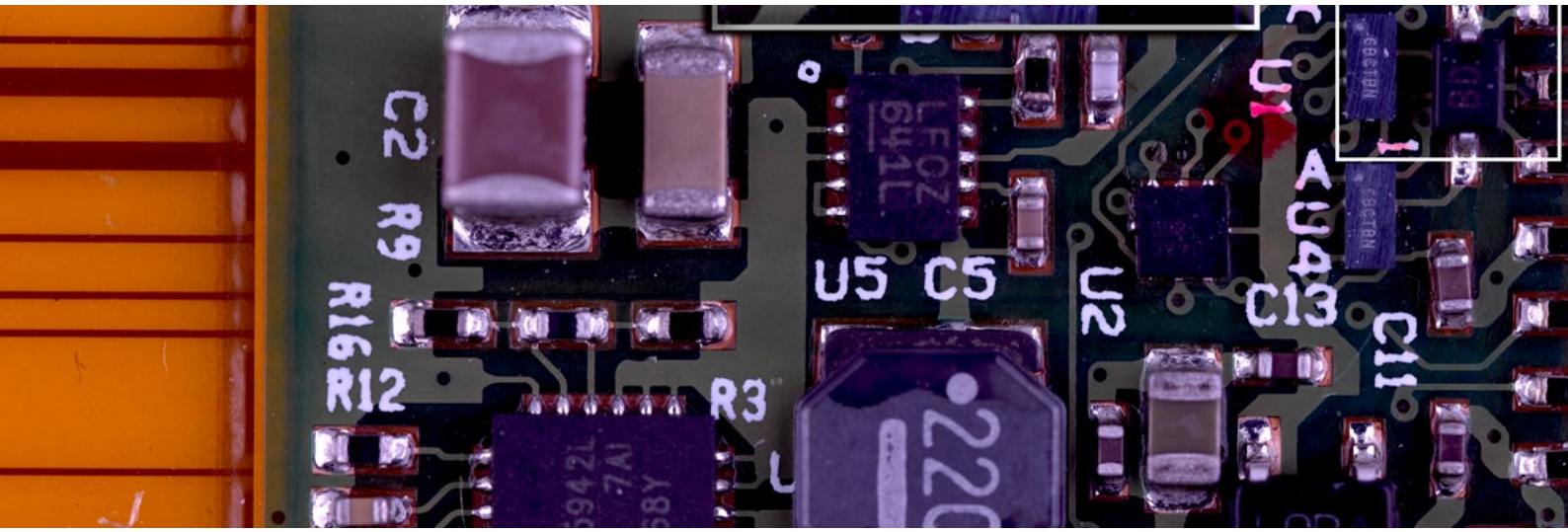
iXM-MV150F | iXM-MV100

Machine Vision Cameras





PHASEONE

150 Megapixel Machine Vision Camera

The new Phase One iXM-MV150F was specially designed for the increasing demand of high quality machine vision applications. The 150 Megapixel medium format camera provides images with an outstanding dynamic range of 83dB. Equipped with the advanced backside-illuminated CMOS sensor, Ethernet 10G and SuperSpeed™ USB, it provides exceptional image quality.

The new Phase One iXM-MV 150F delivers unparalleled quality for the most ambitious applications such as FPD, PCB and semiconductor inspection.

Phase One's iXM-MV camera is also available in a 100MP configuration. Both models can be ordered in RGB or Achromatic versions.

