

TECHSPEC[®] TELECENTRIC LENSES



- Over 75 Stock Telecentric Lenses Available for Quick Delivery
- 5 Megapixel, Compact, Variable, and Large Format Options
- 2D and 3D Models Available Online for Easy Integration

WHY TELECENTRICS?

Perspective errors, also called parallax, are part of everyday human experience. This phenomenon is also present in conventional imaging systems in which the magnification of the object changes with its distance from the lens. Telecentric lenses optically correct for this occurrence so that objects remain the same perceived size independent of their location in space.

SETUP



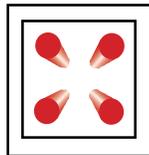
FIXED FOCAL LENGTH LENS



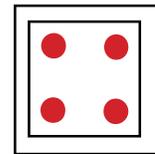
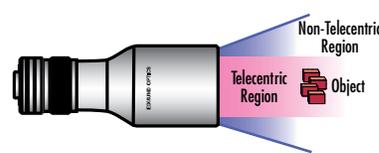
TELECENTRIC LENS



FIXED FOCAL LENGTH LENS WITH CREATED IMAGE



TELECENTRIC LENS WITH CREATED IMAGE



TECHSPEC® SILVER SERIES TELECENTRIC LENSES

- Tamper Proof Fixed Focus Design
- High Resolution Cost Effective Design
- Wide Selection of Magnifications

The TECHSPEC® Silver Series lenses offer superior image quality and less distortion than conventional fixed focal length lenses.

Our high quality optics, combined with a simplified non-focusing mechanical design, yield a more symmetrical image for superior software-integrated measurements while featuring adjustable iris control.



DOWNLOAD
DATASHEETS

TECHSPEC® SILVER SERIES TELECENTRIC LENSES - FIELD OF VIEW AND RESOLUTIONS

Primary Magnification	0.16X		0.20X		0.25X		0.30X		0.40X	
	mm	inch								
¼" 640x480										
FOV	22.40	0.8	17.92	0.71	14.34	0.56	11.95	0.47	8.96	0.35
Pixel Res.*	35.00	0.001	28.00	0.0011	22.40	0.0009	18.67	0.0007	14.00	0.0006
⅓" 640x480										
FOV	29.60	1.17	23.68	0.93	18.94	0.75	15.79	0.62	11.84	0.47
Pixel Res.*	46.25	0.0018	37.00	0.0015	29.60	0.0012	24.67	0.0009	18.50	0.0007
⅓" 1024x768										
FOV	29.76	1.17	23.81	0.94	19.05	0.75	15.87	0.62	11.90	0.47
Pixel Res.*	29.06	0.0011	23.25	0.0009	18.60	0.0007	15.50	0.0006	11.63	0.0005
½" 640x480										
FOV	39.60	1.56	31.68	1.25	25.34	1.00	21.12	0.83	15.84	0.62
Pixel Res.*	61.87	0.0024	49.50	0.0019	39.60	0.0016	33.00	0.0013	29.75	0.0010
½" 1280x1024										
FOV	37.20	1.46	29.76	1.17	23.81	0.94	19.84	0.78	14.88	0.59
Pixel Res.*	29.06	0.0011	23.25	0.0009	18.60	0.0007	15.50	0.0006	11.63	0.0005
¼.0" 1600x1200										
FOV	44.00	1.73	35.20	1.39	28.16	1.11	23.47	0.92	17.60	0.69
Pixel Res.*	27.50	0.0011	22.00	0.0009	17.60	0.0007	14.67	0.0006	11.00	0.0004

* Metric pixel resolution is in microns

TECHSPEC® SILVER SERIES TELECENTRIC LENSES - SPECIFICATIONS

Primary Magnification:	0.16X	0.20X	0.25X	0.30X	0.40X
Max. Sensor Format:	½"	⅓.8"	⅓.8"	½"	⅓.8"
Working Distance (±3mm):	177mm	164mm	160mm	139mm	103mm
Res. (Image Space @ f/10):	>40% at 40lp/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% @ 20lp/mm):	±19.7mm at f/10	±12.9mm at f/10	±8.2mm at f/10	±5.7mm at f/10	±3.3mm at f/10
Aperture (f/#):	f/6 - Closed				
Lens Element Coating:	BBAR from 425-675nm				
Standard Stock Number	#56-675	#63-073	#56-676	#58-428	#56-677
In-Line Stock Number	-	-	-	-	-

