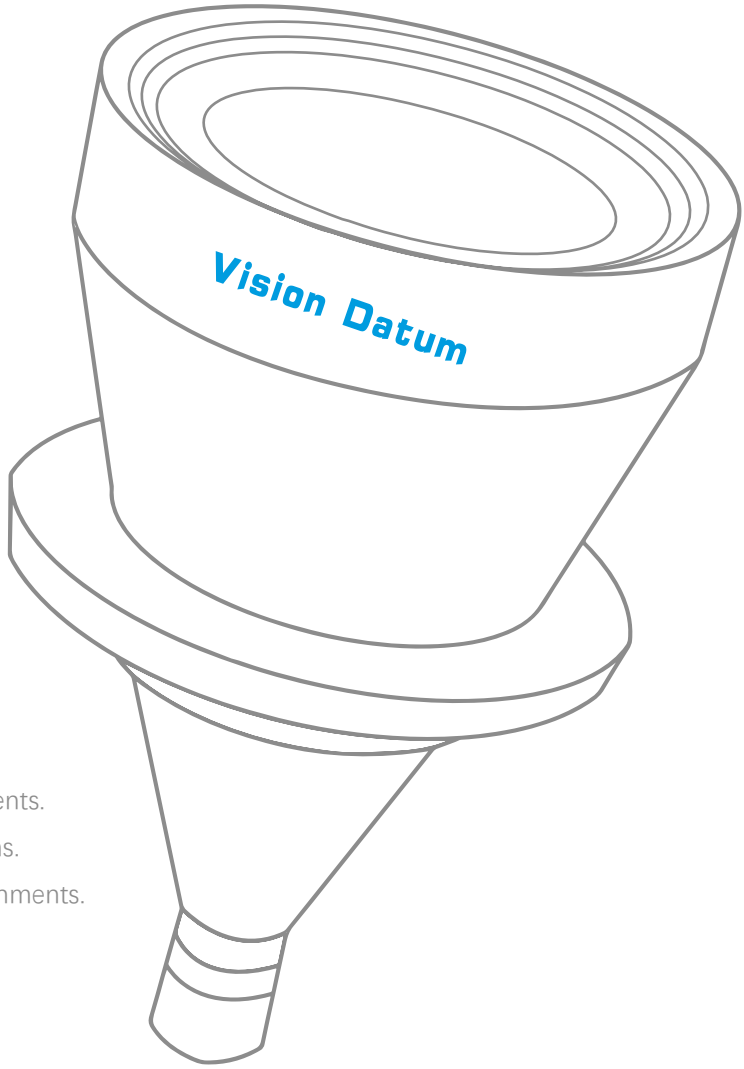
TELECENTRIC LENSES
BTL-175 SERIES



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 Vision Datum Technology 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, Vision Datum 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.

Vision Datum 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-175 SERIES

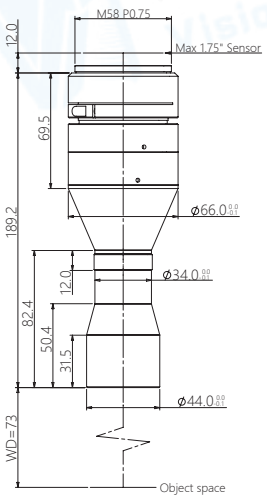
1.75"