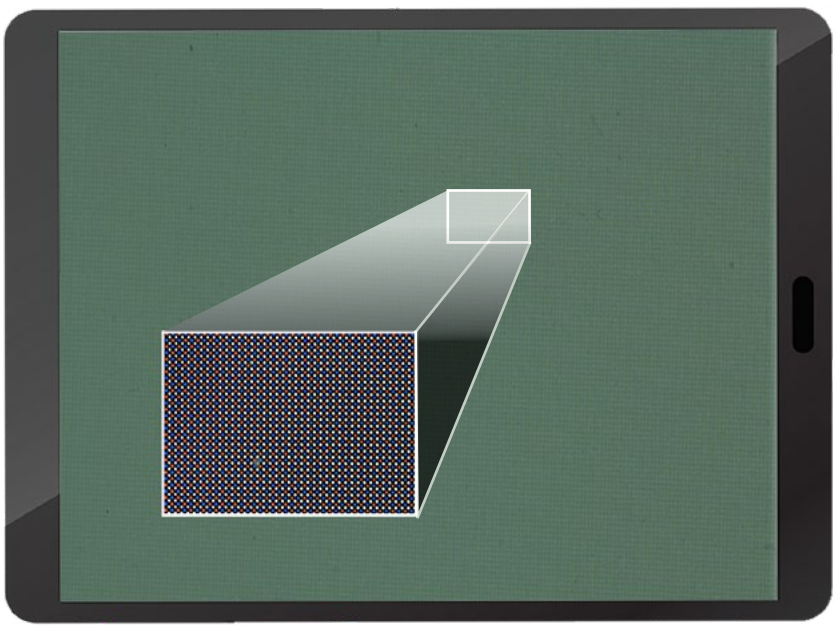
Main Features

iXM-MV150F (iXM-MV100)

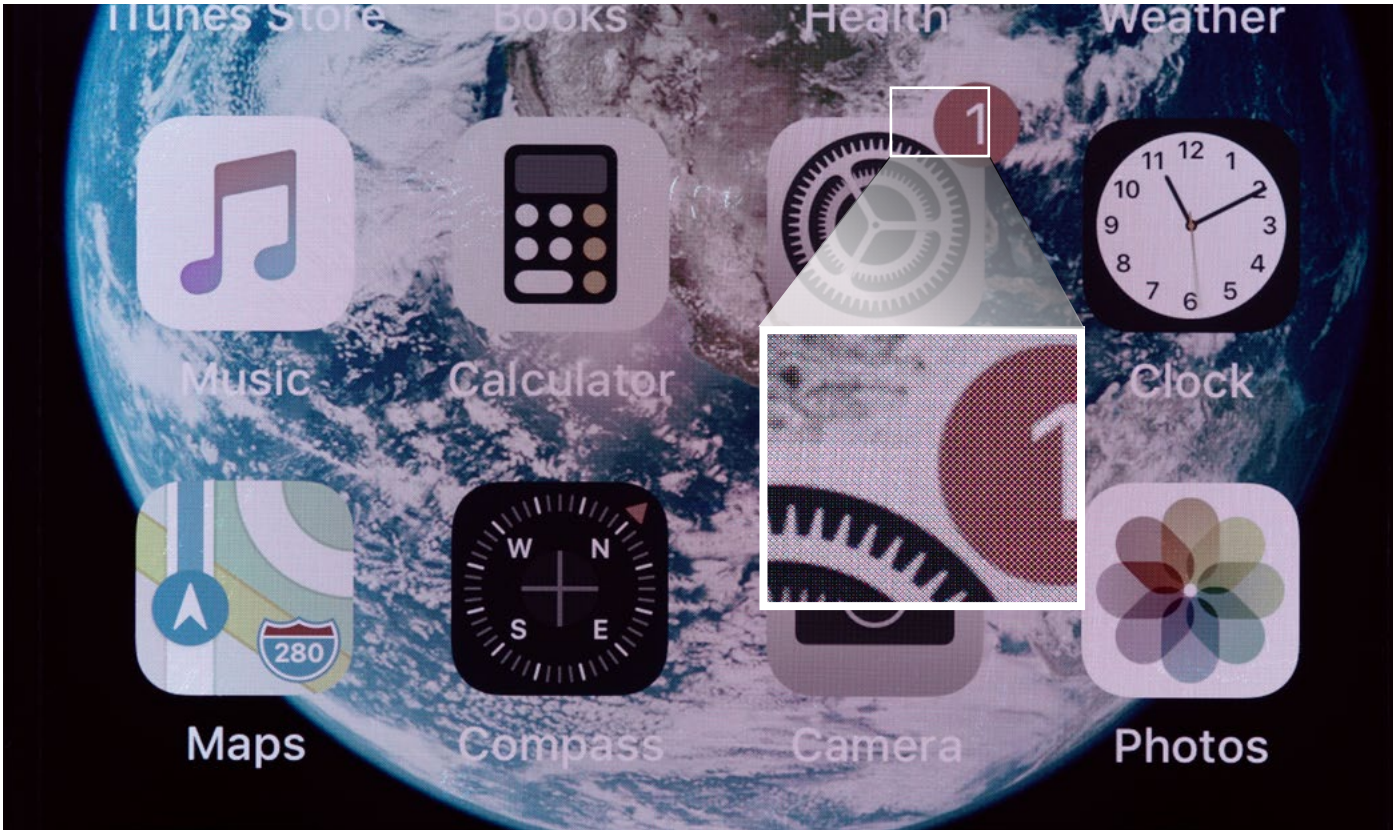
- 150MP (100MP)
- Pixel size 3.76 µm
- Pixel resolution: 14204 x 10652 (11664 x 8750)
- Sensor size: 53.4mm x 40mm
- Capture rate: 5fps (7fps)
- Dynamic range: 83dB
- Up to 16 bit per pixel
- Ethernet 10G
- Field upgradable firmware

