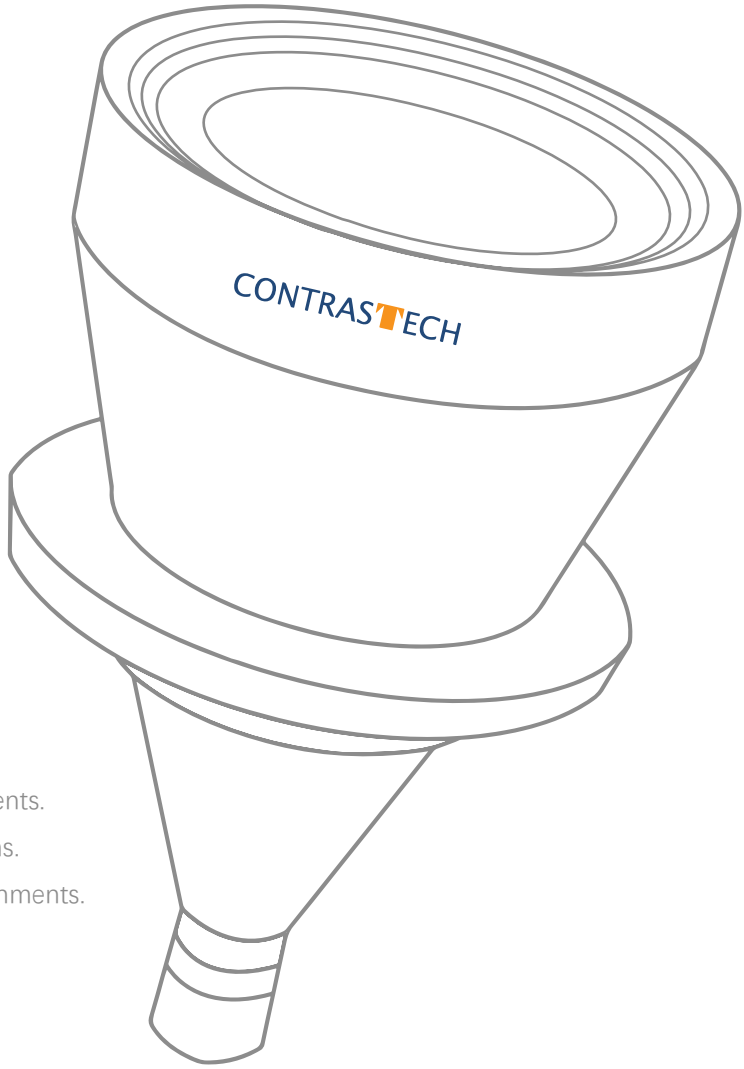
CONTRASTECH

TELECENTRIC LENSES BTL-FF SERIES



MAIN FEATURES

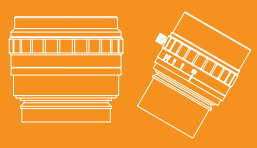
- **High telecentricity** for thick object imaging.
- **Nearly zero distortion** for accurate measurements.
- **Excellent resolution** for high resolution cameras.
- **Simple and robust design** for industrial environments.

ABOUT US

Hangzhou Contrastech Co.,Ltd. is China top leading professional machine vision products manufacturer and supplier, who have been specializing in design, development and producing machine vision products, software and systems.

With advanced technology and creative power of image acquisition and processing, Contrastech major products have included industrial camera, scientific standard camera, industrial FA lens, telecentric lens, machine vision lights and image processing software. All products comply with international quality standards and we have more than 20 years industry experience in the fields of machine vision image acquisition and processing, optical imaging and automation.

Contrastech provides free of charge consultation for imaging solution. With excellent pre-sales, quality control and after-sales service team, we are able to respond rapidly in 24 hours and ensure to create best value for customers. Vision Datum will innovate constantly and shall make more brilliant achievements together with our customers in the era of Industry 4.0.