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-1.115XH-73-175(LM)	26	1.115	73±1	29(1.75")	15	>50	±0.6@F20	<0.1	<0.1	274±1	189.2	M42/M58	0.8
BTL-0.806XH-110-175(LM)	36	0.806	110±2	29(1.75")	13.5	>60	±1.2@F20	<0.1	<0.1	331±2	209.3	M42/M58	1.0
BTL-0.69XH-118-175(LM)	42	0.69	118±3	29(1.75")	11.4	>70	±1.6@F20	<0.1	<0.1	325±3	194.8	M42/M58	0.9
BTL-0.604XH-128-175(LM)	48	0.604	128±3	29(1.75")	11.3	>70	±2.2@F20	<0.1	<0.1	348±3	208.3	M42/M58	1.0
BTL-0.604X-138-175(LM)	48	0.604	138±3	29(1.75")	17.1	>50	±2.2@F20	<0.1	<0.1	343±3	158.8	F / Other	0.9
BTL-0.518XH-138-175(LM)	56	0.518	138±3	29(1.75")	9.7	>85	±3.0@F20	<0.1	<0.1	381±3	230.8	M42/M58	1.2
BTL-0.453X-158-175(LM)	64	0.453	158±3	29(1.75")	8.5	>100	±3.1@F16	<0.1	<0.1	413±3	243.3	M42/M58	1.3
BTL-0.403XH-178-175(LM)	72	0.403	178±3	29(1.75")	8.5	>105	±3.9@F16	<0.1	<0.1	453±3	263.3	M42/M58	1.6
BTL-0.363XH-228-175(LM)	80	0.363	228±4	29(1.75")	6.8	>139	±4.9@F16	<0.1	<0.1	493±4	253.3	M42/M58	2.4
BTL-0.322XH-208-175(LM)	90	0.322	208±3	29(1.75")	8.5	>100	±6.1@F16	<0.1	<0.1	508±3	288.3	M42/M58	2.2
BTL-0.29XH-258-175(LM)	100	0.29	258±4	29(1.75")	6.8	>135	±7.6@F16	<0.1	<0.1	582±4	311.6	M42/M58	3.6
BTL-0.264X-263-175(LM)	110	0.264	263±4	29(1.75")	6.8	>120	±9.2@F16	<0.1	<0.1	616±4	340.9	M42/M58	3.2
BTL-0.242X-273-175(LM)	120	0.242	273±5	29(1.75")	6.8	>130	±11.0@F16	<0.1	<0.1	638±5	352.6	M42/M58	4.7
BTL-0.213X-288-175(LM)	136	0.213	288±5	29(1.75")	6.8	>125	±14.1@F16	<0.1	<0.1	726±5	425.8	M42/M58	4.7
BTL-0.193XH-300-175(LM)	150	0.193	300±5	29(1.75")	9.7	>90	±21.5@F20	<0.1	<0.1	707±5	395.2	M42/M58	6.2
BTL-0.171X-318-175(LM)	170	0.171	318±5	29(1.75")	6.8	>125	±21.9@F16	<0.1	<0.1	787±5	457.2	M42/M58	7.0
BTL-0.153XH-330-175(LM)	190	0.153	330±5	29(1.75")	6.8	>135	±27.3@F16	<0.1	<0.1	827±5	484.5	M42/M58	10.1
BTL-0.134X-372-175(LM)	216	0.134	372±5	29(1.75")	6.8	>125	±35.6@F16	<0.1	<0.1	964±5	579.9	M42/M58	14.3
BTL-0.121XH-410-175(LM)	240	0.121	410±6	29(1.75")	6.8	>125	±43.7@F16	<0.1	<0.1	1048±6	625.8	M42/M58	19.6
BTL-0.112X-338-175(LM)	258	0.112	338±5	29(1.75")	6.8	>130	±50.7@F16	<0.1	<0.1	853±5	501.2	M42/M58	-
BTL-0.097XH-465-175(LM)	300	0.097	465±6	29(1.75")	8.5	>105	±68@F16	<0.1	<0.1	1181±6	704.3	M42/M58	47.1

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

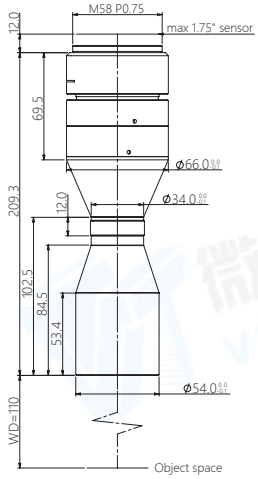
2. Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-1.115XH-73-175(LM)



