

TECHSPEC®

TELECENTRIC LENSES



▷ 혁신, 여기에서 시작됩니다. . .

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대량 생산 및 가격 정책

재고 문의 및 맞춤형 제작 견적을 위해 오늘 바로 연락 주십시오!

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TECHSPEC® TitanTL™ TELECENTRIC LENSES



- 최대 242mm의 넓은 Field of View 옵션
- Sensor Format: 1/1.8", 2/3", 1", 4/3"
- 0.1° 미만의 Telecentricity

TECHSPEC® Large Field of View Telecentric Lenses는 넓은 field of view가 요구되는 머신 비전 시스템과 계측 용도에 적합하도록 설계되었습니다. 이러한 렌즈는 렌즈 뒤쪽에 있는 후면 필터 홀더와 최대화된 대형 센서 포맷을 특징으로 하기 때문에 필터와의 결합이 용이합니다. 당사에서 제공하는 118mm, 182mm 및 242mm FOV 버전에는 mounting flange가 결합되어 있어 각각의 렌즈를 손쉽게 고정할 수 있습니다. TECHSPEC® Large Field of View Telecentric Lenses는 카메라 센서의 위치 변화를 조절해주는 끼움쇠와 조절 가능한 조리개, 그리고 카메라로 간단하게 회전 정렬시키기 위한 3 set screw lens 마운트를 포함합니다. 일반적인 용도로는 자동차와 전자 장비 검사, 측정 및 계측이 있습니다. **참고:** 각각의 렌즈에는 상세 검수 보고서가 함께 포함됩니다.

LENS SELECTION

Max. Field of View	Sensor Size			
	1/1.8"	2/3"	1"	22.5mm
59.7mm	#34-000	#34-005	#34-010	#34-015
118mm	#34-001	#34-006	#34-011	#34-016
182mm	#34-002	#34-007	#34-012	#34-017
242mm	#34-003	#34-008	#34-013	#34-018

TECHSPEC® TitanTL™ TELECENTRIC LENSES

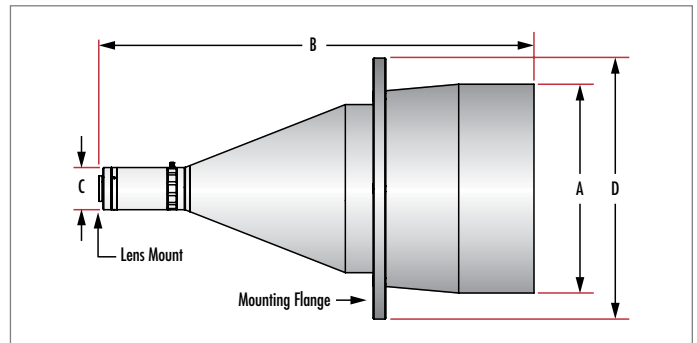
Primary Magnification PMAG:	0.151X	0.077X	0.050X	0.037X
Max. Camera Sensor Format:	1/1.8"	1/1.8"	1/1.8"	1/1.8"
Horizontal FOV, 1/2" Sensor:	42.4mm	83.6mm	129.4mm	172.4mm
Horizontal FOV, 1/4.8" Sensor:	47.8mm	94.0mm	145.6mm	193.9mm
Horizontal FOV, 2/3" Sensor:	—	—	—	—
Horizontal FOV, 1" Sensor:	—	—	—	—
Horizontal FOV, 4/3" Sensor:	—	—	—	—
Working Distance:	111mm	224mm	287mm	379mm
Depth of Field (20 lp/mm, f/8):	±17.1mm	±66.2mm	±159.4mm	±284.2mm
Aperture (f/#):	f/8 - f/16	f/8 - f/16	f/8 - f/16	f/8 - f/16
Numerical Aperture NA, Object Side:	0.0094	0.0048	0.0031	0.0023
Resolution, Image Space MTF, f/8:	70 lp/mm @ 35%	70 lp/mm @ 44%	70 lp/mm @ 40%	70 lp/mm @ 45%
Typical Telecentricity @ 520nm:	<0.1°	<0.1°	<0.1°	<0.1°
Typical Distortion @ 520nm:	<0.04%	<0.19%	<0.03%	<0.09%
Coating:	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm
Number of Elements (Groups):	6 (4)	6 (4)	6 (4)	6 (4)
Rear Filter Diameter:	12.7mm	12.7mm	12.7mm	12.7mm
Lens Mount:	C-Mount	C-Mount	C-Mount	C-Mount
Stock No.	#34-000	#34-001	#34-002	#34-003
Mount Stock No.	#56-026	N/A	N/A	N/A

TECHSPEC® TitanTL™ TELECENTRIC LENSES

Primary Magnification PMAG:	0.184X	0.093X	0.060X	0.045X
Max. Camera Sensor Format:	2/3"	2/3"	2/3"	2/3"
Horizontal FOV, 1/2" Sensor:	34.7mm	68.5mm	105.9mm	140.8mm
Horizontal FOV, 1/4.8" Sensor:	39.1mm	77.0mm	119.2mm	158.4mm
Horizontal FOV, 2/3" Sensor:	47.8mm	94.1mm	145.7mm	193.7mm
Horizontal FOV, 1" Sensor:	—	—	—	—
Horizontal FOV, 4/3" Sensor:	—	—	—	—
Working Distance:	110mm	222mm	284mm	374mm
Depth of Field (20 lp/mm, f/8):	±11.5mm	±45.1mm	±107.7mm	±192.1mm
Aperture (f/#):	f/8 - f/22	f/8 - f/22	f/8 - f/22	f/8 - f/22
Numerical Aperture NA, Object Side:	0.0115	0.0058	0.0038	0.0028
Resolution, Image Space MTF, f/8:	70 lp/mm @ 36%	70 lp/mm @ 40%	70 lp/mm @ 40%	70 lp/mm @ 35%
Typical Telecentricity @ 520nm:	<0.1°	<0.1°	<0.1°	<0.1°
Typical Distortion @ 520nm:	<0.05%	<0.10%	<0.08%	<0.05%
Coating:	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm
Number of Elements (Groups):	6 (4)	6 (4)	6 (4)	6 (4)
Rear Filter Diameter:	25.4mm	25.4mm	25.4mm	25.4mm
Lens Mount:	C-Mount	C-Mount	C-Mount	C-Mount
Stock No.	#34-005	#34-006	#34-007	#34-008
Mount Stock No.	#56-026	N/A	N/A	N/A

TECHSPEC® TitanTL™ TELECENTRIC LENSES

DIMENSIONS					Units: mm
PMAG	A	B	C	D	Bolt Circle on Mounting Flange
0.151X	79	138.6	42	—	—
0.077X	150	244.8	42	200	8x Ø8mm Thru on Ø180mm
0.050X	208	383.1	42	260	8x Ø8mm Thru on Ø240mm
0.037X	266	525.9	42	298	8x Ø8mm Thru on Ø280mm
0.184X	79	145.5	42	—	—
0.093X	150	251.7	42	200	8x Ø8mm Thru on Ø180mm
0.060X	208	389.9	42	260	8x Ø8mm Thru on Ø240mm
0.045X	266	520.1	42	298	8x Ø8mm Thru on Ø280mm
0.268X	79	161.7	42	—	—
0.136X	150	267.9	42	200	8x Ø8mm Thru on Ø180mm
0.088X	208	405.8	42	260	8x Ø8mm Thru on Ø240mm
0.066X	266	536.3	42	298	8x Ø8mm Thru on Ø280mm
0.377X	79	185.8	42	—	—
0.191X	150	292.1	42	200	8x Ø8mm Thru on Ø180mm
0.124X	208	429.6	42	260	8x Ø8mm Thru on Ø240mm
0.093X	266	560.5	42	298	8x Ø8mm Thru on Ø280mm



TECHSPEC® TitanTL™ TELECENTRIC LENSES				
Primary Magnification PMAG:	0.268X	0.136X	0.088X	0.066X
Max. Camera Sensor Format:	1"	1"	1"	1"
Horizontal FOV, 1/2" Sensor:	23.9mm	47.2mm	72.9mm	96.9mm
Horizontal FOV, 1/4" Sensor:	26.9mm	53.0mm	82.0mm	109.0mm
Horizontal FOV, 1/8" Sensor:	32.8mm	64.8mm	100.2mm	133.2mm
Horizontal FOV, 1" Sensor:	47.8mm	94.2mm	145.8mm	193.8mm
Horizontal FOV, 1/4" Sensor:	—	—	—	—
Working Distance:	110mm	223mm	286mm	377mm
Depth of Field (20 lp/mm, f/11):	±7.8mm	±30.7mm	±72.8mm	±130.9mm
Aperture (f/#):	f/11 - f/22	f/11 - f/22	f/11 - f/22	f/11 - f/22
Numerical Aperture NA, Object Side:	0.0122	0.0062	0.0040	0.0030
Resolution, Image Space MTF, f/11:	50 lp/mm @ 30%	50 lp/mm @ 40%	50 lp/mm @ 40%	50 lp/mm @ 40%
Typical Telecentricity @ 520nm:	<0.1°	<0.1°	<0.1°	<0.1°
Typical Distortion @ 520nm:	<0.05%	<0.13%	<0.05%	<0.05%
Coating:	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm
Number of Elements (Groups):	6 (4)	6 (4)	6 (4)	6 (4)
Rear Filter Diameter:	25.4mm	25.4mm	25.4mm	25.4mm
Lens Mount:	C-Mount	C-Mount	C-Mount	C-Mount
Stock No.	#34-010	#34-011	#34-012	#34-013
Mount Stock No.	#56-026	N/A	N/A	N/A

TECHSPEC® TitanTL™ TELECENTRIC LENSES				
Primary Magnification PMAG:	0.377X	0.191X	0.124X	0.093X
Max. Camera Sensor Format:	22.5mm	22.5mm	22.5mm	22.5mm
Horizontal FOV, 1/2" Sensor:	17.0mm	33.5mm	51.8mm	68.9mm
Horizontal FOV, 1/4" Sensor:	19.1mm	37.7mm	58.3mm	77.5mm
Horizontal FOV, 1/8" Sensor:	23.3mm	46.1mm	71.2mm	94.8mm
Horizontal FOV, 1" Sensor:	34.0mm	67.1mm	103.6mm	137.8mm
Horizontal FOV, 1/4" Sensor:	45.9mm	90.6mm	140.1mm	186.3mm
Working Distance:	110mm	221mm	284mm	374mm
Depth of Field (20 lp/mm, f/11):	±4.0mm	±15.2mm	±37.0mm	±64.5mm
Aperture (f/#):	f/11 - f/22	f/11 - f/22	f/11 - f/22	f/11 - f/22
Numerical Aperture NA, Object Side:	0.0171	0.0087	0.0056	0.0042
Resolution, Image Space MTF, f/11:	50 lp/mm @ 21%	50 lp/mm @ 35%	50 lp/mm @ 40%	50 lp/mm @ 40%
Typical Telecentricity @ 520nm:	<0.1°	<0.1°	<0.1°	<0.1°
Typical Distortion @ 520nm:	<0.05%	<0.11%	<0.07%	<0.04%
Coating:	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm	λ/4 MgF ₂ @ 520nm
Number of Elements (Groups):	6 (4)	6 (4)	6 (4)	6 (4)
Rear Filter Diameter:	25.4mm	25.4mm	25.4mm	25.4mm
Lens Mount:	C-Mount	C-Mount	C-Mount	C-Mount
Stock No.	#34-015	#34-016	#34-017	#34-018
Mount Stock No.	#56-026	N/A	N/A	N/A

