

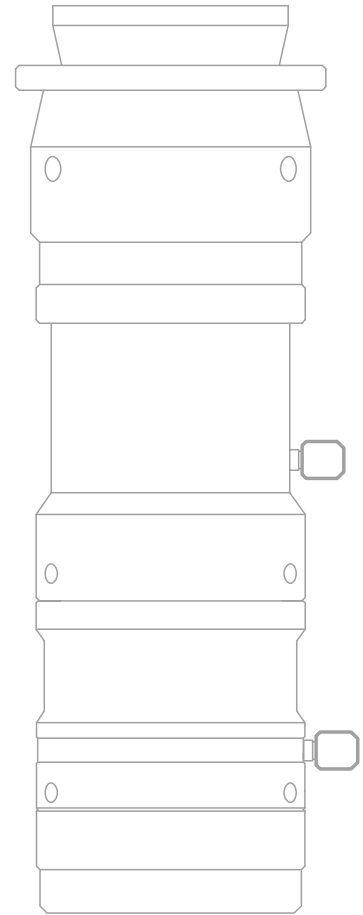
# ZOOM LENS SERIES

Based on years of experiences in optical design and auto-control technology, optical zoom lens auto-control system is developed to meet the requirements of quick accurate inspection.

Widely used in industry inspection, automation, electronic communication, semiconductor, scientific research, etc..

## PRODUCT ADVANTAGES

1. Precision optical design, high resolution, low distortion, excellent optical performance.
2. Super long working distance, big FOV range.
3. Multiply coating technology, reduce the stray light and ghost, offering high quality image.
4. Anodized metal part, improved endurance.
5. Compact and reliable structure.



## PRODUCT FEATURES



### Coaxial Illumination

1. Infinity parallel incident light, with shadow-free and uniform illumination.
2. Coaxial illumination structure ensure even illumination.



### Detented Zoom Lens

1. sitong structure, high accuracy in zoom and repetitive positioning
2. 15-divided points for mechanical positioning
3. High hardness alloy material, for a long lifespan; Precision mechanical structure.



### Motorized Zoom

1. High speed in zoom and focus and high accuracy in repetitive positioning; Imported DC servo motor, closed loop control.
2. Single or double motor control system via 9-PIN RS232 .
3. Stable quality performance even in the strong vibration environment.



### Fine-Focus Device

1. Used in narrow space, adjust fine-focus part for focusing on different height surface of parts, no need to change WD.
2. Fine focus range: 3mm-12mm.
3. Manual and motorized structure.



Zoom Lens Series/**6.5X Zoom Lens**

## 6.5X ZOOM LENS SERIES

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With the perfect combination of high resolution and big magnification ratio, the most popular zoom lens is widely used in various industry application.

### PRODUCT ADVANTAGES

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1. Professional optical design, optical magnification 0.7x-4.5x, magnification ratio:6.5:1.
2. Big FOV application, 2/3" camera.
3. Compact structure, easily for assembly and installation.

### APPLICATION FIELDS

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Widely use for semiconductor, automation, communication fields.

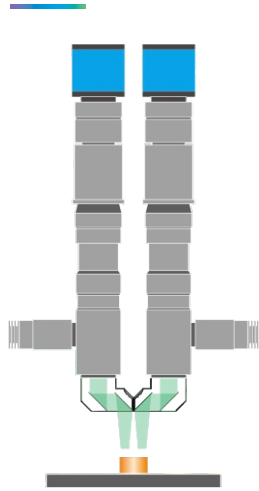
### CONTROLLER BOX

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The integrated motorized control systems are suitable for all the zoom lenses. Motorized controlling system can control single or dual channels via RS232 or USB. SKD software will be provided.

