

# BTL SERIES

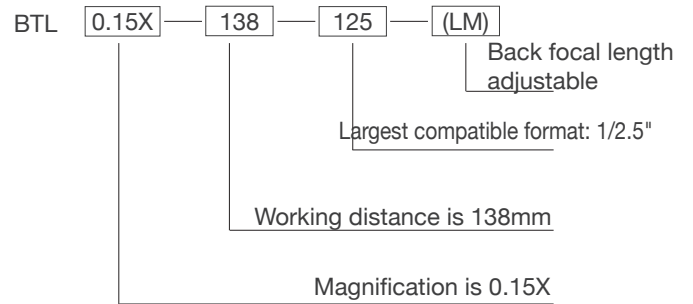
**NEW**



## 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-H1.1 SERIES

1.1"



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-0.708X-73-H1.1(LM)	26	0.708	73±1	18.4(1.1")	9.6	>75	±1.6@F20	<0.1	<0.1	238±1	147.7	C-Mount	0.4
BTL-0.511X-110-H1.1(LM)	36	0.511	110±2	18.4(1.1")	8.7	>85	±3.0@F20	<0.1	<0.1	295±2	167.7	C-Mount	0.6
BTL-0.438X-118-H1.1(LM)	42	0.438	118±3	18.4(1.1")	7.2	>115	±3.3@F16	<0.1	<0.1	289±3	153.2	C-Mount	0.5
BTL-0.383X-128-H1.1(LM)	48	0.383	128±3	18.4(1.1")	7.2	>115	±4.3@F16	<0.1	<0.1	312±3	166.7	C-Mount	0.6
BTL-0.383X-138-H1.1(LM)	48	0.383	138±3	18.4(1.1")	10.8	>80	±4.3@F16	<0.1	<0.1	307±3	151.7	C-Mount	0.6
BTL-0.329X-138-H1.1(LM)	56	0.329	138±3	18.4(1.1")	6.2	>145	±4.0@F11	<0.1	<0.1	345±3	189.2	C-Mount	0.8
BTL-0.287X-189-H1.1(LM)	64	0.287	189±3	18.4(1.1")	10.8	>80	±7.8@F16	<0.1	<0.1	384±3	177.7	C-Mount	1.0
BTL-0.256X-178-H1.1(LM)	72	0.256	178±3	18.4(1.1")	6.2	>145	±6.7@F11	<0.1	<0.1	417±3	221.7	C-Mount	1.2
BTL-0.23X-228-H1.1(LM)	80	0.230	228±4	18.4(1.1")	10.8	>80	±12.0@F16	<0.1	<0.1	457±4	211.6	C-Mount	1.6
BTL-0.204X-208-H1.1(LM)	90	0.204	208±3	18.4(1.1")	6.2	>145	±10.5@F11	<0.1	<0.1	472±3	246.7	C-Mount	1.8
BTL-0.184X-258-H1.1(LM)	100	0.184	258±4	18.4(1.1")	7.2	>120	±18.9@F16	<0.1	<0.1	546±4	270.1	C-Mount	3.2
BTL-0.153X-280-H1.1(LM)	120	0.153	280±5	18.4(1.1")	6.2	>145	±18.7@F11	<0.1	<0.1	608±5	310.4	C-Mount	4.3
BTL-0.123X-300-H1.1(LM)	150	0.123	300±5	18.4(1.1")	6.2	>145	±29@F11	<0.1	<0.1	671±5	353.7	C-Mount	5.8
BTL-0.097X-330-H1.1(LM)	190	0.097	330±5	18.4(1.1")	6.2	>145	±46.7@F11	<0.1	<0.1	791±5	443	C-Mount	11.2
BTL-0.077X-410-H1.1(LM)	240	0.077	410±6	18.4(1.1")	6.2	>140	±74.2@F11	<0.1	<0.1	1022±6	594	C-Mount	25.6
BTL-0.061X-465-H1.1(LM)	300	0.061	465±6	18.4(1.1")	6.2	>145	±118@F11	<0.1	<0.1	1145±6	662	C-Mount	46.7

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.

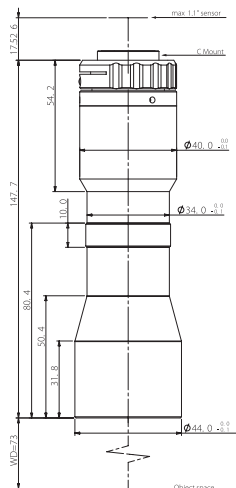
3. At the borders of the field depth the image can be still used for measurement.

