

LINE SCAN LENSES



LINE SCAN LENSES

Targeted at the line scan camera in the market, Vision Datum has developed lenses for 8K, 12K and 16K sensors. More than 30 models in this series with magnification varying from 0.0358X-3X, which could be applied in a variety of high resolution applications.

Vision Datum's line scan lenses stand out in their class with low price and good performance.

APPLICATION

- 1.FPD/ PCB inspection
- 2.Textile Industry Inspection
- 3.Railway Track Inspection, and more automatic optical Inspection and Microdefect Detection

Compact Line Scan Lenses
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Part name	EFL (mm)	Mag. (x)	WD (mm)	Format (mm)	Aperture (F/#)	Distortion (%)	Mount	Conjugate distance (mm)	Flange back (mm)	Resolution
VTL-2045-0.03X	20	0.0358x	557.4	Ø30	F4.5	0.20%	M42	619.1	12	4K7µ
VTL-2840-0.1X	29	0.1x	299.7	Ø30	F4.0	0.10%	V (Ø42.5)	368	26	4K7µ
VTL-3545-0.08X	35	0.08x	508.49	Ø30	F4.5	<0.05%	V (Ø38)	574.5	37.42	4K7µ
VTL-4028-0.1X	40	0.1x	429.9	Ø43	F2.8	<0.62%	V (Ø38)	468.67	39.62	4K7µ
VTL-4040-0.05X	40	0.05x	818.8	Ø60	F4.0	<0.2%	M72	943.08	12	4K7µ
VTL-8028-0.177X	80	0.177x	500	Ø30	F2.8	<0.2%	M42	620	12	4K7µ

5.5K5µ Line Scan Lenses
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Part name	EFL (mm)	Mag. (x)	Format (mm)	Aperture (F/#)	Distortion (%)	Min Working Distance (mm)	Best Working Distance (mm)	Mount	Flange back (mm)	Resolution
VTL-5.5K-0.1X-A	50	0.0946x	Ø30	F2.8	-0.61%	574	600-700	M42	12	5.5K5µ
VTL-5.5K-0.1X-B	50	0.0946x	Ø30	F2.8	-0.61%	574	600-700	M42	5.9	5.5K5µ
VTL-5.5K-0.09X-A	50	0.094x	Ø30	F4.0	-0.61%	574	600-700	M42	12	5.5K5µ
VTL-5.5K-0.09X-B	50	0.094x	Ø30	F4.0	-0.61%	574	600-700	M42	5.9	5.5K5µ

8K7µ Line Scan Lenses
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Part name	EFL (mm)	Mag. (x)	WD (mm)	Format (mm)	Aperture (F/#)	Distortion (%)	Mount	Conjugate distance (mm)	Flange back (mm)	Resolution
VTL-4040-0.05X	40	0.05x	818.8	Ø60	F4.0	<0.2%	M72	943.08	12	8K7µ
VTL-4540-0.2X	45	0.2x	223.5	Ø62	F4.0-16	<0.5%	M72	355.39	12	8K7µ
VTL-6040-0.167X	60	0.167x	404.4	Ø64	F4.0	0.19%	V (Ø38)	496.32	63.31	8K7µ
VTL-8056-0.146X	80	0.146x	591.1	Ø62	F5.6	0.05%	V (Ø38)	702.5	81.54	8K7µ
VTL-8056-0.21X	80	0.21x	418.85	Ø62	F5.6	0.05%	V (Ø38)	533.67	85.54	8K7µ
VTL-8056-0.3X	80	0.3x	320.26	Ø64	F5.6	<0.01%	V (Ø38)	451.78	102.92	8K7µ
VTL-10045-0.2X	100	0.2x	654.8	Ø66	F4.5	0.005%	V (Ø64)	827.8	123.5	8K7µ

12K5µ Line Scan Lenses
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Part name	EFL (mm)	Mag. (x)	WD (mm)	Format (mm)	Aperture (F/#)	Distortion (%)	Mount	Conjugate distance (mm)	Flange back (mm)	Resolution
VTL-12K-0.2X	116	0.2x	652.4	Ø62	F4.5	<0.01%	V (Ø56)	824.9	122.8	12K5µ
VTL-12K-0.33X	116	0.33x	415.1	Ø62	F4.5	<0.005%	V (Ø56)	599.7	134.9	12K5µ
VTL-12K-0.5X	116	0.5x	291.7	Ø62	F4.5	<0.01%	V (Ø56)	491	149.6	12K5µ
VTL-12K-0.75X	116	0.75x	209.8	Ø62	F4.5	<0.005%	V (Ø56)	429.85	170.3	12K5µ
VTL-12K-0.8X	116	0.806x	203.8	Ø62	F4.5	<0.005%	V (Ø56)	434.66	181.2	12K5µ
VTL-12K-1.0X	116	1.0x	164.2	Ø62	F4.5	<0.05%	V (Ø56)	400.56	186.7	12K5µ
VTL-12K-1.24X	116	1.24x	149.9	Ø62	F4.5	<0.005%	V (Ø56)	434.66	232.2	12K5µ

16K3.5μ Line Scan Lenses

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Part name	EFL (mm)	Mag. (x)	Image Size (Dia. mm)	Aperture (F/#)	Distortion (%)	Working distance (mm)	Mount	Conjugate distance (mm)	Flange back (mm)	Resolution
VTL-9040-0.1X	90	0.1x	Ø64	F4.0	0.01%	992.4	V (Ø64)	1123.5	82.7	16K3.5μ
VTL-9540-0.05X	95	0.05x	Ø62	F4.0	0.005%	1980.85	V (Ø56)	2112.94	81.2	16K3.5μ
VTL-16K-0.26X	114	0.26x	Ø66	F4.2	0.01%	497.5	V (Ø49)	627.16	128.3	16K3.5μ
VTL-16K-0.33X	116	0.33x	Ø66	F4.2	<0.001%	412	V (Ø49)	595	137	16K3.5μ
VTL-16K-0.42X	116	0.42x	Ø66	F3.8	0.007%	339.74	V (Ø49)	530.1	144.5	16K3.5μ
VTL-16K-0.5X	116	0.5x	Ø66	F3.8	0.0008%	296.2	V (Ø49)	496	153.3	16K3.5μ
VTL-16K-0.67X	116	0.67x	Ø66	F3.8	0.10%	237.4	V (Ø49)	453.5	170.2	16K3.5μ
VTL-16K-0.7X	116	0.7x	Ø66	F3.8	0.0001%	229.4	V (Ø49)	447.2	174.4	16K3.5μ
VTL-16K-0.75X	100	0.75x	Ø66	F3.8	0.0008%	220.8	V (Ø49)	444.8	180.5	16K3.5μ
VTL-16K-1.0X	116	1.0x	Ø66	F3.5	0.0005%	184.16	V (Ø49)	439.45	209.47	16K3.5μ