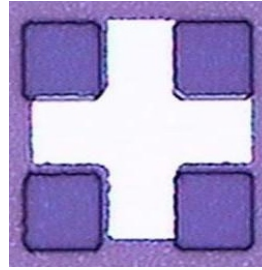


## EXAMPLES OF APPLICATION

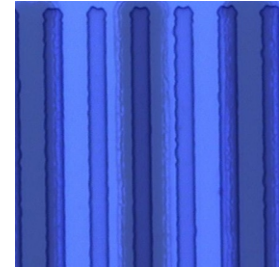


Bonding Machine

## ACTUAL IMAGE



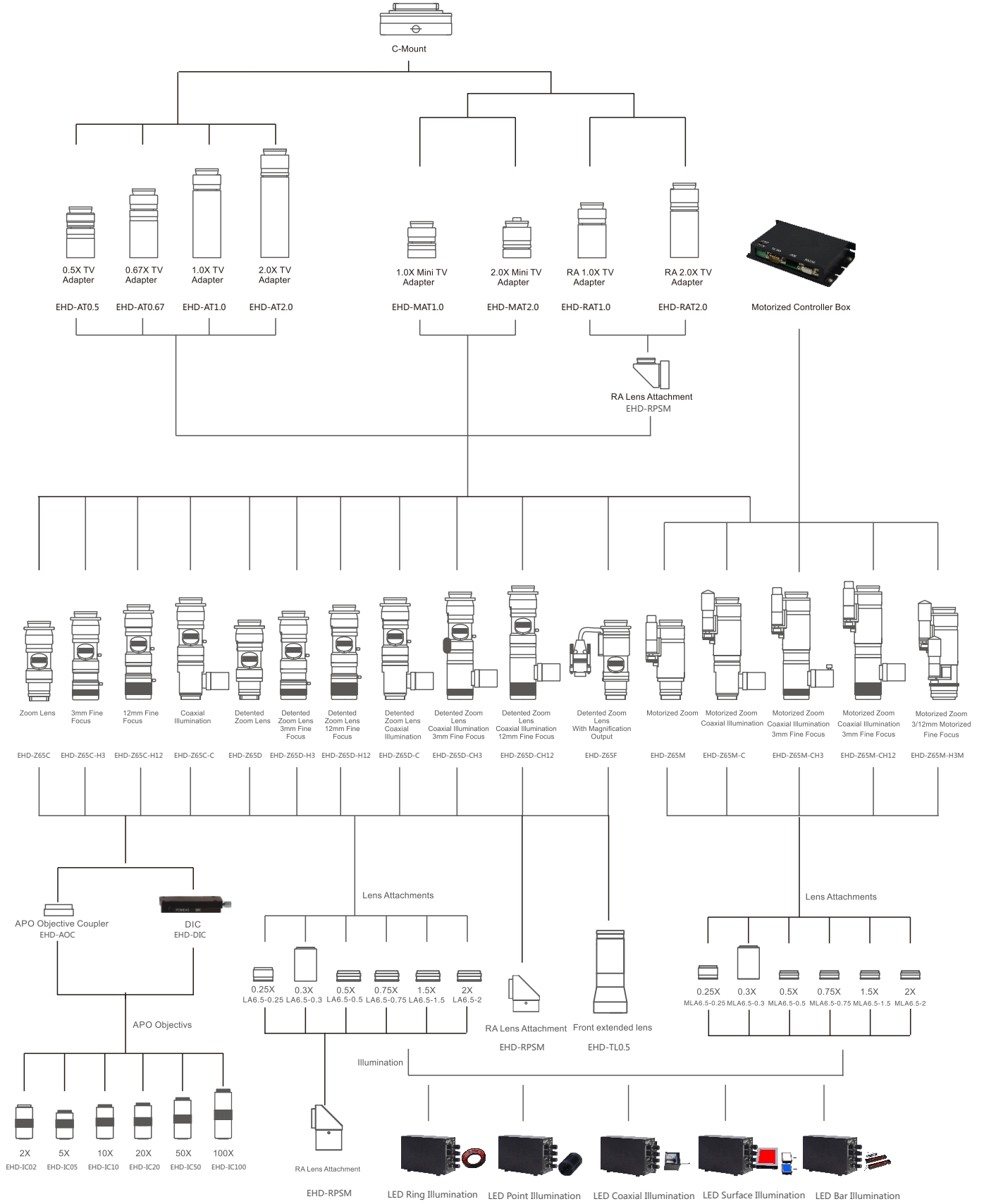
Silicone cover metal aligner



3um mask aligner silicone cover

## 6.5X Zoom Lens Parameter

Optical Magnification Range		0.7X~4.5X								
Working Distance		87±2mm								
Optical Magnification		0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X
DOF(mm)		1.9	0.952	0.44	0.29	0.23	0.16	0.13	0.12	0.1
N.A.		0.03	0.042	0.06	0.07	0.07	0.085	0.085	0.085	0.085
F.No.		11.6	12.1	12.5	14.2	17.8	17.6	20.5	23.5	26.5
Resolution(μm)		11.18	7.99	5.59	4.79	4.79	3.95	3.95	3.95	3.95
TV Distortion		0.019%	0.035%	0.002%	0.003%	0.004%	0.001%	0.001%	0.002%	0.002%
FOV (mm) DxHxV	2/3°	15.71x12.57x9.43	11.00x8.80x6.60	7.33x5.87x4.40	5.50x4.40x3.30	4.40x3.52x2.64	3.67x2.93x2.20	3.14x2.21x1.89	2.75x2.20x1.65	2.44x1.96x1.47
	1/2°	11.43x9.14x6.86	8.00x6.40x4.80	5.33x4.27x3.20	4.00x3.20x2.40	3.20x2.56x1.92	2.67x2.13x1.60	2.29x1.83x1.37	2.00x1.60x1.20	1.78x1.42x1.07
	1/3°	8.57x6.86x5.14	6.00x4.80x3.60	4.00x3.20x2.40	3.00x2.40x1.80	2.40x1.92x1.44	2.00x1.60x1.20	1.71x1.37x1.03	1.50x1.20x0.90	1.33x1.07x0.80
Max.Sensor Size		2/3°								
Mount		C-Mount								