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.

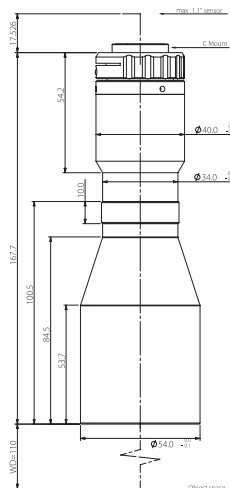
### BTL-0.708X-73-H1.1(LM)



FOV(Φmm)	26
Mag.(x)	0.708
WD(mm)	73±1
Max Sensor Size(Φmm)	18.4(1.1")
F/#	9.6
MTF30(lp/mm)	>75
DoF(mm)	±1.6@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	238±1
Length(mm)	147.7
Mount	C-Mount
Weight(kg)	0.4

Field of View(mm xmm)	
1.1" IMX253(14.19x10.38)	20.0x14.7

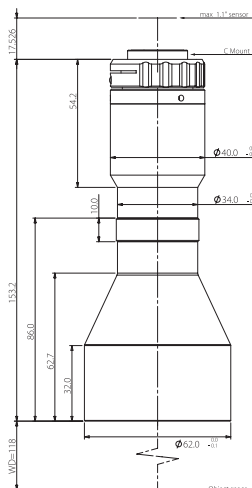
### BTL-0.511X-110-H1.1(LM)



FOV(Φmm)	36
Mag.(x)	0.511
WD(mm)	110±2
Max Sensor Size(Φmm)	18.4(1.1")
F/#	8.7
MTF30(lp/mm)	>85
DoF(mm)	±3.0@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	295±2
Length(mm)	167.7
Mount	C-Mount
Weight(kg)	0.6

Field of View(mm xmm)	
1.1" IMX253(14.19x10.38)	27.8x20.3

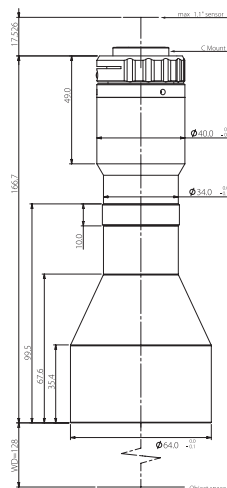
### BTL-0.438X-118-H1.1(LM)



FOV(Φmm)	42
Mag.(x)	0.438
WD(mm)	118±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	7.2
MTF30(lp/mm)	>115
DoF(mm)	±3.3@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	289±3
Length(mm)	153.2
Mount	C-Mount
Weight(kg)	0.5

Field of View(mm xmm)	
1.1" IMX253(14.19x10.38)	32.4x23.7

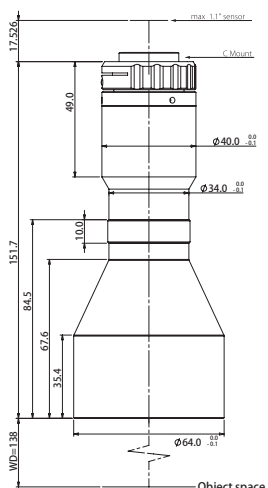
### BTL-0.383X-128-H1.1(LM)



FOV(Φmm)	48
Mag.(x)	0.383
WD(mm)	128±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	7.2
MTF30(lp/mm)	>115
DoF(mm)	±4.3@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	312±3
Length(mm)	166.7
Mount	C-Mount
Weight(kg)	0.6

Field of View(mm xmm)	
1.1" IMX253(14.19x10.38)	37.1x27.1

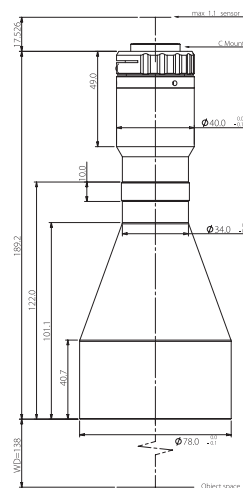
### BTL-0.383X-138-H1.1(LM)



FOV(Φmm)	48
Mag.(x)	0.383
WD(mm)	138±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	10.8
MTF30(lp/mm)	>80
DoF(mm)	±4.3@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	307±3
Length(mm)	151.7
Mount	C-Mount
Weight(kg)	0.6