16K5μ Line Scan Lenses

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Part name	EFL (mm)	Mag (x)	Image Size (Dia. mm)	Aperture (F/#)	Distortion (%)	Working distance (mm)	Mount	Conjugate distance (mm)	Flange back (mm)	Resolution
VTL-16KP-0.26X	120	0.26x	Ø82	F4.0	0.001%	663.4	V (Ø49)	874.3	160.95	16K5μ
VTL-16KP-0.3X	120	0.3x	Ø82	F4.0	0.005%	534.64	V (Ø56)	757.63	169.37	16K5μ
VTL-16KP-0.5X	120	0.5x	Ø82	F4.0	0.002%	390.66	V (Ø56)	636.99	192.71	16K5μ
VTL-16KP0.625X	116	0.625x	Ø82	F3.8	0.17%	245.9	V (Ø49)	458.9	166.9	16K5μ
VTL-16KP-1.3X	116	1.33x	Ø84	F3.8	0.0003%	156.3	V (Ø49)	444.5	243.7	16K5μ
VTL-16KP-1.5X	116	1.5x	Ø84	F3.8	0.08%	143.9	V (Ø49)	453.7	263.8	16K5μ
VTL-16KP-1.7X	116	1.7x	Ø84	F3.8	0.05%	137.8	V (Ø49)	470	286.1	16K5μ
VTL-16KP-2.0X	120	2.0x	Ø82	F4.0	0.002%	127.2	V (Ø49)	496	332.8	16K5μ
VTL-16KP-3.0X	116	3.0x	Ø84	F4.0	0.001%	111.4	V (Ø49)	591.3	433.9	16K5μ
VTL-16KP-3.0X-L	120	3.0x	Ø82	F4.0	0.001%	143.02	V (Ø56)	757.63	568.28	16K5μ

Coaxial Illumination Line Scan Lenses

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Part name	EFL (mm)	Mag (x)	Format (mm)	Aperture (F/#)	Distortion (%)	Relative illumination (%)	Working distance (mm)	Mount	Conjugate distance (mm)	Flange back (mm)	Resolution
VTCL-16KP-1.0X	116	1.0x	Ø82	F3.8	0.0005%	90%	157.39	V (Ø49)	449.53	212.09	16K5μ
VTCL-16KP-1.3X	116	1.3x	Ø82	F4.3	0.0003%	90%	71.54	V (Ø56)	579.35	327.28	16K5μ
VTCL-16KP-1.5X	145	1.5x	Ø82	F4.3	0.08%	90%	27.3	V (Ø56)	592.1	351.95	16K5μ
VTCL-16KP-1.7X	116	1.7x	Ø82	F4.0	0.05%	90%	48.83	V (Ø56)	611.85	381.66	16K5μ
VTCL-16KP-2.0X	120	2.0x	Ø82	F4.0	0.0005%	90%	135.95	V (Ø56)	641.94	424.66	16K5μ
VTCL-16KP-3.0X	120	3.0x	Ø82	F4.0	0.005%	90%	112.6	V (Ø56)	759.5	565.5	16K5μ

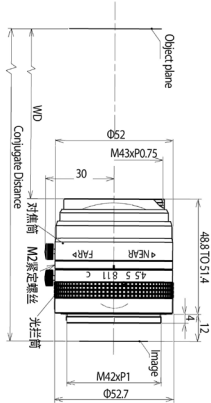
Compact Line Scan Lenses

FEATURES

1. Designed for compact line scan cameras
2. **Compatible with 4K7 μ line scan cameras**
3. Small magnification for the application of large size inspection
4. Interface could be changed from V-Mount to M42, M58 or F-Mount

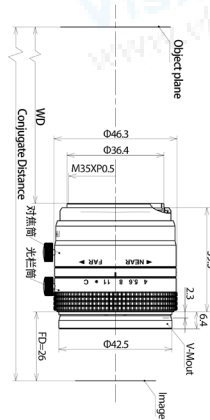


VTL-2045-0.03X



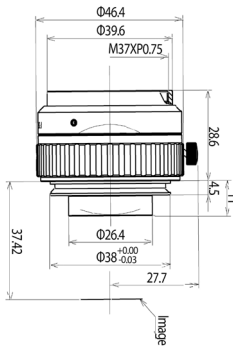
Mag.	0.1x	0.0358x	0.02x
WD (mm)	198.7±5	557.4±5	998.7±5
Image Distance (mm)	14.6±2.5	13.3±2.5	13.0±2.5
Conjugate Distance (mm)	261.7±9	619.1±9	1060.1±9
FFL (mm)	12±0.1		
EFL (mm)	20 mm		
Format	Ø30		
Aperture (F/#)	F4.5		
TV Distortion	0.2%		
Relative Illumination	>50%		
Mount	M42		

VTL-2840-0.1X



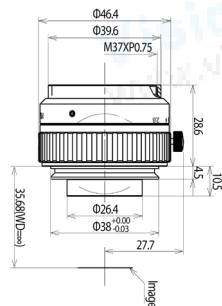
Mag.	0.05x	0.1x	0.3x
WD (mm)	594.7±5	299.7±5	103.0±5
Image Distance (mm)	24.5±2.5	26.0±2.5	31.8±2.5
Conjugate Distance (mm)	661.5±9	368±9	177.2±9
FOV	600	300	100
FFL (mm)	26±0.1		
EFL (mm)	29 mm		
Format	Ø30		
Aperture (F/#)	F4.0		
TV Distortion	0.1%		
Relative Illumination	40%		
Mount	V (Ø42.5)		

VTL-3545-0.08X



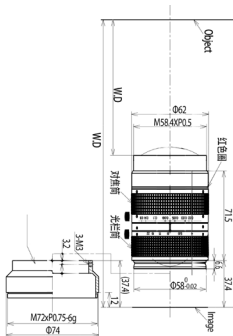
Mag.	0.04x	0.08x	0.1x
WD (mm)	1008.49±5	508.49±5	408.49±5
Image Distance (mm)	25.23±2.5	26.84±2.5	27.64±2.5
Conjugate Distance (mm)	1072.89±9	574.5±9	475.31±9
FFL (mm)	35.81±0.5	37.42±0.5	38.22±0.5
EFL (mm)	35 mm		
Format	Ø30		
Aperture (F/#)	F4.5		
TV Distortion	<0.05%	<0.01%	<0.03%
Relative Illumination	80%		
Mount	V (Ø38)		

VTL-4028-0.1X



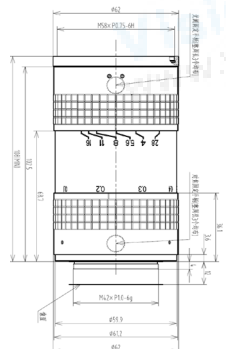
Mag.	0.04x	0.1x	0.33x
WD (mm)	1051.4±5	400±5	140.7±5
Image Distance (mm)	27.65±2.5	30.43±2.5	39.68±2.5
Conjugate Distance (mm)	1117.3±9	468.67±9	218.65±9
FOV	1085.3	402.9	130.8
FFL (mm)	37.31±0.5	40.1±0.5	49.34±0.5
EFL (mm)	40 mm		
Format	Ø43.2		
Aperture (F/#)	F2.8		
TV Distortion	0.39%	0.5%	0.62%
Relative Illumination	40%		
Mount	V (Ø38)		

