

VIEWWORKS



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Vieworks Industrial Lens

VEO LENS SERIES

VIEWWORKS

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Vieworks Industrial Lenses

VEO Lens Series

Working closely with Schneider Kreuznach, a global leader in industrial lenses, Vieworks has co-developed a line of lenses optimized for Vieworks' area scan and line scan cameras. VEO Series lenses are precisely designed to deliver optimal performance when coupled with Vieworks cameras.

VEO Series lenses demonstrate high performance regarding modulation transfer function (MTF), a measurement of a lens' ability to resolve fine detail. Particularly effective in detecting submicron defects, VEO Series lenses are perfect for flat panel display inspection where large area, high speed inspection is essential.

Introducing VEO industrial lenses, Vieworks marks its very first step toward providing complete vision solutions. Vieworks offers solutions that meet user needs by integrating high-performing cameras and lenses, optimized illumination solutions, and autofocus units with Vieworks' proprietary smart camera technology. As your vision partner, Vieworks delivers comprehensive and custom solutions, not just parts of a solution.



Overview

	VEO JM Series	VEO JK Series	VEO CS Series
			
Max. Sensor Size	82 mm (23k / 3.5 μ m, 16k / 5 μ m)	82 mm (23k / 3.5 μ m, 16k / 5 μ m)	62.5 mm (12k / 5 μ m)
Best Used with	VT Series (M95)	VT Series (M95) Large Format Cameras	VT Series (M72)
Magnification	5.0x, 3.33x, 2.5x, 1.67x, 1.43x	5.0x, 3.33x, 2.5x, 1.67x, 1.43x	5.0x, 3.33x, 2.5x, 1.67x, 1.143x, 0.07x
Interface	V90, V110 Mount	V90, V110 Mount	V70 Mount
Wavelength	400 nm – 700 nm	400 nm – 1000 nm	400 nm – 1000 nm
Beam Splitter	Coaxial type (25T / 35T)	-	Coaxial type (25T)

	VEO HJ Series	VEO YK Series
		
Max. Sensor Size	90 mm – 60 mm	43.2 mm
Magnification	0x – 0.5x	0x – 0.167x
Interface	V38 Mount	V48 Mount
F/# Range	F/4 ... F/64	F/2.2 ... F/16
Wavelength	400 nm – 1000 nm	400 nm – 1000 nm



VEO JM Series is a family of high resolution industrial lenses optimized for 16k TDI line scan. Precisely designed for Vieworks cameras, VEO JM Series achieves best image quality when used with Vieworks' 16k VT Series (M95).



VEO JK Series is a family of high resolution industrial lenses optimized for 16k and 23k TDI line scan and high resolution area scan. Precisely designed for Vieworks cameras, VEO JK Series achieves best image quality when used with Vieworks' 16k and 23k VT Series (M95) and high resolution area scan cameras.

Optimized for 16k TDI Line Scan

Designed for 16k / 5 μm line scan sensors with 82 mm image circles

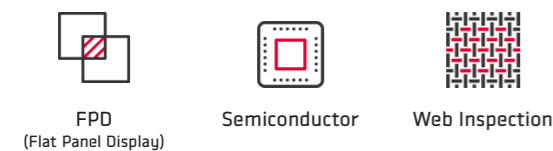
High Magnification

- High magnification of up to 5.0x
- Optical resolving power up to 1.0 μm

Superior Defect Detection

- Detects pinhole defects as small as 0.4 μm
- Detects island defects as small as 0.8 μm
- * Threshold value of 15, results may vary show variations