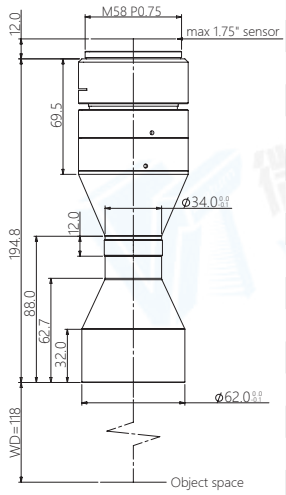
FOV(Φmm)	26
Mag.(x)	1.115
WD(mm)	73±1
Max Sensor Size(Φmm)	29(1.75")
F/#	15.0
MTF30(lp/mm)	>50
DoF(mm)	±0.6@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	274±1
Length(mm)	189.2
Mount	M42/M58
Weight(kg)	0.8
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	20.2x15.2
1.75"PYTHON16k(18.43x18.43)	16.5x16.5
1.75"LineScan-2k/4k/8k(28.8)	25.8

BTL-0.806XH-110-175(LM)



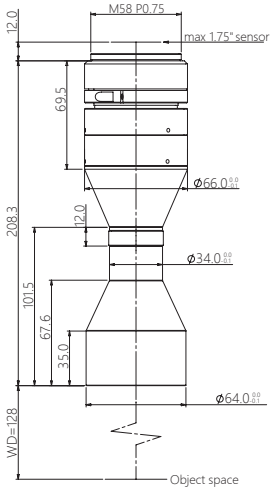
FOV(Φmm)	36
Mag.(x)	0.806
WD(mm)	110±2
Max Sensor Size(Φmm)	29(1.75")
F/#	13.5
MTF30(lp/mm)	>60
DoF(mm)	±1.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	331±2
Length(mm)	209.3
Mount	M42/M58
Weight(kg)	1.0
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	28.0x21.0
1.75"PYTHON16k(18.43x18.43)	22.9x22.9
1.75"LineScan-2k/4k/8k(28.8)	35.7

BTL-0.69XH-118-175(LM)



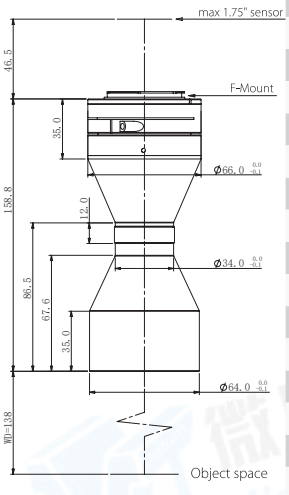
FOV(Φmm)	42
Mag.(x)	0.690
WD(mm)	118±3
Max Sensor Size(Φmm)	29(1.75")
F/#	11.4
MTF30(lp/mm)	>70
DoF(mm)	±1.6@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	325±3
Length(mm)	194.8
Mount	M42/M58
Weight(kg)	0.9
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	32.7x24.5
1.75"PYTHON16k(18.43x18.43)	26.7x26.7
1.75"LineScan-2k/4k/8k(28.8)	41.7

BTL-0.604XH-128-175(LM)



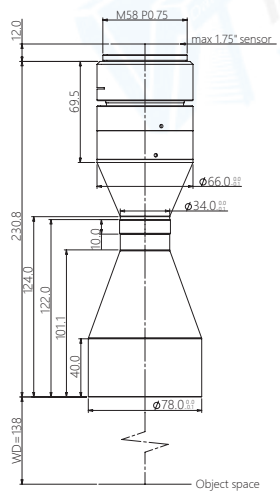
FOV(Φmm)	48
Mag.(x)	0.604
WD(mm)	128±3
Max Sensor Size(Φmm)	29(1.75")
F/#	11.3
MTF30(lp/mm)	>70
DoF(mm)	±2.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	348±3
Length(mm)	208.3
Mount	M42/M58
Weight(kg)	1.0
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	37.3x28.0
1.75"PYTHON16k(18.43x18.43)	30.5x30.5
1.75"LineScan-2k/4k/8k(28.8)	47.7