VTL-4040-0.05X



Mag.	0.16x	0.05x	0.02x
WD (mm)	256.3±5	818.8±5	1982.1±5
Image Distance (mm)	-		
Conjugate Distance (mm)	385.78±9	943.08±9	2104.87±9
FOV	71°		
FFL (mm)	12±0.5 (37.4)		
EFL (mm)	40 mm		
Format	Ø60		
Aperture (F/#)	F4.0		
TV Distortion	<0.2%		
Relative Illumination	-		
Mount	M72		

VTL-8028-0.177X



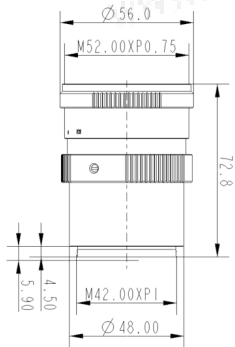
WD	220-5000	WD(mm)	Mag.
Magnification Range	0.46x-0.02x	220	0.46x
Max image	Ø30	250	0.394x
F.No	2.8-16	300	0.317x
FFL (mm)	12	350	0.26x
EFL (mm)	80±5%	500	0.177x
FOV	19.5°	600	0.145x
ENP Diameter	Ø28.5	800	0.106x
Distortion	<0.2%	1000	0.084x
Relative Illumination	>78%	1500	0.055x
Dimensions	Ø62x112	2000	0.04x
Filter Screw Size	M58xP0.75	3000	0.027x
Mount	M42xP1.0	5000	0.02x

5.5K5 μ Line Scan Lenses

FEATURES

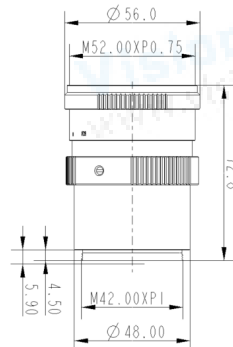
1. Designed for high resolution up to 5.5K5 μ
2. M42 mount as standard, adaptable to various camera mount
3. Large aperture F2.8

VTL-5.5K-0.1X-A



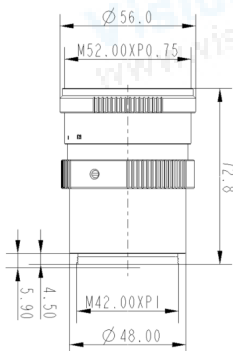
EFL (mm)	50
Mag. (x)	0.0946
Format (mm)	φ30
Aperture(F/#)	F2.8
Distortion	-0.61%
Relative Illumination	95.50%
Min WD (mm)	574
Best WD (mm)	600-700
Mount	M42 x 1
FFL (mm)	12
Resolution	5.5K 5 μ

VTL-5.5K-0.1X-B



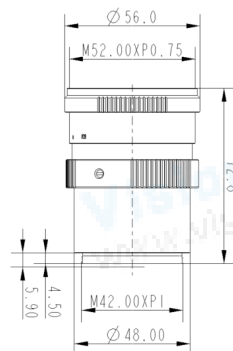
EFL (mm)	50
Mag. (x)	0.0946
Format (mm)	φ30
Aperture(F/#)	F2.8
Distortion	-0.61%
Relative Illumination	95.50%
Min WD (mm)	574
Best WD (mm)	600-700
Mount	M42 x 1
FFL (mm)	5.9
Resolution	5.5K 5 μ

VTL-5.5K-0.09X-A



EFL (mm)	50
Mag. (x)	0.094
Format (mm)	φ30
Aperture(F/#)	F4.0
Distortion	-0.61%
Relative Illumination	95.50%
Min WD (mm)	574
Best WD (mm)	600-700
Mount	M42 x 1
FFL (mm)	12
Resolution	5.5K 5 μ

VTL-5.5K-0.09X-B



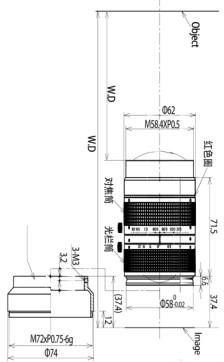
EFL (mm)	50
Mag. (x)	0.094
Format (mm)	φ30
Aperture(F/#)	F4.0
Distortion	-0.61%
Relative Illumination	95.50%
Min WD (mm)	574
Best WD (mm)	600-700
Mount	M42 x 1
FFL (mm)	5.9
Resolution	5.5K 5 μ

8K7μ Line Scan Lenses

FEATURES

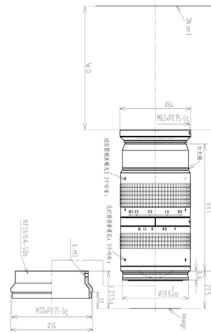
1. Specially designed for 8K7μ line scan camera
2. Optional standard EFL and magnification
3. Magnification from 0.02x-0.4x
4. V-mount as standard , adaptable to various camera mount
5. Applied to big size detection such as lithium battery

VTL-4040-0.05X



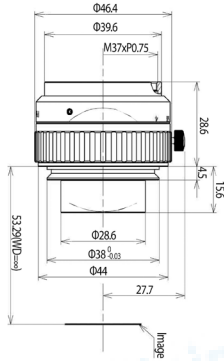
Mag.	0.16x	0.05x	0.02x
WD (mm)	256.3±5	818.8±5	1982.1±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	385.78±9	943.08±9	2104.87±9
FOV	71°		
FFL(mm)	12±0.5(37.4)		
EFL (mm)	40 mm		
Format	Ø60		
Aperture (F/#)	F4.0		
TV Distortion	<0.2%		
Relative Illumination	-		
Mount	M72		

VTL-4540-0.2X



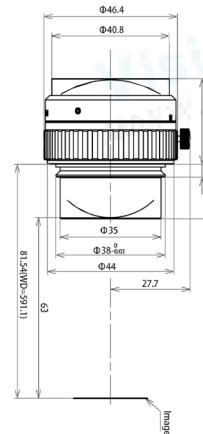
Mag.	0.03x	0.2x	0.35x
WD (mm)	1493.5	223.5	133.5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	-	-	-
FOV	53°-64°		
FFL(mm)	-		
EFL (mm)	45±5%		
Format	Ø62		
Aperture (F/#)	F4-16		
TV Distortion	<0.5%		
Relative Illumination	-		
Mount	M72		

VTL-6040-0.167X



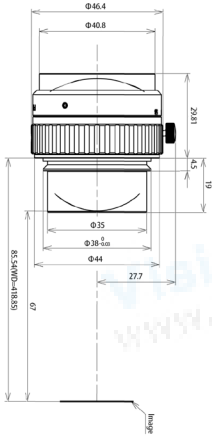
Mag.	0.04x	0.167x	0.33x
WD (mm)	1557.4±5	404.4±5	218.97±5
Image Distance (mm)	40.49±2.5	48.07±2.5	58.24±2.5
Conjugate Distance (mm)	1641.73±9	496.32±9	321.05±9
FOV	1591.2	386.92	192.5
FFL (mm)	55.73±0.5	63.31±0.5	73.48±0.5
EFL (mm)	60 mm		
Format	Ø64		
Aperture (F/#)	F4.0		
TV Distortion	0.6%	0.19%	0.12%
Relative Illumination	45%		
Mount	V (Ø38)		

