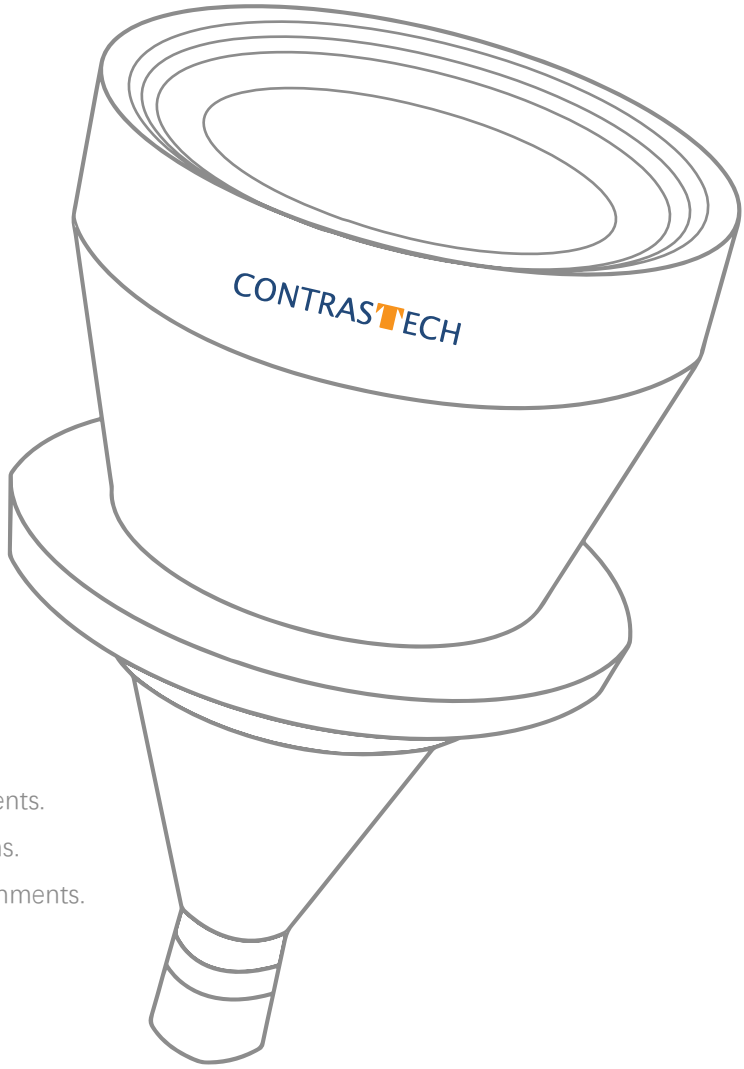
CONTRASTECH

TELECENTRIC LENSES BTLM SERIES



MAIN FEATURES

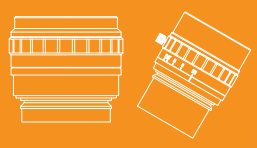
- **High telecentricity** for thick object imaging.
- **Nearly zero distortion** for accurate measurements.
- **Excellent resolution** for high resolution cameras.
- **Simple and robust design** for industrial environments.

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.



Varible Iris Bi-telecentric Lenses

BTLM SERIES NEW

NAMING RULES

BTLM 0.5X — 65D — 23

- 23: Largest compatible format: 2/3"
- 65D: Working distance is 65mm "D"=Coaxial light
- 0.5X: Magnification is 0.5X

Varible Iris Bi-telecentric Lenses

BTLM series bitelecentric lens are designed and optimized for high accuracy measurement application. These lenses feature variable iris for Depth of Field and resolution adjustment,big F/# for high pixel camera and one style design which is easy for industrial manufacture.

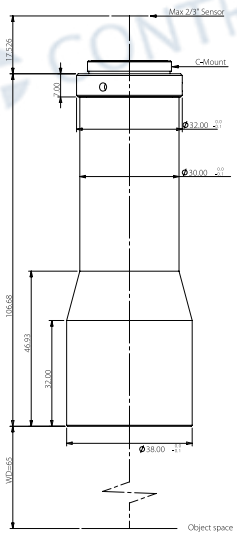
PRODUCT FEATURES

1. Support up to 8M Pixel cameras;
2. Zero perspective error over the entire Field of View;
3. Big depth of field and constant magnification over defined depth of field;
4. Customization available with best performance/cost rate;
5. Equipped with a Manual Iris for adjusting the Depth of Field.