Applications



VEO JM Series

Model	Magnification	Optimal F/#	Numerical Aperture	Depth of Field	Working Distance	Max. Image Circle
VEO_JM DIAMOND 5.0X / F1.3	5.0 (4.9 ... 5.1)	F/1.3	0.305	6.2 μm	31 (32 ... 30) mm	82 mm
VEO_JM DIAMOND 3.33X / F2.1	3.33 (3.2 ... 3.4)	F/2.1	0.180	16.4 μm	39 (40 ... 38) mm	82 mm
VEO_JM DIAMOND 2.5X / F2.6	2.5 (2.4 ... 2.6)	F/2.6	0.134	29.2 μm	59.2 (60 ... 58) mm	82 mm
VEO_JM SAPPHIRE 1.67X / F3.0	1.67 (1.62 ... 1.72)	F/3.0	0.101	57.4 μm	50 (51 ... 49) mm	82 mm
VEO_JM SAPPHIRE 1.43X / F3.0	1.43 (1.38 ... 1.47)	F/3.0	0.10	71.2 μm	50 (51 ... 49) mm	82 mm

Optimized for 16k & 23k TDI Line Scan and High Resolution Area Scan

Designed for 16k / 5 μm , 23k / 3.5 μm line scan sensors with 82 mm image circles

High Magnification

- High magnification of up to 5.0x
- Optical resolving power up to 1.89 μm

Superior Defect Detection

- Detects pinhole defects as small as 0.4 μm
- Detects island defects as small as 0.7 μm
- * Threshold value of 15, results may vary show variations

Applications



VEO JK Series

Model	Magnification	Optimal F/#	Numerical Aperture	Depth of Field	Working Distance	Max. Image Circle
VEO_JK DIAMOND 5.0X / F1.3	5.0 (4.95 ... 5.05)	F/1.3	0.30	6.2 μm	74.3 (74.5 ... 74.2) mm	82 mm
VEO_JK DIAMOND 3.33X / F1.9	3.33 (3.28 ... 3.38)	F/1.9	0.18	14.8 μm	74.9 (75.6 ... 74.6) mm	82 mm
VEO_JK DIAMOND 2.5X / F2.6	2.5 (2.45 ... 2.55)	F/2.6	0.13	29.1 μm	97.8 (98.7 ... 96.8) mm	82 mm
VEO_JK SAPPHIRE 1.67X / 2.9	1.67 (1.62 ... 1.72)	F/2.9	0.11	55.5 μm	116.2 (118.4 ... 114.1) mm	82 mm
VEO_JK SAPPHIRE 1.43X / F3.0	1.43 (1.38 ... 1.48)	F/3.0	0.09	71.2 μm	141.4 (138.5 ... 144.6) mm	82 mm



VEO CS Series is a family of high resolution industrial lenses optimized for 12k TDI line scan. Precisely designed for Vieworks cameras, VEO CS Series achieves best image quality when used with Vieworks' 12k VT Series (M72).



VEO HJ Series is a family of industrial lenses optimized for large format area scan and line scan with 60 mm image circles. Precisely designed for Vieworks cameras, VEO HJ Series achieves best image quality when used with various Vieworks' area scan and line scan cameras.

Optimized for 12k TDI Line Scan

Designed for 12k / 5 μm line scan sensors with 62.5 mm image circles

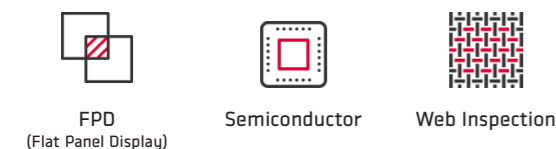
High Magnification

- High magnification of up to 5.0x
- Optical resolving power up to 1.0 μm

Superior Defect Detection

- Detects pinhole defects as small as 0.5 μm
- Detects island defects as small as 1.0 μm
- * Threshold value of 15, results may vary show variations

Applications



Optimized for Large Format Sensor

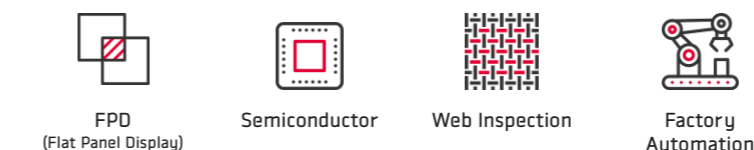
Suitable for both area scan and line scan with 90 mm to 60 mm image circles