TECHSPEC® PlatinumTL™ TELECENTRIC LENSES



- 0.1° 미만의 Telecentricity
- 전체 센서 영역에서 72 lp/mm의 높은 contrast
- 높은 광 출력을 위한 f/6 디자인

TECHSPEC® PlatinumTL™ Telecentric Lenses는 반도체 및 전자 부품 검사, 측정 및 계측 용도에 맞게 설계되었습니다. 이 telecentric lens는 산업 용도에서 높은 광 출력을 위한 낮은 f/#과 0.1° 미만의 telecentricity, 그리고 0.1%보다 낮은 왜곡을 특징으로 합니다. 당사의 28.7mm diagonal sensor format lens는 Kodak 4MP 1.3" sensor 및 포맷 사이즈가 훨씬 더 큰 sensor(7μm pixel, 4k Line Scan Cameras)와 호환이 가능합니다. TECHSPEC® PlatinumTL™ Telecentric Lenses는 최상위의 측정 정확도와 견줄 수 없는 수준의 contrast로 최대의 이미지 품질을 만들어냅니다. 이 렌즈들은 진동이 심한 환경에 적합하며, 조리개를 영구 고정하는 별도의 recessed set screw 옵션을 갖고 있습니다.

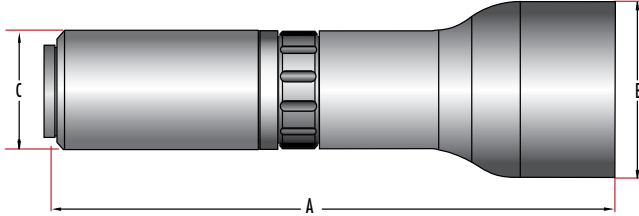
TECHSPEC® PlatinumTL™ TELECENTRIC LENSES

Primary Magnification PMAG:	0.28X	0.5X	1.7X	0.367X	0.55X	0.9X
Max. Sensor Size:	⅜"	⅜"	⅜"	1"	1"	1"
Field of View, 1" Sensor:	N/A	N/A	N/A	34.9mm	23.3mm	14.2mm
Field of View, ⅜" Sensor:	31.8mm	17.7mm	5.2mm	24mm	16mm	9.8mm
Field of View, ½" Sensor:	23.1mm	12.9mm	3.8mm	17.5mm	11.6mm	7.1mm
Working Distance:	180mm	173mm	123mm	169mm	150mm	111mm
Depth of Field:	±6.9mm @ f/10 (20% @ 20 lp/mm)	±2.1mm @ f/10 (20% @ 20 lp/mm)	±0.18mm @ f/10 (20% @ 20 lp/mm)	±1.1mm @ f/10 (20% @ 20 lp/mm)	±1.6mm @ f/10 (20% @ 20 lp/mm)	±0.65mm @ f/10 (20% @ 20 lp/mm)
Numerical Aperture NA, Object Side:	0.023	0.041	0.083	0.017	0.018	0.045
Resolution, Full Field:	72 lp/mm @ >40%	72 lp/mm @ >40%	72 lp/mm @ >25%	72 lp/mm @ <40%	72 lp/mm @ >40%	72 lp/mm @ >40%
Typical Telecentricity @ 588nm:	<0.030°	<0.050°	<0.080°	<0.035°	<0.030°	<0.070°
Typical Distortion @ 588nm:	0.006%	0.006%	0.02%	0.003%	0.007%	0.035%
Aperture (f/#):	f/6 - f/22	f/6 - f/22	f/6 - f/22	f/6 - f/16	f/6 - f/16	f/6 - f/22
Number of Elements (Groups):	10 (7)	10 (7)	10 (7)	10 (7)	10 (7)	10 (7)
Filter Thread:	M58 x 0.75	M46 x 0.75	M58 x 0.75	M67 x 0.75	M58 x 0.75	M62 x 0.75
Weight:	722g	424g	748g	627g	627g	854g
Coating:	425 - 675nm BBAR	425 - 675nm BBAR	425 - 675nm BBAR	425 - 675nm BBAR	425 - 675nm BBAR	425 - 675nm BBAR
Mount:	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
Stock No.	#62-933	#62-932	#63-232	#88-602	#88-603	#62-901
Mount Stock No.	#63-442	#63-442	#63-233	#89-721	#89-721	#56-025

DIMENSIONS

Primary Magnification PMAG:	0.28X	0.5X	1.7X	0.367X	0.55X	0.9X
Length (A):	203.8mm	174.9mm	189.5mm	163.5mm	182.5mm	199.8mm
Front Diameter (B):	60.5mm	50.0mm	60.0mm	70mm	62mm	65mm
Back Diameter (C):	33.5mm	33.5mm	46.0mm	43.5mm	43.5mm	53mm

TECHSPEC® PlatinumTL™ TELECENTRIC LENSES



2D 및 3D 모델은 웹사이트에서 확인 가능



TECHSPEC® PlatinumTL™ TELECENTRIC LENSES

*C-Mount version is 1" max. format

Primary Magnification PMAG:	0.9X	0.5X	0.28X
Max. Sensor Size:	28.7 (diagonal)*	28.7 (diagonal)*	28.7 (diagonal)*
Working Distance:	111mm	175mm	182mm
Horizontal FOV, 1/2" Sensor:	9.8mm	17.7mm	31.8mm
Horizontal FOV, 1.2" Sensor:	16.9mm	30.49mm	54.9mm
Horizontal FOV, 28.7mm Sensor:	31.9mm	57.75mm	103.6mm
Resolution @ f/6:	72 lp/mm @ >40%	72 lp/mm @ >45%	72 lp/mm @ >40%
Typical Telecentricity @ 588nm:	<0.070°	<0.055°	<0.035°
Typical Distortion @ 588nm:	0.035%	0.020%	0.012%
Aperture (f/#):	f/6 - f/22	f/6 - f/22	f/6 - f/22
Filter Thread:	M62 x 0.75	M86 x 1.0	M132 x 0.75
C-Mount (17.5mm) Stock No.	#62-901	#62-911	#62-921
F-Mount (46.5mm) Stock No.	#62-902	#62-912	#62-922
M42 x 1.0 (6.56mm) Stock No.	#62-903	#62-913	#62-923
M42 x 1.0 (19.53mm) Stock No.	#62-904	#62-914	#62-924
Mount Stock No.	#56-025	#63-441	#63-440

DIMENSIONS

Primary Magnification PMAG:	0.9X				0.5X				0.28X			
Mount:	C-Mount	F-Mount	M42 x 1.0	M42 x 1.0	C-Mount	F-Mount	M42 x 1.0	M42 x 1.0	C-Mount	F-Mount	M42 x 1.0	M42 x 1.0
Stock No.	#62-901	#62-902	#62-903	#62-904	#62-911	#62-912	#62-913	#62-914	#62-921	#62-922	#62-923	#62-924
Flange:	17.5mm	46.5mm	6.56mm	19.53mm	17.5mm	46.5mm	6.56mm	19.53mm	17.5mm	46.5mm	6.56mm	19.53mm
Length (A):	199.8mm	170.8mm	210.7mm	197.8mm	172.9mm	143mm	184mm	171.1mm	197.5mm	167.6mm	208.5mm	195.5mm
Front Diameter (B):	65mm	65mm	65mm	65mm	90mm	90mm	90mm	90mm	138.6mm	138.6mm	138.6mm	138.6mm
Back Diameter (C):	53mm	55mm	53mm	53mm	50mm	55mm	50mm	50mm	50mm	55mm	50mm	50mm

TECHSPEC® GoldTL™ TELECENTRIC LENSES

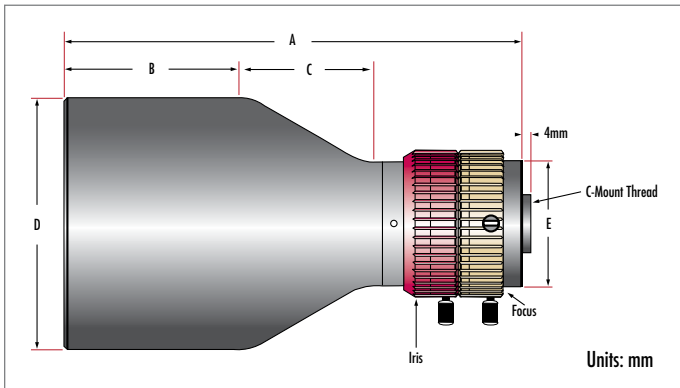


•Working Distance 조정을 위한 포커싱이 가능

•높은 광 출력을 위한 f/6 디자인

•1/2" 및 2/3" Sensor Format을 위한 디자인

TECHSPEC® GoldTL™ Telecentric Lenses는 머신 비전과 계측 용도를 위해 특수 디자인된 제품입니다. 독특한 focusable design은 0.2° 미만의 telecentricity를 유지하면서, working distance 조절을 가능하게 해줍니다. 또한, 이 렌즈들은 고해상도와 낮은 왜곡을 특징으로 하며, 1/2" 및 2/3" sensor와 이용이 가능합니다. TECHSPEC® GoldTL™ Telecentric Lenses는 color filter, polarizer 또는 기타 마운트된 부품들과 쉽게 결합하여 사용할 수 있도록 front filter thread를 가지고 있습니다. 조리개와 초점 조절 시 진동 환경에서 안전하게 유지될 수 있게 고정 나사로 위치를 고정할 수 있습니다.