Field of View(mm xmm)	
1.1" IMX253(14.19x10.38)	37.1x27.1

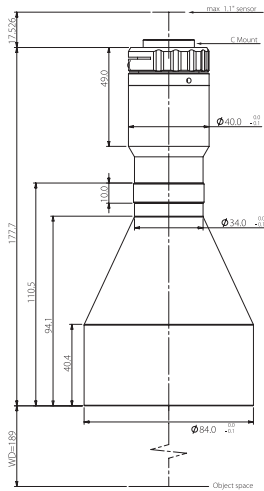
### BTL-0.329X-138-H1.1(LM)



FOV(Φmm)	56
Mag.(x)	0.329
WD(mm)	138±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±4.0@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	345±3
Length(mm)	189.2
Mount	C-Mount
Weight(kg)	0.8

Field of View(mm xmm)	
1.1" IMX253(14.19x10.38)	43.1x31.6

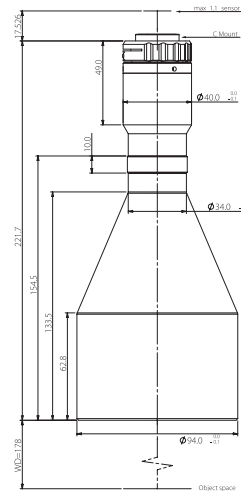
### BTL-0.287X-189-H1.1(LM)



FOV(Φmm)	64
Mag.(x)	0.287
WD(mm)	189±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	10.8
MTF30(lp/mm)	>80
DoF(mm)	±7.8@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	384±3
Length(mm)	177.7
Mount	C-Mount
Weight(kg)	1.0

Field of View(mm x mm)	
1.1" IMX253(14.19x10.38)	49.4x36.2

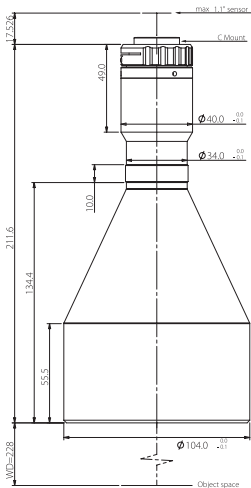
### BTL-0.256X-178-H1.1(LM)



FOV(Φmm)	72
Mag.(x)	0.256
WD(mm)	178±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±6.7@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	417±3
Length(mm)	221.7
Mount	C-Mount
Weight(kg)	1.2

Field of View(mm x mm)	
1.1" IMX253(14.19x10.38)	55.4x40.6

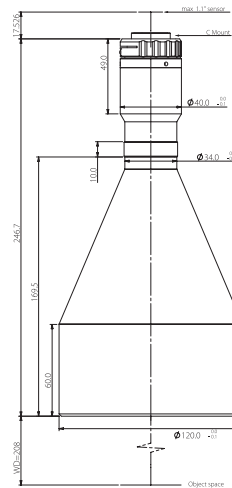
### BTL-0.23X-228-H1.1(LM)



FOV(Φmm)	80
Mag.(x)	0.230
WD(mm)	228±4
Max Sensor Size(Φmm)	18.4(1.1")
F/#	10.8
MTF30(lp/mm)	>80
DoF(mm)	±12.0@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	457±4
Length(mm)	211.6
Mount	C-Mount
Weight(kg)	1.6

Field of View(mm x mm)	
1.1" IMX253(14.19x10.38)	61.7x45.1

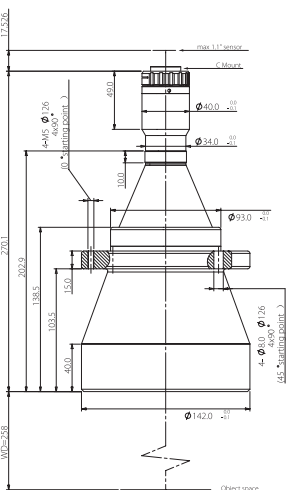
### BTL-0.204X-208-H1.1(LM)



FOV(Φmm)	90
Mag.(x)	0.204
WD(mm)	208±3
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±10.5@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	472±3
Length(mm)	246.7
Mount	C-Mount
Weight(kg)	1.8

Field of View(mm x mm)	
1.1" IMX253(14.19x10.38)	69.6x50.9

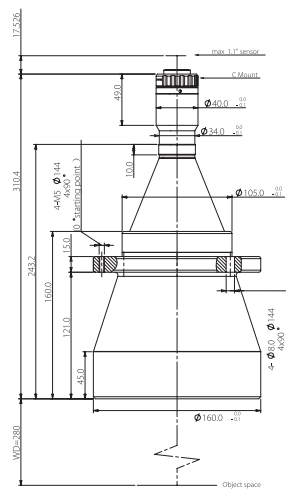
### BTL-0.184X-258-H1.1(LM)