VTL-8056-0.146X



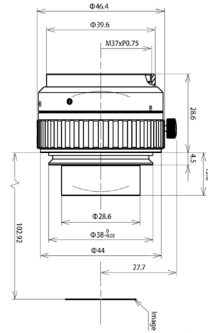
Mag.	0.13x	0.146x	0.167x
WD (mm)	658.3±5	591.1±5	522.3±5
Image Distance (mm)	61.7±2.5	63±2.5	64.7±2.5
Conjugate Distance (mm)	768.4±9	702.5±9	635.4±9
FOV	-		
FFL (mm)	80.24±0.5	81.54±0.5	83.24±0.5
EFL (mm)	80 mm		
Format	Ø62		
Aperture (F/#)	F5.6		
TV Distortion	0.05%	0.05%	0.05%
Relative Illumination	-		
Mount	V (Ø38)		

VTL-8056-0.21X



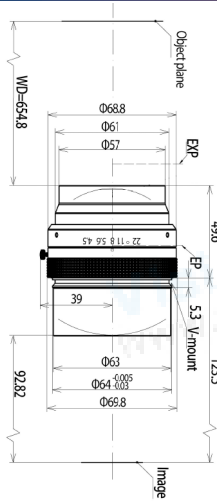
Mag.	0.194x	0.21x	0.233x
WD (mm)	449.8±5	418.85±5	381.8±5
Image Distance (mm)	65.7±2.5	67±2.5	68.8±2.5
Conjugate Distance (mm)	563.32±9	533.67±9	498.42±9
FOV	-		
FFL (mm)	84.24±0.5	85.54±0.5	87.34±0.5
EFL (mm)	80mm		
Format	Ø62		
Aperture (F/#)	F5.6		
TV Distortion	0.05%	0.05%	0.05%
Relative Illumination	-		
Mount	V (Ø38)		

VTL-8056-0.3X



Mag.	0.2x	0.3x	0.4x
WD (mm)	453.71±5	320.26±5	253.68±5
Image Distance (mm)	80.67±2.5	88.79±2.5	96.7±2.5
Conjugate Distance (mm)	577.11±9	451.78±9	393.11±9
FOV	-		
FFL (mm)	94.8±0.5	102.92±0.5	110.83±0.5
EFL (mm)	80 mm		
Format	Ø64		
Aperture (F/#)	F5.6		
TV Distortion	<0.03%	<0.01%	<0.01%
Relative Illumination	M37xP0.75		
Mount	V (Ø38)		

VTL-10045-0.2X



Mag.	0.15x	0.2x	0.25x
WD (mm)	860±5	654.8±5	538±5
Image Distance (mm)	86.58±2.5	92.82±2.5	98.81±2.5
Conjugate Distance (mm)	1026.7±9	827.8±9	717.1±9
FFL (mm)	117.0	123.5	129.2
FOV	34.6°		
EFL (mm)	100 mm		
Format	Ø66		
Aperture (F/#)	F4.5		
TV Distortion	0.005%		
Relative Illumination	-		
Mount	V (Ø64)		

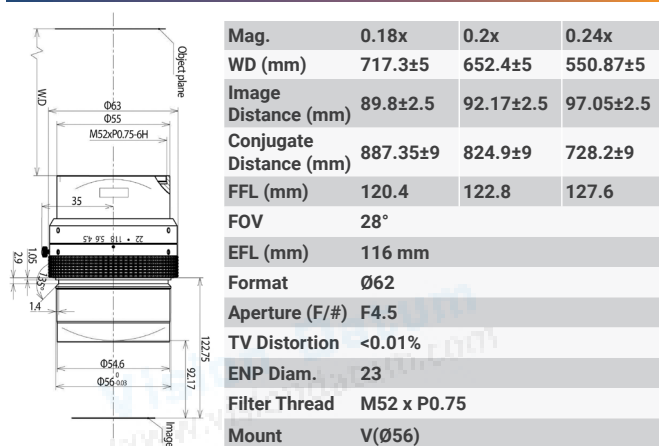
12K5 μ Line Scan Lenses

FEATURES

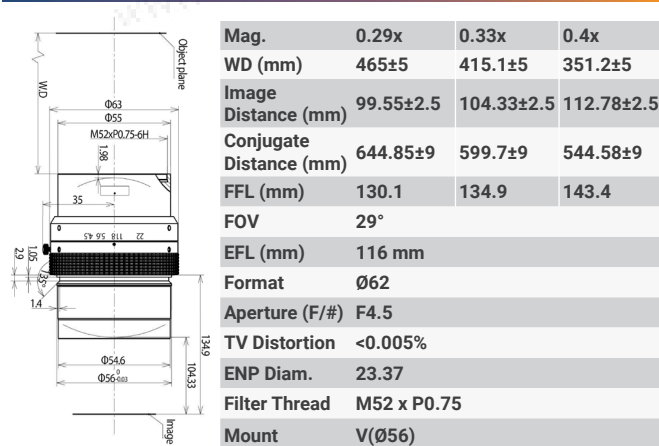
1. Max image circle up to $\Phi 62$ mm
2. Suitable for 8K/12K resolution camera
3. Standard magnification from 0.18x-1.29x
4. Big aperture F4.5
5. Ultra-low optical distortion