TECHSPEC® SILVER SERIES TELECENTRIC LENSES



TECHSPEC® SILVER SERIES TELECENTRIC LENSES - FIELD OF VIEW AND RESOLUTIONS

Primary Magnification	0.50X		0.60X		0.75X		1.0X		2.0X		4.0X	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
¼" 640x480												
FOV	7.17	0.28	5.97	0.24	4.77	0.19	3.58	0.14	1.79	0.07	0.90	0.04
Pixel Res.*	11.20	0.0004	9.33	0.0004	7.46	0.0003	5.60	0.0002	2.80	0.0001	1.40	0.0001
⅓" 640x480												
FOV	9.47	0.37	7.89	0.31	6.31	0.25	4.74	0.19	2.37	0.09	1.18	0.05
Pixel Res.*	14.80	0.0006	12.33	0.0005	9.86	0.0002	7.40	0.0003	3.70	0.0001	1.85	0.0001
⅓" 1024x768												
FOV	9.52	0.37	7.94	0.31	6.34	0.25	4.76	0.19	2.38	0.09	1.19	0.05
Pixel Res.*	9.30	0.0004	7.75	0.0003	6.20	0.0002	4.65	0.0002	2.33	0.0001	1.16	0.00005
½" 640x480												
FOV	12.67	0.50	10.56	0.42	8.44	0.33	6.39	0.25	3.17	0.125	1.58	0.06
Pixel Res.*	19.80	0.0008	16.5	0.0006	13.20	0.0005	9.9	0.0004	4.95	0.0002	2.47	0.0001
½" 1280x1024												
FOV	11.90	0.47	9.92	0.39	7.93	0.31	5.95	0.23	2.98	0.12	1.49	0.06
Pixel Res.*	9.30	0.0004	7.75	0.0003	6.20	0.0002	4.65	0.0002	2.33	0.0001	1.16	0.00005
⅜" 1600x1200												
FOV	14.08	0.55	11.73	0.46	9.38	0.37	7.04	0.28	3.52	0.14	1.76	0.07
Pixel Res.*	8.80	0.0003	7.33	0.0003	5.86	0.0002	4.40	0.0002	2.20	0.0001	1.10	0.00004

* Metric pixel resolution is in microns

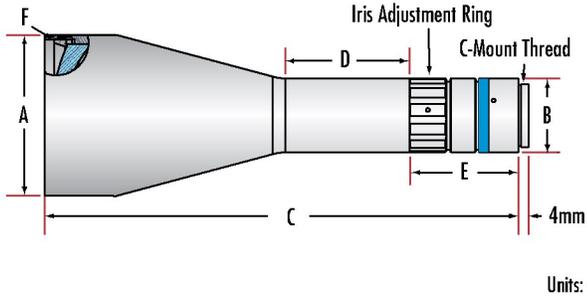
TECHSPEC® SILVER SERIES TELECENTRIC LENSES - SPECIFICATIONS

Primary Magnification:	0.50X	0.60X	0.75X	1.0X	2.0X	4.0X
Max. Sensor Format:	⅓.8"	⅓.8"	⅓.8"	⅓.8"	⅓.8"	⅓.8"
Working Distance (±3mm):	120mm	103mm	100mm	83mm	75mm	44mm
Res. (Image Space @ f/10):	>40% at 40lp/mm	>40% at 40lp/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% @ 20lp/mm):	±2.1mm at f/10	±1.4mm at f/10	±8mm at 20%	±0.5mm at f/10	±0.13mm at f/10	±0.03mm at 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				
Standard Stock Number	#63-074	#56-678	#67-731	#58-430	#58-431	#58-432
In-Line Stock Number	#88-344	-	#88-346	-	#88-348	-

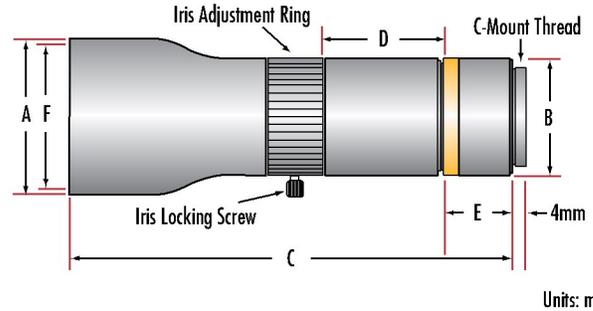
more on next page →

TECHSPEC® SILVER SERIES TELECENTRIC LENSES

Standard 0.16X - 0.75X



Standard 1.0X - 4.0X



SILVER SERIES DIMENSIONS (mm)

Primary Magnification:	0.16X	0.20X	0.25X	0.30X	0.40X	0.50X	0.60X	0.75X	1.0X	2.0X	4.0X
Max. Outer Dia. (A):	65mm	60mm	48mm	46mm	45mm	40mm	42mm	36mm	40mm	45mm	61mm
Mounting Dia. (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 Clamp Fits Over Iris

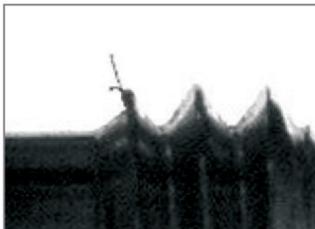
MOUNTING CLAMPS

Silver Series Mounting Clamp, 1.75" Centerline	#56-870
Silver Series Mounting Clamp, 2.25" Centerline	#56-871