Model No.	Optical specs												Mechanical specs		
	Variable Iris	Coaxial	FOV (Φmm)	Mag. (x)	WD (mm)	Max. Sesnor Size (Φmm)	F/#	MTF30 (lp/mm)	DOF (mm)	Distortion (% max)	Telecen -tricity (° max)	I/O (mm)	Length (mm)	Mount	Weight (kg)
BTLM-0.5X-65-23	No	No	22	0.500	65±1	11.0(2/3")	5.0	>160	±0.8@F5	<0.1	<0.1	189±1	106.7	C	0.2
BTLM-0.5X-65D-23	No	Yes	22	0.500	65±1	11.0(2/3")	5.0	>160	±0.8@F5	<0.1	<0.1	189±1	106.7	C	0.2
BTLM-0.4X-85-23	No	No	27.5	0.400	85±2	11.0(2/3")	4.5	>205	±1.1@F4.5	<0.03	<0.1	245±2	142.4	C	0.3
BTLM-0.4X-85D-23	No	Yes	27.5	0.400	85±2	11.0(2/3")	4.5	>205	±1.1@F4.5	<0.03	<0.1	245±2	142.4	C	0.3
BTLM-0.3X-110-23	Yes	No	37	0.300	110±2	11.0(2/3")	3.75	>220	±1.6@F3.75	<0.1	<0.1	273±2	145.5	C	0.4
BTLM-0.3X-110D-23	Yes	Yes	37	0.300	110±2	11.0(2/3")	3.75	>220	±1.6@F3.75	<0.1	<0.1	273±2	145.5	C	0.4
BTLM-0.166X-166-23	Yes	No	66	0.166	166±3	11.0(2/3")	3.3	>260	±4.8@F3.3	<0.1	<0.1	329±3	146.5	C	0.6
BTLM-0.075X-220-H1	No	No	215	0.075	220±3	16.0(1")	4.35	>195	±30.9@F4.35	<0.05	<0.1	560±3	322.2	C	8.45
BTLM-4X-45-H1.2	No	No	5	4.000	45±1	20(1.2")	11.7	>73	±0.03@F11.7	<0.08	<0.1	243±1	180.5	C	0.1
BTLM-4X-45D-H1.2	No	Yes	5	4.000	45±1	20(1.2")	11.7	>73	±0.03@F11.7	<0.08	<0.1	243±1	180.5	C	0.1
BTLM-4X-45-H1.2 (IA)	Yes	No	5	4.000	45±1	20(1.2")	11.7 -Close	>73	±0.03@F11.7	<0.08	<0.1	243±1	180.5	C	0.1
BTLM-2X-66-H1.2	No	Yes	10	2.000	66±1	20(1.2")	7.1	>130	±0.05@F7.1	<0.1	<0.1	254±1	171.4	C	/
BTLM-2X-66D-H1.2	No	Yes	10	2.000	66±1	20(1.2")	7.1	>130	±0.05@F7.1	<0.1	<0.1	254±1	177.9	C	/
BTLM-2.0X-39-H2	No	No	11.5	2.000	39±1	23(4/3")	9.5	>85	±0.1@F9.5	<0.1	<0.1	189±1	133.4	C	0.2
BTLM-0.55X-83-H2	No	No	42	0.550	83±1	23(4/3")	8.0	>110	±1.1@F8.0	<0.1	<0.1	198±1	97.5	C	0.2
BTLM-0.1536X-220-21	No	No	215	0.1536	220±3	33(2")	10.0	>90	±13.6@F8	<0.1	<0.1	601±3	369.0	M42	8.7
BTLM-0.462X-378-Q434	No	No	94	0.462	378±4	43.4	8.0	>115	±1.5@F8.0	<0.1	<0.1	847±4	456.9	M58	3.7
BTLM-0.462X-378D-Q434	No	Yes	94	0.462	378±4	43.4	8.0	>115	±1.5@F8.0	<0.1	<0.1	847±4	456.9	M58	3.7
BTLM-0.53X-338-Q434	No	No	82	0.530	338±5	43.4	10.0	>92	±1.4@F10	<0.1	<0.1	814±5	464.4	M58	3.8
BTLM-0.53X-338D-Q434	No	Yes	82	0.530	338±5	43.4	10.0	>92	±1.4@F10	<0.1	<0.1	814±5	464.4	M58	3.8

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.