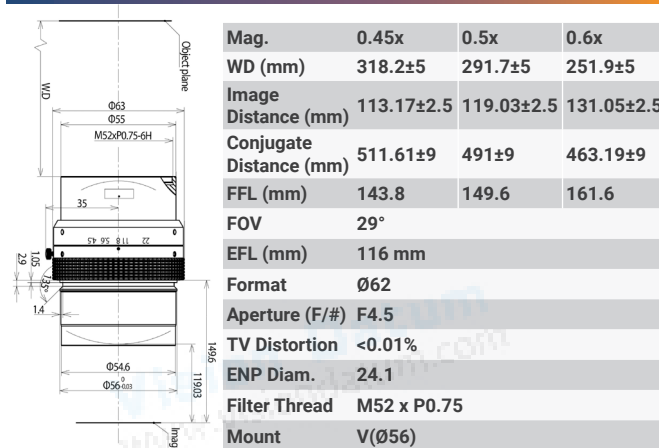
VTL-12K-0.2X



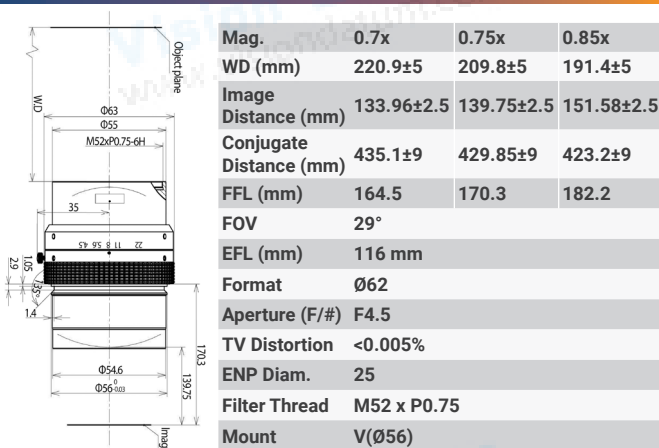
VTL-12K-0.33X



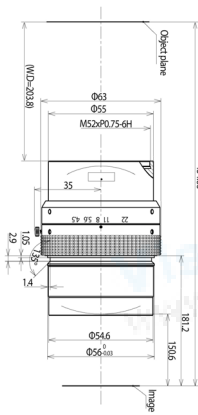
VTL-12K-0.5X



VTL-12K-0.75X

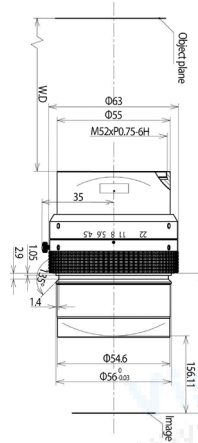


VTL-12K-0.8X



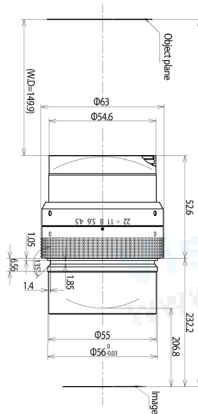
Mag.	0.85x	0.806x	0.75x
WD (mm)	196±5	203.8±5	214.9±5
Image Distance (mm)	155.88±2.5	150.6±2.5	143.82±2.5
Conjugate Distance (mm)	432.2±9	434.66±9	439.9±9
FFL (mm)	186.5	181.2	174.4
FOV	23°		
EFL (mm)	116 mm		
Format	Ø62		
Aperture (F/#)	F4.5		
TV Distortion	<0.005%		
ENP Diam.	26.08		
Filter Thread	M52 x P0.75		
Mount	V(Ø56)		

VTL-12K-1.0X



Mag.	0.9x	1.0x	1.1x
WD (mm)	176.7±5	164.2±5	153.7±5
Image Distance (mm)	144.8±2.5	156.11±2.5	167.67±2.5
Conjugate Distance (mm)	401.8±9	400.56±9	401.67±9
FFL (mm)	175.4	186.7	198.3
FOV	28°		
EFL (mm)	116 mm		
Format	Ø62		
Aperture (F/#)	F4.5		
TV Distortion	<0.05%		
ENP Diam.	25.6		
Filter Thread	M52 x P0.75		
Mount	V(Ø56)		

VTL-12K-1.24X



Mag.	1.29x	1.24x	1.19x
WD (mm)	146.2±5	149.9±5	154±5
Image Distance (mm)	212.56±2.5	206.8±2.5	200.62±2.5
Conjugate Distance (mm)	436.67±9	434.66±9	432.54±9
FFL (mm)	237.9	232.2	226
FOV	20.88°		
EFL (mm)	116 mm		
Format	Ø62		
Aperture (F/#)	F4.5		
TV Distortion	<0.005%		
ENP Diam.	29.75		
Filter Thread	M52 x P0.75		
Mount	V(Ø56)		

Vision Datum
www.visiondatum.com

Vision Datum
www.visiondatum.com

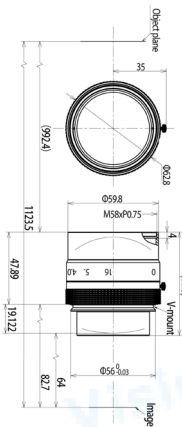
16K3.5μ Line Scan Lenses

FEATURES

1. Resolution of 3.5μ, up to 160lp/mm
2. Max image circle is up to 66mm, **also compatible with 12K5μ camera**
3. Optical distortion <0.005%
4. Big aperture F4.0

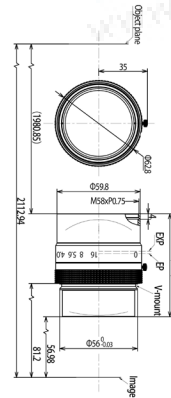


VTL-9040-0.1X



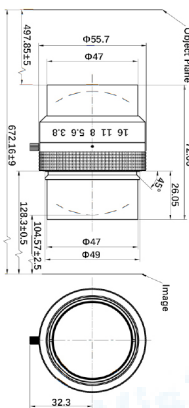
Mag.	0.14x	0.1x	0.08x
WD (mm)	722±5	922.4±5	1229.2±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	856.86±9	1123.5±9	1358.34±9
FOV	-	-	-
FFL (mm)	87±0.5	82.7±0.5	81.3±0.5
EFL (mm)	90 mm	-	-
Format	Ø64	-	-
Aperture (F/#)	F4.0-16	-	-
TV Distortion	0.01%	-	-
Relative Illumination	-	-	-
Mount	V (Ø64)	-	-

VTL-9540-0.05X



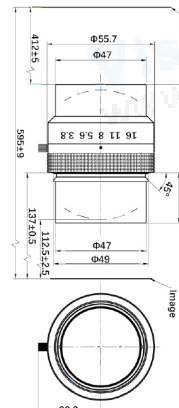
Mag.	0.03x	0.05x	0.08x
WD (mm)	3274.18±5	1980.85±5	1253.35±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	3403.23±9	2112.94±9	1388.36±9
FOV	-	-	-
FFL (mm)	79.26±0.5	81.2±0.5	84.11±0.5
EFL (mm)	95 mm	-	-
Format	Ø62	-	-
Aperture (F/#)	F4.0-16	-	-
TV Distortion	<0.05%	-	-
Relative Illumination	-	-	-
Mount	V (Ø56)	-	-

VTL-16K-0.26X



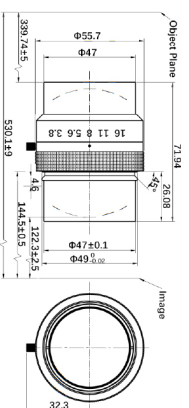
Mag. (x)	0.23x	0.26x	0.28x
WD (mm)	555.5±5	497.85±5	466.6±5
Image Distance (mm)	101.14±2.5	104.57±2.5	106.89±2.5
Conjugate Distance (mm)	726.28±9	672.16±9	643.08±9
FFL (mm)	124.72±0.5	128.3±0.5	130.47±0.5
FOV	28.6°	-	-
EFL (mm)	114 mm	-	-
Format	Ø66	-	-
Aperture(F/#)	F4.2	-	-
Distortion	0.01%	-	-
ENP Diameter	27.12	-	-
Mount	V (Ø49)	-	-

VTL-16K-0.33X



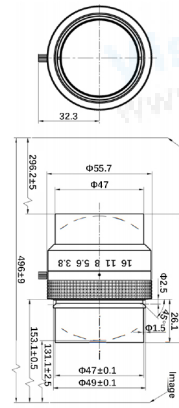
Mag. (x)	0.31x	0.33x	0.36x
WD (mm)	434.7±5	412±5	382.8±5
Image Distance (mm)	110.2±2.5	112.5±2.5	116±2.5
Conjugate Distance (mm)	615.4±9	595±9	569.3±9
FFL (mm)	134.7	137	140.5
FOV	13.83°	-	-
EFL (mm)	116 mm	-	-
Format	Ø66	-	-
Aperture(F/#)	F4.2	-	-
Distortion	0.001%	-	-
ENP Diameter	27.57	-	-
Mount	V (Ø49)	-	-