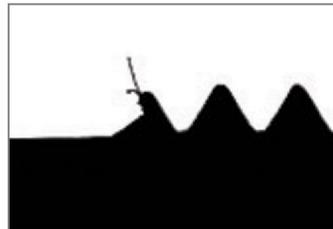
TECHSPEC® TELECENTRIC BACKLIGHT ILLUMINATOR

- Increases Contrast on Product Edges for Inspection Systems
- Adjustable Aperture Allows Variable Output Without Varying Color Temperature
- ¼" Fiber Optic or LED Input for Easy Integration

The TECHSPEC® Telecentric Backlight Illuminator produces a high contrast silhouette, increasing edge contrast and measurement accuracy in gauging applications by decreasing diffuse reflections that increase edge softening.



Mounting Post using TECHSPEC® 1X Silver Series Telecentric Lens and Standard Diffuse Backlight



Mounting Post using TECHSPEC® 1X Silver Series Telecentric Lens and Telecentric Backlight Illuminator



TECHSPEC® TELECENTRIC BACKLIGHT ILLUMINATOR

TECHSPEC® Telecentric Backlight Illuminator

#62-760

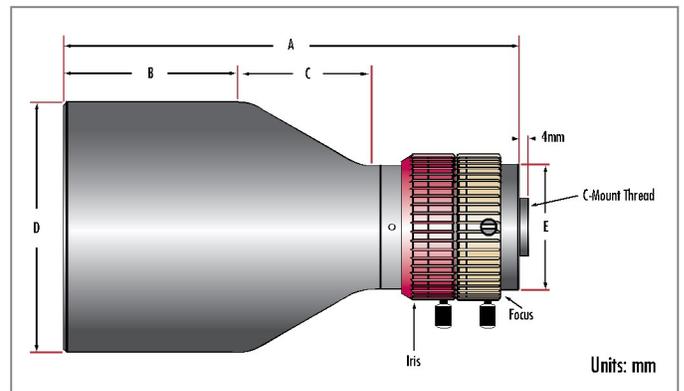
TECHSPEC® GOLD SERIES FOCUSABLE TELECENTRIC LENSES

- Large Fields of View for Either 2/3" or 1/2" Format Sensors
- High Resolution and Low Distortion
- Focusable and Lockable

The TECHSPEC® Gold Series Focusable Telecentric Lenses yield constant magnification over a defined depth of field and are optimized to provide <math><0.1^\circ</math> telecentricity when used in the specified working distance range. Also within the specified working distance, the same magnification can be obtained simply by refocusing. Because maximum field of view in telecentric systems directly relates to the lens aperture closest to the object, larger front lenses are necessary for larger fields of view.



TECHSPEC® GOLD SERIES DIMENSIONS					
	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® GOLD SERIES FOCUSABLE TELECENTRIC LENSES										
Primary Magnification:	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"	1.8"	2/3"	1.8"	2/3"	1/2"	2/3"	1/2"	2/3"	1.8"
Working Distance:	98mm-123mm	98mm-123mm	117mm-142mm	117mm-142mm	161mm-186mm	161mm-186mm	132mm-182mm	132mm-182mm	170mm-220mm	170mm-220mm
Res. (MTF Image Space @ f/10):	>50% @ 40lp/mm	>65% @ 40lp/mm	>55% @ 40lp/mm	>70% @ 40lp/mm	>55% @ 40lp/mm	>60% @ 40lp/mm	>45% @ 40lp/mm	>60% @ 40lp/mm	>65% @ 40lp/mm	>65% @ 40lp/mm
Telecentricity:	<math><0.1^\circ</math>	<math><0.2^\circ</math>	<math><0.2^\circ</math>							
Distortion:	0.10% Max	0.10% Max	0.10% Max	0.10% Max	0.50% Max	0.2% Max	0.50% Max	0.1% Max	0.35% Max	0.50% Max
DOF (20% @ 20lp/mm):	±0.6mm at f/10	±0.95mm at f/10	±2.1mm at f/10	±3.7mm at f/10	±8.2mm at f/10	±15.5mm at f/10	±30.4mm at f/10	±63.6mm at f/10	±81.0mm at f/10	±129mm at 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
Lens 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 LENS SELECTION GUIDE