DIMENSIONS

Primary Magnification PMAG:	1X / 0.73X	0.5X / 0.36X	0.25X / 0.18X	0.125X / 0.09X	0.08X / 0.064X
Overall Length (A):	200.1mm	150.0mm	196.3mm	200.0mm	277.2mm
Mounting Length (B):	29.7mm	37.7mm	74.3mm	76.4mm	93.6mm
Taper Length (C):	44.9mm	44.9mm	50.0mm	59.2mm	92.6mm
Max. Outer Diameter (D):	68.0mm	65.0mm	79.0mm	110.0mm	160.0mm
Rear Outer Diameter (E):	58.0mm	51.0mm	48.0mm	55.0mm	59.7mm

TECHSPEC® GoldTL™ TELECENTRIC LENSES

*Horizontal

Primary Magnification PMAG:	1.0X	0.73X	0.5X	0.36X	0.25X	0.18X	0.125X	0.09X	0.08X	0.064X
Field of View, 2/3" CCD*:	8.8mm	—	17.6mm	—	35.2mm	—	67.4mm	—	110.0mm	—
Field of View, 1/2" CCD*:	6.4mm	8.8mm	12.8mm	17.6mm	25.6mm	35.2mm	49.0mm	70.4mm	80.0mm	100.0mm
Max. Sensor Format:	2/3"	1 1/8"	2/3"	1 1/8"	2/3"	1/2"	2/3"	1/2"	2/3"	1 1/8"
Working Distance:	98 - 123mm	98 - 123mm	117 - 142mm	117 - 142mm	161 - 186mm	161 - 186mm	132 - 182mm	132 - 182mm	170 - 220mm	170 - 220mm
Res. (MTF Image Space @ f/10):	>50% @ 40 lp/mm	>65% @ 40 lp/mm	>55% @ 40 lp/mm	>70% @ 40 lp/mm	>55% @ 40 lp/mm	>60% @ 40 lp/mm	>45% @ 40 lp/mm	>60% @ 40 lp/mm	>65% @ 40 lp/mm	>65% @ 40 lp/mm
Telecentricity:	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°	<0.2°	<0.2°
Distortion (Max.):	0.10%	0.10%	0.10%	0.10%	0.50%	0.20%	0.50%	0.10%	0.35%	0.50%
DOF (20% @ 20 lp/mm):	±0.6mm @ f/10	±0.95mm @ f/10	±2.1mm @ f/10	±3.7mm @ f/10	±8.2mm @ f/10	±15.5mm @ f/10	±30.4mm @ f/10	±63.6mm @ f/10	±81.0mm @ f/10	±129mm @ f/10
Aperture (f/#):	f/6 - f/25	f/6 - f/19.5	f/6 - f/25	f/6 - f/18	f/6 - f/25	f/6 - f/18	f/6 - f/25	f/6 - f/17.4	f/6 - f/25	f/6 - f/25
Size (Max OD x L):	68 x 200mm	68 x 200mm	65 x 150mm	65 x 150mm	79 x 196mm	79 x 196mm	110 x 200mm	110 x 200mm	160 x 277mm	160 x 277mm
Filter Size:	M62 x 0.75	M62 x 0.75	M58 x 0.75	M58 x 0.75	M72 x 0.75	M72 x 0.75	M105 x 1.0	M105 x 1.0	M154 x 1.0	M154 x 1.5
Stock No.	#55-350	#58-256	#54-798	#58-257	#55-349	#58-258	#55-348	#58-259	#56-948	#58-260
Mounting Clamp Stock No.	#56-024	#56-024	#56-025	#56-025	#56-026	#56-026	#56-027	#56-027	Mount Included	Mount Included

TECHSPEC® TELECENTRIC BACKLIGHT ILLUMINATOR

- 검사 시스템을 위해 제품 edge 부분에 Contrast 증가
- 색 온도 변화 없이 다양한 output을 나타내는 aperture 조절 가능
- 1/4" Fiber Optic 또는 LED Input으로 통합이 용이함

TECHSPEC® Telecentric Backlight Illuminator는 edge softening을 증가시키는 diffuse reflection을 감소시켜, 측정 용도에서 edge contrast와 계측 정밀도가 증대하기 때문에 높은 contrast 윤곽을 만들어 냅니다.



TECHSPEC® 1X Silver Series Telecentric Lens와 Standard Diffuse Backlight를 이용한 Mounting Post 이미지



TECHSPEC® 1X Silver Series Telecentric Lens와 Telecentric Backlight Illuminator를 이용한 Mounting Post 이미지

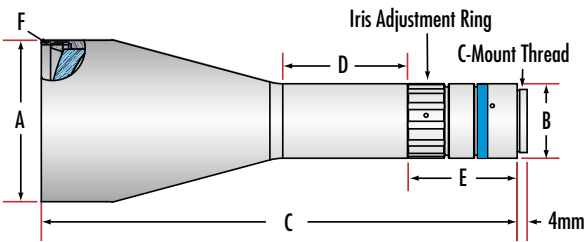
TECHSPEC® TELECENTRIC BACKLIGHT ILLUMINATOR

TECHSPEC® Telecentric Backlight Illuminator

#62-760

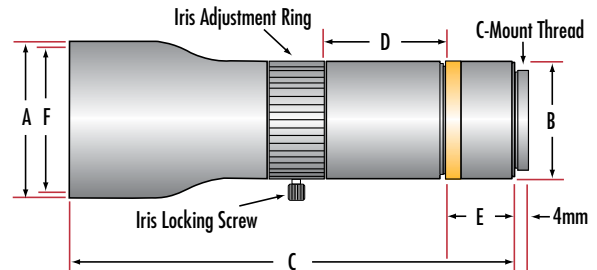
TECHSPEC® SilverTL™ TELECENTRIC LENSES

Standard 0.16X - 0.75X



Units: mm

Standard 1.0X - 4.0X



Units: mm

DIMENSIONS

*Mounting clamp fits over iris

Primary Magnification PMAG:	0.16X	0.20X	0.25X	0.30X	0.40X	0.50X	0.60X	0.75X	1.0X	2.0X	4.0X
Max. Outer Diameter (A):	65mm	60mm	48mm	46mm	45mm	40mm	42mm	36mm	40mm	45mm	61mm
Mounting Diameter (B):	30mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm	30mm
Length (C) (Standard/In-Line):	191mm	188mm	158mm	158mm	159mm	153mm/156.2mm	156mm	151.2mm/155.2mm	114mm	141mm/144.6mm	249mm
Mounting Length (D) (Standard/In-Line):	50mm	42mm	49mm	60mm	67mm	42mm/45.1mm	57mm	34mm*/46.2mm	32mm*	45mm/42.2mm	99mm
Mounting Offset (E) (Standard/In-Line):	43mm	45mm	44mm	43mm	33mm	68mm/73.4mm	46mm	82.2mm/16.9mm	17mm	17mm/18.8mm	17mm
Filter Size (Mount Dia. x Thread Pitch) (F):	M62 x 0.75	M58 x 0.75	M46 x 0.75	M43 x 0.75	M43 x 0.75	M37 x 0.75	M40.5 x 0.5	M30.5 x 0.5	M37 x 0.75	M43 x 0.75	M58 x 0.75

MOUNTING CLAMPS

Silver Series Mounting Clamp, 1.75" Centerline

#56-870

Silver Series Mounting Clamp, 2.25" Centerline

#56-871

TECHSPEC® SilverTL™ TELECENTRIC LENSES



- **0.1° 미만의 Telecentricity**
- **Double Sided Telecentric 디자인**
- **f/6 디자인으로 높은 광 출력**

TECHSPEC® SilverTL™ Telecentric Lenses는 정밀한 측정이 요구되는 on-line과 off-line 머신 비전 제품 생산 분야에서 사용하기 적합합니다. 이 렌즈들은 고품질의 광학 제품과 단순한 non-focusing mechanical 디자인, 그리고 잠금 나사가 있는 조절 가능 iris를 결합한 형태입니다. TECHSPEC® SilverTL™ Telecentric Lenses는 계측 및 검량의 용도에 적합하도록 설계되었으며, 유용성을 최대화하는 inline illumination 옵션을 제공합니다. 또한, 각각의 렌즈는 color filters, polarizers, protective windows와 사용할 수 있게 standard front filter, 그리고 LED나 fiber-optic ring lights에 필요한 illumination adapters를 특징으로 합니다. **참고:** 30mm 지름의 mounting 표면에 맞는 mounting brackets를 이용할 수 있습니다.

TECHSPEC® SilverTL™ TELECENTRIC LENSES - FIELD OF VIEW AND RESOLUTIONS

*Metric pixel resolution is in microns

Primary Magnification PMAG:	0.16X		0.20X		0.25X		0.30X		0.40X	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
1/3" 1280 x 960										
FOV	30.00	1.18	24.00	0.94	19.20	0.76	16.00	0.63	12.00	0.47
Pixel Resolution*	23.44	0.0009	18.75	0.0007	15.00	0.0006	12.50	0.0005	9.38	0.0004
1/2.5" 2592 x 1944										
FOV	19.44	0.77	15.55	0.61	12.44	0.49	10.37	0.41	7.78	0.31
Pixel Resolution*	7.50	0.0003	6.00	0.0002	4.80	0.0002	4.00	0.0002	3.00	0.0001
1/2.3" 3840 x 2748										
FOV	40.08	1.58	32.06	1.26	25.65	1.01	21.38	0.84	16.03	0.63
Pixel Resolution*	10.44	0.0004	8.35	0.0003	6.68	0.0003	5.57	0.0002	4.18	0.0002
1/4.8" 1280 x 1024										
FOV	42.40	1.67	33.92	1.34	27.14	1.07	22.61	0.89	16.96	0.67
Pixel Resolution*	33.13	0.001	26.50	0.001	21.20	0.0008	17.67	0.0007	13.25	0.0005
1/4.8" 1600 x 1200										
FOV	45.00	1.77	36.00	1.42	28.80	1.13	24.00	0.94	18.00	0.71
Pixel Resolution*	28.13	0.001	22.50	0.0009	18.00	0.0007	15.00	0.0006	11.25	0.0004

TECHSPEC® SilverTL™ TELECENTRIC LENSES

Primary Magnification PMAG:	0.16X	0.20X	0.25X	0.30X	0.40X
Max. Sensor Format:	1/2"	1/4.8"	1/4.8"	1/2"	1/4.8"
Working Distance (±3mm):	177mm	164mm	160mm	139mm	103mm
Res. (Image Space @ f/10):	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm
Telecentricity:	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°
Distortion (Max.):	<0.3%	<0.3%	<0.3%	<0.3%	<0.3%
DOF (10% @ 20 lp/mm):	±19.7mm @ f/10	±12.9mm @ f/10	±8.2mm @ f/10	±5.7mm @ f/10	±3.3mm @ f/10
Aperture (f/#):	f/6 - Closed	f/6 - Closed	f/6 - Closed	f/6 - Closed	f/6 - Closed
Lens Element Coating:	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm
Standard Stock No.	#56-675	#63-073	#56-676	#58-428	#56-677
In-Line Stock No.	-	-	-	-	-
Mount Stock No.	#56-871	#56-871	#56-870	#56-870	#56-870