VTL-16K-0.42X



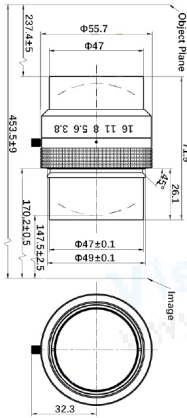
Mag. (x)	0.38x	0.42x	0.45x
WD (mm)	368.69±5	339.74±5	321.15±5
Image Distance (mm)	117.67±2.5	122.3±2.5	125.78±2.5
Conjugate Distance (mm)	554.4±9	530.1±9	514.97±9
FFL (mm)	139.85±0.5	144.5±0.5	147.96±0.5
FOV	28.5°	-	-
EFL (mm)	116 mm	-	-
Format	Ø66	-	-
Aperture(F/#)	F3.8	-	-
Distortion	0.007%	-	-
ENP Diameter	30.46	-	-
Mount	V (Ø49)	-	-

VTL-16K-0.5X



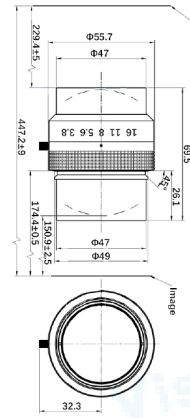
Mag. (x)	0.46x	0.469x	0.5x	0.54x
WD (mm)	315.9±5	311.2±5	296.2±5	278.7±5
Image Distance (mm)	126.6	127.6	131.1	135.8
Distance (mm)	±2.5	±2.5	±2.5	±2.5
Conjugate Distance (mm)	511.2±9	507.5±9	496±9	483.2±9
FFL (mm)	148.8	149.8	153.3	158
FOV	21.8°	-	-	-
EFL (mm)	116 mm	-	-	-
Format	Ø66	-	-	-
Aperture(F/#)	F3.8	-	-	-
Distortion	0.0008%	-	-	-
ENP Diameter	30.52	-	-	-
Mount	V (Ø49)	-	-	-

VTL-16K-0.67X



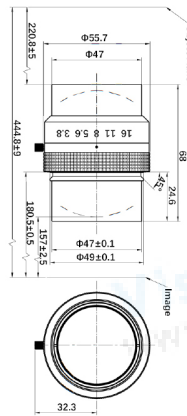
Mag. (x)	0.65x	0.67x	0.7x
WD (mm)	242.7±5	237.4±5	230.1±5
Image Distance (mm)	145.3±2.5	147.5±2.5	151±2.5
Conjugate Distance (mm)	456.4±9	453.5±9	449.5±9
FFL (mm)	167.9±0.5	170.2±0.5	173.6±0.5
FOV	98.5 mm		
EFL (mm)	116 mm		
Format (mm)	Ø66		
Aperture(F/#)	F3.8		
Distortion	0.1%		
ENP Diameter	Ø30.5		
Mount	V (Ø49)		

VTL-16K-0.7X



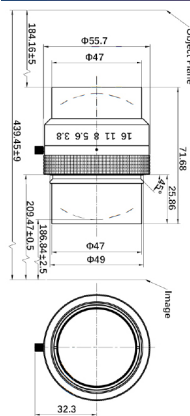
Mag. (x)	0.66x	0.7x	0.75x
WD (mm)	240.1±5	229.4±5	219.3±5
Image Distance (mm)	145.9±2.5	150.9±2.5	156.2±2.5
Conjugate Distance (mm)	452.9±9	447.2±9	442.4±9
FFL (mm)	169.4	174.4	179.7
FOV	14.1°		
EFL (mm)	116 mm		
Format (mm)	Ø66		
Aperture(F/#)	F3.8		
Distortion	0%		
ENP Diameter	30.28		
Mount	V (Ø49)		

VTL-16K-0.75X



Mag. (x)	0.7x	0.75x	0.8x
WD (mm)	232±5	220.8±5	211±5
Image Distance (mm)	151.2±2.5	157±2.5	162.9±2.5
Conjugate Distance (mm)	450.1±9	444.8±9	440.9±9
FFL (mm)	174.7±0.5	180.5±0.5	186.4±0.5
FOV	18.8°		
EFL (mm)	100 mm		
Format (mm)	Ø66		
Aperture(F/#)	F3.8		
Distortion	0.0008%		
ENP Diameter	30.28		
Mount	V (Ø49)		

VTL-16K-1.0X



Mag. (x)	0.93x	1.0x	1.07x
WD (mm)	192.48±5	184.16±5	176.28±5
Image Distance (mm)	178.78±2.5	186.84±2.5	194.87±2.5
Conjugate Distance (mm)	439.7±9	439.45±9	439.6±9
FFL (mm)	201.4±0.5	209.47±0.5	217.5±0.5
FOV	16.2°		
EFL (mm)	116 mm		
Format (mm)	Ø66		
Aperture(F/#)	F3.5		
Distortion	0.0005%		
ENP Diameter	33.06		
Mount	V (Ø49)		

16K5μ Line Scan Lenses

FEATURES

1. Specially designed for 16K5μ super high resolution line scan camera
2. Lens real resolution up to 160lp / mm
3. Provide higher contrast for cameras
4. Max image circle up to 82mm ,also compatible with 12K5μ / 16K3.5μ camera
5. Optical distortion < 1 pixel size
6. Magnification from 0.22x-4.5x



VTL-16KP-0.26X

Mag. (x)	0.22x	0.26x	0.3x
WD (mm)	767.64±5	663.34±5	587.64±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	969.75±9	874.3±9	804.5±9
FFL (mm)	155.15	160.95	166.85
FOV	-	-	-
EFL (mm)	116 mm	-	-
Format (mm)	Ø82	-	-
Aperture(F/#)	F3.8-16	-	-
Distortion	0.001%	-	-
ENP Diameter	-	-	-
Mount	V (Ø49)	-	-

VTL-16KP-0.3X

Mag. (x)	0.29x	0.33x	0.38x
WD (mm)	599.5±5	534.64±5	480±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	816.1±9	757.63±9	709.9±9
FFL (mm)	163±0.5	169.37±0.5	176.3±0.5
FOV	-	-	-
EFL (mm)	120 mm	-	-
Format (mm)	Ø82	-	-
Aperture(F/#)	F4.0-16	-	-
Distortion	0.005%	-	-
ENP Diameter	-	-	-
Mount	V (Ø56)	-	-

VTL-16KP-0.5X

Mag. (x)	0.43x	0.5x	0.57x
WD (mm)	437.5±5	390.66±5	354±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	674±9	636.99±9	611±9
FFL (mm)	181±0.5	192.71±0.5	202±0.5
FOV	-	-	-
EFL (mm)	120 mm	-	-
Format (mm)	Ø82	-	-
Aperture(F/#)	F4.0-16	-	-
Distortion	0.002%	-	-
ENP Diameter	-	-	-
Mount	V (Ø56)	-	-