BTL-0.604X-138-175(LM)



FOV(Φmm)	48
Mag.(x)	0.604
WD(mm)	138±3
Max Sensor Size(Φmm)	29(1.75")
F/#	17.1
MTF30(lp/mm)	>50
DoF(mm)	±2.2@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	343±3
Length(mm)	158.8
Mount	F / Other
Weight(kg)	0.9
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	37.3x28.0
1.75"PYTHON16k(18.43x18.43)	30.5x30.5
1.75"LineScan-2k/4k/8k(28.8)	47.7

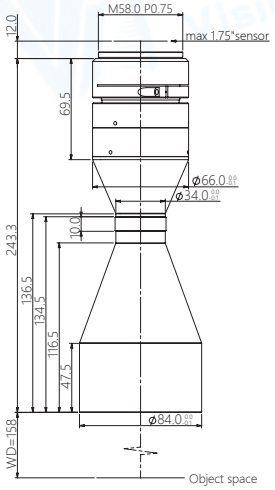
BTL-0.518XH-138-175(LM)



FOV(Φmm)	56
Mag.(x)	0.518
WD(mm)	138±3
Max Sensor Size(Φmm)	29(1.75")
F/#	9.7
MTF30(lp/mm)	>85
DoF(mm)	±3.0@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	381±3
Length(mm)	230.8
Mount	M42/M58
Weight(kg)	1.2
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	43.5x32.6
1.75"PYTHON16k(18.43x18.43)	35.6x35.6
1.75"LineScan-2k/4k/8k(28.8)	55.6

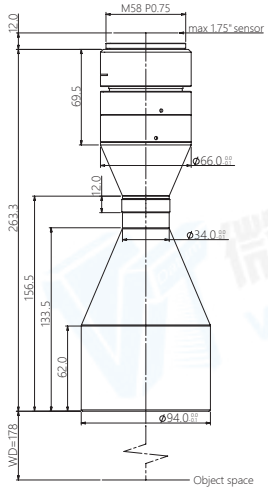
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-0.453X-158-175(LM)



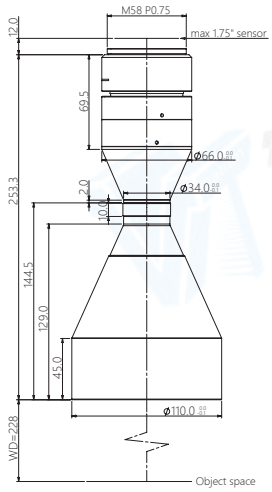
FOV(Φmm)	64
Mag.(x)	0.453
WD(mm)	158±3
Max Sensor Size(Φmm)	29(1.75")
F/#	8.5
MTF30(lp/mm)	>100
DoF(mm)	±3.1@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	413±3
Length(mm)	243.3
Mount	M42/M58
Weight(kg)	1.3
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	49.7x37.3
1.75"PYTHON16k(18.43x18.43)	40.7x40.7
1.75"LineScan-2k/4k/8k(28.8)	63.6

BTL-0.403XH-178-175(LM)



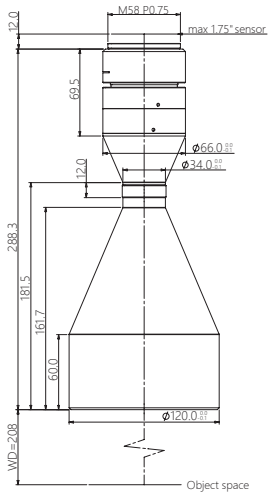
FOV(Φmm)	72
Mag.(x)	0.403
WD(mm)	178±3
Max Sensor Size(Φmm)	29(1.75")
F/#	8.5
MTF30(lp/mm)	>105
DoF(mm)	±3.9@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	453±3
Length(mm)	263.3
Mount	M42/M58
Weight(kg)	1.6
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	55.9x41.9
1.75"PYTHON16k(18.43x18.43)	45.7x45.7
1.75"LineScan-2k/4k/8k(28.8)	71.5