Stock Number	Magnification	Field of View (mm) by Sensor Size (When Ø is used, Image does not cover entire sensor.)									
		¼" (3.6 x 2.7mm)	⅓" (4.8 x 3.6mm)	½" (5.8 x 4.3mm)	⅔" (6.14 x 4.6mm)	⅞" (6.4 x 4.8mm)	1" (7.2 x 5.4mm)	1¼" (8.8 x 6.6mm)	1½" Sony SMP (8.5 x 7.1mm)	1" (12.8 x 9.6mm)	1¼" (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	Ø 1.4	
#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	Ø 1.4	
#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	Ø 1.8	
#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	Ø 1.8	
#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	Ø 2.8	
#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	Ø 2.8	
#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	Ø 2.8	
#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	Ø 2.8	
#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	Ø 2.8	
#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	Ø 3.7	
#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	Ø 3.7	
#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	Ø 3.7	
#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	Ø 3.7	
#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	Ø 3.7	
#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	Ø 3.7	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 5.5	
#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	Ø 6.5	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 11.0	
#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	Ø 13.8	
#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	Ø 13.8	
#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	Ø 14.7	
#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	Ø 14.7	
#67-731	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	Ø 14.7	
#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	Ø 14.7	
#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	Ø 15.3	
#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	Ø 16.7	Ø 16.7	Ø 16.7	
#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	Ø 29.1
#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	Ø 22.0	
#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	Ø 37.0
#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	Ø 22.0	
#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	Ø 22.0	
#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	Ø 22.0	
#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	Ø 22.0	
#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	Ø 22.0	
#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	Ø 22.0	
#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	Ø 22.0	
#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	Ø 22.4	Ø 22.4	Ø 22.4	
#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	Ø 43.6
#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	Ø 24.4	Ø 24.4	Ø 24.4	
#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	Ø 30.0	Ø 30.0	Ø 30.0	
#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	Ø 77.6
#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	Ø 39.7	
#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	Ø 49.5	
#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	Ø 43.0	Ø 43.0	Ø 43.0	
#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	Ø 44.7	Ø 44.7	Ø 44.7	
#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	Ø 49.5	Ø 49.5	Ø 49.5	
#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	Ø 50.0	Ø 50.0	Ø 50.0	
#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	Ø 88.0	
#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	Ø 88.0	Ø 88.0	Ø 88.0	
#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	Ø 137.5	
#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	Ø 137.5	Ø 137.5	Ø 137.5	
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	Ø 49.5	
	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	Ø 22.0	
#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	Ø 22.0	
	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	Ø 11.0	

TECHSPEC® TELECENTRIC LENS SELECTION GUIDE

Stock Number	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	
#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	
#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	
#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	
#58-430	1.0X	f/6 - f/22	<0.045	<0.060	83	C-Mount	40.0 x 114.0	FA	HR, Iris	
#63-733	1.0X	f/18.6	<0.035	<0.050	65	C-Mount	18.0 x 76.1	Mag	Compact, FA	
#67-312	1.0X	f/18.6	<0.035	<0.050	65	C-Mount	18.0 x 79.5	Mag	In-Line, FA, Compact	
#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	
#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	
#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	
#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	
#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	
#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	
#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	
#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	
#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	
#58-258	0.18X	f/6 - f/22	<0.040	<0.405	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	
#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	
#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	
#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	
#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	
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	
#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	



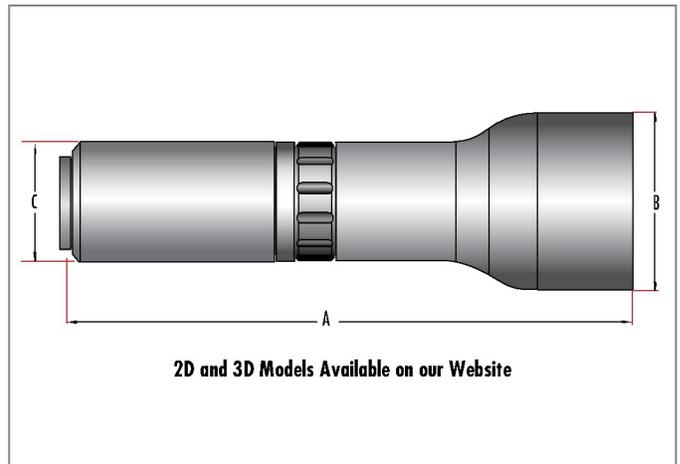
Please visit our website for downloadable datasheets on all our Telecentric Lenses.

TECHSPEC® HIGH RESOLUTION TELECENTRIC LENSES



- Designed for up to 12 Megapixel Sensors
- Superior Light Collecting f/6 Designs
- Lockable Iris to Prevent Unintentional Adjustments

Our TECHSPEC® High Resolution Telecentric lenses were designed with the small pixels associated with 12 Megapixel sensors in mind. These highly telecentric lenses produce unparalleled levels of contrast yielding maximum image quality with the highest degree of measurement accuracy. Designed with the lowest f/#'s in the industry, these lenses achieve the superior light collection required to solve many of today's applications such as small feature detection or solar cell inspection. A locking iris prevents unintentional lens adjustments in high vibration environments.