Applications

- Flat Panel Display
- Semiconductor
- Solar Panels
- Electronic boards and components
- Automotive parts
- Scientific and special applications
- Motion film digitization




TP_PL_SEQ3
TP_PL_EN
TP7
TP_PL_SEQ1
TP_PL_SEQ2
TP2
TP61
TP4
TP1
TP60
TP62
TP9
TP63
TP6
TP10
TP3
JGDB
TP64
TP_WD_SET1
P62

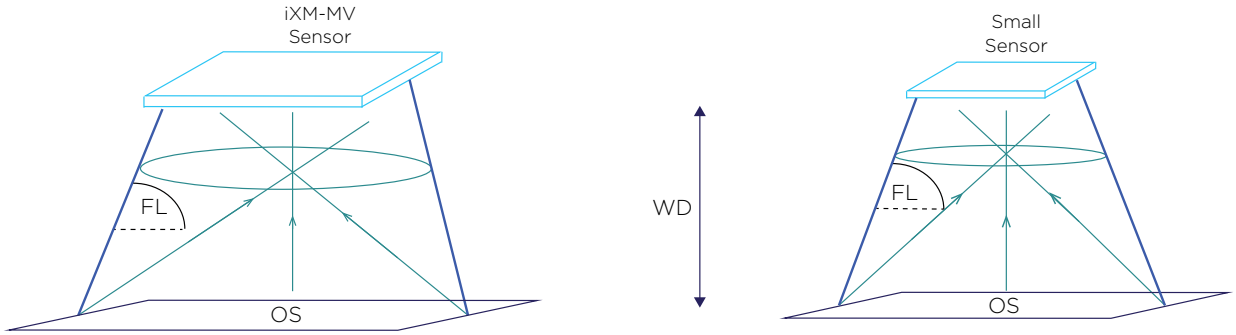

Music
Calculator
Clock
Maps
Compass
Camera
Photos
280
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Advantages of the iXM-MV Large Sensor

1. When same Working Distance and same Focal Length: Captured area is larger

Advantages:

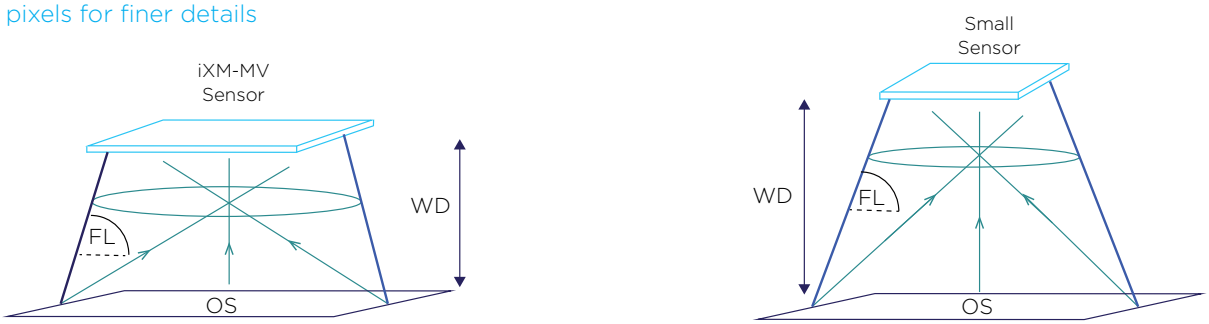
- Larger object captured
- More pixels for finer details