BTL-FF SERIES

44mm

Model No.	Optical specs										Mechanical specs		
	FOV (Φmm)	Mag. (x)	WD (mm)	Max. Sesnor Size (Φmm)	F/#	MTF30 (lp/mm)	DOF (mm)	Distortion (% max)	Telecentricity (° max)	I/O (mm)	Length (mm)	Mount	Weight (kg)
BTL-1.038X-118-FF(LM)	42	1.038	118±3	44(35mmFull)	17.1	>50	±0.7@F20	<0.1	<0.1	378±3	247.8	M58	1.2
BTL-0.908X-128-FF(LM)	48	0.908	128±3	44(35mmFull)	17.1	>50	±1.0@F20	<0.1	<0.1	401±3	261.3	M58	1.2
BTL-0.92X-138-FF(LM)	48	0.92	138±3	44(35mmFull)	25.9	>30	±1.2@F25.9	<0.1	<0.1	384±3	199.6	F / Other	0.9
BTL-0.779X-138-FF(LM)	56	0.779	138±3	44(35mmFull)	14.6	>60	±1.3@F20	<0.1	<0.1	434±3	283.8	M58	1.5
BTL-0.681X-158-FF(LM)	64	0.681	158±3	44(35mmFull)	12.8	>65	±1.7@F20	<0.1	<0.1	466±3	296.3	M58	1.5
BTL-0.611X-178-FF(LM)	72	0.606	178±3	44(35mmFull)	12.8	>70	±2.2@F20	<0.1	<0.1	506±3	316.3	M58	1.8
BTL-0.545X-228-FF(LM)	80	0.545	228±4	44(35mmFull)	7.3	>115	±2.2@F16	<0.1	<0.1	546±4	306.3	M58	2.7
BTL-0.489X-208-FF(LM)	90	0.484	208±3	44(35mmFull)	11.4	>75	±3.4@F20	<0.1	<0.1	561±3	341.3	M58	2.4
BTL-0.44X-258-FF(LM)	100	0.436	258±4	43.6	10.3	>90	±4.2@F20	<0.1	<0.1	635±4	364.7	M58	3.8
BTL-0.396X-263-FF(LM)	110	0.396	263±4	44(35mmFull)	9.3	>90	±4.1@F16	<0.1	<0.1	669±6	393.9	M58	3.4
BTL-0.363X-273-FF(LM)	120	0.363	273±5	44(35mmFull)	8.5	>105	±4.9@F16	<0.1	<0.1	691±5	405.6	M58	5.0
BTL-0.321X-288-FF(LM)	136	0.321	288±5	44(35mmFull)	7.9	>110	±6.2@F20	<0.1	<0.1	779±6	478.9	M58	5.0
BTL-0.291X-300-FF(LM)	150	0.291	300±5	44(35mmFull)	14.6	>60	±9.4@F20	<0.1	<0.1	760±5	448.3	M58	6.4
BTL-0.256X-318-FF(LM)	170	0.256	318±5	44(35mmFull)	6.0	>130	±6.7@F11	<0.1	<0.1	840±5	510.2	M58	7.5
BTL-0.229X-330-FF(LM)	190	0.229	330±5	43.6(35mmFull)	6.0	>135	±8.4@F11	<0.1	<0.1	880±5	537.5	M58	10.6
BTL-0.202X-372-FF(LM)	216	0.202	372±5	44(35mmFull)	10.4	>90	±19.6@F20	<0.1	<0.1	1017±5	633.0	M58	14.7
BTL-0.182X-410-FF(LM)	240	0.182	410±6	44(35mmFull)	6.0	>130	±13.3@F11	<0.1	<0.1	1101±6	678.8	M58	20.0
BTL-0.169X-338-FF(LM)	258	0.169	338±5	44(35mmFull)	6.0	>120	±15.1@F11	<0.1	<0.1	906±5	556.2	M58	-
BTL-0.147X-465-FF(LM)	300	0.145	465±6	44(35mmFull)	6.7	>130	±20.9@F11	<0.1	<0.1	1234±6	757.3	M58	47.5

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

2. Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

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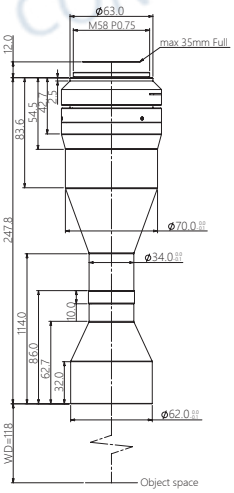
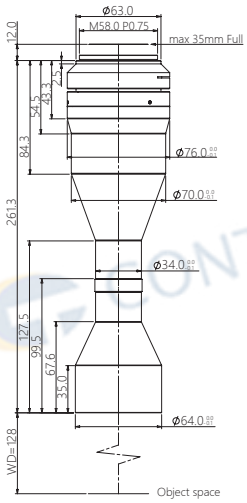
BTL-1.038X-118-FF(LM)