TECHSPEC® HIGH RESOLUTION TELECENTRIC LENSES

Lens Magnification	0.28X	0.367X	0.5X	0.55X	0.9X	1.7X
Maximum Sensor Size (mm):	2/8"	1"	2/8"	1"	1"	2/8"
Horizontal FOV, 1" Sensor (mm):	–	34.9	–	23.3	14.2	–
Horizontal FOV, 2/8" Sensor (mm):	31.8	24	17.7	16	9.8	5.2
Horizontal FOV, 1/2" Sensor (mm):	23.1	17.4	12.9	11.6	7.11	3.8
Working Distance (mm):	180	169	173	150	111	123
Resolution @ f/6 @ Full Field:	>40% @ 72 lp/mm	>45% @ 72 lp/mm	>40% @ 72 lp/mm	>40% @ 72 lp/mm	>45% @ 72 lp/mm	>25% @ 72 lp/mm
Telecentricity (°):	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Distortion (%):	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aperture (f/#):	f/6 - f/22	f/6 - f/16	f/6 - f/22	f/6 - f/16	f/6 - f/22	f/6 - f/22
Filter Thread (mm):	M58 x 0.75	M67 x 0.75	M46 x 0.75	M58 x 0.75	M62 x 0.75	M58 x 0.75
Lens Stock Number	#62-933	#88-602	#62-932	#88-603	#62-901	#63-232
Mount Stock Number	#63-442	–	#63-442	–	#56-025	#63-233

DIMENSIONS

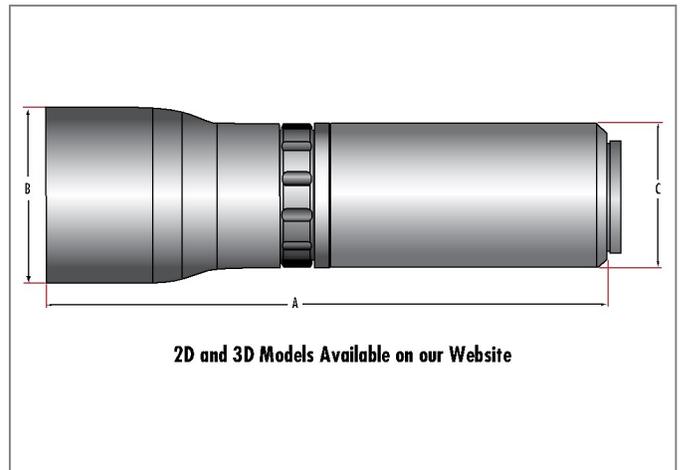
Magnification	Length (A) (mm)	Front Diameter (B) (mm)	Back Diameter (C) (mm)	Mount
0.28X	203.8	60.5	33.5	C-Mount
0.367X	163.5	70	43.5	C-Mount
0.5X	174.9	50.0	33.5	C-Mount
0.55X	182.5	62	43.5	C-Mount
0.9X	199.8	65.0	53.0	C-Mount
1.7X	189.5	60.0	46.0	C-Mount

TECHSPEC® LARGE FORMAT TELECENTRIC LENSES



- Supports up to 28.7mm Diagonal Sensors
- High Light Collecting, High Resolution Designs
- Available with C-Mount, T-Mount (6.56mm or 19.53mm flange), or F-Mount Options

Designed specifically for use with larger format sensors, our TECHSPEC® Large Format Telecentric Lenses are compatible with the Kodak 4MP 1.3" sensor and other larger format sensors, up to 28.7mm (7 μ m pixel, 4k Line Scan Cameras). These lenses feature $\leq 0.1^\circ$ telecentricity and $< 0.1\%$ distortion. The tamper-proof and ruggedized housings make them ideal for applications ranging from large part to electronic board inspection. A locking iris prevents unintentional lens adjustments in high vibration environments.



TECHSPEC® LARGE FORMAT TELECENTRIC LENSES

*C-Mount version is 1" Max. Format

Lens Magnification:	0.28X				0.5X				0.9X			
Maximum Sensor Size:	28.7 (diagonal)*				28.7 (diagonal)*				28.7 (diagonal)*			
Working Distance:	182mm				175mm				111mm			
Horizontal FOV, $\frac{2}{3}$ " Sensor:	31.8mm				17.7mm				9.8mm			
Horizontal FOV, 1.2" Sensor:	54.9mm				30.49mm				16.9mm			
Horizontal FOV, 28.7mm Sensor:	103.6mm				57.75mm				31.9mm			
Resolution @ f/6:	>40% @ 72 lp/mm				>45% @ 72 lp/mm				>40% @ 72 lp/mm			
Telecentricity:	<0.1°				<0.1°				<0.1°			
Distortion:	<0.1%				<0.1%				<0.1%			
Aperture (f/#):	f/6-f/22				f/6-f/22				f/6-f/22			
Filter Thread:	M132 x 0.75				M86 x 1.0				M62 x 0.75			
C-Mount (17.5mm)	#62-921				#62-911				#62-901			
F-Mount (46.5mm)	#62-922				#62-912				#62-902			
M42 x 1.0 (6.56mm)	#62-923				#62-913				#62-903			
M42 x 1.0 (19.53mm)	#62-924				#62-914				#62-904			
Mount Stock Number	#63-440				#63-441				#56-025			