TECHSPEC® SilverTL™ TELECENTRIC LENSES



TECHSPEC® SilverTL™ TELECENTRIC LENSES - FIELD OF VIEW AND RESOLUTIONS

*Metric pixel resolution is in microns

Primary Magnification PMAG:	0.50X		0.60X		0.75X		1.0X		2.0X		4.0X	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
1/3" 1280 x 960												
FOV	9.60	0.38	8.00	0.31	6.40	0.25	4.80	0.19	2.40	0.09	1.20	0.05
Pixel Resolution*	7.50	0.0003	6.25	0.0002	5.00	0.0002	3.75	0.0001	1.88	0.00007	0.94	0.00004
1/2.5" 2592 x 1944												
FOV	6.22	0.24	5.18	0.20	4.15	0.16	3.11	0.12	1.56	0.06	0.78	0.03
Pixel Resolution*	2.40	0.0001	2.00	0.0001	1.60	0.0001	1.20	0.00005	0.60	0.00002	0.30	0.00001
1/2.3" 3840 x 2748												
FOV	12.83	0.50	10.69	0.42	8.55	0.34	6.41	0.25	3.21	0.13	1.60	0.06
Pixel Resolution*	3.34	0.0001	2.78	0.0001	2.23	0.00009	1.67	0.00007	0.84	0.00003	0.42	0.00002
1/4.8" 1280 x 1024												
FOV	13.57	0.53	11.31	0.45	9.05	0.36	6.78	0.27	3.39	0.13	1.70	0.07
Pixel Resolution*	10.60	0.0004	8.83	0.0003	7.07	0.0003	5.30	0.0002	2.65	0.0001	1.33	0.00005
1/4.8" 1600 x 1200												
FOV	14.40	0.57	12.00	0.47	9.60	0.38	7.20	0.28	3.60	0.14	1.80	0.07
Pixel Resolution*	9.00	0.0004	7.50	0.0003	6.00	0.0002	4.50	0.0002	2.25	0.00009	1.13	0.00004

TECHSPEC® SilverTL™ TELECENTRIC LENSES

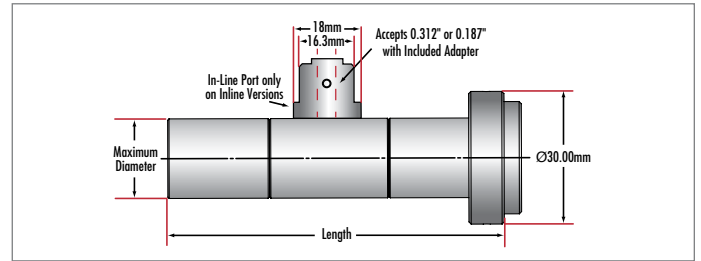
Primary Magnification PMAG:	0.50X	0.60X	0.75X	1.0X	2.0X	4.0X
Max. Sensor Format:	1/4.8"	1/4.8"	2/3"	2/3"	2/3"	2/3"
Working Distance (±3mm):	120mm	103mm	100mm	83mm	75mm	44mm
Res. (Image Space @ f/10):	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm	>40% @ 40 lp/mm
Telecentricity:	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°	<0.1°
Distortion (Max.):	<0.3%	<0.3%	<0.3%	<0.3%	<0.3%	<0.3%
DOF (10% @ 20 lp/mm):	±2.1mm @ f/10	±1.4mm @ f/10	±8mm @ 20%	±0.5mm @ f/10	±0.13mm @ f/10	±0.03mm @ f/10
Aperture (f/#):	f/6 - Closed	f/6 - Closed	f/6 - Closed	f/6 - Closed	f/6 - Closed (In-Line: f/10-Closed)	f/6 - Closed
Lens Element Coating:	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm
Standard Stock No.	#63-074	#56-678	#67-731	#58-430	#58-431	#58-432
In-Line Stock No.	#88-344	—	#88-346	—	#88-348	—
Mount Stock No.	#56-870	#56-870	#56-870	#56-870	#56-870	#56-870

TECHSPEC® CompactTL™ TELECENTRIC LENSES



- 매우 콤팩트한 디자인
- 다량의 검사 용도에 적합
- 다양한 Working Distance 및 배율 옵션

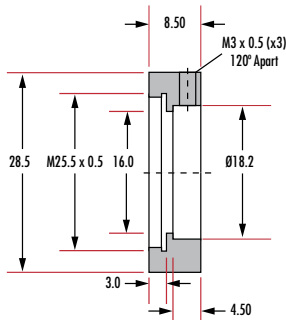
TECHSPEC® CompactTL™ Telecentric Lenses는 매우 콤팩트한 디자인으로 공간 제약이 까다로운 용도에 맞게 설계되었습니다. 이 렌즈들은 $\frac{2}{3}$ " sensor format 및 다양한 working distance와 배율 옵션을 특징으로 합니다. TECHSPEC® CompactTL™ Telecentric Lenses는 우수한 telecentricity와 낮은 왜곡으로 gauging system과 통합하여 사용하기에 완벽한 제품입니다. 단일 유닛에서 대량 수량까지 이용이 가능하며, 가격 대비 성능이 우수합니다. 또한, 고정형 조리개와 잠금 가능 초점 때문에 오랜 시간 고정된 위치를 유지할 수 있어 공장 작업 현장이나 조립 라인에서 사용하기 적합합니다.



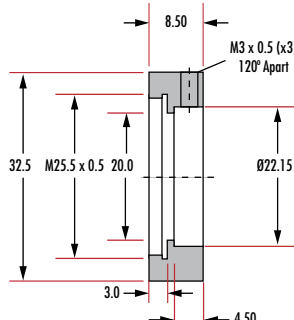
TECHSPEC® CompactTL™ TELECENTRIC LENSES												*Horizontal
Working Distance:	40mm (±1)				65mm (±1)							
Primary Magnification PMAG:	1X	2X	3X	4X	0.5X	0.8X	1X	2X	3X	4X	6X	8X
Field of View $\frac{2}{3}$ " Sensor*:	8.8mm	4.4mm	2.9mm	2.2mm	17.6mm	11.0mm	8.8mm	4.4mm	2.9mm	2.2mm	1.5mm	1.1mm
Field of View $\frac{1}{2}$ " Sensor*:	6.4mm	3.2mm	2.1mm	1.6mm	12.8mm	8.0mm	6.4mm	3.2mm	2.1mm	1.6mm	1.1mm	0.8mm
Field of View $\frac{1}{3}$ " Sensor*:	4.8mm	2.4mm	1.6mm	1.2mm	9.6mm	6.0mm	4.8mm	2.4mm	1.6mm	1.2mm	0.8mm	0.6mm
Maximum Sensor Format:	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "
Aperture (f/#):	f/11.0	f/14.3	f/16.0	f/20.0	f/9	f/14.9	f/18.6	f/17.3	f/21.9	f/27.0	f/35.0	f/45.0
Max. Diameter:	18.0mm	18.0mm	18.0mm	18.0mm	32.0mm	21.4mm	18.0mm	18.0mm	18.0mm	18.0mm	18.0mm	18.0mm
Length (Standard/In-Line):	50.0/53.5mm	37.0/40.0mm	48.0/52.3mm	47.1/50.3mm	86.7/90.0mm	86.5/89.9mm	76.1/79.5mm	76.5/79.9mm	76.3/79.4mm	81.0/84.4mm	116.1/119.5mm	100.0/103.7mm
Distortion:	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%
Telecentricity:	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°
Camera Mount:	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
Standard Stock No.	#63-745	#63-746	#63-747	#63-748	#63-741	#63-742	#63-733	#63-734	#63-735	#63-736	#63-743	#63-744
In-Line Stock No.	#67-319	#67-320	#67-321	#67-322	#67-310	#67-311	#67-312	#67-313	#67-314	#67-315	#67-316	#67-317

TECHSPEC® CompactTL™ TELECENTRIC LENSES ACCESSORIES

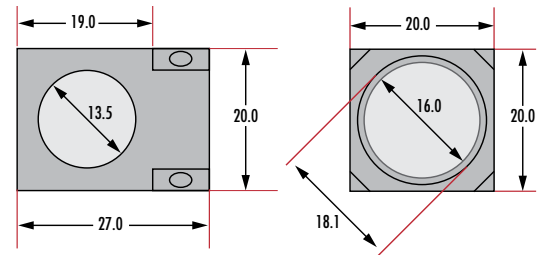
Type	Compatible Diameter Telecentric	Note	Stock No.
M25.5 x 0.5 Filter Adapter	18mm	—	#88-212
M25.5 x 0.5 Filter Adapter	22mm	—	#88-213
Right Angle Adapter	18mm	21.2mm Distance from Input to Output	#88-215

**M25.5 x 0.5 Filter Adapter for
18mm Dia. Telecentric Lenses, #88-212**


Units: mm

**M25.5 x 0.5 Filter Adapter for
22mm Dia. Telecentric Lenses, #88-213**


Units: mm

**Right Angle Adapter for Compact
Telecentric Lenses, #88-215**


Units: mm

TECHSPEC® CompactTL™ TELECENTRIC LENSES

*Horizontal

Working Distance:	110mm (±1)					220mm (±2)	300mm (±3)	
Primary Magnification PMAG:	0.5X	0.75X	1X	2X	3X	1X	1X	2X
Field of View ⅔" Sensor*:	17.6mm	11.7mm	8.8mm	4.4mm	2.9mm	8.8mm	8.8mm	4.4mm
Field of View ½" Sensor*:	12.8mm	8.5mm	6.4mm	3.2mm	2.1mm	6.4mm	6.4mm	3.2mm
Field of View ⅓" Sensor*:	9.6mm	6.4mm	4.8mm	2.4mm	1.6mm	4.8mm	4.8mm	2.4mm
Maximum Sensor Format:	⅔"	⅔"	⅔"	⅔"	⅔"	⅔"	⅔"	⅔"
Aperture (f/#):	f/9.3	f/13.3	f/20.9	f/33.0	f/35	f/11.0	f/14.3	f/14.3
Max. Diameter:	40.0mm	29.5mm	22.0mm	18.0mm	18.0mm	36mm	36mm	31mm
Length (Standard/In-Line):	166.6/170.0mm	156.2/160.0mm	106.6/110.0mm	126.6/130.0mm	100.0/103.6mm	162.5/164.7mm	174.5/177.3mm	198.9/202.3mm
Distortion:	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%	<0.2%
Telecentricity:	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°	<0.2°
Camera Mount:	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
Standard Stock No.	#63-729	#63-730	#63-731	#63-732	#63-738	#33-096	#33-100	#33-101
In-Line Stock No.	#67-303	#67-304	#67-305	#67-306	#67-307	#33-110	#33-114	#33-115

