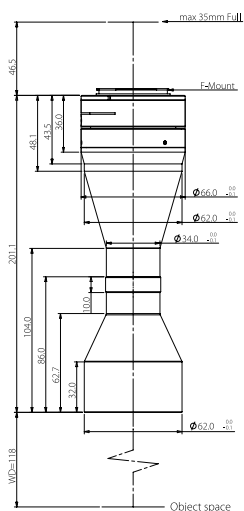
3. At the borders of the field depth the image can be still used for measurement.

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.

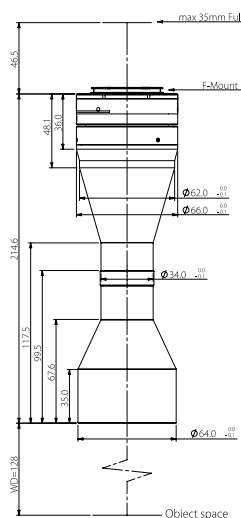
BTL-1.048X-118-FF(LM)



FOV(Φmm)	42
Mag.(x)	1.048
WD(mm)	118±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	17.2
MTF30(lp/mm)	>45
DoF(mm)	±0.7@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	366±3
Length(mm)	201.1
Mount	F-Mount/Other
Weight(kg)	0.8

Field of View(mm x mm)	
Line-2K(20.48mm)	19.5mm
Line-4K(28.67mm)	27.4mm
Line-8K(40.96mm)	39.1mm
35mm Format(36.0x24.0)	34.4x22.9

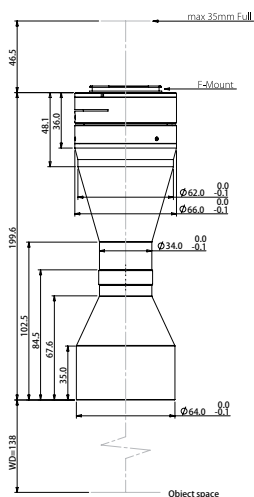
BTL-0.92X-128-FF(LM)



FOV(Φmm)	48
Mag.(x)	0.920
WD(mm)	128±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	17.2
MTF30(lp/mm)	>45
DoF(mm)	±0.9@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	389±3
Length(mm)	214.6
Mount	F-Mount/Other
Weight(kg)	0.8

Field of View(mm x mm)	
Line-2K(20.48mm)	22.3mm
Line-4K(28.67mm)	31.2mm
Line-8K(40.96mm)	44.5mm
35mm Format(36.0x24.0)	39.1x26.1

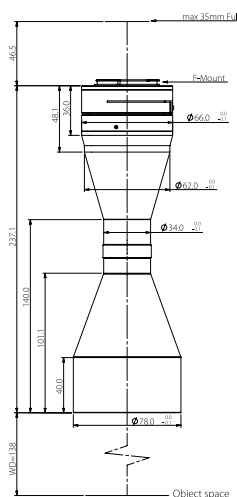
BTL-0.92X-138-FF(LM)



FOV(Φmm)	48
Mag.(x)	0.920
WD(mm)	138±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	25.9
MTF30(lp/mm)	>30
DoF(mm)	±1.2@F25.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	384±3
Length(mm)	199.6
Mount	F-Mount/Other
Weight(kg)	0.9

Field of View(mm x mm)	
Line-2K(20.48mm)	22.3mm
Line-4K(28.67mm)	31.2mm
Line-8K(40.96mm)	44.5mm
35mm Format(36.0x24.0)	39.1x26.1

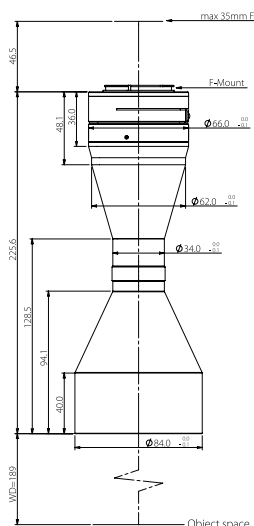
BTL-0.785X-138-FF(LM)



FOV(Φmm)	56
Mag.(x)	0.785
WD(mm)	138±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	14.8
MTF30(lp/mm)	>55
DoF(mm)	±1.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	422±3
Length(mm)	237.1
Mount	F-Mount/Other
Weight(kg)	1.1

Field of View(mm x mm)	
Line-2K(20.48mm)	26.1mm
Line-4K(28.67mm)	36.5mm
Line-8K(40.96mm)	52.2mm
35mm Format(36.0x24.0)	45.9x30.6

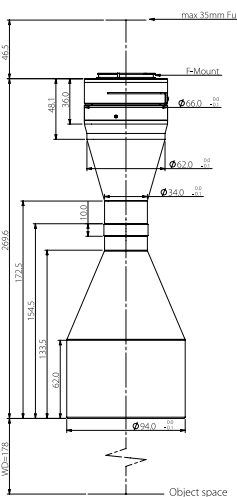
BTL-0.688X-189-FF(LM)