DIMENSIONS

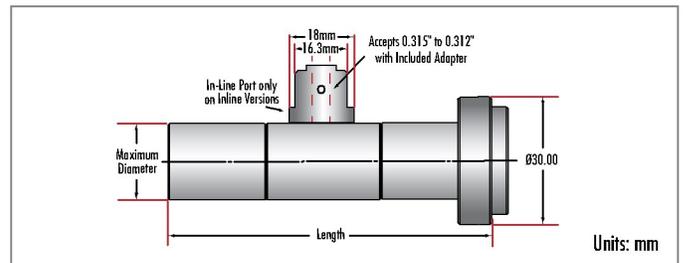
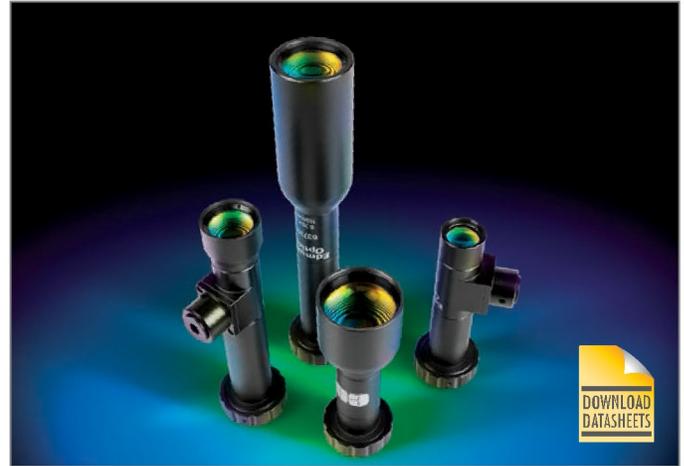
Magnification:	0.28X				0.5X				0.9X			
Mount:	C-Mount	F-Mount	M42 x 1.0	M42 x 1.0	C-Mount	F-Mount	M42 x 1.0	M42 x 1.0	C-Mount	F-Mount	M42 x 1.0	M42 x 1.0
Stock No.	#62-921	#62-922	#62-923	#62-924	#62-911	#62-912	#62-913	#62-914	#62-901	#62-902	#62-903	#62-904
Flange (mm)	17.5	46.5	6.56	19.53	17.5	46.5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

TECHSPEC® COMPACT TELECENTRIC LENSES

- Ultra-Compact Design
- Perfect for Volume Inspection Applications
- Variety of Working Distance and Magnification Options

Our TECHSPEC® Compact Telecentric Lenses were designed with customer requirements in mind. Featuring large maximum sensor formats and a number of different working distance/magnification options, the TECHSPEC® Compact Telecentric Lenses are perfect for many applications. From single unit inspection stations, to high volume implementation, these Compact Telecentric Lenses are engineered to provide the specifications you need at a competitive price point.

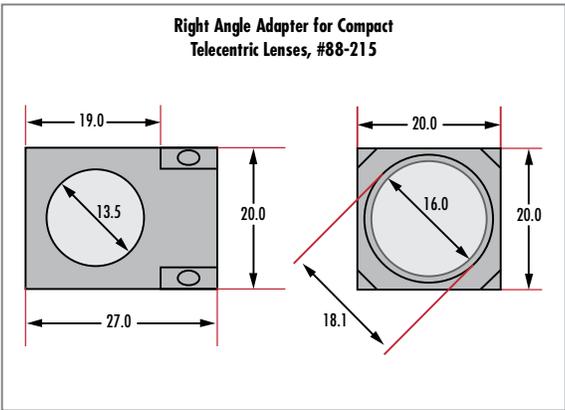
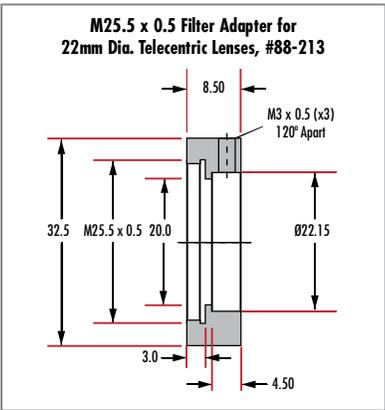
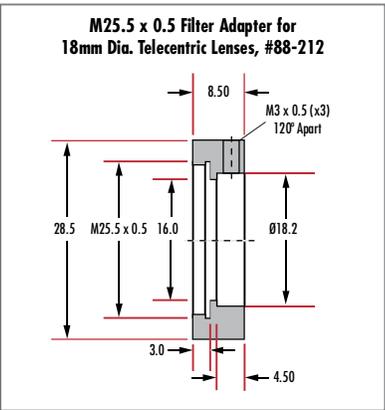
With excellent telecentricity and low distortion, our TECHSPEC® Compact Telecentric Lenses are perfect for integration into gauging systems. The fixed iris and lockable focus are ideal for implementation into factory floors and assembly lines, as they will remain fixed over time.