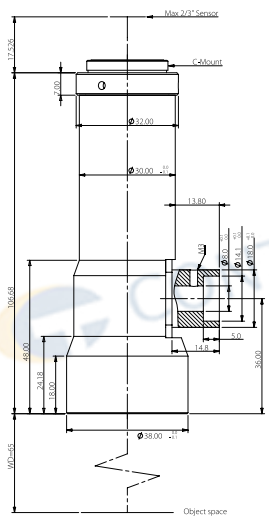
BTLM-0.5X-65-23



FOV(Φmm)	22
Mag.(x)	0.500
WD(mm)	65±1
Max Sensor Size(Φmm)	11.0(2/3")
F/#	5.0
MTF30(lp/mm)	>160
DoF(mm)	±0.8@F5
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	189±1
Length(mm)	106.7
Mount	C Mount
Weight(kg)	0.2
Coaxial Light	No
Variable Iris	No

Field of View(mmxmm)	
2/3" ICX625/655(8.47x7.1)	16.9x14.2

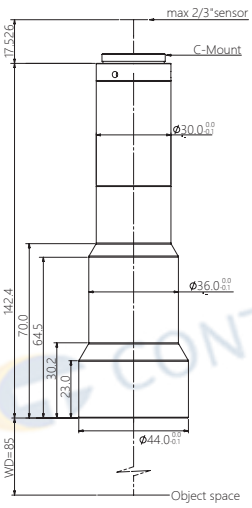
BTLM-0.5X-65D-23



FOV(Φmm)	22
Mag.(x)	0.500
WD(mm)	65±1
Max Sensor Size(Φmm)	11.0(2/3")
F/#	5.0
MTF30(lp/mm)	>160
DoF(mm)	±0.8@F5
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	189±1
Length(mm)	106.7
Mount	C Mount
Weight(kg)	0.2
Coaxial Light	Yes
Variable Iris	No

Field of View(mmxmm)	
2/3" ICX625/655(8.47x7.1)	16.9x14.2

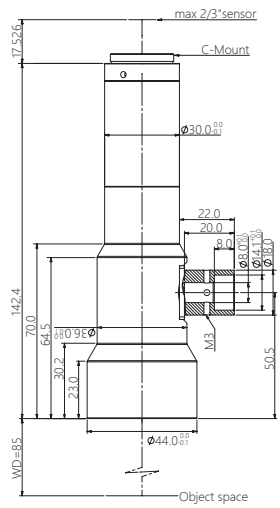
BTLM-0.4X-85-23



FOV(Φmm)	27.5
Mag.(x)	0.400
WD(mm)	85±2
Max Sensor Size(Φmm)	11.0(2/3")
F/#	4.5
MTF30(lp/mm)	>205
DoF(mm)	±1.1@F4.5
Distortion(% max)	<0.03
Telecentricity(° max)	<0.1
I/O(mm)	245±2
Length(mm)	142.4
Mount	C Mount
Weight(kg)	0.3
Coaxial Light	No
Variable Iris	No

Field of View(mmxmm)	
2/3" ICX625/655(8.47x7.1)	21.2x17.8

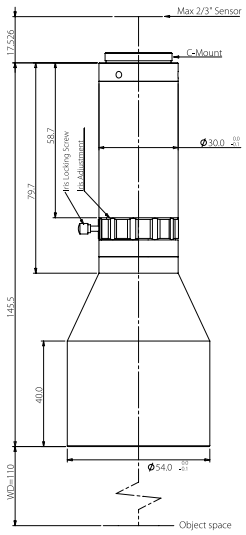
BTLM-0.4X-85D-23



FOV(Φmm)	27.5
Mag.(x)	0.400
WD(mm)	85±2
Max Sensor Size(Φmm)	11.0(2/3")
F/#	4.5
MTF30(lp/mm)	>205
DoF(mm)	±1.1@F4.5
Distortion(% max)	<0.03
Telecentricity(° max)	<0.1
I/O(mm)	245±2
Length(mm)	142.4
Mount	C Mount
Weight(kg)	0.3
Coaxial Light	No
Variable Iris	Yes