VTL-16KP-0.625X

Mag. (x)	0.59x	0.625x	0.67x
WD (mm)	260.5±5	245.9±5	237.5±5
Image Distance (mm)	138.6±2.5	142.6±2.5	147.6±2.5
Conjugate Distance (mm)	465.7±9	458.9±9	451.7±9
FFL (mm)	163±0.5	166.9±0.5	172±0.5
FOV	26.2°	-	-
EFL (mm)	116 mm	-	-
Format (mm)	Ø82	-	-
Aperture(F/#)	F3.8	-	-
Distortion	0.001%	-	-
ENP Diameter	Ø29.8	-	-
Mount	V (Ø49)	-	-

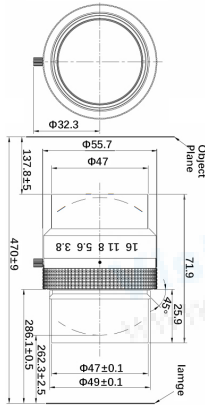
VTL-16KP-1.3X

Mag. (x)	1.25x	1.33x	1.47x
WD (mm)	161.9±5	156.36±5	148.1±5
Image Distance (mm)	212±2.5	221.2±2.5	237.3±2.5
Conjugate Distance (mm)	440.8±9	444.5±9	452.4±9
FFL (mm)	234.5	243.7	259.8
FOV	13.9°	-	-
EFL (mm)	116 mm	-	-
Format (mm)	Ø84	-	-
Aperture(F/#)	F3.8	-	-
Distortion	0.0003%	-	-
ENP Diameter	Ø30.28	-	-
Mount	V (Ø49)	-	-

VTL-16KP-1.5X

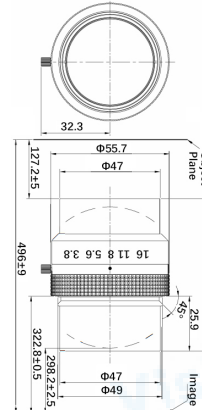
Mag. (x)	1.3x	1.5x	1.6x
WD (mm)	155.7±5	143.9±5	139.1±5
Image Distance (mm)	217.6±2.5	240.5±2.5	252±2.5
Conjugate Distance (mm)	442.6±9	453.7±9	460.4±9
FFL (mm)	240.9±0.5	263.8±0.5	275.3±0.5
FOV	54.7 mm	-	-
EFL (mm)	116 mm	-	-
Format (mm)	Ø84	-	-
Aperture(F/#)	F3.8	-	-
Distortion	0.08%	-	-
ENP Diameter	Ø30.6	-	-
Mount	V (Ø49)	-	-

VTL-16KP-1.7X



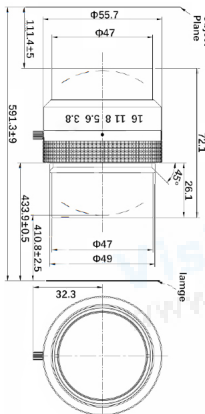
Mag. (x)	1.65x	1.7x	1.73x
WD (mm)	139.9±5	137.8±5	136.7±5
Image Distance (mm)	256.5±2.5	262.3±2.5	265.8±2.5
Conjugate Distance (mm)	466.3±9	470±9	472.3±9
FFL (mm)	280.3	286.1	289.6
FOV	Ø38.8		
EFL (mm)	116 mm		
Format (mm)	Ø84		
Aperture(F/#)	F3.8		
Distortion	0.05%		
ENP Diameter	Ø30.9		
Mount	V (Ø49)		

VTL-16KP-2.0X



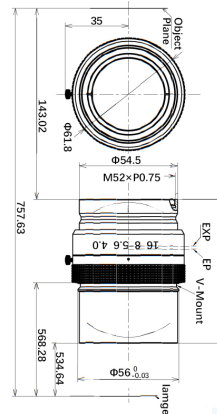
Mag. (x)	1.75x	2x	2.25x
WD (mm)	135.7±5	127.2±5	121±5
Image Distance (mm)	268.4±2.5	298.3±2.5	326.4±2.5
Conjugate Distance (mm)	474.7±9	496±9	517.9±9
FFL (mm)	292.9±0.5	322.8±0.5	350.9±0.5
FOV	11.3°		
EFL (mm)	116 mm		
Format (mm)	Ø84		
Aperture(F/#)	F3.8		
Distortion	0.0008%		
ENP Diameter	Ø30.52		
Mount	V (Ø49)		

VTL-16KP-3.0X



Mag. (x)	2.5x	3x	4.5x
WD (mm)	119.2±5	111.4±5	98.6±5
Image Distance (mm)	352.8±2.5	410.8±2.5	583.8±2.5
Conjugate Distance (mm)	541.1±9	591.3±9	751.5±9
FFL (mm)	375.9	433.9	606.9
FOV	13.83°		
EFL (mm)	116 mm		
Format (mm)	Ø84		
Aperture(F/#)	F4.2		
Distortion	0.001%		
ENP Diameter	Ø29.52		
Mount	V (Ø49)		

VTL-16KP-3.0X-L



Mag. (x)	2.5x	3x	4.5x
WD (mm)	155.3±5	143.02±5	128.8±5
Image Distance (mm)	-	-	-
Conjugate Distance (mm)	681±9	757.63±9	864.5±9
FFL (mm)	479.1±0.5	568.28±0.5	585±0.5
FOV	-		
EFL (mm)	120 mm		
Format (mm)	Ø82		
Aperture(F/#)	F4.0-16		
Distortion	0.001%		
ENP Diameter	Ø31.4		
Mount	V (Ø56)		

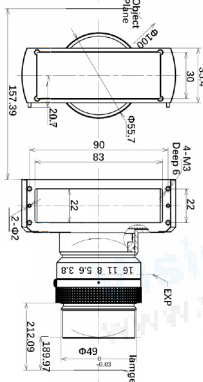
Coaxial Illumination Line Scan Lenses

FEATURES

1. Designed for coaxial lighting system
2. Avoid the resolution deduction caused by using the beam splitter
3. **High resolution and contrast, supporting 16K 5μ line scan cameras**
4. With 30*80mm beam splitter
5. Ultra-low optical distortion , less than 0.001% or 1 pixel

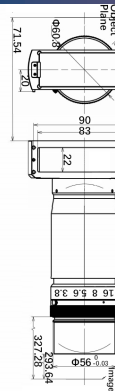


VTCL-16KP-1.0X



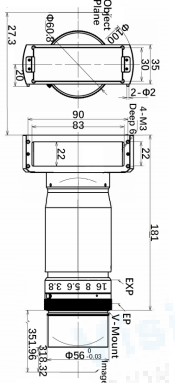
Mag. (x)	0.9x	1x	1.2x
WD (mm)	170.1±5	157.39±5	138±5
Conjugate Distance (mm)	450.8±9	449.53±9	453.4±9
FFL (mm)	200.6±0.5	212.09±0.5	235.33±0.5
Resolution	16k5μ		
EFL (mm)	116 mm		
Format (mm)	Ø82		
Aperture (F/#)	F3.8-16		
Distortion	0.0005%		
Relative Illumination	90%		
Mount	V (Ø49)		