TECHSPEC® TELECENTRIC LENS SELECTION GUIDE

Stock No.	Magnification	Field of View (mm) by Sensor Size (When Ø is used, Image does not cover entire sensor.)									
		1/4"	1/3"	1/2.5"	1/2.3"	1/2"	1/1.8"	2/3"	2/3" Sony 5MP	1"	4/3"
		(3.6 x 2.7mm)	(4.8 x 3.6mm)	(5.8 x 4.3mm)	(6.14 x 4.6mm)	(6.4 x 4.8mm)	(7.2 x 5.4mm)	(8.8 x 6.6mm)	(8.5 x 7.1mm)	(12.8 x 9.6mm)	(15.2 x 15.2mm)
#63-744	8.0X	0.5 x 0.3	0.6 x 0.5	0.7 x 0.5	0.8 x 0.6	0.8 x 0.6	0.9 x 0.7	1.1 x 0.8	1.1 x 0.9	Ø1.4	
#67-317	8.0X	0.5 x 0.3	0.6 x 0.5	0.7 x 0.5	0.8 x 0.6	0.8 x 0.6	0.9 x 0.7	1.1 x 0.8	1.1 x 0.9	Ø1.4	
#63-743	6.0X	0.6 x 0.5	0.8 x 0.6	1.0 x 0.7	1.0 x 0.8	1.1 x 0.8	1.2 x 0.9	1.5 x 1.1	1.4 x 1.2	Ø1.8	
#67-316	6.0X	0.6 x 0.5	0.8 x 0.6	1.0 x 0.7	1.0 x 0.8	1.1 x 0.8	1.2 x 0.9	1.5 x 1.1	1.4 x 1.2	Ø1.8	
#63-736	4.0X	0.9 x 0.7	1.2 x 0.9	1.5 x 1.1	1.5 x 1.2	1.6 x 1.2	1.8 x 1.3	2.2 x 1.7	2.1 x 1.8	Ø2.8	
#67-315	4.0X	0.9 x 0.7	1.2 x 0.9	1.5 x 1.1	1.5 x 1.2	1.6 x 1.2	1.8 x 1.3	2.2 x 1.7	2.1 x 1.8	Ø2.8	
#58-432	4.0X	0.9 x 0.7	1.2 x 0.9	1.5 x 1.1	1.5 x 1.2	1.6 x 1.2	1.8 x 1.3	2.2 x 1.7	2.1 x 1.8	Ø2.8	
#63-748	4.0X	0.9 x 0.7	1.2 x 0.9	1.5 x 1.1	1.5 x 1.2	1.6 x 1.2	1.8 x 1.3	2.2 x 1.7	2.1 x 1.8	Ø2.8	
#67-322	4.0X	0.9 x 0.7	1.2 x 0.9	1.5 x 1.1	1.5 x 1.2	1.6 x 1.2	1.8 x 1.3	2.2 x 1.7	2.1 x 1.8	Ø2.8	
#63-738	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	
#67-307	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	
#33-101	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.2 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#33-115	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.2 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#63-735	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	
#67-314	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	
#63-747	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	
#67-321	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	
#63-732	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#67-306	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#58-431	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#88-348	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#63-734	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#67-313	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#63-746	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#67-320	2.0X	1.8 x 1.4	2.4 x 1.8	2.9 x 2.2	3.1 x 2.3	3.2 x 2.4	3.6 x 2.7	4.4 x 3.3	4.3 x 3.6	Ø5.5	
#63-232	1.7X	2.1 x 1.6	2.8 x 2.1	3.4 x 2.5	3.6 x 2.7	3.8 x 2.8	4.2 x 3.2	5.2 x 3.9	5.0 x 4.2	Ø6.5	
#55-350	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#58-430	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#63-731	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#67-305	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#63-733	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#67-312	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#33-100	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.4 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#33-114	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.4 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#63-745	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#67-319	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#33-096	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.4 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#33-110	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.4 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#62-901	0.9X	4.0 x 3.0	5.3 x 4.0	6.4 x 4.8	6.8 x 5.1	7.1 x 5.3	8.0 x 6.0	9.8 x 7.3	9.4 x 7.9	14.2 x 10.7	16.9 x 16.9
#62-902	0.9X	4.0 x 3.0	5.3 x 4.0	6.4 x 4.8	6.8 x 5.1	7.1 x 5.3	8.0 x 6.0	9.8 x 7.3	9.4 x 7.9	14.2 x 10.7	16.9 x 16.9
#62-904	0.9X	4.0 x 3.0	5.3 x 4.0	6.4 x 4.8	6.8 x 5.1	7.1 x 5.3	8.0 x 6.0	9.8 x 7.3	9.4 x 7.9	14.2 x 10.7	16.9 x 16.9
#62-903	0.9X	4.0 x 3.0	5.3 x 4.0	6.4 x 4.8	6.8 x 5.1	7.1 x 5.3	8.0 x 6.0	9.8 x 7.3	9.4 x 7.9	14.2 x 10.7	16.9 x 16.9
#63-742	0.8X	4.5 x 3.4	6.0 x 4.5	7.3 x 5.4	7.7 x 5.8	8.0 x 6.0	9.0 x 6.7	11.0 x 8.3	10.6 x 8.9	Ø13.8	
#67-311	0.8X	4.5 x 3.4	6.0 x 4.5	7.3 x 5.4	7.7 x 5.8	8.0 x 6.0	9.0 x 6.7	11.0 x 8.3	10.6 x 8.9	Ø13.8	
#63-730	0.75X	4.8 x 3.6	6.4 x 4.8	7.7 x 5.7	8.2 x 6.1	8.5 x 6.4	9.6 x 7.2	11.7 x 8.8	11.3 x 9.5	Ø14.7	
#67-304	0.75X	4.8 x 3.6	6.4 x 4.8	7.7 x 5.7	8.2 x 6.1	8.5 x 6.4	9.6 x 7.2	11.7 x 8.8	11.3 x 9.5	Ø14.7	
#67-310	0.75X	4.8 x 3.6	6.4 x 4.8	7.7 x 5.7	8.2 x 6.1	8.5 x 6.4	9.6 x 7.2	11.7 x 8.8	11.3 x 9.5	Ø14.7	
#88-346	0.75X	4.8 x 3.6	6.4 x 4.8	7.7 x 5.7	8.2 x 6.1	8.5 x 6.4	9.6 x 7.2	11.7 x 8.8	11.3 x 9.5	Ø14.7	
#58-256	0.73X	4.9 x 3.7	6.6 x 4.9	7.9 x 5.9	8.4 x 6.3	8.8 x 6.6	9.8 x 7.4	12.1 x 9.0	11.6 x 9.7	Ø15.3	
#56-678	0.6X	6.0 x 4.5	8.0 x 6.0	9.7 x 7.2	10.2 x 7.7	10.7 x 8.0	11.9 x 9.0	Ø16.7	Ø16.7	Ø16.7	
#88-603	0.55X	6.5 x 4.9	8.7 x 6.5	10.5 x 7.8	11.1 x 8.4	11.6 x 8.7	13.0 x 9.8	16.0 x 12.0	15.5 x 12.9	23.3 x 17.5	Ø29.1
#62-932	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#62-911	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	25.6 x 19.2	Ø37.0
#62-912	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	25.6 x 19.2	30.4 x 30.4
#62-914	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	25.6 x 19.2	30.4 x 30.4
#62-913	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	25.6 x 19.2	30.4 x 30.4
#54-798	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#63-074	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#88-344	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#63-729	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#67-303	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#63-741	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#67-310	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
#56-677	0.4X	9.0 x 6.8	12.0 x 9.0	14.5 x 10.8	15.3 x 11.5	16.0 x 12.0	17.9 x 13.4	Ø22.4	Ø22.4	Ø22.4	
#34-015	0.377X	9.6 x 7.2	12.7 x 9.6	15.4 x 11.4	17.0 x 12.2	17.0 x 12.7	19.1 x 14.3	23.3 x 17.5	22.6 x 18.8	34 x 25.5	40.3 x 40.3
#88-602	0.367X	9.8 x 7.4	13.1 x 9.8	15.8 x 11.7	16.7 x 12.5	17.4 x 13.1	19.5 x 14.6	24.0 x 18.0	23.2 x 19.3	34.9 x 26.2	Ø43.6
#58-257	0.36X	10.0 x 7.5	13.3 x 10.0	16.1 x 11.9	17.0 x 12.8	17.8 x 13.3	19.9 x 14.9	Ø24.4	Ø24.4	Ø24.4	
#58-428	0.3X	12.0 x 9.0	16.0 x 12.0	19.3 x 14.3	20.4 x 15.3	21.3 x 16.0	23.9 x 17.9	Ø30.0	Ø30.0	Ø30.0	
#62-921	0.277X	13.0 x 9.7	17.3 x 13.0	20.9 x 15.5	22.1 x 16.6	23.1 x 17.3	25.9 x 19.4	31.8 x 23.8	30.7 x 25.6	46.2 x 34.7	Ø77.6
#62-922	0.277X	13.0 x 9.7	17.3 x 13.0	20.9 x 15.5	22.1 x 16.6	23.1 x 17.3	25.9 x 19.4	31.8 x 23.8	30.7 x 25.6	46.2 x 34.7	54.9 x 54.9
#62-924	0.277X	13.0 x 9.7	17.3 x 13.0	20.9 x 15.5	22.1 x 16.6	23.1 x 17.3	25.9 x 19.4	31.8 x 23.8	30.7 x 25.6	46.2 x 34.7	54.9 x 54.9
#62-923	0.277X	13.0 x 9.7	17.3 x 13.0	20.9 x 15.5	22.1 x 16.6	23.1 x 17.3	25.9 x 19.4	31.8 x 23.8	30.7 x 25.6	46.2 x 34.7	54.9 x 54.9
#62-933	0.277X	13.0 x 9.7	17.3 x 13.0	20.9 x 15.5	22.1 x 16.6	23.1 x 17.3	25.9 x 19.4	31.8 x 23.8	30.7 x 25.6	Ø39.7	
#34-010	0.268X	13.4 x 10.1	17.9 x 13.4	21.6 x 16.0	23.9 x 17.2	23.9 x 17.9	26.9 x 20.1	32.8 x 24.6	31.7 x 26.5	47.8 x 35.8	Ø59.7