Field of View(mmxmm)	
2/3" ICX625/655(8.47x7.1)	21.2x17.8

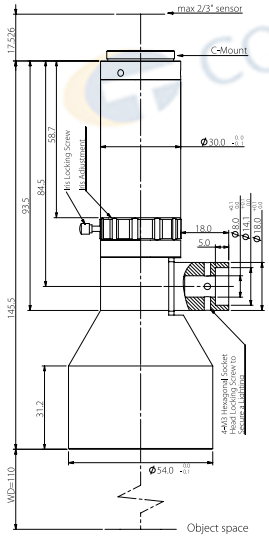
BTLM-0.3X-110-23



FOV(Φmm)	37
Mag.(x)	0.300
WD(mm)	110±2
Max Sensor Size(Φmm)	11.0(2/3")
F/#	3.75
MTF30(lp/mm)	>220
DoF(mm)	±1.6@F3.75
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	273±2
Length(mm)	145.5
Mount	C Mount
Weight(kg)	0.4
Coaxial Light	No
Variable Iris	Yes

Field of View(mmxmm)	
2/3" ICX625/655(8.47x7.1)	28.2x23.7

BTLM-0.3X-110D-23

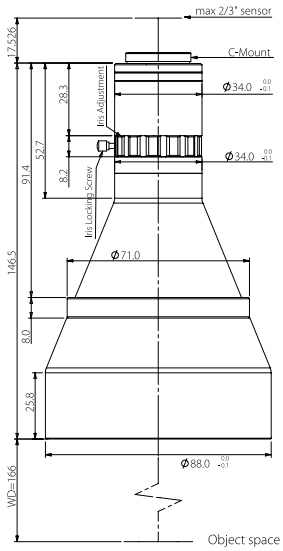


FOV(Φmm)	37
Mag.(x)	0.300
WD(mm)	110±2
Max Sensor Size(Φmm)	11.0(2/3")
F/#	3.75
MTF30(lp/mm)	>220
DoF(mm)	±1.6@F3.75
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	273±2
Length(mm)	145.5
Mount	C Mount
Weight(kg)	0.4
Coaxial Light	Yes
Variable Iris	Yes

Field of View(mmxmm)	
2/3" ICX625/655(8.47x7.1)	28.2x23.7

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.

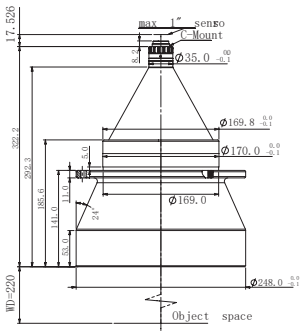
BTLM-0.166X-166-23



FOV(Φmm)	66
Mag.(x)	0.166
WD(mm)	166±3
Max Sensor Size(Φmm)	11.0(2/3")
F/#	3.3
MTF30(lp/mm)	>260
DoF(mm)	±4.8@F3.3
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	329±3
Length(mm)	146.5
Mount	C Mount
Weight(kg)	0.6
Coaxial Light	No
Variable Iris	Yes

Field of View(mmxmm)	
2/3" IMX250/264 (8.45x7.1)	51.0x42.8

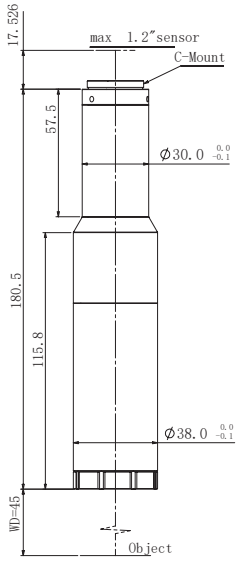
BTLM-0.075X-220-H1



FOV(Φmm)	215
Mag.(x)	0.075
WD(mm)	220±3
Max Sensor Size(Φmm)	16.0(1")
F/#	4.35
MTF30(lp/mm)	>195
DoF(mm)	±30.9@ F4.35
Distortion(% max)	<0.05
Telecentricity(° max)	<0.1
I/O(mm)	560±3
Length(mm)	322.2
Mount	C
Weight(kg)	8.45
Variable Iris	No
Coaxial Light	No