Built for Harsh Environments

- Ruggedized for use in extreme conditions
- Resistance to vibration

For Short Working Distances

Applications



VEO CS Series

Model	Magnification	Optimal F/#	Numerical Aperture	Depth of Field	Working Distance	Max. Image Circle
VEO_CS DIAMOND 5.0X / F1.6	5.0 (4.9 ... 5.1)	F/1.6	0.261	7.68 μm	34 (34.3 ... 33.6) mm	62.5 mm
VEO_CS DIAMOND 3.33X / F2.3	3.33 (3.2 ... 3.4)	F/2.3	0.157	18.4 μm	55.5 (56.5 ... 54.5) mm	62.5 mm
VEO_CS DIAMOND 2.5X / F2.9	2.5 (2.4 ... 2.6)	F/2.9	0.121	32.48 μm	64.6 (65.6 ... 63.6) mm	62.5 mm
VEO_CS SAPPHIRE 1.67X / F3.2	1.67 (1.57 ... 1.77)	F/3.2	0.09	57.8 μm	64.4 (65.4 ... 63.4) mm	62.5 mm
VEO_CS SAPPHIRE 1.143X / F2.8	1.143 (1.08 ... 1.20)	F/2.8	0.10	91.9 μm	127.6 (132 ... 123) mm	62.5 mm
VEO_CS SAPPHIRE 0.07X / F4.5	0.07 (0.03 ... 0.17)	F/4.5	0.05	20,000 μm	1,400 (3,209 ... 601) mm	62.5 mm

VEO HJ Series

Model	Magnification	F/# Range	Working Distance	Object to Image Distance	Max. Image Circle	Interface
VEO_HJ APO 4.0 / 60	0 ... 0.5	F/4.0 ... F/32	156 mm ... ∞	1624 mm (0.04x) 726 mm (0.1x) 320 mm (0.33x)	60 mm	V38 Mount
VEO_HJ COMPONON-S 4.0 / 80	0 ... 0.5	F/4.0 ... F/45	214 mm ... ∞	2172 mm (0.04x) 971 mm (0.1x) 429 mm (0.33x)	80 mm	V38 Mount
VEO_HJ APO 4.5 / 90	0 ... 0.5	F/4.5 ... F/64	246 mm ... ∞	2466 mm (0.04x) 1102 mm (0.1x) 486 mm (0.33x)	90 mm	V38 Mount



VEO YK Series is a family of industrial lenses optimized for area scan and line scan with 43.2 mm image circles. Precisely designed for Vieworks cameras, VEO YK Series achieves best image quality when used with various Vieworks' area scan and line scan cameras.

Global Network



Optimized for Image Circle Diameter of 43.2 mm


Suitable for both area scan and line scan with 43.2 mm image circles

Covers a Broad Range of Wavelengths


- 400 nm – 1000 nm broadband AR (Anti-Reflective) coating
- For diverse applications from the visible to infrared

For Short Working Distances


Applications




FPD
(Flat Panel Display)



Semiconductor



Web Inspection



Factory
Automation

VEO YK Series


Model	Magnification	F/# Range	Working Distance	Object to Image Distance	Max. Image Circle	Interface
VEO_YK EMERALD 2.2 / 50	0 ... 0.167	F/2.2 ... F/16	327 mm ... ∞	1121 mm (0.05x) 610 mm (0.1x) 402 mm (0.17x)	43.2 mm	V48 Mount