TECHSPEC® TELECENTRIC LENS SELECTION GUIDE

Stock No.	Magnification	f/#	Typical Telecentricity @ 588nm (°)	Typical Distortion @ 588nm (%)	Working Distance (mm)	Lens Mount	Dimensions (Max. Dia. x L) (mm)	Easy Modifications*	Comments*	Abbreviations Key*
#63-744	8.0X	f/45	<0.065	<0.160	65	C-Mount	18.0 x 100.0	Mag	Compact, FA	Compact: Compact Form Factor FA: Fixed Aperture FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#67-317	8.0X	f/45	<0.065	<0.160	65	C-Mount	18.0 x 103.7	Mag	In-Line, FA, Compact	
#63-743	6.0X	f/35	<0.075	<0.025	65	C-Mount	18.0 x 116.1	Mag	Compact, FA	
#67-316	6.0X	f/35	<0.075	<0.025	65	C-Mount	18.0 x 119.5	Mag	In-Line, FA, Compact	
#63-736	4.0X	f/27	<0.016	<0.007	65	C-Mount	18.0 x 81.0	Mag	Compact, FA	
#67-315	4.0X	f/27	<0.016	<0.007	65	C-Mount	18.0 x 84.4	Mag	In-Line, FA, Compact	
#58-432	4.0X	f/6 - f/22	<0.050	<0.060	44	C-Mount	61.0 x 249.0	FA	HR, Iris	
#63-748	4.0X	f/20	<0.065	<0.180	40	C-Mount	18.0 x 47.1	Mag	Compact, FA	
#67-322	4.0X	f/20	<0.065	<0.180	40	C-Mount	18.0 x 50.3	Mag	In-Line, FA, Compact	
#63-738	3.0X	f/35	<0.065	<0.160	110	C-Mount	18.0 x 100.0	Mag	Compact, FA	
#67-307	3.0X	f/35	<0.065	<0.160	110	C-Mount	18.0 x 103.6	Mag	In-Line, FA, Compact	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#33-101	2.0X	f/28.5	<0.06	<0.03	300	C-Mount	31 x 198.9	Mag	Compact, FA	
#33-115	2.0X	f/28.5	<0.06	<0.03	300	C-Mount	31 x 198.9	Mag	Compact, FA	
#63-735	3.0X	f/21.9	<0.075	<0.080	65	C-Mount	18.0 x 76.3	Mag	Compact, FA	
#67-314	3.0X	f/21.9	<0.075	<0.080	65	C-Mount	18.0 x 79.4	Mag	In-Line, FA, Compact	
#63-747	3.0X	f/16	<0.075	<0.200	40	C-Mount	18.0 x 48.0	Mag	Compact, FA	
#67-321	3.0X	f/16	<0.075	<0.200	40	C-Mount	18.0 x 52.3	Mag	In-Line, FA, Compact	
#63-732	2.0X	f/33	<0.075	<0.045	110	C-Mount	18.0 x 126.6	Mag	Compact, FA	
#67-306	2.0X	f/33	<0.075	<0.045	110	C-Mount	18.0 x 130.0	Mag	In-Line, FA, Compact	
#58-431	2.0X	f/6 - f/22	<0.075	<0.040	75	C-Mount	45.0 x 141.0	FA	HR, Iris	
#88-348	2.0X	f/10 - f/22	<0.075	<0.040	75	C-Mount	45.0 x 144.6	FA	In-Line, HR, Iris	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#63-734	2.0X	f/17.3	<0.100	<0.065	65	C-Mount	18.0 x 76.5	Mag	Compact, FA	
#67-313	2.0X	f/17.3	<0.100	<0.065	65	C-Mount	18.0 x 79.4	Mag	In-Line, FA, Compact	
#63-746	2.0X	f/14.3	<0.090	<0.140	40	C-Mount	18.0 x 37.0	Mag	Compact, FA	
#67-320	2.0X	f/14.3	<0.090	<0.140	40	C-Mount	18.0 x 40.0	Mag	In-Line, FA, Compact	
#63-232	1.7X	f/6 - f/22	<0.080	<0.020	123	C-Mount	60.0 x 189.5	WD, FA	HR, Iris	
#55-350	1.0X	f/6 - f/22	<0.003	<0.080	98-123	C-Mount	68.0 x 200.1	FF, FA	Focus, Iris	
#58-430	1.0X	f/6 - f/22	<0.045	<0.060	83	C-Mount	40.0 x 114.0	FA	HR, Iris	
#63-731	1.0X	f/20.9	<0.090	<0.040	110	C-Mount	22.0 x 106.6	Mag	Compact, FA	
#67-305	1.0X	f/20.9	<0.090	<0.040	110	C-Mount	22.0 x 110.0	Mag	In-Line, FA, Compact	
#63-733	1.0X	f/18.6	<0.035	<0.050	65	C-Mount	18.0 x 76.1	Mag	Compact, FA	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#67-312	1.0X	f/18.6	<0.035	<0.050	65	C-Mount	18.0 x 79.5	Mag	In-Line, FA, Compact	
#33-100	1.0X	f/14.3	<0.07	<0.02	300	C-Mount	36 x 174.5	Mag	Compact, FA	
#33-114	1.0X	f/14.3	<0.07	<0.02	300	C-Mount	36 x 174.5	Mag	Compact, FA	
#63-745	1.0X	f/11	<0.035	<0.002	40	C-Mount	18.0 x 50.0	Mag	Compact, FA	
#67-319	1.0X	f/11	<0.035	<0.002	40	C-Mount	18.0 x 53.5	Mag	In-Line, FA, Compact	
#33-096	1.0X	f/11	<0.03	<0.03	220	C-Mount	36 x 162.5	Mag	Compact, FA	
#33-110	1.0X	f/11	<0.03	<0.03	220	C-Mount	36 x 162.5	Mag	Compact, FA	
#62-901	0.9X	f/6 - f/22	<0.070	<0.009	111	C-Mount	65.0 x 199.8	WD, FA	HR, Iris	
#62-902	0.9X	f/6 - f/22	<0.070	<0.035	111	F-Mount	65.0 x 170.8	WD, FA	HR, Iris, LF	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#62-904	0.9X	f/6 - f/22	<0.070	<0.035	111	M42 x 1.0	65.0 x 197.8	WD, FA	19.53mm Flange, HR, Iris, LF	
#62-903	0.9X	f/6 - f/22	<0.070	<0.035	111	M42 x 1.0	65.0 x 210.7	WD, FA	6.56mm Flange, HR, Iris, LF	
#63-742	0.8X	f/14.9	<0.065	<0.004	65	C-Mount	21.4 x 86.5	WD, Mag	Compact, FA	
#67-311	0.8X	f/14.9	<0.065	<0.004	65	C-Mount	21.4 x 89.9	WD, Mag	In-Line, FA, Compact	
#63-730	0.75X	f/13.3	<0.100	<0.020	110	C-Mount	29.5 x 156.2	WD, Mag	Compact, FA	
#67-304	0.75X	f/13.3	<0.100	<0.020	110	C-Mount	29.5 x 160.0	WD, Mag	In-Line, FA, Compact	
#67-731	0.75X	f/6 - f/22	<0.080	<0.080	100	C-Mount	36.0 x 151.2	WD	HR, Iris	
#88-346	0.75X	f/6 - f/22	<0.080	<0.080	100	C-Mount	36.0 x 155.2	WD	In-Line, HR, Iris	
#58-256	0.73X	f/6 - f/22	<0.003	<0.100	98-123	C-Mount	68.0 x 200.1	FF, FA	Focus, Iris	
#56-678	0.6X	f/6 - f/22	<0.007	<0.035	103	C-Mount	42.0 x 156.0	WD	HR, Iris	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#88-603	0.55X	f/6 - f/22	<0.030	<0.007	150	C-Mount	62.0 x 182.5	WD, FA	HR, Iris	
#62-932	0.5X	f/6 - f/22	<0.050	<0.006	173	C-Mount	50.0 x 174.9	WD, FA	HR, Iris	
#62-911	0.5X	f/6 - f/22	<0.055	<0.015	173	C-Mount	90.0 x 172.9	WD, FA	HR, Iris	
#62-912	0.5X	f/6 - f/22	<0.055	<0.020	173	F-Mount	90.0 x 143.0	WD, FA	HR, Iris, LF	
#62-914	0.5X	f/6 - f/22	<0.055	<0.020	173	M42 x 1.0	90.0 x 171.1	WD, FA	19.53mm Flange, HR, Iris, LF	
#62-913	0.5X	f/6 - f/22	<0.055	<0.020	173	M42 x 1.0	90.0 x 184.0	WD, FA	6.56mm Flange, HR, Iris, LF	
#54-798	0.5X	f/6 - f/22	<0.025	<0.015	117-142	C-Mount	65.0 x 150.0	FF, FA	Focus, Iris	
#63-074	0.5X	f/6 - f/22	<0.012	<0.200	120	C-Mount	40.0 x 153.0	WD	HR, Iris	
#88-344	0.5X	f/6 - f/22	<0.012	<0.200	120	C-Mount	40.0 x 156.2	WD	In-Line, HR, Iris	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#63-729	0.5X	f/9.3	<0.250	<0.050	110	C-Mount	40.0 x 166.6	WD, Mag	Compact, FA	
#67-303	0.5X	f/9.3	<0.250	<0.050	110	C-Mount	40.0 x 170.0	WD, Mag	In-Line, FA, Compact	
#63-741	0.5X	f/9	<0.035	<0.025	65	C-Mount	32.0 x 86.7	WD, Mag	Compact, FA	
#67-310	0.5X	f/9	<0.035	<0.025	65	C-Mount	32.0 x 90.0	WD, Mag	In-Line, FA, Compact	
#56-677	0.4X	f/6 - f/22	<0.015	<0.020	103	C-Mount	45.0 x 159.0	WD	HR, Iris	
#34-015	0.377X	f/11 - f/22	<0.1	<0.05	110	C-Mount	79 x 185.8	WD, FA	TitanTL, Iris	
#88-602	0.367X	f/6 - f/22	<0.035	<0.003	169	C-Mount	70.0 x 163.5	WD, FA	HR, Iris	
#58-257	0.36X	f/6 - f/22	<0.025	<0.100	117-142	C-Mount	65.0 x 150.0	FF, FA	Focus, Iris	
#58-428	0.3X	f/6 - f/22	<0.025	<0.015	139	C-Mount	46.0 x 158.0	WD	HR, Iris	
#62-921	0.277X	f/6 - f/22	<0.035	<0.012	182	C-Mount	138.6 x 197.5	WD, FA	HR, Iris	FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#62-922	0.277X	f/6 - f/22	<0.040	<0.025	182	F-Mount	138.6 x 167.6	WD, FA	HR, Iris, LF	
#62-924	0.277X	f/6 - f/22	<0.040	<0.025	182	M42 x 1.0	138.6 x 195.5	WD, FA	19.53mm Flange, HR, Iris, LF	
#62-923	0.277X	f/6 - f/22	<0.040	<0.025	182	M42 x 1.0	138.6 x 208.5	WD, FA	6.56mm Flange, HR, Iris, LF	
#62-933	0.277X	f/6 - f/22	<0.030	<0.006	180	C-Mount	60.5 x 203.8	WD, FA	HR, Iris	
#34-010	0.268X	f/11 - f/22	<0.1	<0.05	110	C-Mount	79 x 161.7	WD, FA	TitanTL, Iris	



전체 Telecentric Lens의 datasheet 다운로드를 웹사이트에서 확인하십시오.