Field of View(mmxmm)	
1/1.8" EV76C570 (7.2x5.4)	165.7x131.1
1/1.7" IMX226 (7.5x5.6)	189.2x100.1
2/3" IMX250/264 (8.45x7.1)	175.1x116.8

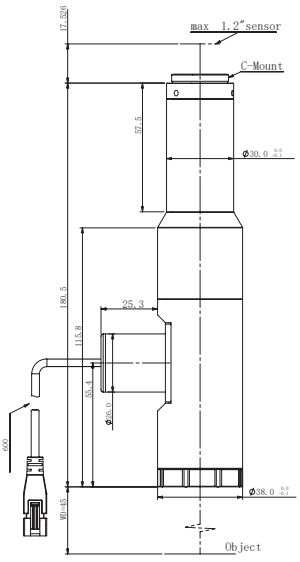
BTLM-4.0X-45-H1.2



FOV(Φmm)	5
Mag.(x)	4.000
WD(mm)	45±1
Max Sensor Size(Φmm)	20(1.2")
F/#	11.7
MTF30(lp/mm)	>73
DoF(mm)	±0.03@ F11.7
Distortion(% max)	<0.08
Telecentricity(° max)	<0.1
I/O(mm)	243±1
Length(mm)	180.5
Mount	C
Weight(kg)	0.1
Variable Iris	No
Coaxial Light	No

Field of View(mmxmm)	
1.2" IMX530/540 (14.6X12.6)	3.65x3.15

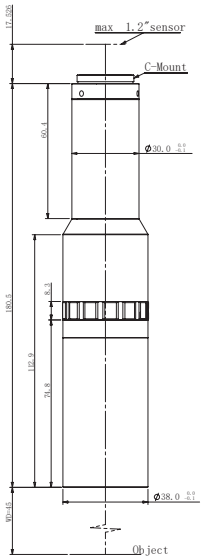
BTLM-4.0X-45D-H1.2



FOV(Φmm)	5
Mag.(x)	4.000
WD(mm)	45±1
Max Sensor Size(Φmm)	20(1.2")
F/#	11.7
MTF30(lp/mm)	>73
DoF(mm)	±0.03@ F11.7
Distortion(% max)	<0.08
Telecentricity(° max)	<0.1
I/O(mm)	243±1
Length(mm)	180.5
Mount	C
Weight(kg)	0.1
Variable Iris	No
Coaxial Light	Yes

Field of View(mmxmm)	
1.2" IMX530/540 (14.6X12.6)	3.65x3.15

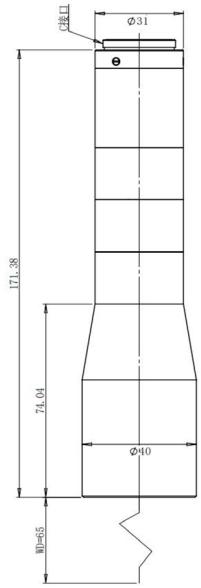
BTLM-4.0X-45-H1.2 (IA)



FOV(Φmm)	5
Mag.(x)	4.000
WD(mm)	45±1
Max Sensor Size(Φmm)	20(1.2")
F/#	11.7-Close
MTF30(lp/mm)	>73
DoF(mm)	±0.03@ F11.7
Distortion(% max)	<0.08
Telecentricity(° max)	<0.1
I/O(mm)	243±1
Length(mm)	180.5
Mount	C
Weight(kg)	0.1
Variable Iris	Yes
Coaxial Light	No

Field of View(mmxmm)	
1.2" IMX530/540 (14.6X12.6)	3.65x3.15

BTLM-2.0X-66-H1.2 (IA)

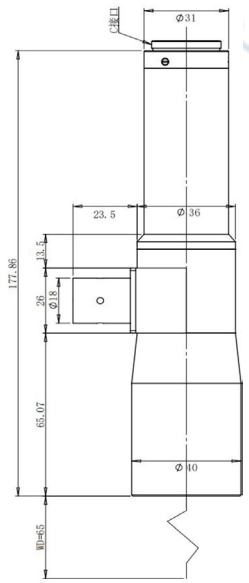


FOV(Φmm)	10
Mag.(x)	2.000
WD(mm)	66±1
Max Sensor Size(Φmm)	20(1.2")
F/#	7.1
MTF30(lp/mm)	>130
DoF(mm)	±0.05@F7.1
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	254±1
Length(mm)	171.4
Mount	C
Weight(kg)	/
Variable Iris	No
Coaxial Light	Yes