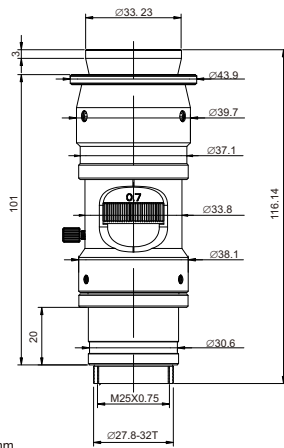


## 6.5X Zoom Lens Field of View Table

Lens Attachment		0.5X Adapter Tube(EHD-AT0.5)						1.0X Adapter Tube(EHD-AT1.0)						2.0X Adapter Tube(EHD-AT2.0)						
		Low Magnification			High Magnification			Low Magnification			High Magnification			Low Magnification			High Magnification			
		Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	
0.25X (EHD-LA6.5-0.25) WD:318mm	Magnification	0.09X-0.56X						0.18X-1.13X						0.35X-2.25X						
	Camera FOV	2/3"	100.6	75.4	(125.7)	15.6	11.7	19.6	50.3	37.7	62.9	7.8	5.9	9.8	25.1	18.9	(31.4)	3.9	2.9	4.9
		1/2"	73.1	54.9	(91.4)	11.4	8.5	14.2	36.6	27.4	45.7	5.7	4.3	7.1	18.3	13.7	22.9	2.8	2.1	3.6
		1/3"	54.9	41.1	68.6	8.5	6.4	10.7	27.4	20.6	34.3	4.3	3.2	5.3	13.7	10.3	17.1	2.1	1.6	2.7
0.3X (EHD-LA6.5-0.3) WD:126mm	Magnification	0.11X-0.68X						0.21X-1.35X						0.42X-2.70X						
	Camera FOV	2/3"	83.8	62.9	(104.8)	13.0	9.8	16.3	41.9	31.4	52.4	6.5	4.9	8.2	21.0	15.7	(26.2)	3.3	2.4	4.1
		1/2"	61.0	45.7	(76.2)	9.5	7.1	11.9	30.5	22.9	38.1	4.7	3.6	5.9	15.2	11.4	19.1	2.4	1.8	3.0
		1/3"	45.7	34.3	57.1	7.1	5.3	8.9	22.9	17.1	28.6	3.6	2.7	4.4	11.4	8.6	14.3	1.8	1.3	2.2
0.5X (EHD-LA6.5-0.5) WD:163mm	Magnification	0.18X-1.13X						0.35X-2.25X						0.70X-4.50X						
	Camera FOV	2/3"	50.3	37.7	(62.9)	7.8	5.9	9.8	25.1	18.9	31.4	3.9	2.9	4.9	12.6	9.4	(15.7)	2.0	1.5	2.4
		1/2"	36.6	27.4	(45.7)	5.7	4.3	7.1	18.3	13.7	22.9	2.8	2.1	3.6	9.1	6.9	11.4	1.4	1.1	1.8
		1/3"	27.4	20.6	34.3	4.3	3.2	5.3	13.7	10.3	17.1	2.1	1.6	2.7	6.9	5.1	8.6	1.1	0.8	1.3
0.75X (EHD-LA6.5-0.75) WD:104mm	Magnification	0.26X-1.69X						0.53X-3.38X						1.05X-6.75X						
	Camera FOV	2/3"	33.5	25.1	(41.9)	5.2	3.9	6.5	16.8	12.6	21.0	2.6	2.0	3.3	8.4	6.3	(10.5)	1.3	1.0	1.6
		1/2"	24.4	18.3	(30.5)	3.8	2.8	4.7	12.2	9.1	15.2	1.9	1.4	2.4	6.1	4.6	7.6	1.0	0.7	1.2
		1/3"	18.3	13.7	22.9	2.8	2.1	3.6	9.1	6.9	11.4	1.4	1.1	1.8	4.6	3.4	5.7	0.7	0.5	0.9
1.0X (EHD-LA6.5-1.0) WD:87mm	Magnification	0.35X-2.25X						0.70X-4.50X						1.40X-9.00X						
	Camera FOV	2/3"	25.1	18.9	31.4	3.9	2.9	4.9	12.6	9.4	15.7	2.0	1.5	2.4	6.3	4.7	(7.9)	1.0	0.7	1.2
		1/2"	18.3	13.7	22.9	2.8	2.1	3.6	9.1	6.9	11.4	1.4	1.1	1.8	4.6	3.4	5.7	0.7	0.5	0.9
		1/3"	13.7	10.3	17.1	2.1	1.6	2.7	6.9	5.1	8.6	1.1	0.8	1.3	3.4	2.6	4.3	0.5	0.4	0.7
1.5X (EHD-LA6.5-1.5) WD:50mm	Magnification	0.53X-3.38X						1.05X-6.75X						2.10X-13.50X						
	Camera FOV	2/3"	16.8	12.6	(21.0)	2.6	2.0	3.3	8.4	6.3	10.5	1.3	1.0	1.6	4.2	3.1	5.2	0.7	0.5	0.8
		1/2"	12.2	9.1	(15.2)	1.9	1.4	2.4	6.1	4.6	7.6	1.0	0.7	1.2	3.1	2.3	3.8	0.5	0.4	0.6
		1/3"	9.1	6.9	11.4	1.4	1.1	1.8	4.6	3.4	5.7	0.7	0.5	0.9	2.3	1.7	2.9	0.4	0.3	0.4
2.0X (EHD-LA6.5-2.0) WD:35mm	Magnification	0.70X-4.50X						1.40X-9.00X						2.80X-18.00X						
	Camera FOV	2/3"	12.6	9.4	(15.7)	2.0	1.5	2.4	6.3	4.7	7.9	1.0	0.7	1.2	3.1	2.4	(3.9)	0.5	0.4	0.6
		1/2"	9.1	6.9	(11.4)	1.4	1.1	1.8	4.6	3.4	5.7	0.7	0.5	0.9	2.3	1.7	2.9	0.4	0.3	0.4
		1/3"	6.9	5.1	8.6	1.1	0.8	1.3	3.4	2.6	4.3	0.5	0.4	0.7	1.7	1.3	2.1	0.3	0.2	0.3