2. When same Object Size and same Focal Length: Working Distance is shorter

Advantages:

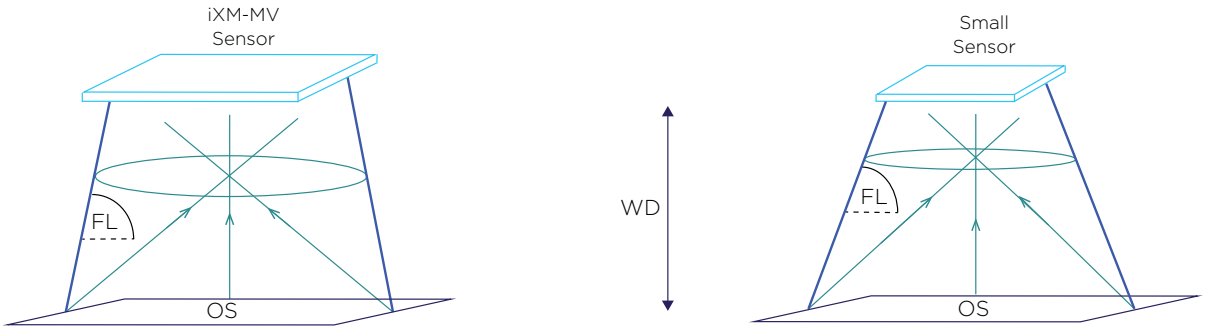
- More compact work setup
- More pixels for finer details



3. When same Working Distance and same Object Size: Focal Length is longer

Advantages:

- Longer lens for higher optical performance
- More pixels for finer details



WD: Working Distance **FL:** Focal Length **OS:** Object Size

$$\frac{\text{Working Distance}}{\text{Focal Length}} \sim \frac{\text{Object Size}}{\text{Sensor Size}}$$

Technical Specifications

Model	iXM- MV150F		iXM- MV150F Achromatic	iXM- MV100		iXM- MV100 Achromatic
Resolution	150 MP			100 MP		
	14204 x 10652			11664 x 8750		
Effective Sensor size (mm)	53.4 x 40.0 (66.7)			43.9 x 32.9 (54.9)		
Light sensitivity (ISO)	50-51200	200-204800		50-51200	200-204800	
Bits/pixel	**16**	**14**	**12**	**16**	**14**	**12**
Frame/s	1.8	3.5	4.5	2.3	4.4	5.7
S/frame	0.56	0.28	0.22	0.43	0.23	0.17
Aspect ratio	4:3					
Pixel size (µm)	3.76					
Lens mount options	M72					
Shutter	Electronic rolling shutter					
Shutter reset modes	Global, Rolling					
Shutter speed	250µs to 3600s					
Region of interest	Yes					
Trigger options	Software, Hardware					
Data Interfaces	Ethernet 10G Copper/Fiber, USB3					
Internal storage	XQD card, up to 256GB					
I/O Interfaces	Trigger, Ready, Strobe, Begin / End exposure					
HDMI Preview	1920x1080 30p					
IR Cut-off filter	Yes					
Power input (VDC)	12 - 30					
Max. Power consumption (W)	16					
Dynamic range (dB)	83					
Output formats	RAW buffer, TIFF, IIQ					
API SDK	Yes					
Weight with M72mm mount excluding lens (g)	800					
Dimensions with M72mm mount excluding lens (mm)	90x90x73 (90x90x103 with heat sink)					
Approvals	FCC Class A, CE, RoHS					
Cooling	Passive heat sink					
Operating Temperature (°C)	-10 to 40					
Operating Humidity (%)	15 - 80 (non-condensing)					

Technical Specifications of Linos Lenses

	60mm	100mm	105mm	120mm Float
Aperture Range	f/4 to f/22		f/5.6 to f/16	f/5.6 to f/16
Focal Length [mm]	60	100	105	122
Magnification range	0.2x – 0x		0.3x – 3x	0.06x – 0.52x
Working distance range [mm]	350-∞	570- ∞	100-610	300-2000
Image circle [mm]	82			
Filter	M49 X 0.75	M58 X 0.75	M43 X 0.75	M52 X 0.75
Dimension - LxW [mm/in]	57.6 x 62 / 2.26 x 2.45	73.4 x 60 / 2.89 x 2.36	72.8 x 65.6 / 2.86 x 2.58	72.7 x 68.5 / 2.86 x 2.7
Weight [g/lb]	240 g / 0.52 lb	340 g / 0.75 lb	360 g / 0.80 lb	570 g / 1.3 lb