Field of View(mmxmm)	
1" Sensor Size(13.13*8.76)	6.6x4.4
1.1" Sensor Size(14.19*10.3)	7.1x5.2
1.2"Sensor Size(14.5*12.6)	7.3x6.3

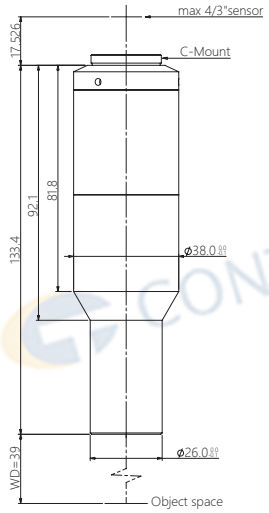
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTLM-2.0X-66D-H1.2



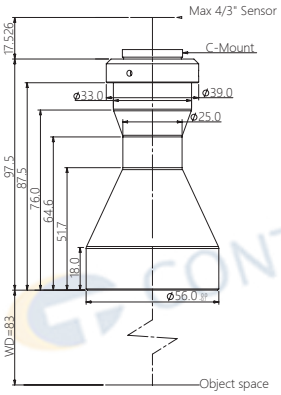
FOV(Φmm)	10
Mag.(x)	2.000
WD(mm)	66±1
Max Sensor Size(Φmm)	20(1.2")
F/#	7.1
MTF30(lp/mm)	>130
DoF(mm)	±0.05@F7.1
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	254±1
Length(mm)	177.9
Mount	C
Weight(kg)	/
Variable Iris	No
Coaxial Light	Yes
Field of View(mmxmm)	
1" Sensor Size(13.13*8.76)	6.6x4.4
1.1" Sensor Size(14.19*10.3)	7.1x5.2
1.2"Sensor Size(14.5*12.6)	7.3x6.3

BTLM-2.0X-39-H2



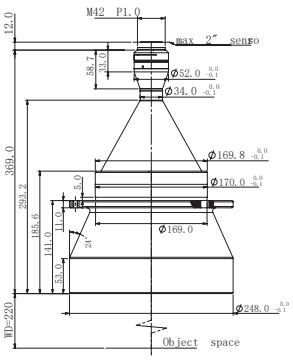
FOV(Φmm)	11.5
Mag.(x)	2.000
WD(mm)	39±1
Max Sensor Size(Φmm)	23(4/3")
F/#	9.5
MTF30(lp/mm)	>85
DoF(mm)	±0.1@F9.5
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	189±1
Length(mm)	133.4
Mount	C Mount
Weight(kg)	0.2
Coaxial Light	No
Variable Iris	No
Field of View(mmxmm)	
4/3" CMV8000 (18.48x13.73)	9.2x6.9
4/3" PYTHON 12K (18.43x13.82)	9.2x6.9

BTLM-0.55X-83-H2



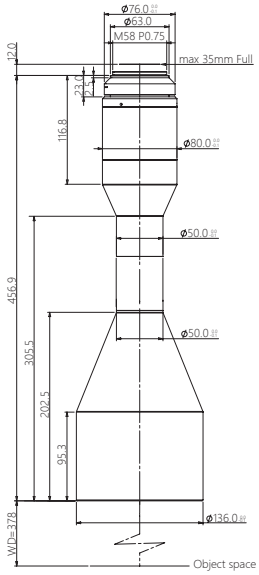
FOV(Φmm)	42
Mag.(x)	0.550
WD(mm)	83±1
Max Sensor Size(Φmm)	23(4/3")
F/#	8.0
MTF30(lp/mm)	>110
DoF(mm)	±1.1@F8.0
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	198±1
Length(mm)	97.5
Mount	C Mount
Weight(kg)	0.2
Coaxial Light	No
Variable Iris	No
Field of View(mmxmm)	
4/3" CMV8000 (18.48x13.73)	9.2x6.9
4/3" PYTHON 12K (18.43x13.82)	9.2x6.9