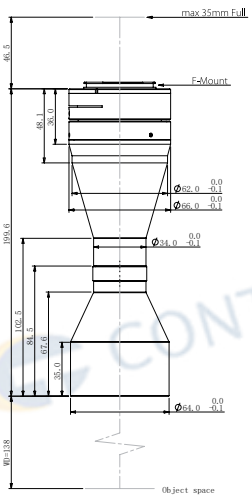
FOV(Φmm)	42
Mag.(x)	1.038
WD(mm)	118±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	17.1
MTF30(lp/mm)	>50
DoF(mm)	±0.7@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	378±3
Length(mm)	247.8
Mount	M58
Weight(kg)	1.2
Field of View(mmxmm)	
Line-2K(20.48mm)	19.5mm
Line-4K(28.67mm)	27.4mm
Line-8K(40.96mm)	39.1mm
35mm Format(36.0x24.0)	34.4x22.9

BTL-0.908X-128-FF(LM)



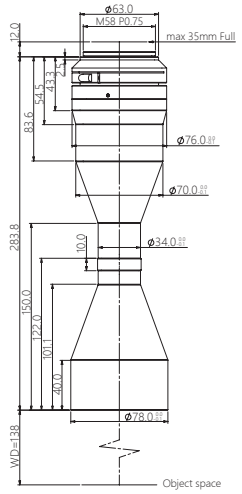
FOV(Φmm)	48
Mag.(x)	0.908
WD(mm)	128±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	17.1
MTF30(lp/mm)	>50
DoF(mm)	±1.0@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	401±3
Length(mm)	261.3
Mount	M58
Weight(kg)	1.2
Field of View(mmxmm)	
Line-2K(20.48mm)	22.3mm
Line-4K(28.67mm)	31.2mm
Line-8K(40.96mm)	44.5mm
35mm Format(36.0x24.0)	39.1x26.1

BTL-0.92X-138-FF(LM)



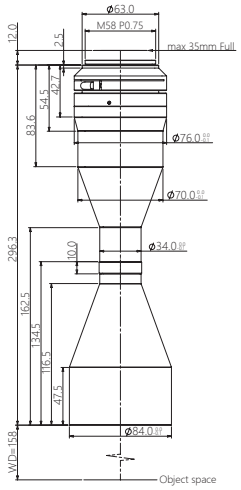
FOV(Φmm)	48
Mag.(x)	0.920
WD(mm)	138±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	25.9
MTF30(lp/mm)	>30
DoF(mm)	±1.2@F25.9
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	384±3
Length(mm)	199.6
Mount	F / other
Weight(kg)	0.9
Field of View(mmxmm)	
Line-2K(20.48mm)	22.3mm
Line-4K(28.67mm)	31.2mm
Line-8K(40.96mm)	44.5mm
35mm Format(36.0x24.0)	39.1x26.1

BTL-0.779X-138-FF(LM)



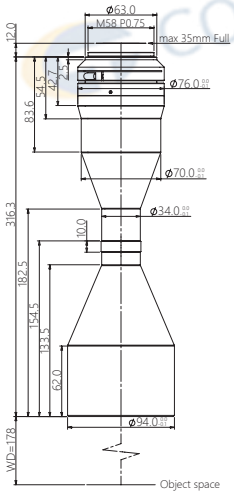
FOV(Φmm)	56
Mag.(x)	0.779
WD(mm)	138±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	14.6
MTF30(lp/mm)	>60
DoF(mm)	±1.3@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	434±3
Length(mm)	283.8
Mount	M58
Weight(kg)	1.5
Field of View(mmxmm)	
Line-2K(20.48mm)	26.1mm
Line-4K(28.67mm)	36.5mm
Line-8K(40.96mm)	52.2mm
35mm Format(36.0x24.0)	45.9x30.6

BTL-0.681X-189-FF(LM)



FOV(Φmm)	64
Mag.(x)	0.681
WD(mm)	158±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	12.8
MTF30(lp/mm)	>65
DoF(mm)	±1.7@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	466±3
Length(mm)	296.3
Mount	M58
Weight(kg)	1.5
Field of View(mmxmm)	
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