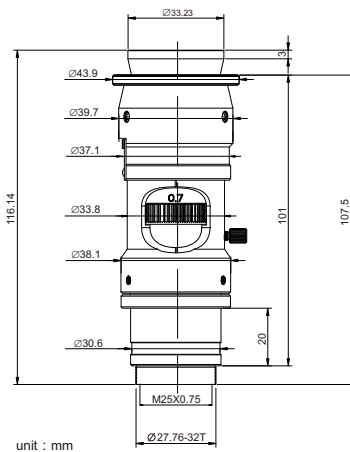
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**EHD-Z65C**



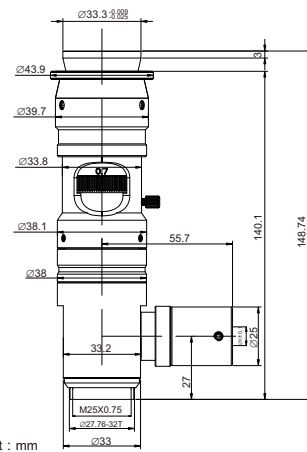
unit : mm

**EHD-Z65D**



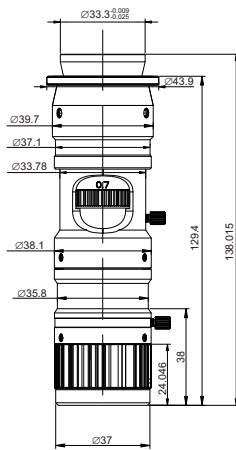
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**EHD-Z65C-C**