VTCL-16KP-1.3X



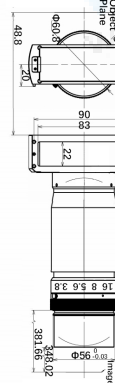
Mag. (x)	1.2x	1.33x	1.43x
WD (mm)	83.33±5	71.54±5	63.87±5
Conjugate Distance (mm)	572.34±9	579.35±9	586.3±9
FFL (mm)	308.5±0.5	327.28±0.5	341.92±0.5
Resolution	16k5μ		
EFL (mm)	116 mm		
Format (mm)	Ø82		
Aperture (F/#)	F4.3-16		
Distortion	0.001%		
Relative Illumination	90%		
Mount	V (Ø56)		

VTCL-16KP-1.5X



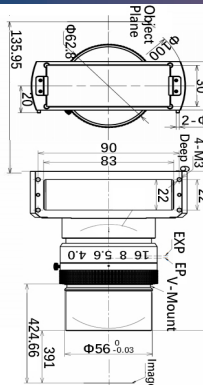
Mag. (x)	1.4x	1.5x	1.6x
WD (mm)	34.1±5	27.3±5	21.2±5
Conjugate Distance (mm)	584.2±9	592.1±9	600.28±9
FFL (mm)	337.59±0.5	351.95±0.5	366.56±0.5
Resolution	16k5μ		
EFL (mm)	145 mm		
Format (mm)	Ø82		
Aperture (F/#)	F4.3-16		
Distortion	0.001%		
Relative Illumination	90%		
Mount	V (Ø56)		

VTCL-16KP-1.7X



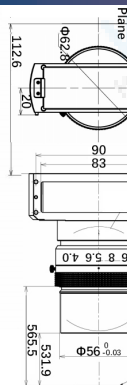
Mag. (x)	1.45x	1.7x	2x
WD (mm)	67.2±5	48.83±5	35.7±5
Conjugate Distance (mm)	586.5±9	611.85±9	643.1±9
FFL (mm)	337.86±0.5	381.66±0.5	425.6±0.5
Resolution	16k5μ		
EFL (mm)	116 mm		
Format (mm)	Ø82		
Aperture (F/#)	F4.0-16		
Distortion	0.001%		
Relative Illumination	90%		
Mount	V (Ø56)		

VTCL-16KP-2.0X



Mag. (x)	1.7x	2x	2.4x
WD (mm)	92±5	135.95±5	117±5
Conjugate Distance (mm)	611±9	641.94±9	688±9
FFL (mm)	380.6±0.5	424.66±0.5	482±0.5
Resolution	16k5μ		
EFL (mm)	120 mm		
Format (mm)	Ø82		
Aperture (F/#)	F4.0-16		
Distortion	0.0005%		
Relative Illumination	90%		
Mount	V (Ø56)		

VTCL-16KP-3.0X



Mag. (x)	2.5x	3x	3.5x
WD (mm)	102.4±5	112.6±5	105.5±5
Conjugate Distance (mm)	696.5±9	759.5±9	825.9±9
FFL (mm)	493±0.5	565.5±0.5	639±0.5
Resolution	16k5μ		
EFL (mm)	120 mm		
Format (mm)	Ø82		
Aperture (F/#)	F4.0-16		
Distortion	0.005%		
Relative Illumination	90%		
Mount	V (Ø56)		

Focusing Ring and Adapter



	Lens Mount	Camera Mount	Length (mm)
Adapter Ring	M58 × P0.75	C-Mount	10
	M58 × P0.75	F Mount	9
	M58 × P0.75	M42 × P0.75	10
	M58 × P0.75	M42 × P1	10
	M58 × P0.75	M42 × P1	24.3
	M58 × P0.75	M48 × P0.75	10
	M58 × P0.75	M48 × P0.75	29.74
	M58 × P0.75	M72 × P0.75	2
	M58 × P0.75	M72 × P0.75	16.75
	M58 × P0.75	M72 × P0.75	24.3
	M58 × P0.75	M72 × P0.75	25
	M58 × P0.75	M72 × P0.75	50
	M58 × P0.75	M72 × P0.75	100
	M58 × P0.75	M95 × P1	25
	M58 × P0.75	M95 × P1	50
M58 × P0.75	M95 × P1	100	

	Lens Mount	Camera Mount	Length (mm)
Adapter Ring	C-Mount	M42 × P1	5.526
	C-Mount	M42 × P1	12.5
	M42 × P1	M58 × P0.75	4
	M42 × P1	M72 × P0.75	4
	M72 × P0.75	M58 × P0.75	6
	M72 × P0.75	M90 × P1	3
	M72 × P0.75	M90 × P1	50
	M72 × P0.75	M95 × P1	3
	M72 × P0.75	M95 × P1	50
	V (Ø38)	M42 × P0.75	4.5
	V (Ø38)	M42 × P1	4.5
	V (Ø38)	M42 × P1	6.5
	V (Ø42.5)	C-Mount	8.47
	V (Ø42.5)	M42 × P1	14
	V (Ø42.5)	M58 × P0.75	14.52

	Lens Mount	Camera Mount	Focus Range (mm)	Length (mm)
Focus Adjusting Ring	V (Ø38)	V(Ø38)	17.4-29.4	12
	M54 × P0.75	M72 × P0.75	44-69	25
	V (Ø38)	M58 × P0.75	24-45	21
	M60 × P0.75	M72 × P0.75	44-69	25
	F Mount	M58 × P0.75	-	10.2
	M72 × P0.75	M72 × P0.75	43.3-68.3	25
	V (Ø38)	M72 × P0.75	40.7-64.7	24

	Mount 1	Mount 2	Length (mm)
Extension Tube	M58 × P0.75	M58 × P0.75	10
	M58 × P0.75	M58 × P0.75	24
	M58 × P0.75	M58 × P0.75	24.82
	M58 × P0.75	M58 × P0.75	25
	M58 × P0.75	M58 × P0.75	50
	M58 × P0.75	M58 × P0.75	100
	M72 × P0.75	M72 × P0.75	10
	M72 × P0.75	M72 × P0.75	20
	M72 × P0.75	M72 × P0.75	35
	M72 × P0.75	M72 × P0.75	50
	M90 × P1	M90 × P1	20
	M90 × P1	M90 × P1	50
	M95 × P1	M95 × P1	20
	M95 × P1	M95 × P1	50

	Lens Mount	Mount 2	Length (mm)
Lens Holder	V (Ø38)	M42 × P0.75	4.5
	V (Ø38)	M42 × P0.75	6.5
	V (Ø42.5)	M42 × P0.75	14
	V (Ø42.5)	M58 × P0.75	14.52
	V (Ø49)	M49 × P0.75	30
	V (Ø49)	M54 × P0.75	20
	V (Ø56)	M60 × P0.75	10
	V (Ø64)	M72 × P0.75	6

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