FOV(Φmm)	64
Mag.(x)	0.688
WD(mm)	189±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	25.9
MTF30(lp/mm)	>30
DoF(mm)	±2.1@F25.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	461±3
Length(mm)	225.6
Mount	F-Mount/Other
Weight(kg)	1.2

Field of View(mm x mm)	
Line-2K(20.48mm)	29.8mm
Line-4K(28.67mm)	41.7mm
Line-8K(40.96mm)	59.5mm
35mm Format(36.0x24.0)	52.3x34.9

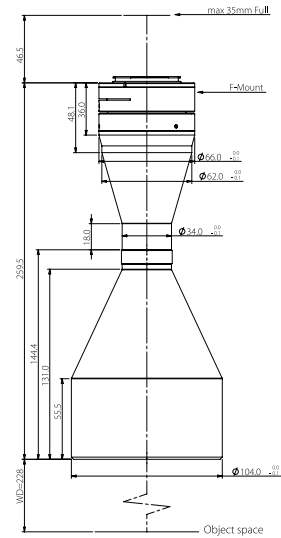
BTL-0.611X-178-FF(LM)



FOV(Φmm)	72
Mag.(x)	0.611
WD(mm)	178±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	12.9
MTF30(lp/mm)	>65
DoF(mm)	±2.1@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	494±3
Length(mm)	269.6
Mount	F-Mount/Other
Weight(kg)	1.4

Field of View(mm x mm)	
Line-2K(20.48mm)	33.5mm
Line-4K(28.67mm)	46.9mm
Line-8K(40.96mm)	67.0mm
35mm Format(36.0x24.0)	58.9x39.3

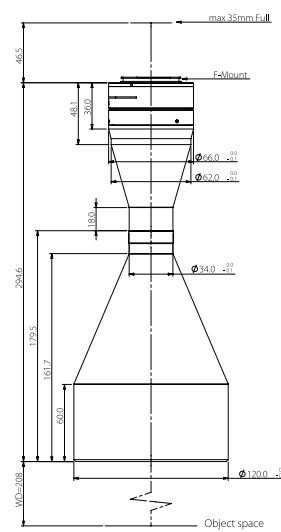
BTL-0.55X-228-FF(LM)



FOV(Φmm)	80
Mag.(x)	0.550
WD(mm)	228±4
Max Sensor Size(Φmm)	44(35mm Full)
F/#	25.9
MTF30(lp/mm)	>30
DoF(mm)	±3.4@F25.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	534±4
Length(mm)	259.5
Mount	F-Mount/Other
Weight(kg)	1.9

Field of View(mm x mm)	
Line-2K(20.48mm)	37.2mm
Line-4K(28.67mm)	52.1mm
Line-8K(40.96mm)	74.5mm
35mm Format(36.0x24.0)	65.5x43.6

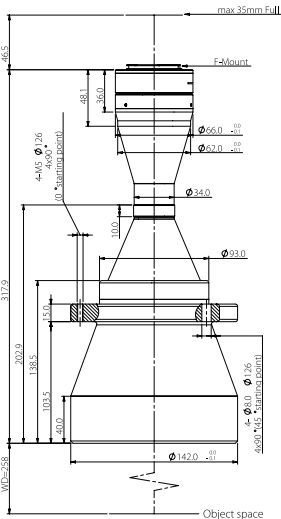
BTL-0.489X-208-FF(LM)



FOV(Φmm)	90
Mag.(x)	0.489
WD(mm)	208±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	11.5
MTF30(lp/mm)	>65
DoF(mm)	±3.3@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	549±3
Length(mm)	294.6
Mount	F-Mount/Other
Weight(kg)	2.1

Field of View(mm x mm)	
Line-2K(20.48mm)	41.9mm
Line-4K(28.67mm)	58.6mm
Line-8K(40.96mm)	83.8mm
35mm Format(36.0x24.0)	73.6x49.1

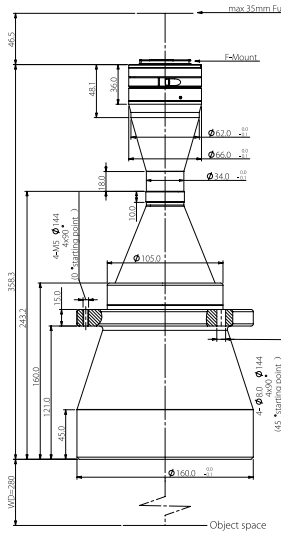
BTL-0.44X-258-FF(LM)



FOV(Φmm)	100
Mag.(x)	0.440
WD(mm)	258±4
Max Sensor Size(Φmm)	44(35mm Full)
F/#	17.2
MTF30(lp/mm)	>45
DoF(mm)	±4.1@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	622±4
Length(mm)	317.9
Mount	F-Mount/Other
Weight(kg)	3.4

Field of View(mm x mm)	
Line-2K(20.48mm)	46.6mm
Line-4K(28.67mm)	65.2mm
Line-8K(40.96mm)	93.1mm
35mm Format(36.0x24.0)	81.8x54.6