FOV(Φmm)	100
Mag.(x)	0.072
WD(mm)	0.184
Max Sensor Size(Φmm)	18.4(1.1")
F/#	7.2
MTF30(lp/mm)	>120
DoF(mm)	±18.9@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	546±4
Length(mm)	270.1
Mount	C-Mount
Weight(kg)	3.2

Field of View(mm x mm)	
1.1" IMX253(14.19x10.38)	77.1x56.4

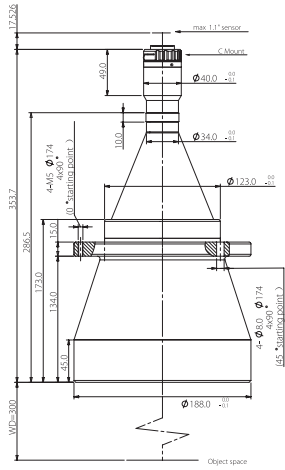
### BTL-0.153X-280-H1.1(LM)



FOV(Φmm)	120
Mag.(x)	0.153
WD(mm)	280±5
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±18.7@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	608±5
Length(mm)	310.4
Mount	C-Mount
Weight(kg)	4.3

Field of View(mm x mm)	
1.1" IMX253(14.19x10.38)	92.7x67.8

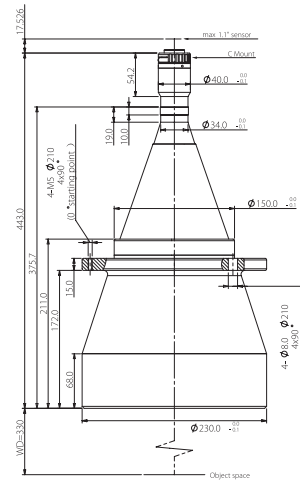
### BTL-0.123X-300-H1.1(LM)



FOV(Φmm)	150
Mag.(x)	0.123
WD(mm)	300±5
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±29.0@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	671±5
Length(mm)	353.7
Mount	C-Mount
Weight(kg)	5.8

Field of View(mmxmm)	
1.1" IMX253(14.19x10.38)	115.4x84.4

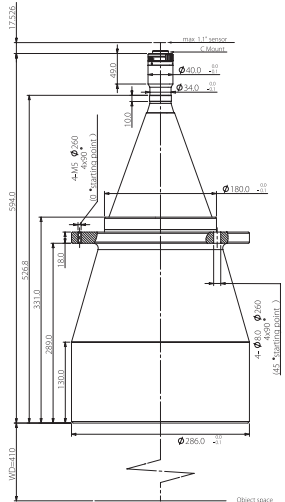
### BTL-0.097X-330-H1.1(LM)



FOV(Φmm)	190
Mag.(x)	0.097
WD(mm)	330±5
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±46.7@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	791±5
Length(mm)	443.0
Mount	C-Mount
Weight(kg)	11.2

Field of View(mmxmm)	
1.1" IMX253(14.19x10.38)	146.3x107.0

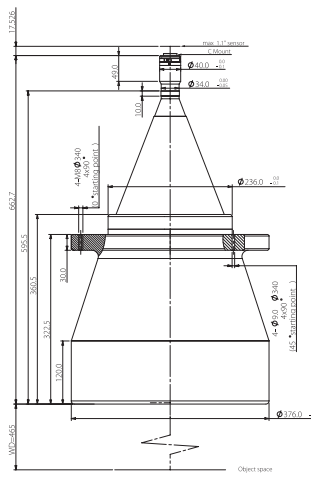
### BTL-0.077X-410-H1.1(LM)



FOV(Φmm)	240
Mag.(x)	0.077
WD(mm)	410±6
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>140
DoF(mm)	±74.2@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1022±6
Length(mm)	594.0
Mount	C-Mount
Weight(kg)	25.6

Field of View(mmxmm)	
1.1" IMX253(14.19x10.38)	184.3x134.8

### BTL-0.061X-465-H1.1(LM)



FOV(Φmm)	300
Mag.(x)	0.061
WD(mm)	465±6
Max Sensor Size(Φmm)	18.4(1.1")
F/#	6.2
MTF30(lp/mm)	>145
DoF(mm)	±118@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1145±6
Length(mm)	662.7
Mount	C-Mount
Weight(kg)	46.7

Field of View(mmxmm)	
1.1" IMX253(14.19x10.38)	232.6x170.2