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 China


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 Finland


 France


 Germany


 Israel


 Italy


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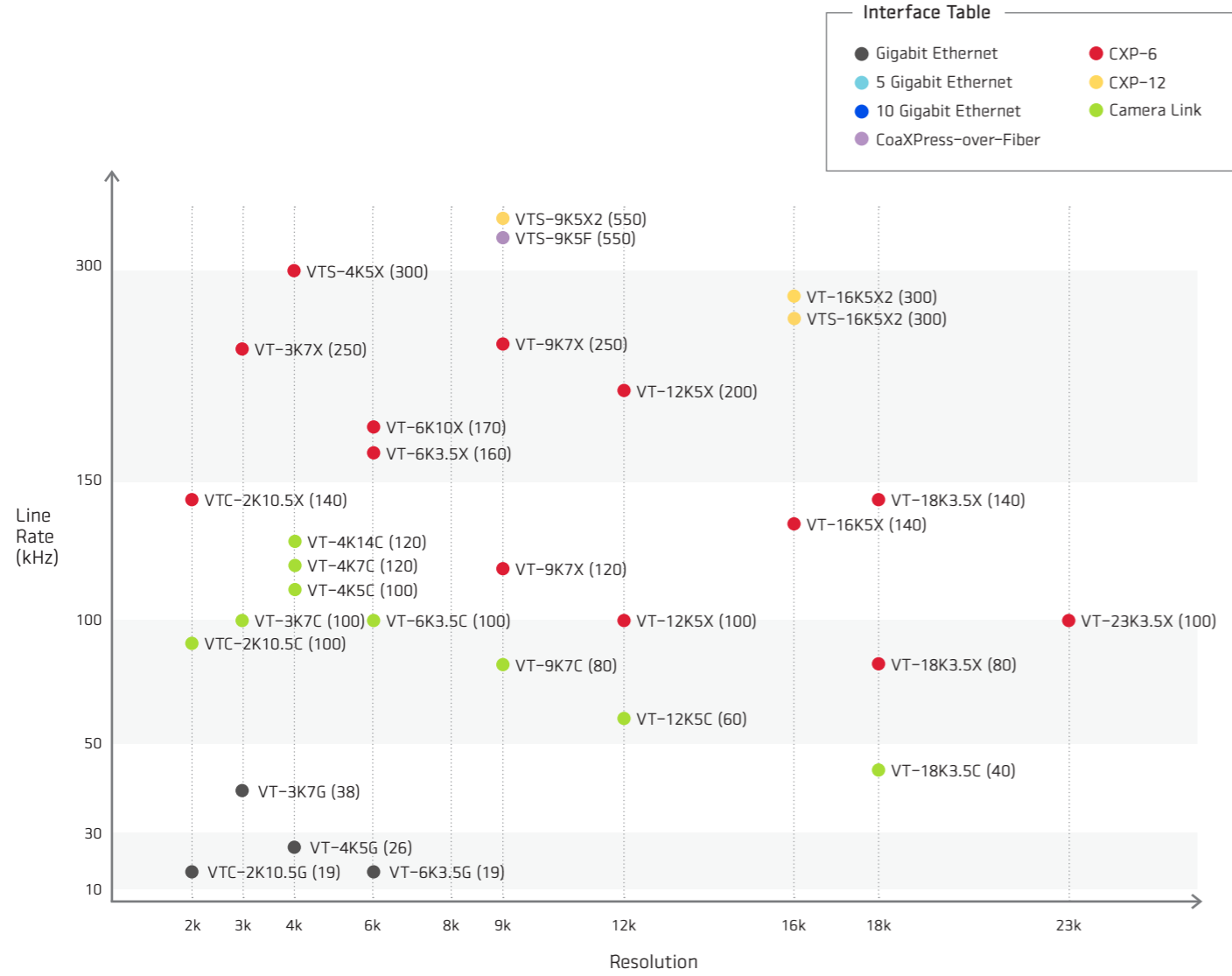
 Switzerland