Working Distance* for Linos Inspec.x L lenses

		iXM-MV150F	Working Distance [mm]							
M	Detail size [µm]	Target size [mm]	**60mm f/4**	**100mm f/4**	**105mm Float**	**105mm 0.33x**	**105mm 0.5x**	**105mm 0.76x**	**105mm 1.0x**	**120mm Float**
1.25x	3	43			425				425	
1.15x	3.25	46			420				420	
1.07x	3.5	50			415				415	
0.95x	4	57			415				415	
0.83x	4.5	64			415			415	415	
0.75x	5	71			425			425		
0.6x	6.3	89			445		445	445		
0.5x	7.5	107			470		470			300
0.4x	9.5	135			515	515	515			
0.35x	11	156			545	545				
0.3x	12.5	178			590	590				475
0.25x	15	213	390	630	660	660				
0.2x	18	256	432	700						
0.15x	25	355	543	880						940
0.1x	37	526	730	1200						
0.07x	50	710	940	1540						2000
0.03x	125	1776	2150	3540						
0.02x	180	2557	3020	5000						

* Object to Image

Configuration of Focusing Accessories

Linos Lenses 60/100mm





1. Extension Tube: up to 4 units
2. Camera Adapter
3. Focuser

Target Size* [mm]	Detail size [um]	Working** Distance	Linos Lens	Extension Tubes	Camera Adaptor
178 to 213	12.5 to 15	350 to 390	60mm f/4	1	✓
213 to 2560	15 to 180	390 to 3000		0	✓
178 to 213	12.5 to 15	570 to 630	100mm f/4	4	✓
213 to 850	15 to 60	630 to 1800		3	✓
850 to 2560	60 to 180	1800 to 5000		2	✓

Configuration of focusing accessories

Linos Lenses 105mm





1. Extension Tube: up to 5 units
2. Camera Adapter
3. Focuser
4. Lens Adapter (for lens 105mm/105mm float)

Target Size* [mm]	Detail size [um]	Working** Distance	Linos Lens	Extension Tubes	Camera Adaptor	Lens Adaptor
43 to 53	3 to 3.7	425 to 415	105mm 1.0x	5	✓	✓
53 to 58	3.7 to 4.1	415		4	✓	✓
58 to 64	4.1 to 4.5			3	✓	✓
64 to 89	4.5 to 6.3	415 to 445	105mm 0.76x	3	✓	✓
82 to 135	5.8 to 9.5	435 to 515	105mm 0.5x	2	✓	✓
118 to 156	8.3 to 11	490 to 545	105mm 0.33x	2	✓	✓
156 to 178	11 to 12.5	545 to 590		1	✓	✓

For [illegible]

