



# Zoom Lens Z65 Series



**2024 V1**

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## Z65C Series Zoom Lens

Simtrum's Z65C Series is a 6.5X coaxial illumination zoom lens, featuring advanced optical design and a magnification range of 0.7x to 7.5x, providing a versatile and high-quality imaging solution for various applications.

With its coaxial illumination and infinity parallel incident light, this lens ensures shadow-free and uniform illumination, resulting in high-contrast and vivid color images for superior image quality.

It is particularly well-suited for observing reflective surfaces, such as water-polished samples and deep holes. Designed for use with a 2/3" camera, the lens supports wide field of view applications, while its compact structure facilitates easy assembly and installation. This makes it an ideal choice for professional environments requiring precise and detailed visual inspection.

### Feature

- Telecentric optical design. Magnification range: 0.7x-4.5x magnification ratio is 6.5:1
- Field of view: 2.444-15.714mm (based on 2/3" CCD)
- Excellent performance, with high resolution, low distortion and super big N.A
- Compact design, easy assembly and installation

### Application

- Industry inspection
- Automation
- Electronic communication
- Semiconductor
- Scientific research



### Specification

Model	STPMZ65C		STPM-Z65C-C			STPM-Z65C-H3		STPM-Z65C-H12		
Type	Zoom Lens		Coaxial Illumination Zoom Lens			3mm Fine Focus		12mm Fine Focus		
Optical Magnification Range	0.7X~4.5X									
Working Distance	90±2mm									
Optical Magnification	0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X	
Depth of View (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	2.1	12.5	14.2	17.8	17.6	20.5	23.5	26.5	
Resolution (um)	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%	
Field of View(DxHxV) (mm)	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	3.14x2.51x1.89	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									
Zoom Control	Manual Zoom		Manual Zoom			Manual Zoom		Manual Zoom		
Focus Control						3mm Fine Focus		12mm Fine Focus		

## Product Function



### Fine-focus Device

- Seamless combination, for large range internal focusing: 3-12mm
- Precision mechanical structure Move smoothly
- Excellent sharp image

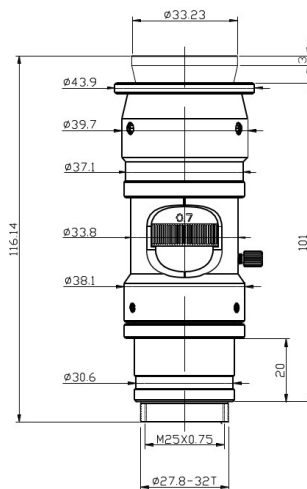


### Coaxial Illumination

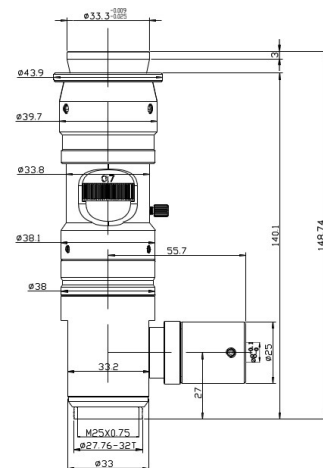
- Infinity parallel incident light, with shadow-free and uniform illumination
- High contrast and vivid color image, for better image quality
- Applied for reflective surface observation: waters, polishing samples, deep holes, etc

## Drawings

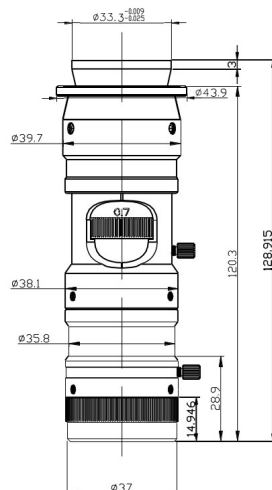
STPM-Z65C



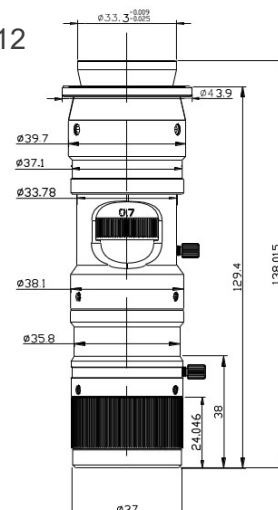
STPM-Z65C-C



STPM-Z65C-H3



STPM-Z65C-H12



## Z65M Series Zoom Lens

Simtrum's Z65M Series is a 6.5X motorized zoom lens specifically engineered for precision and reliability in demanding applications. It features a motorized fine-focus, providing unparalleled control and accuracy.