 Thailand

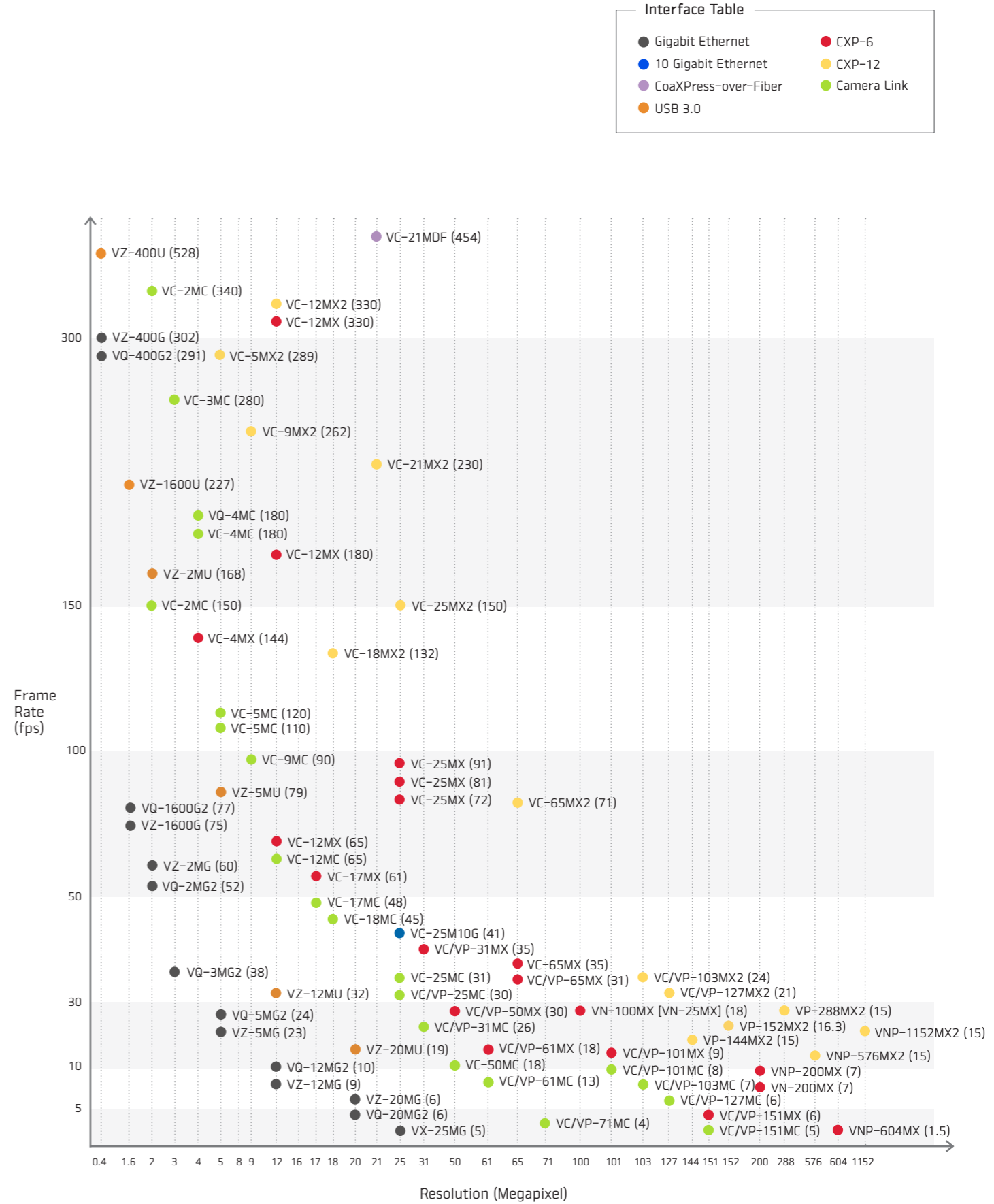
 United Kingdom

 United States

TDI Line Scan Cameras



Area Scan Cameras



Line Scan Cameras