TECHSPEC® COMPACT TELECENTRIC LENSES																	*Horizontal
Working Distance (±1):	40mm				65mm								110mm				
Primary Magnification:	1X	2X	3X	4X	0.5X	0.8X	1X	2X	3X	4X	6X	8X	0.5X	0.75X	1X	2X	3X
Field of View 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	17.6mm	11.7mm	8.8mm	4.4mm	2.9mm
Field of View 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	12.8mm	8.5mm	6.4mm	3.2mm	2.1mm
Field of View 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	9.6mm	6.4mm	4.8mm	2.4mm	1.6mm
Maximum Sensor Format:	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	2/3"	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	f/9.3	f/13.3	f/20.9	f/33.0	f/35
Maximum 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	40.0mm	29.5mm	22.0mm	18.0mm	18.0mm
Length:	50.0mm/	37.0mm/	48.0mm/	47.1mm/	86.7mm/	86.5mm/	76.1mm/	76.5mm/	76.3mm/	81.0mm/	116.1mm/	100.0mm/	166.6mm/	156.2mm/	106.6mm/	126.6mm/	100.0mm/
(Standard/In-Line):	53.5mm	40.0mm	52.3mm	50.3mm	90.0mm	89.9mm	79.5mm	79.9mm	79.4mm	84.4mm	119.5mm	103.7mm	170.0mm	160.0mm	110.0mm	130.0mm	103.6mm
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%	<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°	<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										
Standard Stock Number	#63-745	#63-746	#63-747	#63-748	#63-741	#63-742	#63-733	#63-734	#63-735	#63-736	#63-743	#63-744	#63-729	#63-730	#63-731	#63-732	#63-738
In-line Stock Number	#67-319	#67-320	#67-321	#67-322	#67-310	#67-311	#67-312	#67-313	#67-314	#67-315	#67-316	#67-317	#67-303	#67-304	#67-305	#67-306	#67-307

TECHSPEC® COMPACT TELECENTRIC LENS ACCESSORIES

Type	Compatible Diameter Telecentric	Note	Stock Number
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



DOWNLOADABLE DATASHEETS FOR TECHSPEC® IMAGING LENSES

Download EO's TECHSPEC® Lens Data Sheets to quickly understand key factors designed to help you select and compare the right lens for your imaging system.

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

TECHSPEC® Compact Telecentric Lenses

- Ultra-Compact Design
- Perfect for Volume Inspection Applications
- Variety of Working Distance and Magnification Options

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TECHSPEC® COMPACT TELECENTRIC LENS
#63-734 • 65mm WD • 2.0X

Primary Magnification	2.0X	Telecentricity	$\pm 0.7^\circ$
Working Distance	65mm ±1mm	Distortion	$\pm 0.25\%$
Depth of Field	$\pm 0.05mm (20 \mu m)$	Resolution	$1400 \text{ @ } 10 \mu m$
Length	75.5mm	Aperture F/No.	F/2.8 (f/2.8)
Max. Sensor Format	40.0 x 30.0	Object Space NA	0.036
Camera Mount	C Mount	Number of Elements (Elements)	1/0
		IR Coating	455 (F-Coat) IR
		Weight	45g

Number Size	10" / 12" / 14" / 16" / 18" / 20" / 22" / 24" / 26" / 28" / 30" / 32" / 34" / 36" / 38" / 40" / 42" / 44" / 46" / 48" / 50" / 52" / 54" / 56" / 58" / 60"	Aperture	F/2.8
Depth of Field	1.0mm / 2.0mm / 3.0mm / 4.0mm / 5.0mm / 6.0mm / 8.0mm / 9.0mm / 10.0mm	Resolution	1400