TECHSPEC® TELECENTRIC LENS SELECTION GUIDE

Stock No.	Magnification	Field of View (mm) by Sensor Size (When Ø is used, Image does not cover entire sensor.)									
		1/4"	1/3"	1/2.5"	1/2.3"	1/2"	1/1.8"	2/3"	2/3" Sony 5MP (8.5 x 7.1mm)	1"	4/3"
		(3.6 x 2.7mm)	(4.8 x 3.6mm)	(5.8 x 4.3mm)	(6.14 x 4.6mm)	(6.4 x 4.8mm)	(7.2 x 5.4mm)	(8.8 x 6.6mm)		(12.8 x 9.6mm)	(15.2 x 15.2mm)
#55-349	0.25X	14.4 x 10.8	19.2 x 14.4	23.2 x 17.2	24.5 x 18.4	25.6 x 19.2	28.7 x 21.5	35.2 x 26.4	34.0 x 28.4	Ø49.5	
#56-676	0.25X	14.4 x 10.8	19.2 x 14.4	23.2 x 17.2	24.5 x 18.4	25.6 x 19.2	28.7 x 21.5	Ø43.0	Ø43.0	Ø43.0	
#63-073	0.2X	18.0 x 13.5	24.0 x 18.0	29.0 x 21.5	30.6 x 23.0	32.0 x 24.0	35.8 x 26.9	Ø44.7	Ø44.7	Ø44.7	
#34-016	0.191X	18.9 x 14.2	25.2 x 18.9	30.4 x 22.5	33.6 x 24.1	33.6 x 25.2	37.8 x 28.3	46.1 x 34.6	44.6 x 37.2	67.1 x 50.3	79.7 x 79.7
#34-005	0.184X	19.5 x 14.7	26.0 x 19.5	31.5 x 23.3	34.7 x 25.0	34.7 x 26.0	39.1 x 29.3	47.7 x 35.8	46.1 x 38.5	Ø59.7	
#58-258	0.18X	20.0 x 15.0	26.7 x 20.0	32.2 x 23.9	34.0 x 25.6	35.6 x 26.7	39.8 x 29.8	Ø49.5	Ø49.5	Ø49.5	
#56-675	0.16X	22.5 x 16.9	30.0 x 22.5	36.3 x 26.9	38.3 x 28.8	40.0 x 30.0	45.0 x 33.8	Ø50.0	Ø50.0		
#34-000	0.151X	23.9 x 17.9	31.8 x 23.9	38.4 x 28.5	42.4 x 30.5	42.4 x 31.8	47.7 x 35.8	Ø59.6	Ø59.6		
#34-011	0.136X	26.5 x 19.9	35.4 x 26.5	42.8 x 31.7	47.2 x 33.9	47.2 x 35.4	53.1 x 39.8	64.9 x 48.7	62.7 x 52.4	94.4 x 70.8	Ø118
#55-348	0.13X	27.7 x 20.8	36.9 x 27.7	44.6 x 33.1	47.1 x 35.4	49.2 x 36.9	55.1 x 41.3	67.7 x 50.8	65.4 x 54.6	Ø88.0	
#34-017	0.124X	29.1 x 21.9	38.9 x 29.1	47.0 x 34.8	51.8 x 37.2	51.8 x 38.9	58.3 x 43.7	71.3 x 53.4	68.8 x 57.5	103.6 x 77.7	123.1 x 123.1
#34-018	0.093X	38.8 x 29.1	51.7 x 38.8	62.5 x 46.3	69.0 x 49.6	69.0 x 51.7	77.6 x 58.2	94.8 x 71.1	91.6 x 76.5	137.9 x 103.4	163.8 x 163.8
#34-006	0.093X	38.5 x 28.9	51.4 x 38.5	62.1 x 46.0	68.5 x 49.3	68.5 x 51.4	77.1 x 57.8	94.2 x 70.7	91.0 x 76.0	Ø117.8	
#58-259	0.09X	39.6 x 29.7	52.7 x 39.6	63.7 x 47.3	68.0 x 50.5	70.3 x 52.7	79.3 x 59.5	Ø88.0	Ø88.0		
#34-012	0.088X	41.0 x 30.8	54.7 x 41	66.1 x 49.0	72.9 x 52.4	72.9 x 54.7	82.0 x 61.5	100.2 x 75.2	96.8 x 80.9	145.8 x 109.3	Ø182.2
#56-948	0.08X	45.0 x 33.8	60.0 x 45.0	72.5 x 53.8	76.5 x 57.5	80.0 x 60.0	89.5 x 67.2	110.0 x 82.5	106.3 x 88.8	Ø137.5	
#34-001	0.077X	47.1 x 35.3	62.7 x 47.1	75.8 x 56.2	83.7 x 60.1	83.7 x 62.7	94.1 x 70.6	Ø117.6	Ø117.6		
#34-013	0.066X	54.5 x 40.9	72.7 x 54.5	87.9 x 65.2	97.0 x 69.7	97.0 x 72.7	109.1 x 81.8	133.3 x 100	128.8 x 107.6	193.9 x 145.5	Ø242.4
#58-260	0.064X	56.3 x 42.2	75.0 x 56.3	90.6 x 67.2	95.6 x 71.9	100.0 x 75.0	111.9 x 83.9	Ø137.5	Ø137.5		
#34-007	0.060X	59.6 x 44.7	79.5 x 59.6	96.0 x 71.2	106.0 x 76.2	106.0 x 79.5	119.2 x 89.4	145.7 x 109.3	140.7 x 117.5	Ø182.1	
#34-002	0.050X	72.7 x 54.5	97.0 x 72.7	117.2 x 86.9	129.3 x 92.9	129.3 x 97.0	145.5 x 109.1	Ø181.8	Ø181.8		
#34-008	0.045X	79.3 x 59.5	105.7 x 79.3	127.8 x 94.7	141.0 x 101.3	141.0 x 105.7	158.6 x 118.9	193.8 x 145.4	187.2 x 156.4	Ø242.3	
#34-003	0.037X	96.8 x 72.6	129.0 x 96.8	155.9 x 115.6	172.0 x 123.7	172.0 x 129.0	193.5 x 145.2	Ø241.9	Ø241.9		
Variable											
#88-385	0.25X	14.4 x 10.8	19.2 x 14.4	23.2 x 17.2	24.5 x 18.4	25.6 x 19.2	28.7 x 21.5	35.2 x 26.4	34.0 x 28.4	Ø49.5	
#88-386	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
	0.5X	7.2 x 5.4	9.6 x 7.2	11.6 x 8.6	12.2 x 9.2	12.8 x 9.6	14.3 x 10.7	17.6 x 13.2	17.0 x 14.2	Ø22.0	
	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
#88-387	1.0X	3.6 x 2.7	4.8 x 3.6	5.8 x 4.3	6.1 x 4.6	6.4 x 4.8	7.2 x 5.4	8.8 x 6.6	8.5 x 7.1	Ø11.0	
	3.0X	1.2 x 0.9	1.6 x 1.2	1.9 x 1.4	2.0 x 1.5	2.1 x 1.6	2.4 x 1.8	2.9 x 2.2	2.8 x 2.4	Ø3.7	

TECHNICAL NOTE

TECHSPEC® IMAGING LENSES의 DATASHEET 다운로드 가능

이미징 시스템을 위한 올바른 렌즈 선택에 도움을 주는 핵심 요소를 쉽고 빠르게 이해하도록 설계된 EO의 TECHSPEC® Lens Data Sheets를 다운로드하십시오.

- Modulation Transfer Function (MTF)
- Distortion
- Depth of Field
- Relative Illumination



이미지 더 보기

- 매우 콤팩트한 디자인
- 다양한 검사 용도에 적합
- 다양한 Working Distance 및 배율 지원

TECHSPEC® CompactTL™ Telecentric Lenses는 매우 콤팩트한 디자인으로 공간 제약이 큰 다양한 용도에 맞게 설계되었습니다. 이 렌즈들은 2/3" sensor format 및 다양한 working distance와 배율 옵션을 특징으로 합니다. 단일 유닛에서 다량 수량까지 이용이 가능하며, 가격 대비 성능이 우수합니다. TECHSPEC® CompactTL™ Telecentric Lenses는 우수한 telecentricity와 높은 왜곡으로 gauging system과 통합하여 사용하기에 완벽한 제품입니다. 또한, 고정형 조립과 함께 가능 측정 때문에 오랜 시간 고정된 위치를 유지할 수 있어 교정 작업 없이도 조립 라인에서 사용하기 적합합니다.

PDF | 인쇄

제품 정보 Accessories 기술 정보 **관련 문서** 추가 정보

TECHSPEC® COMPACT TELECENTRIC LENS
#63-734 • 6.5mm WD • 2.0X



TECHSPEC® Compact Telecentric Lenses are designed for high precision imaging applications. They provide excellent image quality and are ideal for applications requiring high magnification and telecentricity. The lenses are available in a variety of focal lengths and working distances to meet your specific needs. For more information, please visit our website or contact your local distributor.

Parameter	Value
Focal Length	6.5mm
Working Distance	6.5mm
Field of View	1.27mm (Ø)
Magnification	2.0X
Image Size	12.7mm (Ø)
Object Size	6.35mm (Ø)
Mounting Thread	1/4"-28
Weight	1.0g

Figure 1: Modulation Transfer Function (MTF) vs. Spatial Frequency (lp/mm). The graph shows the MTF performance of the lens across a range of spatial frequencies. The MTF remains high, indicating excellent image quality.

Figure 2: Distortion vs. Field of View. The graph shows the distortion of the lens across its field of view. The distortion is very low, indicating high geometric accuracy.

