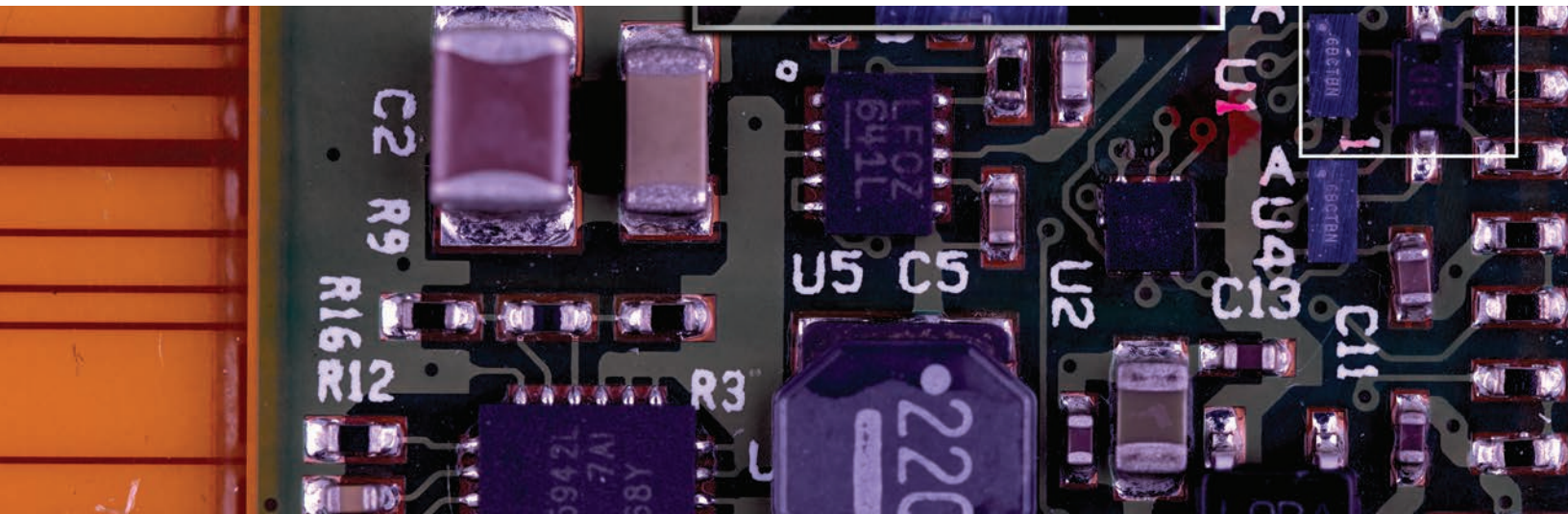


Phase One

Machine Vision Cameras

iXM-MV150F | iXM-MV100



PHASE**ONE**

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.

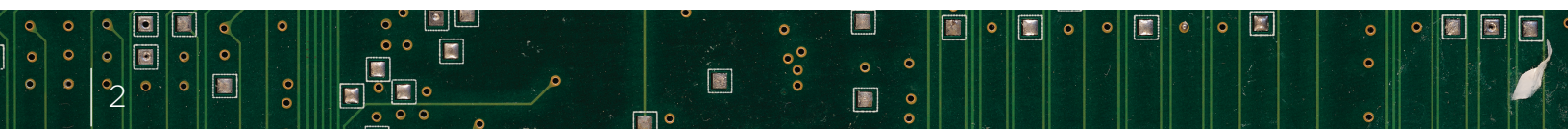
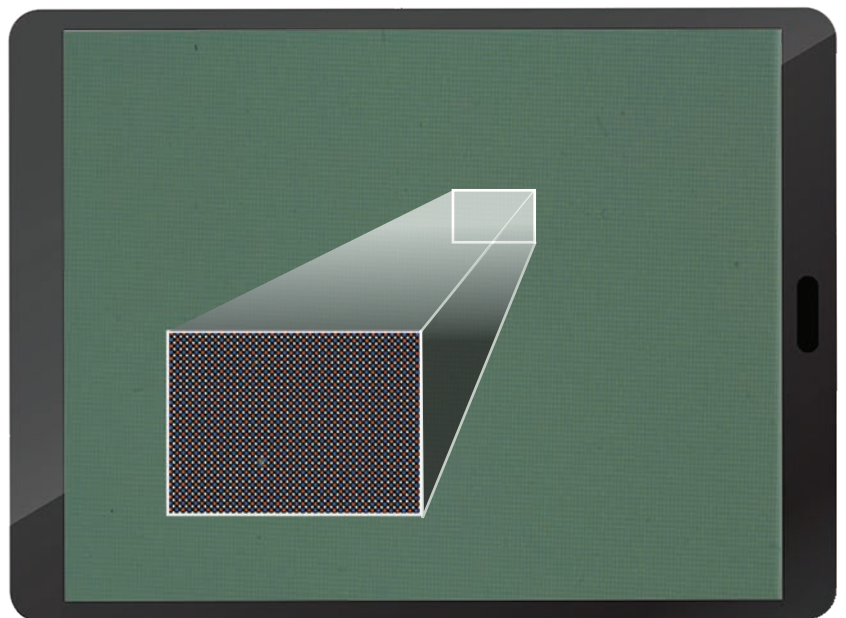
Main Features