The telecentric optical design ensures consistent magnification and minimal perspective distortion, making it ideal for machine vision and metrology.

With a magnification range of 0.7x to 4.5x and a magnification ratio of 6.5:1, it offers versatility for various imaging needs. The lens boasts a field of view from 2.444mm to 15.714mm, optimized for 2/3" CCD sensors, delivering high resolution, low distortion, and superb numerical aperture performance even in harsh vibrating environment

### Feature

- STPM-Z65M-CH12M is Motorized, motorized fine-focus 12mm
- Telecentric optical design. Magnification range: 0.7x-4.5x magnification ratio is 6.5:1
- Field of view: 2.444-15.714mm (based on 2/3" CCD)
- Excellent performance, with high resolution, low distortion and super big N.A
- Compact design, easy assembly and installation

### Application

- Industry inspection
- Automation
- Electronic communication
- Semiconductor
- Scientific research



### Specification

Model	STPM-Z65M			STPM-Z65M-C			STPM-Z65M-CH12M			
Type	Motorized Zoom			Motorized Zoom Lens With Coaxial Illumination			Dual-motor Motorized Zoom			
Optical Magnification Range	0.7X~4.5X									
Working Distance	90±2mm									
Optical Magnification	0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X	
Depth of View (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	2.1	12.5	14.2	17.8	17.6	20.5	23.5	26.5	
Resolution (um)	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%	
Field of View(DxHxV) (mm)	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	3.14x2.51x1.89	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									
Zoom Control	Manual Zoom			Manual Zoom			Motorized zoom			
Focus Control							Motorized 12mm			

## Product Function



### Motorized Fine-focus Device

- Seamless combination, for large range internal focusing: 12mm
- Precision mechanical structure Move smoothly
- Excellent sharp image



### Motorized Zoom

- High speed in zoom and focus and high accuracy in repetitive positioning
- Imported DC servo motor, closed-loop control
- Stable quality even in the strong vibration environment



### Coaxial Illumination

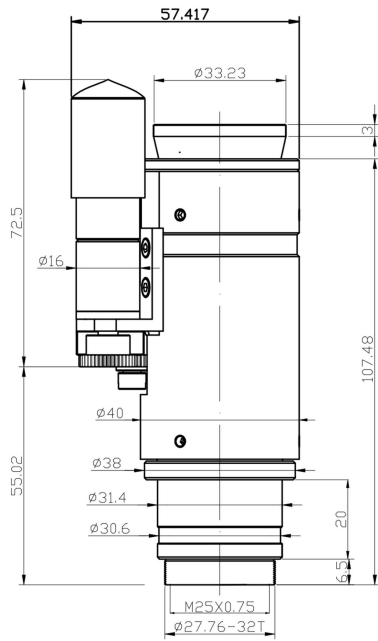
- Infinity parallel incident light, with shadow-free and uniform illumination
- High contrast and vivid color image, for better image quality
- Applied for reflective surface observation: waters, polishing samples, deep holes, etc



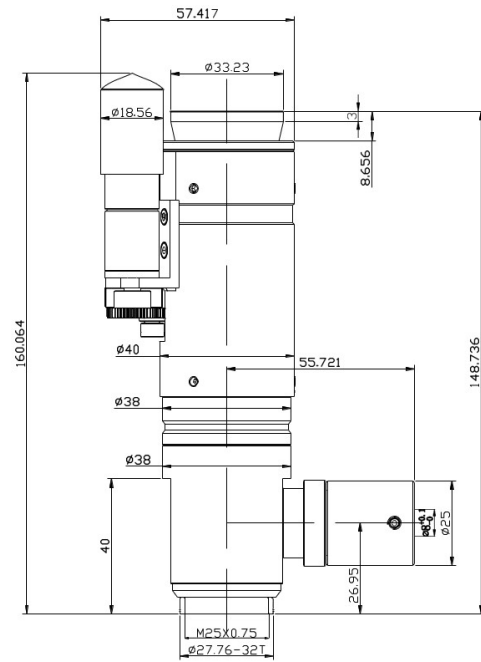
### Motorized Controller

- The integrated motorized control systems are available for all the SIMTRUM'S zoom lenses
- Motorized controlling system can control single or dual channels via RS232 or USB:
- Underlying sourcing code will be provided.