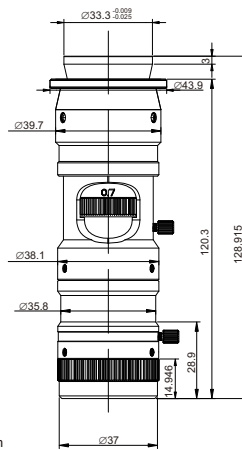
unit : mm

**EHD-Z65C-H12**



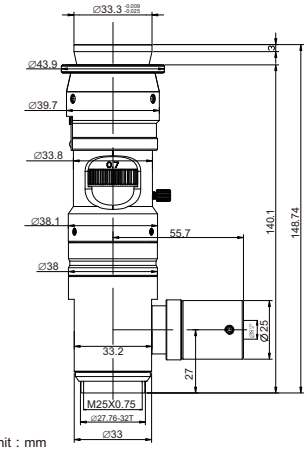
unit : mm

**EHD-Z65C-H3**



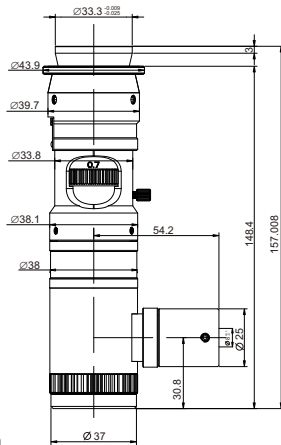
unit : mm

**EHD-Z65D-C**



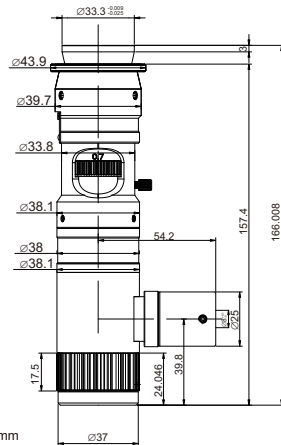
unit : mm

**EHD-Z65D-CH3**



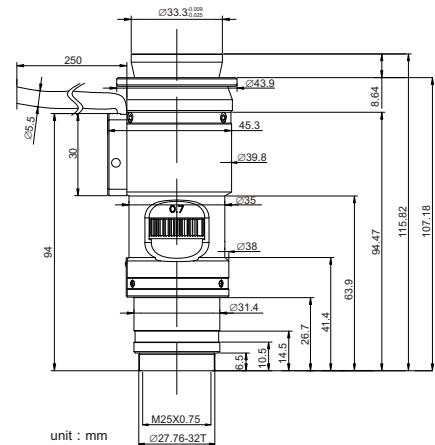
unit : mm

**EHD-Z65D-CH12**



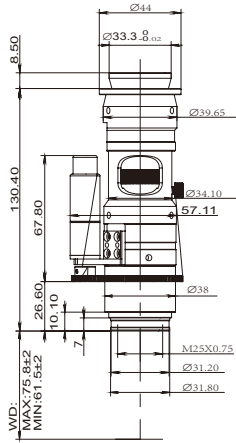
unit : mm

**EHD-Z65F-RS**



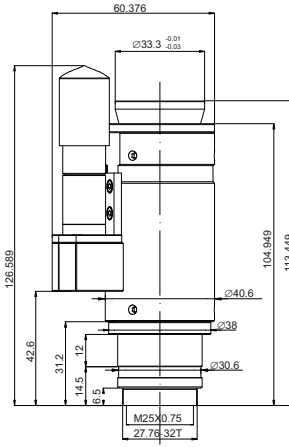
unit : mm

### EHD-Z65D-H12M



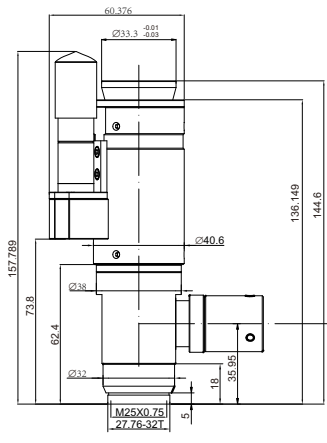
unit : mm

### EHD-Z65M



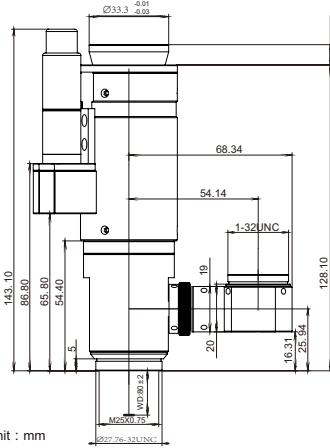
unit : mm

### EHD-Z65M-C



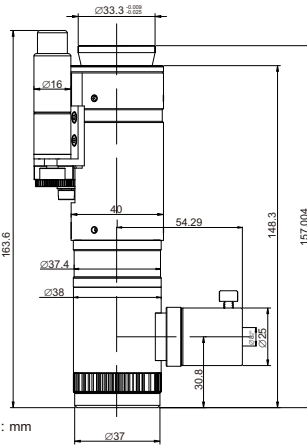
unit : mm

### EHD-Z65M-G



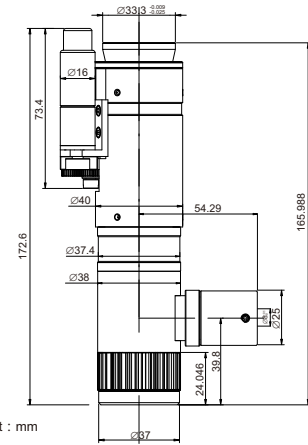
unit : mm

### EHD-Z65M-CH3



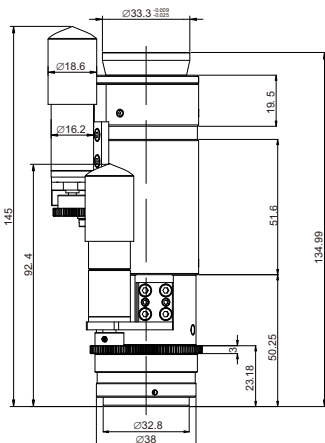
unit : mm

### EHD-Z65M-CH12M



unit : mm

### EHD-Z65M-H12M



unit : mm



Zoom Lens Series/**12.5X Zoom Lens**

## 12.5X ZOOM LENS SERIES

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Super high magnification ration and excellent optical pertical performance, used to inspect many kinds of parts.

### PRODUCT ADVANTAGES

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1. Professional optical design, optical magnification 0.58x-7.5x, magnification ratio:12.5:1.
2. Excellent optical performance, high resolution, low distortion, super high N.A.

### APPLICATION FIELDS

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Widely use for semiconductor, automation, communication fields.

### CONTROLLER BOX

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The integrated motorized control systems are suitable for all the zoom lenses. Motorized controlling system can control single or dual channels via RS232 or USB. SKD software will be provided.