** Object to image

Configuration of focusing accessories

Linos Lenses 120mm





1. Extension Tube: up to 5 units
2. Camera Adapter
3. Focuser
4. Lens Adapter (for 120mm float)

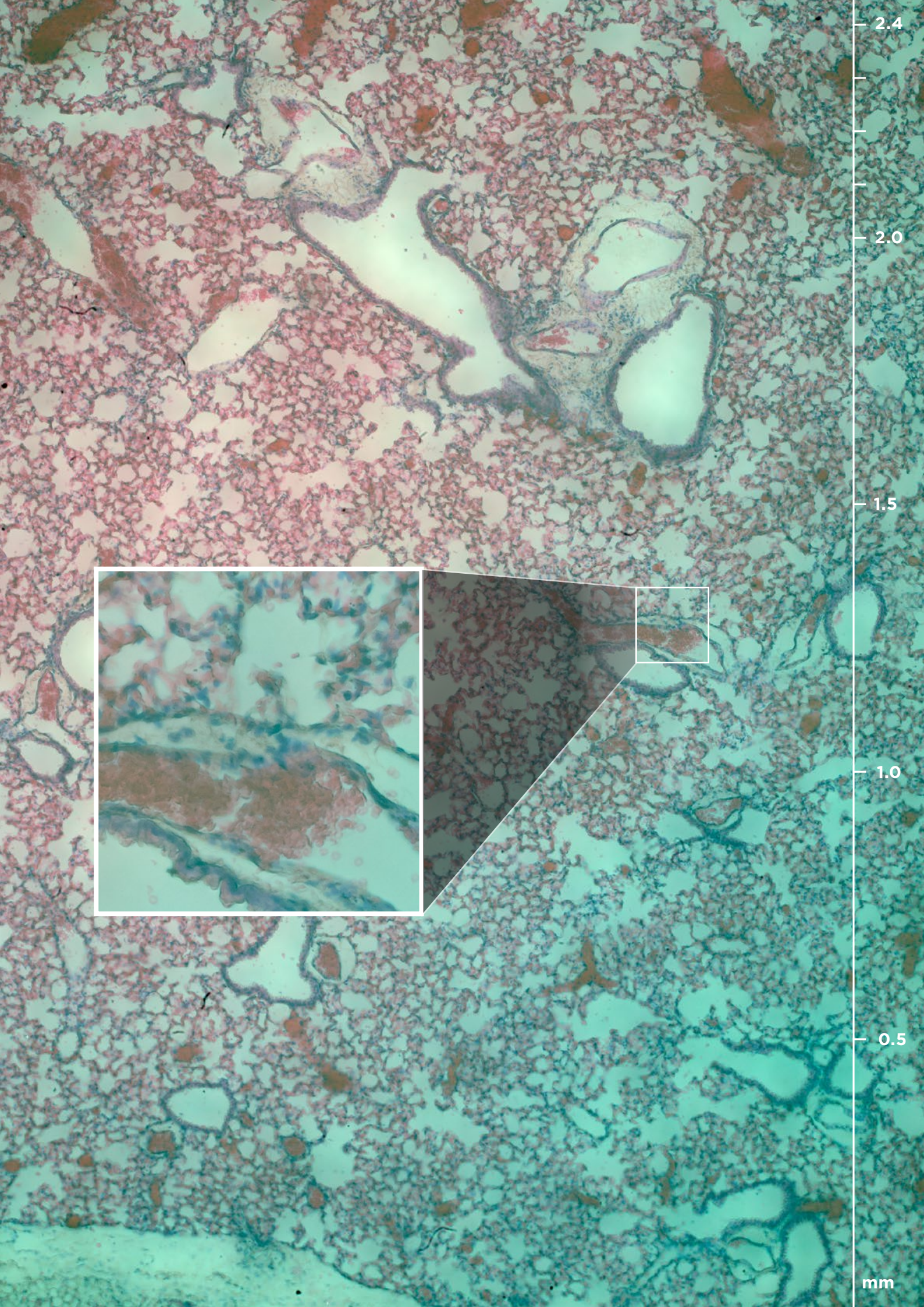
Magnification	Recommended f-stop	Target size [mm]	Detail size [um]	f' [mm]	Working Distance [mm]	Flange to Image [mm]
-0.06	8.4	890	62	122.2	2037	105.5
-0.14	7.8	380	27	121.7	940	115.4
-0.3	6.9	178	12.5	121	475	135.3
-0.52	5.6	103	7	120.4	302	162

Mag.x 125 System with tube lens 2.25x and iXM-MV 100 Camera



Objective lens	object size [mm]	*detail size [um]
2x	12.5	3.4
5x	5.0	1.4
8x	3.1	0.9

*For green light


2.4
2.0
1.5
1.0
0.5
mm



About Phase One

Phase One A/S is a leading researcher, developer and manufacturer of medium format and large format digital cameras, software, and imaging solutions.

Founded in 1993, Phase One is a pioneer of digital photography and has developed core imaging technologies and a range of digital cameras and imaging modules. Phase One provides the world's highest image quality in terms of resolution, dynamic range, color fidelity and geometric accuracy. As such, the company has grown to become the leading provider of high-end imaging technology across many business segments. This includes both hardware and software for aerial mapping, industrial inspection, and cultural heritage digitization, as well as serving the world's most demanding photographers.

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