BTL-0.363XH-228-175(LM)



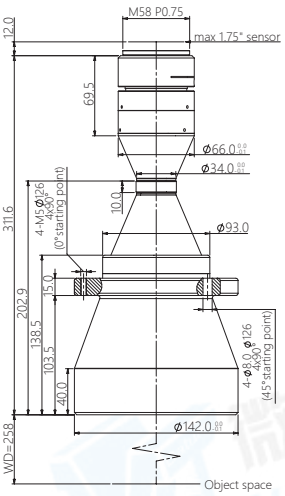
FOV(Φmm)	80
Mag.(x)	0.363
WD(mm)	228±4
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>130
DoF(mm)	±4.9@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	493±4
Length(mm)	253.3
Mount	M42/M58
Weight(kg)	2.4
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	62.1x46.6
1.75"PYTHON16k(18.43x18.43)	50.8x50.8
1.75"LineScan-2k/4k/8k(28.8)	79.3

BTL-0.322XH-208-175(LM)



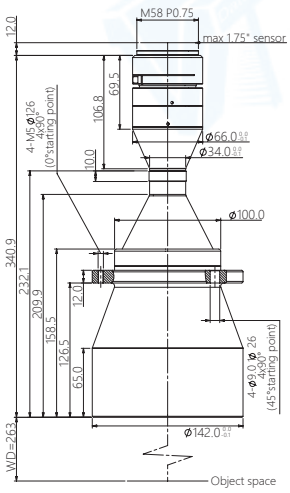
FOV(Φmm)	90
Mag.(x)	0.322
WD(mm)	208±3
Max Sensor Size(Φmm)	29(1.75")
F/#	8.5
MTF30(lp/mm)	>100
DoF(mm)	±6.1@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	508±3
Length(mm)	288.3
Mount	M42/M58
Weight(kg)	2.2
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	70.0x52.5
1.75"PYTHON16k(18.43x18.43)	57.2x57.2
1.75"LineScan-2k/4k/8k(28.8)	89.4

BTL-0.29XH-258-175(LM)



FOV(Φmm)	100
Mag.(x)	0.290
WD(mm)	258±4
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>135
DoF(mm)	±7.6@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	582±4
Length(mm)	311.6
Mount	M42/M58
Weight(kg)	3.6
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	77.7x58.3
1.75"PYTHON16k(18.43x18.43)	63.6x63.6
1.75"LineScan-2k/4k/8k(28.8)	99.3

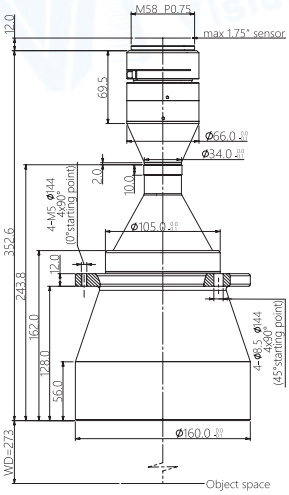
BTL-0.264X-263-175(LM)



FOV(Φmm)	110
Mag.(x)	0.264
WD(mm)	263±4
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>100
DoF(mm)	±9.2@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	616±4
Length(mm)	340.9
Mount	M42/M58
Weight(kg)	3.2
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	85.3x64.0
1.75"PYTHON16k(18.43x18.43)	69.8x69.8
1.75"LineScan-2k/4k/8k(28.8)	109.1

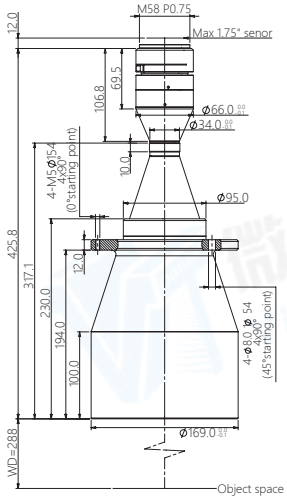
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-0.242XH-273-175(LM)