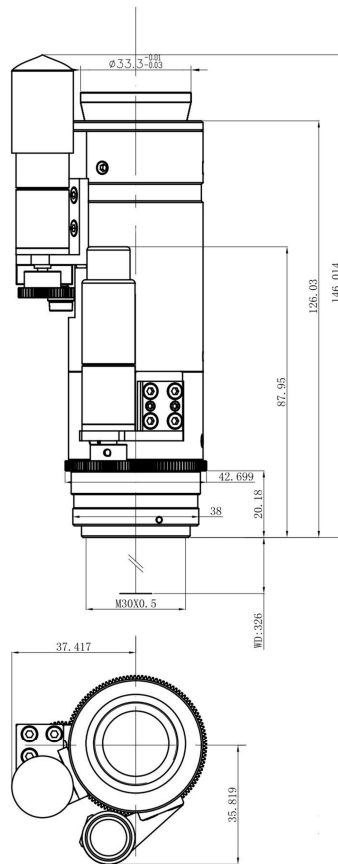
## Drawings



STPM-Z65M



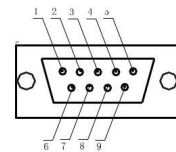
STPM-Z65M-C



STPM-Z65M-CH12M

## Motor wiring diagram

1. Motor winding negative pole.
2. GND
3. Motor winding positive pole
4. Code output channel A
5. Null
6. Code power input (+5V)
7. Null
8. Code output channel B
9. Null



## Z65D Series Zoom Lens

Simtrum's Z65D Series zoom lens is a masterpiece of optical engineering designed for high-precision imaging applications. With options for 6 or 9 divided points for mechanical positioning, this lens guarantees precise and reliable performance.

Featuring a telecentric optical design, it ensures consistent magnification and minimal perspective distortion across its versatile magnification range of 0.7x to 4.5x, with a magnification ratio of 6.5:1. The Z65D Series provides a field of view from 2.444mm to 15.714mm, optimized for 2/3" CCD sensors, delivering exceptional performance with high resolution, low distortion, and a superior numerical aperture.

Its compact design allows for easy assembly and installation, while the detented zoom mechanism ensures high accuracy in zoom and repetitive positioning. Constructed from high hardness alloy material and featuring a precision mechanical structure, the Z65D Series is built for durability and long-lasting use, making it an ideal choice for demanding industrial and scientific applications.

### Feature

- Telecentric optical design. Magnification range: 0.7x-4.5xmagnification ratio is 6.5:1
- Field of view: 444-15.714mm(based on 2/3"CCD)
- Excellent performance, with high resolution, low distortionand super big N.A.
- Compact design,easy assembly and installation.

### Application

- Industry inspection
- Automation
- Electronic communication
- Semiconductor
- Scientific research



### Specification

Model	STPM-Z65D			STPM-Z65D-C			STPM-Z65D-H3			
Type	Detented Zoom Lens			Detented With Coaxial Illumination			Detented With 3mm Fine Focus			
Optical Magnification Range	0.7X~4.5X									
Working Distance	90±2mm									
Optical Magnification	0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X	
Depth of View (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	2.1	12.5	14.2	17.8	17.6	20.5	23.5	26.5	
Resolution (um)	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%	
Field of View(DxHxV) (mm)	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	3.14x2.51x1.89	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									
Zoom Control	Manual Zoom									
Focus Control	3mm Fine Focus									

## Product Function



### Detented Zoom Lens

- High accuracy in zoom and repetitiv positioning
- 6 divided points or 9 divided points for mechanical positioning
- High hardness alloy material, for a long lifespan; Precision mechanical structure