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



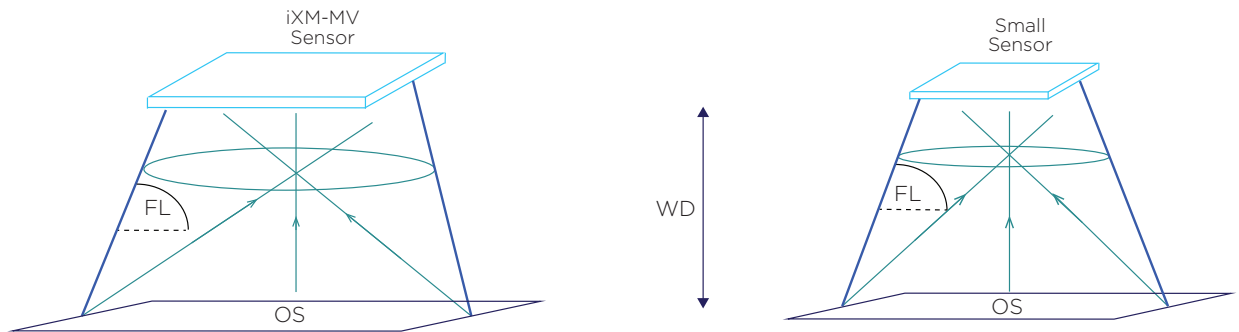


Advantages of the iXM-MV Large Sensor

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

Advantages:

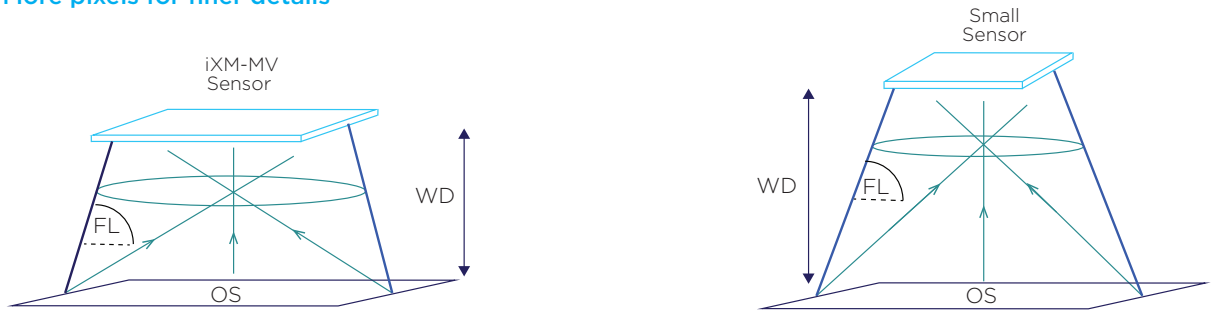
- Larger object captured
- More pixels for finer details



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

Advantages:

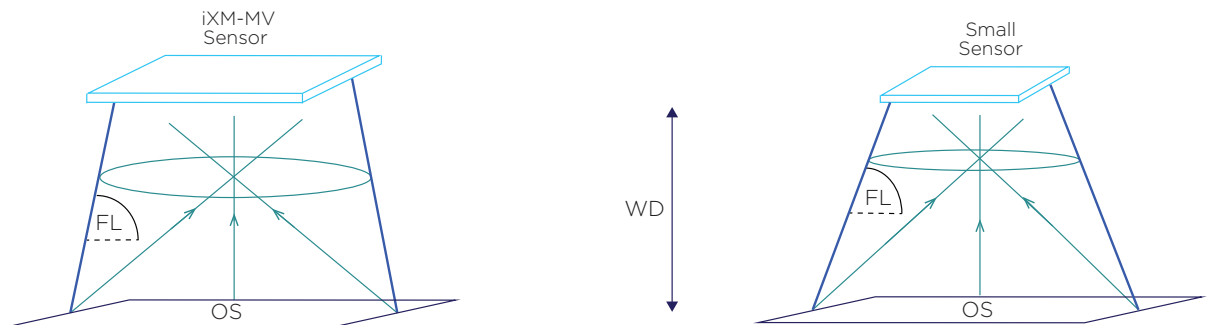
- More compact work setup
- More pixels for finer details



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

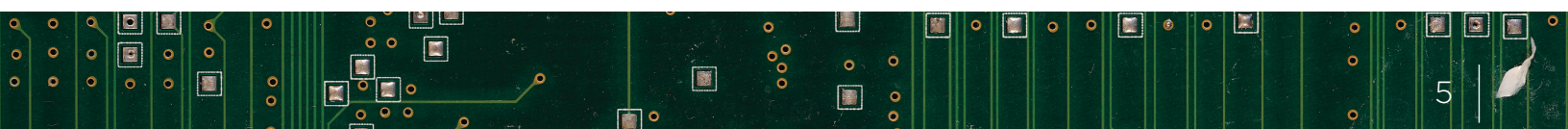
FL: Focal Length

OS: Object Size

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

Technical Specifications

	iXM- MV150F		iXM- MV150F Achromatic	iXM- MV100		iXM- MV100 Achromatic
Model						
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

M	Detail size [μm]	iXM-MV150F Target size [mm]	Working Distance [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

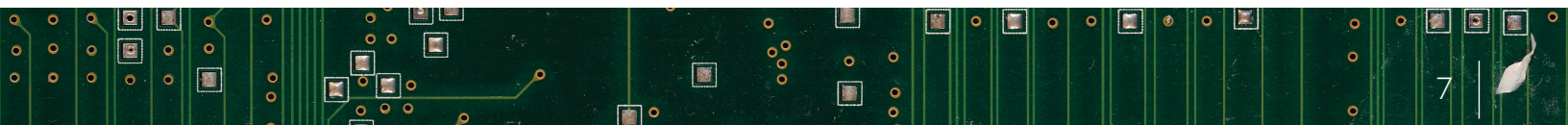
Configuration of Focusing Accessories

Linus Lenses 60/100mm



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

Target Size* [mm]	Detail size [um]	Working** Distance	Linus 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

Linios 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	Linios 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	✓	✓