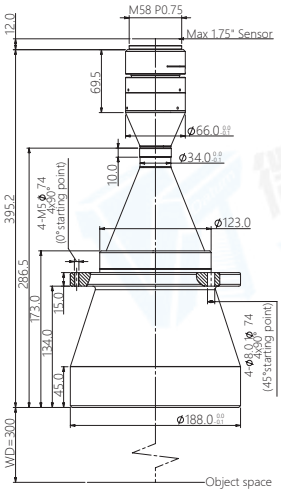
FOV(Φmm)	120
Mag.(x)	0.242
WD(mm)	273±5
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>130
DoF(mm)	±11.0@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	638±5
Length(mm)	352.6
Mount	M42/M58
Weight(kg)	4.7
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	93.1x69.8
1.75"PYTHON16k(18.43x18.43)	76.2x76.2
1.75"LineScan-2k/4k/8k(28.8)	119.0

BTL-0.213X-288-175(LM)



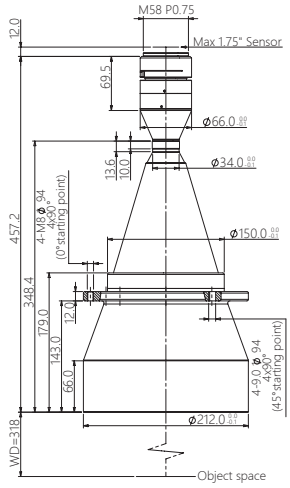
FOV(Φmm)	136
Mag.(x)	0.213
WD(mm)	288±5
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>125
DoF(mm)	±14.1@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	726±5
Length(mm)	425.8
Mount	M42/M58
Weight(kg)	4.7
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	105.8x79.3
1.75"PYTHON16k(18.43x18.43)	86.5x86.5
1.75"LineScan-2k/4k/8k(28.8)	135.2

BTL-0.193XH-300-175(LM)



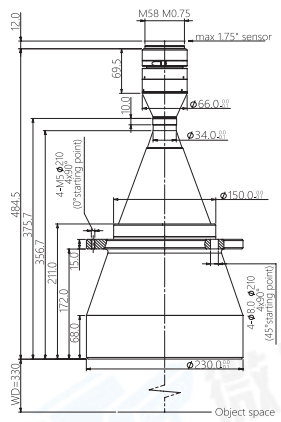
FOV(Φmm)	150
Mag.(x)	0.193
WD(mm)	300±5
Max Sensor Size(Φmm)	29(1.75")
F/#	9.7
MTF30(lp/mm)	>90
DoF(mm)	±21.5@F20
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	707±5
Length(mm)	395.2
Mount	M42/M58
Weight(kg)	6.2
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	116.7x87.6
1.75"PYTHON16k(18.43x18.43)	95.5x95.5
1.75"LineScan-2k/4k/8k(28.8)	149.2

BTL-0.171X-318-175(LM)



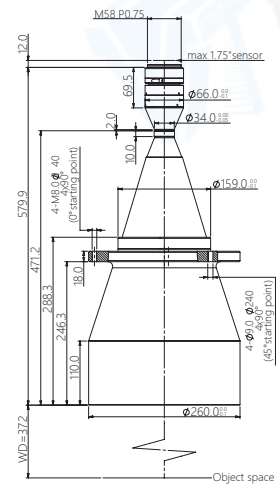
FOV(Φmm)	170
Mag.(x)	0.171
WD(mm)	318±5
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>125
DoF(mm)	±21.9@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	787±5
Length(mm)	457.2
Mount	M42/M58
Weight(kg)	7.0
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	131.8x98.8
1.75"PYTHON16k(18.43x18.43)	107.8x107.8
1.75"LineScan-2k/4k/8k(28.8)	168.4

BTL-0.153XH-330-175(LM)



FOV(Φmm)	190
Mag.(x)	0.153
WD(mm)	330±5
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>135
DoF(mm)	±27.3@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	827±5
Length(mm)	484.5
Mount	M42/M48/ M58
Weight(kg)	10.1
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	147.3x110.5
1.75"PYTHON16k(18.43x18.43)	120.5x120.5
1.75"LineScan-2k/4k/8k(28.8)	188.2