Edmund Optics

www.edmundoptics.com

TECHSPEC® TELECENTRIC LENS SELECTION GUIDE

Stock No.	Magnification	f/#	Typical Telecentricity @ 588nm (°)	Typical Distortion @ 588nm (%)	Working Distance (mm)	Lens Mount	Dimensions (Max. Dia. x L) (mm)	Easy Modifications*	Comments*	Abbreviations Key*
#55-349	0.25X	f/6 - f/22	<0.040	<0.400	161-186	C-Mount	79.0 x 196.3	FF, FA	Focus, Iris	Compact: Compact Form Factor FA: Fixed Aperture FF: Fixed Focus FMag: Fixed Magnification Focus: Focusable, Working Distance Range HR: High Resolution In-Line: In-Line Illumination Iris: Variable Iris LF: Large Format, Covers up to 30mm Sensor Diagonal Mag: Magnification Adjustment Vari-Mag: Variable Magnification Range WD: Working Distance
#56-676	0.25X	f/6 - f/22	<0.035	<0.040	160	C-Mount	48.0 x 158.0	WD	HR, Iris	
#63-073	0.2X	f/6 - f/22	<0.055	<0.150	164	C-Mount	60.0 x 188.0	WD	HR, Iris	
#34-016	0.191X	f/11 - f/22	<0.1	<0.11	221	C-Mount	150 x 292.1	WD, FA	TitanTL, Iris	
#34-005	0.184X	f/8 - f/22	<0.1	<0.05	110	C-Mount	79 x 145.5	WD, FA	TitanTL, Iris	
#58-258	0.18X	f/6 - f/22	<0.040	<0.045	161-186	C-Mount	79.0 x 196.3	FF, FA	Focus, Iris	
#56-675	0.16X	f/6 - f/22	<0.030	<0.015	175	C-Mount	65.0 x 191.0	WD	HR, Iris	
#34-000	0.151X	f/8 - f/16	<0.1	<0.04	111	C-Mount	79 x 138.6	WD, FA	TitanTL, Iris	
#34-011	0.136X	f/11 - f/22	<0.1	<0.13	223	C-Mount	150 x 267.9	WD, FA	TitanTL, Iris	
#55-348	0.13X	f/6 - f/22	<0.028	<0.025	132-182	C-Mount	110.0 x 200.0	FF, FA	Focus, Iris	
#34-017	0.124X	f/11 - f/22	<0.1	<0.07	284	C-Mount	208 x 429.6	WD, FA	TitanTL, Iris	
#34-018	0.093X	f/11 - f/22	<0.1	<0.04	374	C-Mount	266 x 560.5	WD, FA	TitanTL, Iris	
#34-006	0.093X	f/8 - f/22	<0.1	<0.10	222	C-Mount	150 x 251.7	WD, FA	TitanTL, Iris	
#58-259	0.09X	f/6 - f/22	<0.028	<0.020	132-182	C-Mount	110.0 x 200.0	FF, FA	Focus, Iris	
#34-012	0.088X	f/11 - f/22	<0.1	<0.05	286	C-Mount	208 x 405.8	WD, FA	TitanTL, Iris	
#56-948	0.08X	f/6 - f/22	<0.018	<0.400	170-220	C-Mount	160.0 x 277.2	FF, FA	Focus, Iris	
#34-001	0.077X	f/8 - f/16	<0.1	<0.19	224	C-Mount	150 x 244.8	WD, FA	TitanTL, Iris	
#34-013	0.066X	f/11 - f/22	<0.1	<0.05	377	C-Mount	266 x 536.3	WD, FA	TitanTL, Iris	
#58-260	0.064X	f/6 - f/22	<0.018	<0.200	170-220	C-Mount	160.0 x 277.2	FF, FA	Focus, Iris	
#34-007	0.060X	f/8 - f/22	<0.1	<0.08	284	C-Mount	208 x 389.9	WD, FA	TitanTL, Iris	
#34-002	0.050X	f/8 - f/16	<0.1	<0.03	287	C-Mount	208 x 383.1	WD, FA	TitanTL, Iris	
#34-008	0.045X	f/8 - f/22	<0.1	<0.05	374	C-Mount	266 x 520.1	WD, FA	TitanTL, Iris	
#34-003	0.037X	f/8 - f/16	<0.1	<0.09	379	C-Mount	266 x 525.9	WD, FA	TitanTL, Iris	
Variable										
#88-385	0.25X 0.5X	f/6 - f/22	<0.070	<0.080	145.0 100.1	C-Mount	65.0 x 177.9	FA, FMag	HR, Vari-Mag, Iris	Vari-Mag: Variable Magnification Range WD: Working Distance
#88-386	0.5X 1.0X	f/6 - f/22	<0.020	<0.020	115 100	C-Mount	50.8 x 175.5	FA, FMag	HR, Vari-Mag, Iris	
#88-387	1.0X 3.0X	f/6 - f/22	<0.035	<0.050	71.6 50.3	C-Mount	48.0 x 90.1 48.0 x 153.7	FA, FMag	HR, Vari-Mag, Iris	

TECHNICAL NOTE

왜 TELECENTRIC LENS를 사용하는가?

원근법의 오류는 (혹은 시차) 인간이 매일 경험하는 일부입니다. 이러한 현상은 배율에 따른 렌즈와 피사체의 거리가 변화하면서 기존의 이미징 시스템에도 발생하게 됩니다. Telecentric lens는 이러한 현상을 광학적으로 보정하여, 한 공간 안에서 위치가 변화하더라도 피사체의 크기를 동일하게 인식시켜 줍니다.

SETUP



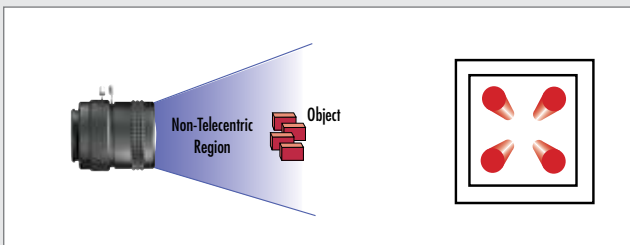
FIXED FOCAL LENGTH LENS



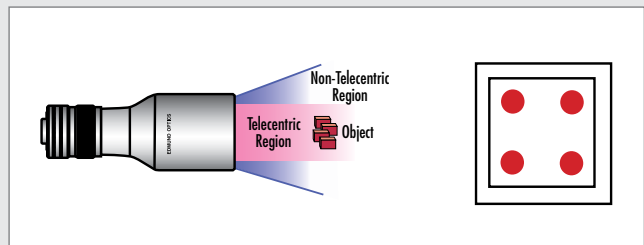
TELECENTRIC LENS



FIXED FOCAL LENGTH LENS WITH CREATED IMAGE



TELECENTRIC LENS WITH CREATED IMAGE

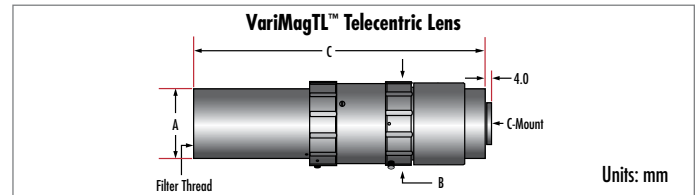
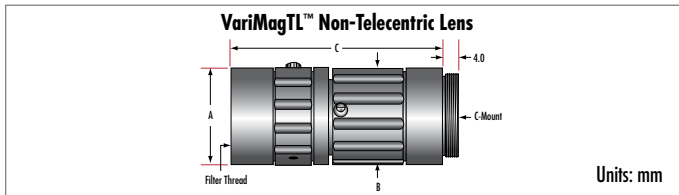


TECHSPEC® VariMagTL™ TELECENTRIC LENSES



- 조절 가능한 FOV
- Variable Iris로 빛의 출력 제어
- Fixed 및 Telecentric 버전 이용 가능

TECHSPEC® VariMagTL™ Telecentric Lenses는 용도별 요건을 충족시키는 데 필요한 정확한 FOV를 제공합니다. 각각의 lens는 사용자가 set screw로 조절하거나 고정시킬 수 있는 배율을 제공합니다. $\frac{2}{3}$ " format sensor까지 사용할 수 있는 이 telecentric lenses는 쉬운 시스템 통합을 위한 소형의 C-mount 호환 가능 디자인을 특징으로 합니다. 또한, TECHSPEC® VariMagTL™ Telecentric Lenses는 빛의 출력을 제어하고 이미지 품질을 향상시키기 위해 조절 가능한 조리개를 포함하고 있습니다. 이 렌즈들은 반도체 및 전자 부품 검사, 공장 자동화 용도에 적합합니다. **참고:** 맞춤형 고정 배율 버전은 고객이 요구하는 수량에 맞게 공급할 수 있습니다. 귀사의 특정 요구 사항에 대한 상담을 원할 경우 기술 지원 팀으로 연락 주시기 바랍니다.



TECHSPEC® VariMagTL™ NON-TELECENTRIC LENSES			
Primary Magnification PMAG:	0.15X - 0.5X	0.5X - 1.0X	
Maximum Camera Sensor Format:	$\frac{2}{3}$ "	$\frac{2}{3}$ "	
Field of View, $\frac{2}{3}$ " Sensor:	58.7 - 17.6mm	17.6 - 8.8mm	
Working Distance:	179.8 - 50.0mm	100.1 - 61.5mm	
Resolution:	75 lp/mm @ >20%	>75 lp/mm @ >20%	
Aperture (f/#):	f/4 - f/22	f/4 - f/22	
Typical Distortion @ 588nm:	<0.1%	<0.1%	
Filter Thread:	M25.5 x 0.5	M25.5 x 0.5	
Lens Mount:	C-Mount	C-Mount	
Front Diameter (A):	32mm	300mm	
Rear Diameter (B):	32mm	30mm	
Length (C):	59.5mm	56.11 - 75.45mm	
Stock No.	#87-536	#87-535	
0.5X Fixed Stock No.	N/A	#87-531	
0.75X Fixed Stock No.	N/A	#87-532	
1.0X Fixed Stock No.	N/A	#87-533	

*0.65X - 1.0X 범위에서 최대 1"까지 사용 가능

TECHSPEC® VariMagTL™ TELECENTRIC LENS			
Primary Magnification PMAG:	0.25X - 0.5X	0.5X - 1.0X	1.0X - 3.0X
Maximum Camera Sensor Format:	$\frac{2}{3}$ "	$\frac{2}{3}$ "	$\frac{2}{3}$ "
Field of View, $\frac{2}{3}$ " Sensor:	35.2 - 17.6mm	17.6 - 8.8mm	8.8 - 2.93mm
Working Distance:	145 - 100.1mm	115 - 100mm	71.6 - 50.3mm
Resolution:	75 lp/mm @ >20%	75 lp/mm @ >20%	75 lp/mm @ >20%
Aperture (f/#):	f/6 - Closed	f/6 - Closed	f/6 - Closed
Typical Telecentricity @ 588nm:	<0.070°	<0.020°	<0.035°
Typical Distortion @ 588nm:	<0.080%	<0.020%	<0.050%
Filter Thread:	M62 x 0.75	M40.5 x 0.5	M30.5 x 0.5
Lens Mount:	C-Mount	C-Mount	C-Mount
Front Diameter (A):	65mm	42mm	33.7mm
Rear Diameter (B):	51mm	42mm	48.5mm
Length (C):	177.9mm	175.48mm	90.1 - 153.7mm
Stock No.	#88-385	#88-386	#88-387
Replacement 2X - 3X Adapter	N/A	N/A	#89-409

**1.0X - 2.0X부터 2.0X - 3.0X까지 변환할 수 있는 Adapter 포함

SPECIFICATIONS															
Lens	Mag	WD (mm)	FOV (mm)*	Lens	Mag	WD (mm)	FOV (mm)*	Lens	Mag	WD (mm)	FOV (mm)*	Lens	Mag	WD (mm)	FOV (mm)*
0.15X - 0.5X Non-Telecentric Version	0.15X	179.8	58.7	0.5X - 1.0X Non-Telecentric Version	0.5X	100.1	17.6	0.25X - 0.30X Telecentric Version	0.25X	145.0	35.2	0.5X - 1.0X Telecentric Version	0.5X	115.0	17.6
	0.2X	133.5	44		0.6X	87.4	14.67		0.30X	124.5	29.3		0.6X	106.0	14.67
	0.3X	87.3	29.3		0.7X	78.3	12.6		0.35X	112.0	25.1		0.7X	102.0	12.6
	0.4X	64	22		0.8X	71.3	11		0.40X	104.0	22.0		0.8X	100.0	11.0
0.5X Telecentric Version	0.5X	50	17.6	0.9X - 1.0X Telecentric Version	0.9X	65.8	9.78	0.45X - 0.50X Telecentric Version	0.45X	100.2	19.6	0.9X - 1.0X Telecentric Version	0.9X	100.0	9.78
	—	—	—		1.0X	61.5	8.8		0.50X	100.1	17.6		1.0X	100.0	8.8

*Horizontal on $\frac{2}{3}$ " sensor

재고 문의 및 맞춤형 제작 견적을 위해 오늘 바로 연락 주십시오!

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