### Fine-focus Device

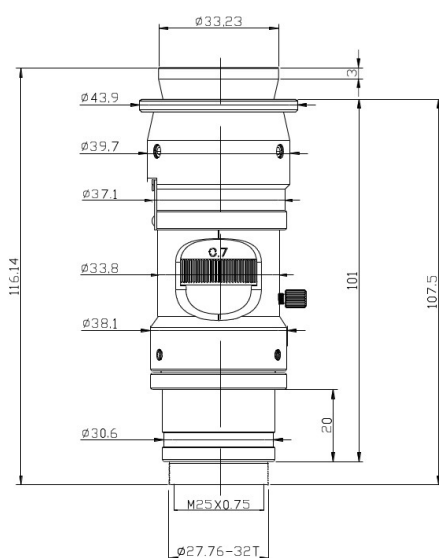
- Seamless combination, for large range internal focusing: 3-12mm
- Precision mechanical structure Move smoothly
- Excellent sharp image



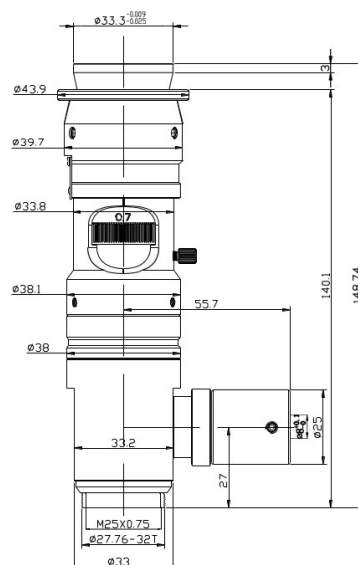
### Coaxial Illumination

- Infinity parallel incident light, with shadow-free and uniform illumination
- High contract and vivid color image, for better image quality
- Applied for reflective surface observation: waters, polishing samples, deep holes, etc

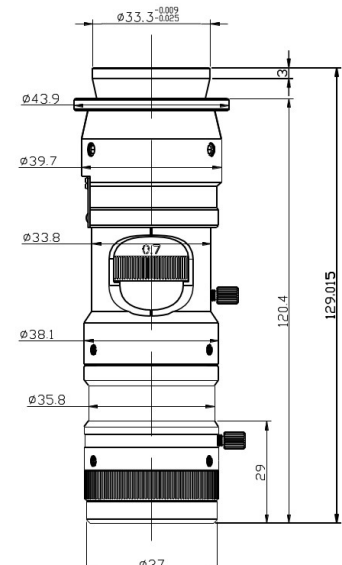
## Drawings



STPM-Z65D



STPM-Z65D-C



STPM-Z65D-H3



**STPM-Z65F-RS** with professional optical design, the perfect combination of high resolution and big magnification ratio, the most universal zoom lens is widely used in various industry application.

This 6.5X Detented Zoom Lens with Magnification Output, 6.5:1, 0.7X-4.5X, Max. sensor size 2/3", WD 87±2mm..

## Feature

- Telecentric optical design. Magnification range: 0.7x-4.5xmagnification ratio is 6.5:1
- Field of view: 2.444-15.714mm(based on 2/3"CCD)
- Excellent performance, with high resolution, low distortionand super big N.A
- Compact design,easy assembly and installation

## Application

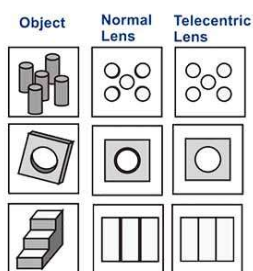
- Industry inspection
- Automation
- Electronic communication
- Semiconductor
- Scientific research



## Specification

Model		STPM-Z65F-RS								
Type		Zoom Lens With Magnification RS232 Output								
Optical Magnification Range		0.7X~4.5X								
Working Distance		90±2mm								
Optical Magnification		0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X
Depth of View (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	2.1	12.5	14.2	17.8	17.6	20.5	23.5	26.5
Resolution (um)		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%
Field of View(DxHxV) (mm)	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	3.14x2.51x1.89	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								
Zoom Control		Manual Zoom								