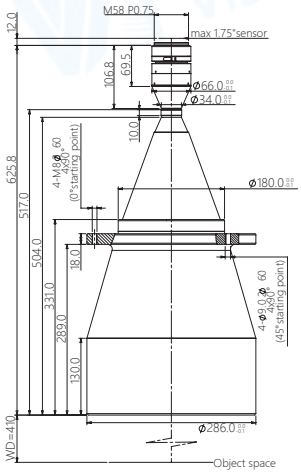
BTL-0.134X-372-175(LM)



FOV(Φmm)	216
Mag.(x)	0.134
WD(mm)	372±5
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>125
DoF(mm)	±35.6@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	964±5
Length(mm)	579.9
Mount	M42/M58
Weight(kg)	14.3
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	168.1x126.1
1.75"PYTHON16k(18.43x18.43)	137.5x137.5
1.75"LineScan-2k/4k/8k(28.8)	214.9

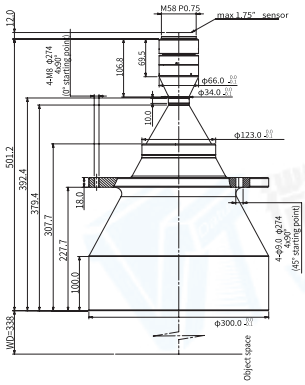
Warm tips: The above DOF is just theoretical value at the ideal aperture (eg. ±763@F11). Actual DOF or the DOF what you need, please check with our sales engineer before order cfm.

BTL-0.121XH-410-175(LM)



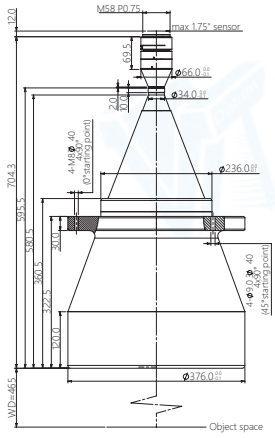
FOV(Φmm)	240
Mag.(x)	0.121
WD(mm)	410±6
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>125
DoF(mm)	±43.7@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1048±6
Length(mm)	625.8
Mount	M42/M58
Weight(kg)	19.6
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	186.2x139.7
1.75"PYTHON16k(18.43x18.43)	152.3x152.3
1.75"LineScan-2k/4k/8k(28.8)	238.0

BTL-0.112X-338-175(LM)



FOV(Φmm)	258
Mag.(x)	0.112
WD(mm)	338±5
Max Sensor Size(Φmm)	29(1.75")
F/#	6.8
MTF30(lp/mm)	>130
DoF(mm)	±50.7@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	853±5
Length(mm)	501.2
Mount	M42/M58
Weight(kg)	-
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	201.2x150.9
1.75"PYTHON16k(18.43x18.43)	164.6x164.6
1.75"LineScan-2k/4k/8k(28.8)	257.1

BTL-0.097XH-465-175(LM)



FOV(Φmm)	300
Mag.(x)	0.097
WD(mm)	465±6
Max Sensor Size(Φmm)	29(1.75")
F/#	8.5
MTF30(lp/mm)	>105
DoF(mm)	±68@F16
Distortion(% max)	<0.1
Telecentricity(° max)	<0.1
I/O(mm)	1181±6
Length(mm)	704.3
Mount	M42/M58
Weight(kg)	47.1
Field of View(mmxmm)	
1.75"CMV12000(22.53x16.90)	232.3x174.2
1.75"PYTHON16k(18.43x18.43)	190.0x190.0
1.75"LineScan-2k/4k/8k(28.8)	296.9

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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Hangzhou Vision Datum Technology Co., Ltd. No. 8 Xiyuan 9th Road, West Lake District Hangzhou Zhejiang 310030 China
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www.visiondatum.com

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