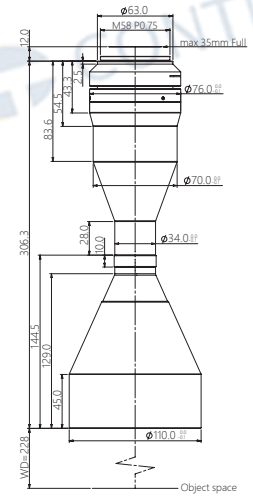
BTL-0.606X-178-FF(LM)



FOV(Φmm)	72
Mag.(x)	0.606
WD(mm)	178±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	12.8
MTF30(lp/mm)	>70
DoF(mm)	±2.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	506±3
Length(mm)	316.3
Mount	M58
Weight(kg)	1.8
Field of View(mmxmm)	
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

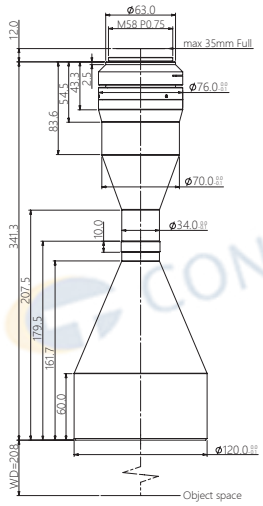
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-0.545X-228-FF(LM)



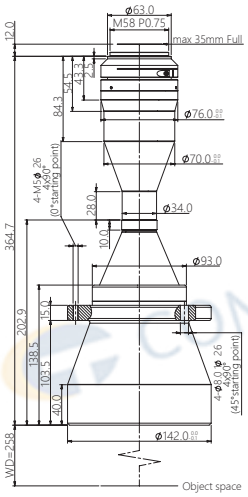
FOV(Φmm)	80
Mag.(x)	0.545
WD(mm)	228±4
Max Sensor Size(Φmm)	44(35mm Full)
F/#	7.3
MTF30(lp/mm)	>115
DoF(mm)	±2.2@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	546±4
Length(mm)	306.3
Mount	M58
Weight(kg)	2.7
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	66.8x50.7
KAI29050/2 (36.17x24.11)	66.4x44.2
KAI43142 (36.18x24.12)	66.4x44.3

BTL-0.484X-208-FF(LM)



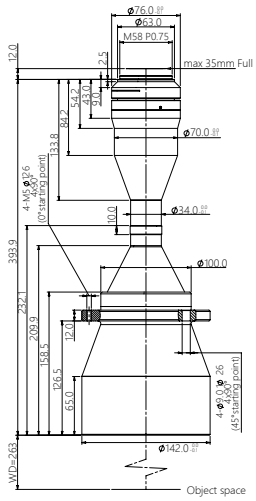
FOV(Φmm)	90
Mag.(x)	0.484
WD(mm)	208±3
Max Sensor Size(Φmm)	44(35mm Full)
F/#	11.4
MTF30(lp/mm)	>75
DoF(mm)	±3.4@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	561±3
Length(mm)	341.3
Mount	M58
Weight(kg)	2.4
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	75.3x57.1
KAI29050/2 (36.17x24.11)	74.7x49.8
KAI43142 (36.18x24.12)	74.8x49.8

BTL-0.436X-258-FF(LM)



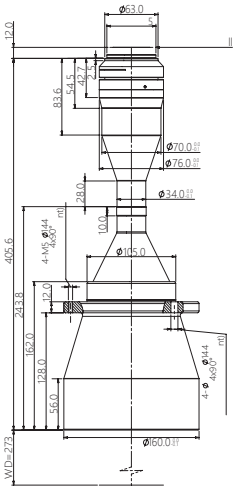
FOV(Φmm)	100
Mag.(x)	0.436
WD(mm)	258±4
Max Sensor Size(Φmm)	44(35mm Full)
F/#	10.3
MTF30(lp/mm)	>90
DoF(mm)	±4.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	635±4
Length(mm)	364.7
Mount	M58
Weight(kg)	3.8
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	83.6x63.3
KAI29050/2 (36.17x24.11)	83.0x55.3
KAI43142 (36.18x24.12)	83.0x55.3

BTL-0.396X-263-FF(LM)