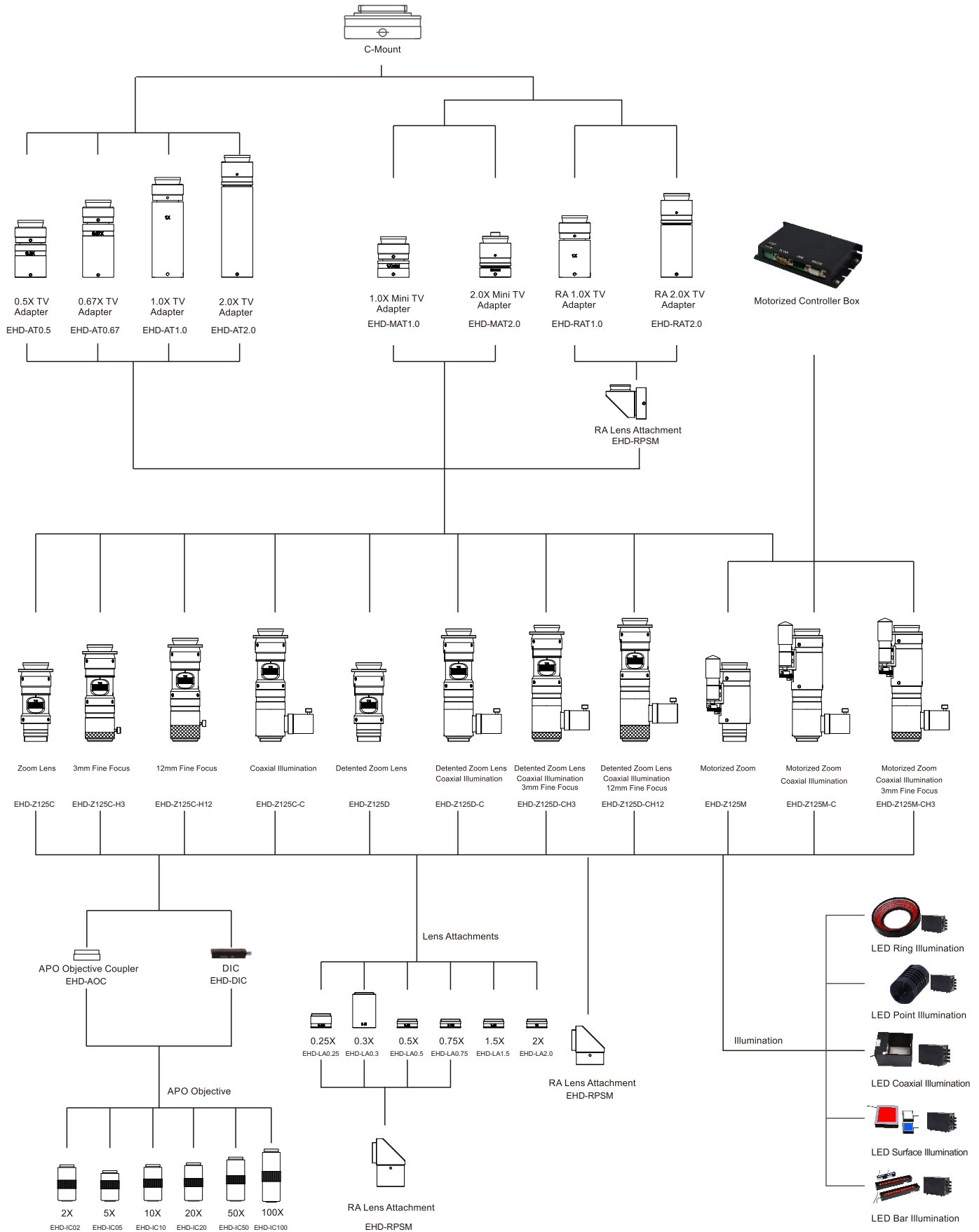
## 12.5X Zoom Lens Parameter

Optical Magnification Range	0.58X-7.5X																
Working Distance	77.4±2mm																
Optical Magnification	0.58X	0.6X	1X	1.5X	2X	2.5X	3X	3.5X	4X	4.5X	5X	5.5X	6X	6.5X	7X	7.5X	
DOF(mm)	2.75	2.67	0.95	0.43	0.27	0.2	0.15	0.12	0.1	0.081	0.073	0.066	0.061	0.056	0.052	0.05	
N.A.	0.025	0.025	0.043	0.063	0.074	0.082	0.09	0.097	0.1	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
F.No.	12.5	12.5	11.85	11.95	13.65	15.3	16.5	18.4	19.9	20.4	22.45	22.7	26.8	29.4	31.7	33.9	
Resolution(μm)	13	13	7.8	5.3	4.53	4.09	3.73	3.46	3.36	3.05	3.05	3.05	3.05	3.05	3.05	3.05	
TV Distortion	0.050%	0.050%	0.002%	0.010%	0.020%	0.003%	0.020%	0.020%	0.018%	0.020%	0.010%	0.010%	0.001%	0.010%	0.005%	0.005%	
2/3" FOV (mm)	D	18.97	18.33	11	7.33	5.5	4.4	3.67	3.14	2.75	2.44	2.2	2	1.83	1.69	1.57	1.47
	H	15.17	14.67	8.8	5.87	4.4	3.52	2.93	2.51	2.2	1.96	1.76	1.6	1.47	1.35	1.26	1.17
	V	11.38	11	6.6	4.4	3.3	2.64	2.2	1.89	1.65	1.47	1.32	1.2	1.1	1.02	0.94	0.88
Max.Sensor Size	2/3"																
Mount	C-Mount																