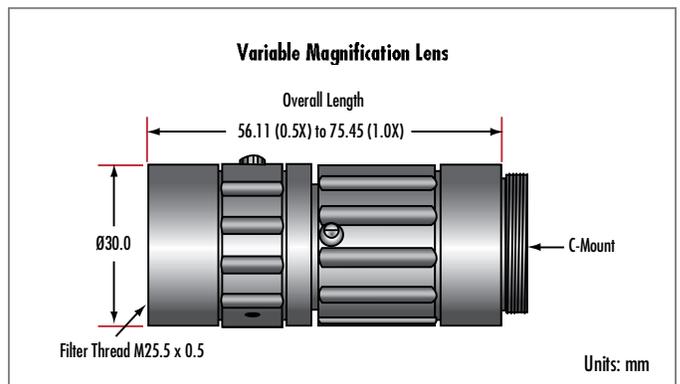
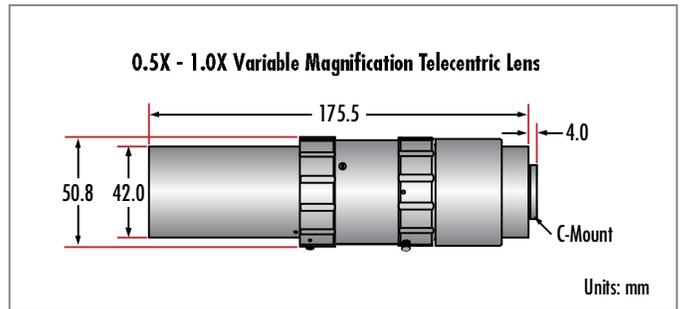
Figure 1: MTF vs. Spatial Frequency. Figure 2: Distortion vs. Field of View. Figure 3: Relative Illumination vs. Field of View.

Edmund OPTICS CORPORATION

TECHSPEC® VARIABLE MAGNIFICATION LENSES

- Adjustable Field of View
- Variable Iris to Control Light Throughput
- Fixed and Telecentric Versions Available

TECHSPEC® Variable Magnification Lenses are ideal for applications that may require constant adjustment of a system's field of view, including semiconductor or electronics inspection or factory automation. TECHSPEC® Variable Magnification Lenses feature compact, C-mount compatible designs to ease system integration and provide coverage for up to 3/8" sensors. The lenses also include a variable iris to control light throughput and improve image quality. Note: Customized fixed versions are also available to meet volume requirements. Please contact technical support to discuss your specific requirements.



TECHSPEC® VARIABLE MAG. NON TELECENTRIC LENS	
Magnification:	0.5X - 1.0X
Working Distance (mm):	100.1 - 61.5
Max. Sensor Size:	3/8"
Resolution:	>20% @ 75 lp/mm
Aperture (f/#):	f/4 - f/22
Distortion (%):	<0.1
Filter Threading:	M25.5 x 0.5
Lens Mount:	C-Mount
Max. Diameter (mm):	30
Length (mm):	56.11 - 75.45
Stock Number	#87-535
0.5X Stock Number (Fixed Version)	#87-531
0.75X Stock Number (Fixed Version)	#87-532
1.0X Stock Number (Fixed Version)	#87-533

TECHSPEC® VARIABLE MAG. TELECENTRIC LENS			
Magnification:	0.25X - 0.5X	0.5X - 1.0X	1.0X - 3.0X**
Working Distance (mm):	145 - 100.1	115 - 100	71.6 - 50.3
Max. Sensor Size:	3/8"	3/8"	3/8"
Resolution:	>20% @ 75 lp/mm	>20% @ 75 lp/mm	>20% @ 75 lp/mm
Aperture (f/#):	f/6 - C	f/6 - C	f/6 - C
Telecentricity (°):	<0.1	<0.1	<0.1
Distortion (%):	<0.1	<0.1	<0.1
Filter Threading:	M62 x 0.75	M40.5 x 0.5	M30.5 x 0.5
Lens Mount:	C-Mount	C-Mount	C-Mount
Max. Diameter (mm):	65	50.8	48.0
Overall Length (mm):	177.90	175.48	90.1 - 153.7
Stock Number	#88-385	#88-386	#88-387

**Includes Adapter to Change from 1.0X-2.0X to 2.0X-3.0X

SPECIFICATIONS								*Horizontal on 3/8" sensor							
Lens	Mag	WD (mm)	FOV (mm)*	Lens	Mag	WD (mm)	FOV (mm)*	Lens	Mag	WD (mm)	FOV (mm)*	Lens	Mag	WD (mm)	FOV (mm)*
0.5X - 1.0X Non-Telecentric Version	0.5X	100.1	17.6	0.25X - 0.50X Telecentric Version	0.25X	145.0	35.2	0.5X - 1.0X Telecentric Version	0.5X	115.0	17.6	1.0X - 3.0X Telecentric Version	1.0X	71.6	8.8
	0.6X	87.4	14.67		0.30X	124.5	29.3		0.6X	106.0	14.67		1.5X	61.0	5.87
	0.7X	78.3	12.6		0.35X	112.0	25.1		0.7X	102.0	12.6		2.0X	55.6	4.4
	0.8X	71.3	11		0.40X	104.0	22.0		0.8X	100.0	11.0		2.5X	52.4	3.5
	0.9X	65.8	9.78		0.45X	100.2	19.6		0.9X	100.0	9.78		3.0X	50.3	2.93
1.0X	61.5	8.8	0.50X	100.1	17.6	1.0X	100.0	8.8	-	-	-				