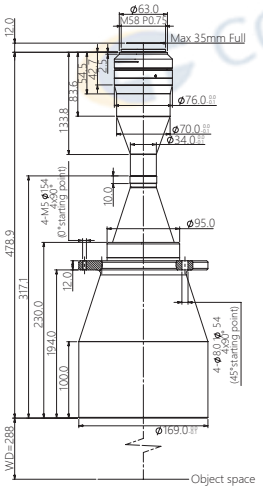
FOV(Φmm)	110
Mag.(x)	0.396
WD(mm)	263±4
Max Sensor Size(Φmm)	44(35mm Full)
F/#	9.3
MTF30(lp/mm)	>90
DoF(mm)	±4.1@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	669±4
Length(mm)	393.9
Mount	M58
Weight(kg)	3.4
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	92.0x69.7
KAI29050/2 (36.17x24.11)	91.3x60.9
KAI43142 (36.18x24.12)	91.4x60.9

BTL-0.363X-280-FF(LM)



FOV(Φmm)	120
Mag.(x)	0.363
WD(mm)	273±5
Max Sensor Size(Φmm)	43.6(35mm Full)
F/#	8.5
MTF30(lp/mm)	>105
DoF(mm)	±4.9@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	691±5
Length(mm)	405.6
Mount	M58
Weight(kg)	5.0
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	100.4x76.1
KAI29050/2 (36.17x24.11)	99.6x66.4
KAI43142 (36.18x24.12)	99.7x66.4

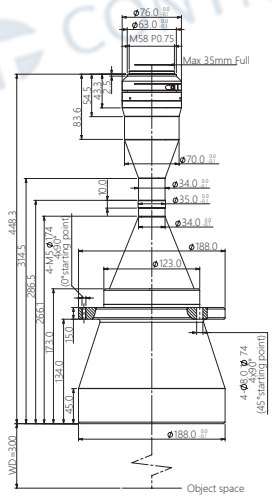
BTL-0.321X-288-FF(LM)



FOV(Φmm)	136
Mag.(x)	0.321
WD(mm)	288±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	7.9
MTF30(lp/mm)	>110
DoF(mm)	±6.2@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	779±6
Length(mm)	478.9
Mount	M58
Weight(kg)	5.0
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	113.5x86.0
KAI29050/2 (36.17x24.11)	112.7x75.1
KAI43142 (36.18x24.12)	112.7x75.1

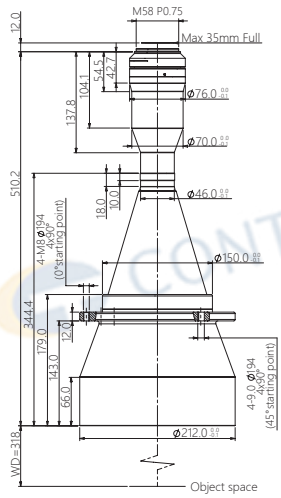
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-0.291X-300-FF(LM)



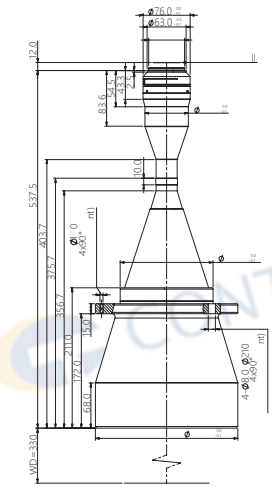
FOV(Φmm)	150
Mag.(x)	0.291
WD(mm)	300±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	14.6
MTF30(lp/mm)	>60
DoF(mm)	±9.4@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	760±5
Length(mm)	448.3
Mount	M58
Weight(kg)	6.4
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	125.2x94.9
KAI29050/2 (36.17x24.11)	124.3x82.9
KAI43142 (36.18x24.12)	124.3x82.9

BTL-0.256X-318-FF(LM)



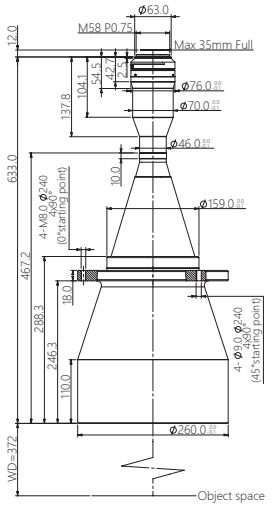
FOV(Φmm)	170
Mag.(x)	0.256
WD(mm)	318±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	6.0
MTF30(lp/mm)	>130
DoF(mm)	±6.7@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	840±5
Length(mm)	510.2
Mount	M58
Weight(kg)	7.5
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	142.3x107.9
KAI29050/2 (36.17x24.11)	141.3x94.2
KAI43142 (36.18x24.12)	141.3x94.2