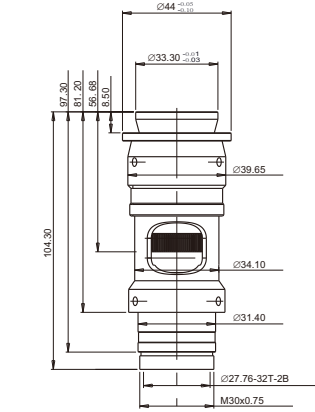
## 12.5X Zoom Lens Field of View Table

Lens Attachment		0.5X Adapter Tube(EHD-AT0.5)						1.0X Adapter Tube(EHD-AT1.0)						2.0X Adapter Tube(EHD-AT2.0)						
		Low Magnification			High Magnification			Low Magnification			High Magnification			Low Magnification			High Magnification			
		Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	Length (mm)	Width (mm)	Diagonal (mm)	
0.25X (EHD-LA12.5-0.25) WD:297mm	Magnification	0.07X-0.94X						0.15X-1.87X						0.30X-3.75X						
	Camera FOV	2/3"	121.4	91.0	(151.7)	9.4	7.0	11.7	60.7	45.5	75.9	4.7	3.5	5.9	30.3	22.8	(37.9)	2.4	1.8	2.9
		1/2"	88.3	66.2	(110.3)	6.8	5.1	8.5	44.1	33.1	55.2	3.4	2.6	4.3	22.1	16.6	27.6	1.7	1.3	2.1
		1/3"	66.2	49.7	82.8	5.1	3.8	6.4	33.1	24.8	41.4	2.6	1.9	3.2	16.6	12.4	20.7	1.3	1.0	1.6
0.3X (EHD-LA12.5-0.3) WD:120mm	Magnification	0.09X-1.12X						0.17X-2.25X						0.35X-4.50X						
	Camera FOV	2/3"	101.2	75.9	(126.4)	7.8	5.9	9.8	50.6	37.9	63.2	3.9	2.9	4.9	25.3	19.0	31.6	2.0	1.5	2.4
		1/2"	73.6	55.1	(92.0)	5.7	4.3	7.1	36.8	27.6	46.0	2.8	2.1	3.6	18.4	13.8	23.0	1.4	1.1	1.8
		1/3"	55.2	41.4	69.0	4.3	3.2	5.3	27.6	20.7	34.5	2.1	1.6	2.7	13.8	10.3	17.2	1.1	0.8	1.3
0.5X (EHD-LA12.5-0.5) WD:155mm	Magnification	0.14X-1.87X						0.29X-3.75X						0.58X-7.50X						
	Camera FOV	2/3"	60.7	45.5	(75.9)	4.7	3.5	5.9	30.3	22.8	38.0	2.4	1.8	2.9	15.2	11.4	19.0	1.2	0.9	1.5
		1/2"	44.1	33.1	55.2	3.4	2.6	4.3	20.1	16.6	27.6	1.7	1.3	2.1	11.0	8.3	13.8	0.9	0.6	1.0
		1/3"	33.1	24.8	41.4	2.6	1.9	3.2	16.6	12.4	20.7	1.3	1.0	1.6	8.3	6.2	10.3	0.6	0.5	0.8
0.75X (EHD-LA12.5-0.75) WD:93mm	Magnification	0.22X-2.81X						0.43X-5.62X						0.87X-11.25X						
	Camera FOV	2/3"	40.5	30.3	(50.6)	3.1	2.4	3.9	20.2	15.2	25.3	1.6	1.2	2.0	10.1	7.6	12.6	0.8	0.6	1.0
		1/2"	29.4	22.1	36.8	2.3	1.7	2.8	14.7	11.0	18.4	1.1	0.9	1.4	7.4	5.5	9.2	0.6	0.4	0.7
		1/3"	22.1	16.6	27.6	1.7	1.3	2.1	11.0	8.3	13.8	0.9	0.6	1.1	5.5	4.1	6.9	0.3	0.3	0.5
1.0X (EHD-LA12.5-1.0) WD:77.4mm	Magnification	0.29X-3.75X						0.58X-7.50X						1.16X-15.00X						
	Camera FOV	2/3"	30.3	22.8	(37.9)	2.4	1.8	2.9	15.2	11.4	19.0	1.2	0.9	1.5	7.6	5.7	9.5	0.6	0.4	0.7
		1/2"	22.1	16.6	(27.6)	1.7	1.3	2.1	11.0	8.3	13.8	0.9	0.6	1.1	5.5	4.1	6.9	0.4	0.3	0.5
		1/3"	16.6	12.4	20.7	1.3	1.0	1.6	8.3	6.2	10.3	0.6	0.5	0.8	4.1	3.1	5.2	0.3	0.2	0.4
1.5X (EHD-LA12.5-1.5) WD:48mm	Magnification	0.43X-5.62X						0.87X-11.25X						1.74X-22.50X						
	Camera FOV	2/3"	20.2	15.2	(25.3)	1.6	1.2	2.0	10.1	7.6	12.6	0.8	0.6	1.0	5.1	3.8	6.3	0.4	0.3	0.5
		1/2"	14.7	11.0	18.4	1.4	0.9	1.4	7.4	5.5	9.2	0.6	0.4	0.7	3.7	2.8	4.6	0.3	0.2	0.4
		1/3"	11.0	8.3	13.8	0.9	0.6	1.1	5.5	4.1	6.9	0.4	0.3	0.5	2.8	2.1	3.5	0.2	0.2	0.3
2.0X (EHD-LA12.5-2.0) WD:34.5mm	Magnification	0.58X-7.50X						1.16X-15.00X						2.32X-30.00X						
	Camera FOV	2/3"	15.2	11.4	(19.0)	1.2	0.9	1.5	7.6	5.7	9.5	0.6	0.4	0.7	3.8	2.8	4.7	0.3	0.2	0.4
		1/2"	11.0	8.3	(13.8)	0.9	0.6	1.0	5.5	4.1	6.9	0.4	0.3	0.5	2.8	2.1	3.5	0.2	0.2	0.3
		1/3"	8.3	6.2	10.3	0.6	0.5	0.8	4.1	3.1	5.2	0.3	0.2	0.4	2.1	1.6	2.6	0.2	0.1	0.2

All the value is theoretical ones, the image will have dark color, if the value is in brackets.