## Product Function



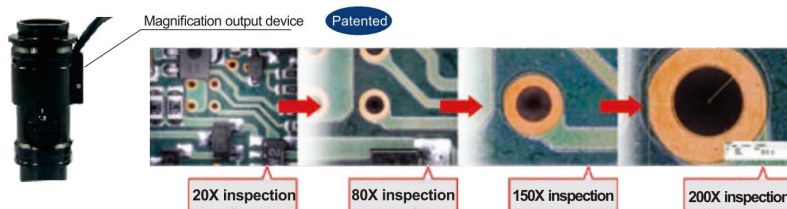
### Telecentric Optical Design

- Unique telecentric optical design
- Super wide DOF and low distortion
- High resolution



### Detented Zoom Lens

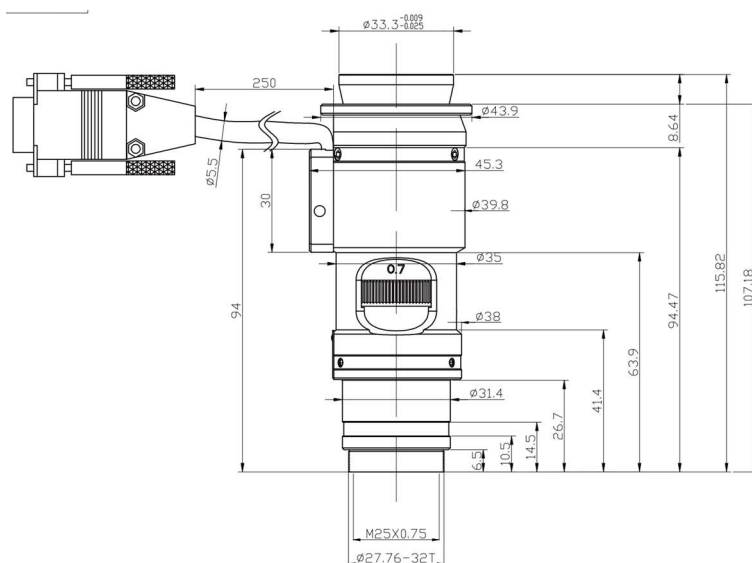
- High accuracy in zoom and repetitiv positioning
- 6 divided points or 9 divided points for mechanical positioning
- High hardness alloy material, for a long lifespan, Precision mechanical structure



### RS232 Electronic Magnifications Output

- **Advanced sensor technology:** real-time lens' magnification identification.
- **RS232 output:** stable signal output, can perfectly compatible with PC, especially good for software development.

## Drawings



STPM-Z65F-RS

**STPM-Z65M-C(A)** With professional optical design, the perfect combination of high resolution and big magnification ratio, the most universal zoom lens is widely used in various industry application.

This 6.5X Motorized Zoom Lens with Coaxial Illumination 6.5:1, 0.7X-4.5X, Max. sensor size 2/3", WD 87±2mm.

## Feature

- Telecentric optical design. Magnification range: 0.7x-4.5xmagnification ratio is 6.5:1
- Field of view: 2.444-15.714mm(based on 2/3"CCD)
- Excellent performance, with high resolution, low distortionand super big N.A
- Compact design,easy assembly and installation

## Application

- Industry inspection
- Automation
- Electronic communication
- Semiconductor
- Scientific research



## Specification

Model		STPM-Z65M-C(A)								
Type	Coaxial Illumination+Motorized Zoom									
Optical Magnification Range	0.7X~4.5X									
Working Distance	80±2mm									
Optical Magnification	0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X	
Telecentrity(degree)	0.68	0.185	0.7	1.075	0.8	0.75	0.7	0.81	0.87	
Depth of View (mm)	1.9	0.952	0.44	0.29	0.23	0.16	0.13	0.12	0.1	
N.A.	0.03	0.04	0.063	0.07	0.085	0.085	0.095	0.095	0.105	
F.No.	11.7	12.7	11.95	14.4	15.3	17.6	18.5	20.8	21.3	
Resolution (um)	11.18	7.99	5.59	4.79	4.79	3.95	3.95	3.95	3.95	
TV Distortion	0.060%	0.020%	0.010%	0.030%	0.003%	0.002%	0.030%	0.030%	0.030%	
Field of View(DxHxV) (mm)	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	3.14x2.51x1.89	2.75x2.20x1.65	2.44x1.96x1.47
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	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									
Zoom Control	Motorized zoom									