BTL-0.229X-330-FF(LM)



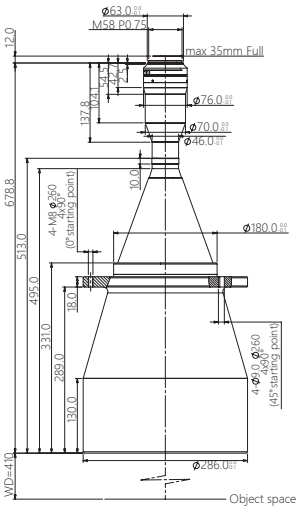
FOV(Φmm)	190
Mag.(x)	0.229
WD(mm)	330±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	6.0
MTF30(lp/mm)	>135
DoF(mm)	±8.4@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	880±5
Length(mm)	537.5
Mount	M58
Weight(kg)	10.6
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	159.1x120.6
KAI29050/2 (36.17x24.11)	157.9x105.3
KAI43142 (36.18x24.12)	158.0x105.3

BTL-0.201X-372-FF(LM)



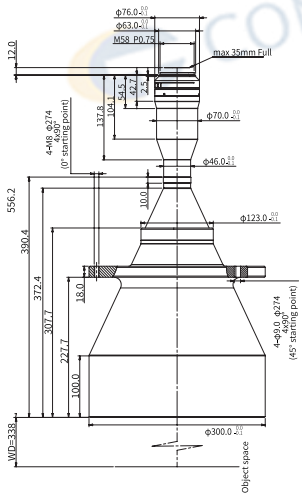
FOV(Φmm)	216
Mag.(x)	0.202
WD(mm)	372±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	10.4
MTF30(lp/mm)	>90
DoF(mm)	±19.6@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1017±5
Length(mm)	633.0
Mount	M58
Weight(kg)	14.7
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	180.3x136.7
KAI29050/2 (36.17x24.11)	179.1x119.4
KAI43142 (36.18x24.12)	179.1x119.4

BTL-0.182X-410-FF(LM)



FOV(Φmm)	240
Mag.(x)	0.182
WD(mm)	410±6
Max Sensor Size(Φmm)	44(35mm Full)
F/#	6.0
MTF30(lp/mm)	>130
DoF(mm)	±13.3@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1101±6
Length(mm)	678.8
Mount	M58
Weight(kg)	20.0
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	200.2x151.8
KAI29050/2 (36.17x24.11)	198.7x132.5
KAI43142 (36.18x24.12)	198.8x132.5

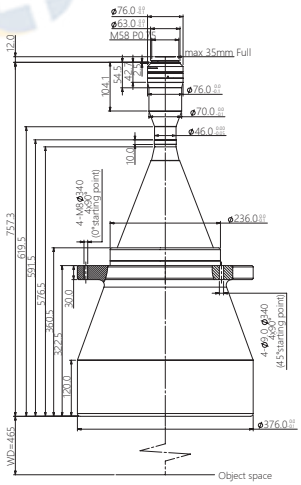
BTL-0.169X-338-FF(LM)



FOV(Φmm)	258
Mag.(x)	0.169
WD(mm)	338±5
Max Sensor Size(Φmm)	44(35mm Full)
F/#	6.0
MTF30(lp/mm)	>120
DoF(mm)	±15.1@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	906±5
Length(mm)	556.2
Mount	M58
Weight(kg)	-
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	215.6x163.4
KAI29050/2 (36.17x24.11)	214.0x142.7
KAI43142 (36.18x24.12)	214.1x142.7

Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-0.145X-465-FF(LM)



FOV(Φmm)	300
Mag.(x)	0.145
WD(mm)	465±6
Max Sensor Size(Φmm)	44(35mm Full)
F/#	6.7
MTF30(lp/mm)	>130
DoF(mm)	±20.9@F11
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1234±6
Length(mm)	757.3
Mount	M58
Weight(kg)	47.5
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	215.6x163.4
KAI29050/2 (36.17x24.11)	214.0x142.7
KAI43142 (36.18x24.12)	214.1x142.7

Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

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