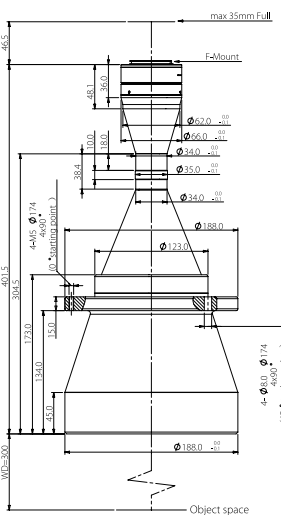
BTL-0.367X-280-FF(LM)



FOV(Φmm)	120
Mag.(x)	0.367
WD(mm)	280±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	14.8
MTF30(lp/mm)	>55
DoF(mm)	±5.9@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	685±5
Length(mm)	358.3
Mount	F-Mount/Other
Weight(kg)	4.6

Field of View(mm x mm)	
Line-2K(20.48mm)	55.8mm
Line-4K(28.67mm)	78.1mm
Line-8K(40.96mm)	111.6mm
35mm Format(36.0x24.0)	98.1x65.4

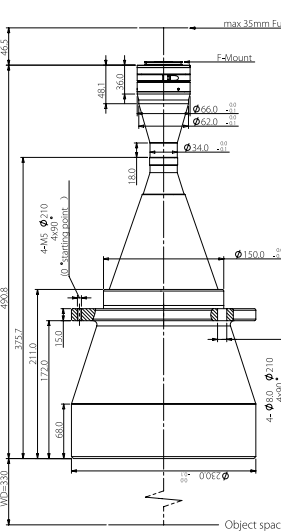
BTL-0.293X-300-FF(LM)



FOV(Φmm)	150
Mag.(x)	0.293
WD(mm)	300±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	14.8
MTF30(lp/mm)	>60
DoF(mm)	±9.3@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	748±5
Length(mm)	401.5
Mount	F-Mount/Other
Weight(kg)	6.1

Field of View(mm x mm)	
Line-2K(20.48mm)	69.9mm
Line-4K(28.67mm)	97.9mm
Line-8K(40.96mm)	139.8mm
35mm Format(36.0x24.0)	122.9x81.9

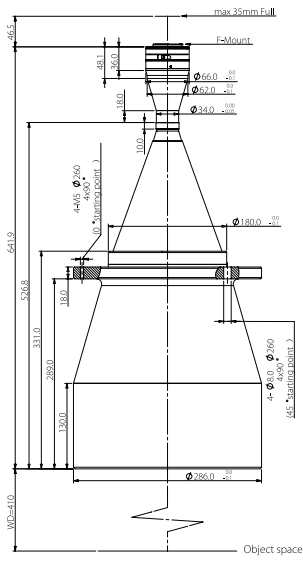
BTL-0.23X-330-FF(LM)



FOV(Φmm)	190
Mag.(x)	0.230
WD(mm)	330±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	10.3
MTF30(lp/mm)	>85
DoF(mm)	±15.1@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	867±5
Length(mm)	490.8
Mount	F-Mount/Other
Weight(kg)	11.4

Field of View(mm x mm)	
Line-2K(20.48mm)	89.0mm
Line-4K(28.67mm)	124.7mm
Line-8K(40.96mm)	178.1mm
35mm Format(36.0x24.0)	156.5x104.4

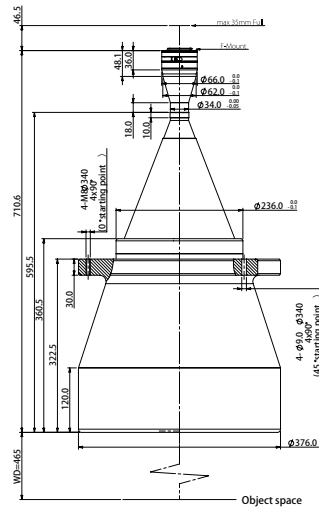
BTL-0.183X-410-FF(LM)



FOV(Φmm)	240
Mag.(x)	0.183
WD(mm)	410±6
Max Sensor Size(Φmm)	44(35mm Full)
F/#	10.3
MTF30(lp/mm)	>85
DoF(mm)	±23.8@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1098±6
Length(mm)	641.9
Mount	F-Mount/Other
Weight(kg)	25.9

Field of View(mmxmm)	
Line-2K(20.48mm)	111.9mm
Line-4K(28.67mm)	156.7mm
Line-8K(40.96mm)	223.8mm
35mm Format(36.0x24.0)	196.7x131.2

BTL-0.147X-465-FF(LM)



FOV(Φmm)	300
Mag.(x)	0.147
WD(mm)	465±6
Max Sensor Size(Φmm)	44(35mm Full)
F/#	10.3
MTF30(lp/mm)	>85
DoF(mm)	±37@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1222±6
Length(mm)	710.6
Mount	F-Mount/Other
Weight(kg)	47.0

Field of View(mmxmm)	
Line-2K(20.48mm)	139.3mm
Line-4K(28.67mm)	195.0mm
Line-8K(40.96mm)	278.6mm
35mm Format(36.0x24.0)	244.9x163.3