BTLM-0.1536X-220-21



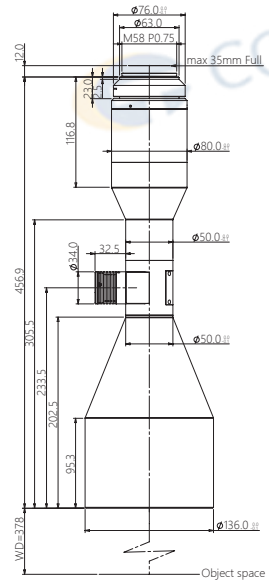
FOV(Φmm)	215
Mag.(x)	0.1536
WD(mm)	220±3
Max Sensor Size(Φmm)	33(2")
F/#	10.0
MTF30(lp/mm)	>90
DoF(mm)	±13.6@F8
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	601±3
Length(mm)	369
Mount	M42
Weight(kg)	8.7
Variable Iris	No
Coaxial Light	No
Field of View(mmxmm)	
2" DALSA 12M (24.58x18.43)	160.0x120.0
2" PYTHON 25K (23.04x23.04)	150.0x150.0

BTLM-0.462X-378-Q434



FOV(Φmm)	94
Mag.(x)	0.462
WD(mm)	378±4
Max Sensor Size(Φmm)	43.4
F/#	8.0
MTF30(lp/mm)	>115
DoF(mm)	±1.5@F8.0
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	847±4
Length(mm)	456.9
Mount	M58
Weight(kg)	3.7
Coaxial Light	No
Variable Iris	No
Field of View(mmxmm)	
KAI29050/2 (36.17x24.11)	78.3x52.2
KAI43142 (36.18x24.12)	78.3x52.2

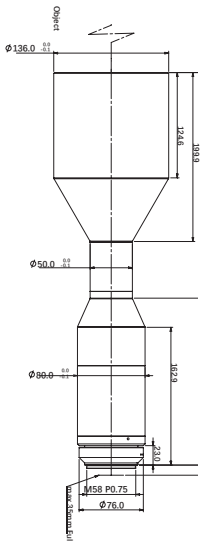
BTLM-0.462X-378D-Q434



FOV(Φmm)	94
Mag.(x)	0.462
WD(mm)	378±4
Max Sensor Size(Φmm)	43.4
F/#	8.0
MTF30(lp/mm)	>115
DoF(mm)	±1.5@F8.0
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	847±4
Length(mm)	456.9
Mount	M58
Weight(kg)	3.7
Coaxial Light	Yes
Variable Iris	No
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	78.9x59.8
KAI43142 (36.18x24.12)	78.3x52.2
KAI29050/2 (36.17x24.11)	78.3x52.2

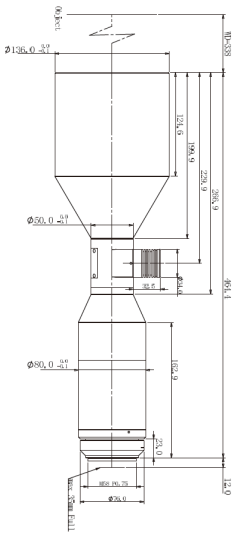
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTLM-0.53X-338-Q434



FOV(Φmm)	82
Mag.(x)	0.530
WD(mm)	338±5
Max Sensor Size(Φmm)	43.4
F/#	10.0
MTF30(lp/mm)	>92
DoF(mm)	±1.4@F10
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	814±5
Length(mm)	464.4
Mount	M58
Weight(kg)	3.8
Variable Iris	No
Coaxial Light	No
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	68.7x52.1
KAI29050/2 (36.17x24.11)	68.2x45.5
KAI43142 (36.18x24.12)	68.3x45.5

BTLM-0.53X-338D-Q434



FOV(Φmm)	82
Mag.(x)	0.53
WD(mm)	338±5
Max Sensor Size(Φmm)	43.4
F/#	10.00
MTF30(lp/mm)	>92
DoF(mm)	±1.4@F10
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	814±5
Length(mm)	464.4
Mount	M58
Weight(kg)	3.8
Variable Iris	No
Coaxial Light	Yes
Field of View(mmxmm)	
CMV50000 (36.43x27.62)	7.3x6.3
KAI29050/2 (36.17x24.11)	68.2x45.5
KAI43142 (36.18x24.12)	68.3x45.5

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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