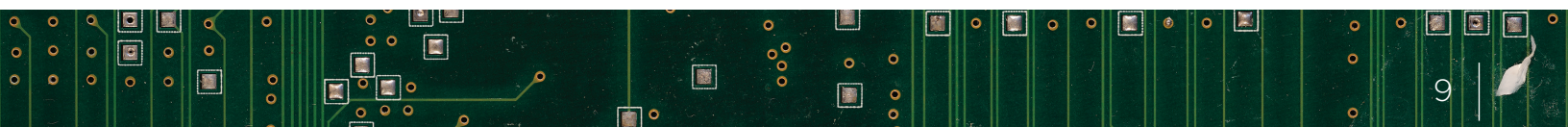
Configuration of focusing accessories

Linus 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

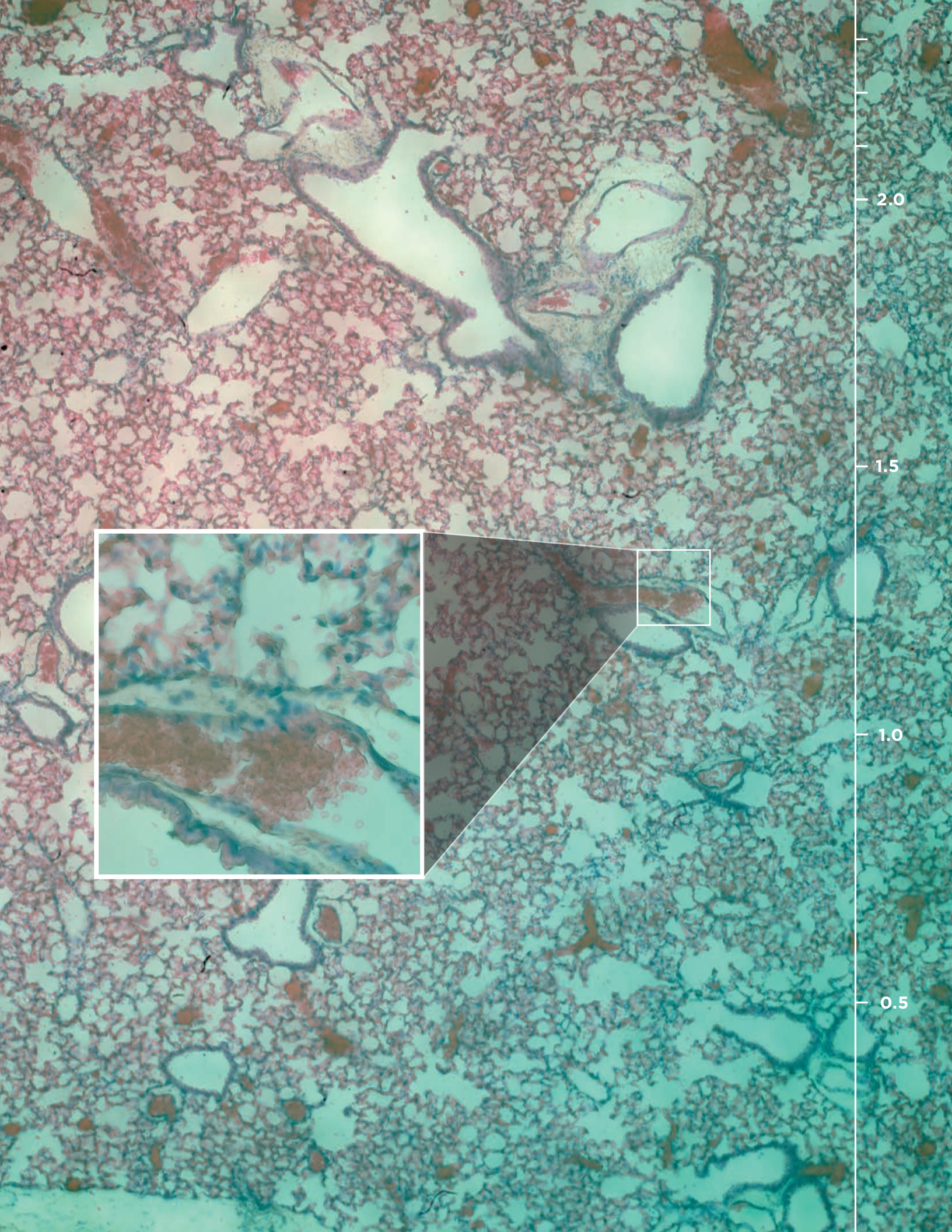


Mag.x 125 System with tube lens 2.25x and iXM-MV 100 Camera



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





About Phase One

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

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

Phase One A/S

Roskildevej 39
DK-2000 Frederiksberg
Denmark
Tel.: +45 36 46 0111
Fax: +45 36 46 0222

Phase One USA

11755 Airport Way, Suite 216,
Broomfield, CO 80021
USA
Tel: (1) 303 469 6657

Phase One Germany

Lichtstr. 43h
50825 Köln
Germany
Tel.: +49 (0)221/5402260
Fax: +49 (0)221/54022622

Phase One Japan Co., Ltd.

8F VOLT-Nagatachou
Bldg. 2-7-2 Hirakawachou,
Chiyoda-ku, Tokyo
102-0093, Japan
Tel: +81-3-6256-9681
Fax: +81-3-6256-9685



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