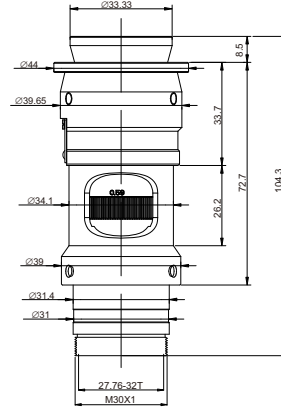


**EHD-Z125C**



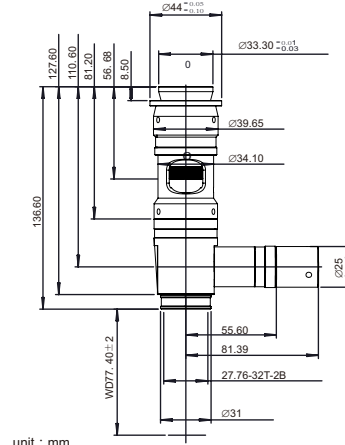
unit : mm

**EHD-Z125D**



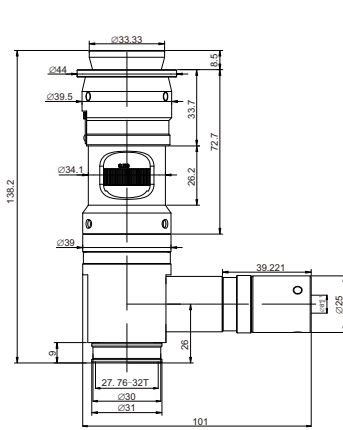
unit : mm

**EHD-Z125C-C**



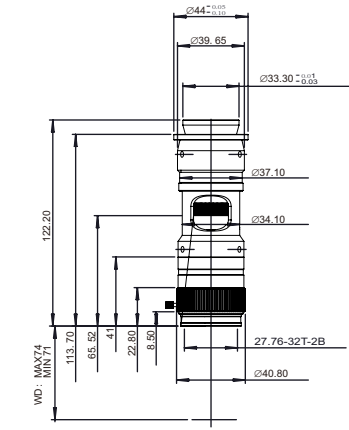
unit : mm

**EHD-Z125D-C**



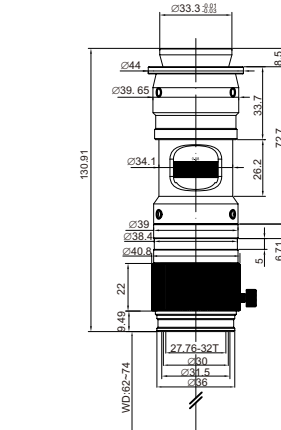
unit : mm

**EHD-Z125C-H3**



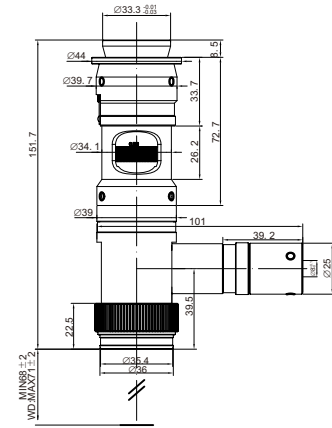
unit : mm

**EHD-Z125C-H12**



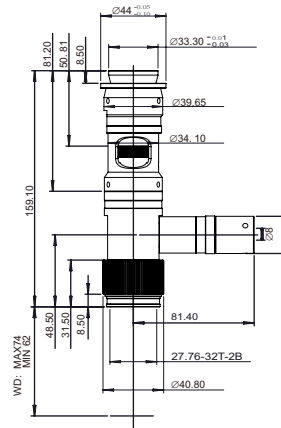
unit : mm

**EHD-Z125D-CH3**



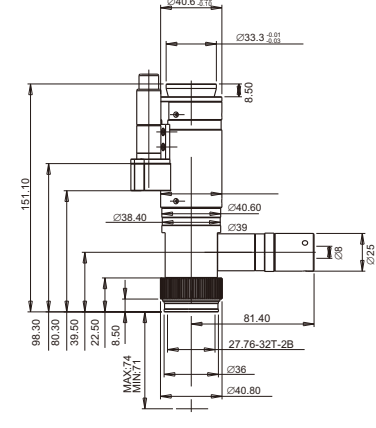
unit : mm

**EHD-Z125D-CH12**



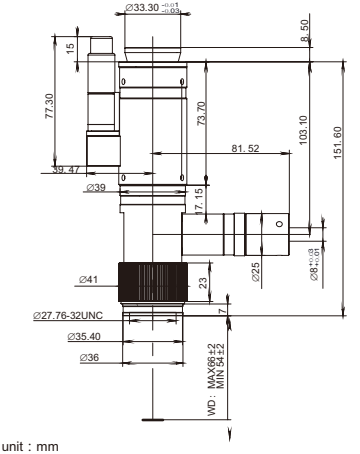
unit : mm

**EHD-Z125M-CH3**



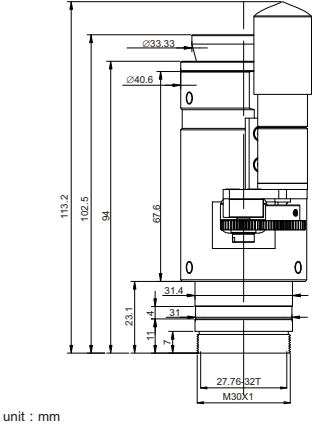
unit : mm

**EHD-Z125M-CH12**



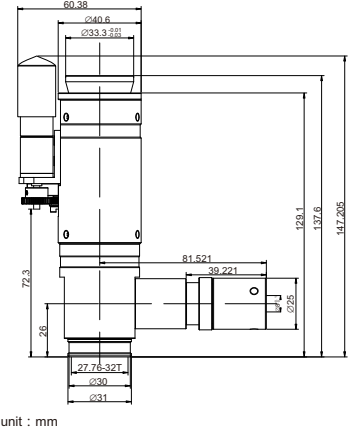
unit : mm

**EHD-Z125M**



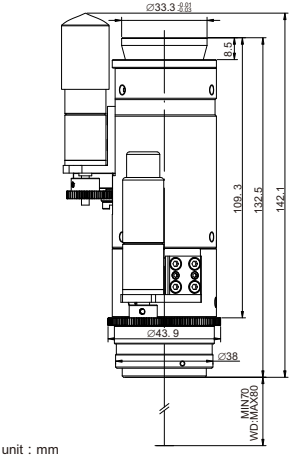
unit : mm

**EHD-Z125M-C**



unit : mm

**EHD-Z125M-MH12**



unit : mm

