

MVO[®] TML[™] TELECENTRIC MEASURING LENSES

Edmund Optics Inc.

USA | UK | France | Germany | Japan | Singapore | China | Korea



- Compatible with 1/4, 1/3, 1/2 inch Chip Cameras
- Designed for Metrology and Gauging Applications
- Exceptional Image Quality
- Ideal for Factory Automation
- Ultra High Contrast
- Integrates Easily
- 10 Different Magnifications Available
- Tamper Proof Fixed Focus Design
- Low Cost

The TML[™] line of lenses offer a compact, cost-effective solution for replacing standard fixed focal length lenses. Telecentric lenses are ideal for on-line production and factory automation environments that require accurate measurements. Edmund designed this series of lenses to specifically replace lenses that give inaccurate or inconsistent readings. Telecentric lenses correct perspective errors that yield variations in magnification through the depth of field.

The TML[™] lenses offer superior image quality and less distortion than conventional fixed focal length lenses. **This design yields more symmetrical images that are superior for software-integrated measurements.** Our high quality optics are combined with a simplified non-focusing mechanical design that features adjustable iris control.



Ultra High Contrast Images with Monochromatic Light. Ideal for use with LED illumination.

PRIMARY MAGNIFICATION									
4.0X	2.0X	1.0X	0.60X	0.50X	0.40X	0.30X	0.25X	0.20X	0.16X

The TML[™] series of lenses offer superior image quality and less distortion than conventional fixed focal length lenses.



MVO[®] TML[™] TELECENTRIC MEASURING LENSES

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STANDARD TML™ SERIES

DESIGNED &
MANUFACTURED



MVO® TML™ TELECENTRIC MEASURING LENSES

MVO® TML™ TELECENTRIC MEASURING LENSES FIELD OF VIEW AND RESOLUTIONS														
Primary Magnification	0.60X		0.50X		0.40X		0.30X		0.25X		0.20X		0.16X	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
¼" 640x480:														
FOV	5.97	0.24	7.17	0.28	8.96	0.35	11.95	0.47	14.34	0.56	17.92	0.71	22.40	0.8
Pixel Res.*	9.33	0.0004	11.20	0.0004	14.00	0.0006	18.67	0.0007	22.40	0.0009	28.00	0.0011	35.00	0.001
⅓" 640x480:														
FOV	7.89	0.31	9.47	0.37	11.84	0.47	15.79	0.62	18.94	0.75	23.68	0.93	29.60	1.17
Pixel Res.*	12.33	0.0005	14.80	0.0006	18.50	0.0007	24.67	0.0009	29.60	0.0012	37.00	0.0015	46.25	0.0018
⅓" 1024x768:														
FOV	7.94	0.31	9.52	0.37	11.90	0.47	15.87	0.62	19.05	0.75	23.81	0.94	29.76	1.17
Pixel Res.*	7.75	0.0003	9.30	0.0004	11.63	0.0005	15.50	0.0006	18.60	0.0007	23.25	0.0009	29.06	0.0011
½" 640x480:														
FOV	10.56	0.42	12.67	0.50	15.84	0.62	21.12	0.83	25.34	1.00	31.68	1.25	39.60	1.56
Pixel Res.*	16.5	0.0006	19.80	0.0008	29.75	0.0010	33.00	0.0013	39.60	0.0016	49.50	0.0019	61.87	0.0024
½" 1280x1024:														
FOV	9.92	0.39	11.90	0.47	14.88	0.59	19.84	0.78	23.81	0.94	29.76	1.17	37.20	1.46
Pixel Res.*	7.75	0.0003	9.30	0.0004	11.63	0.0005	15.50	0.0006	18.60	0.0007	23.25	0.0009	29.06	0.0011
⅜" 1600x1200:														
FOV	11.73	0.46	14.08	0.55	17.60	0.69	23.47	0.92	28.16	1.11	35.20	1.39	44.00	1.73
Pixel Res.*	7.33	0.0003	8.80	0.0003	11.00	0.0004	14.67	0.0006	17.60	0.0007	22.00	0.0009	27.50	0.0011

* Metric pixel resolution is in microns

MVO® TML™ TELECENTRIC MEASURING LENSES SPECIFICATIONS								Dimensions on back page
Primary Magnification	0.60X	0.50X	0.40X	0.30X	0.25X	0.20X	0.16X	
Working Distance (±3mm):	103mm	120mm	103mm	139mm	160mm	164mm	175mm	
Res. (Image Space @ F10):	>40% at 40lp/mm	>40% at 40lp/mm	>40% at 40lp/mm	>40% at 40lp/mm	>40% at 40lp/mm	>40% at 40lp/mm	>40% at 40lp/mm	
Telecentricity:	<0.1°	<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%	<0.3%	
DOF (10% @ 20lp/mm):	±1.4mm at F10	±2.1mm at F10	±3.3mm at F10	±5.7mm at F10	±8.2mm at F10	±12.9mm at F10	±19.7mm at F10	
Aperture (f/#):	F6 - Closed	F6 - Closed	F6 - Closed	F6 - Closed	F6 - Closed	F6 - Closed	F6 - 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	BBAR from 425-675nm	
Stock Number:	#56-678	#58-429	#56-677	#58-428	#56-676	#58-427	#56-675	

Customizations Available Upon Request

HIGH POWERED TML™ SERIES



EO DESIGNED &
MANUFACTURED

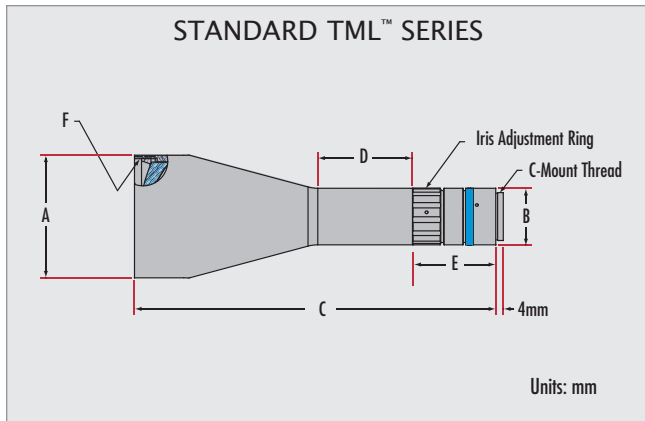
MVO® TML™-HP TELECENTRIC MEASURING LENSES FIELD OF VIEW AND RESOLUTIONS							
Primary Magnification	4.0X		2.0X		1.0X		
	mm	inch	mm	inch	mm	inch	
¼" 640x480:							
FOV	0.90	0.04	1.79	0.07	3.58	0.14	
Pixel Res.*	1.40	0.0001	2.80	0.0001	5.60	0.0002	
⅓" 640x480:							
FOV	1.18	0.05	2.37	0.09	4.74	0.19	
Pixel Res.*	1.85	0.0001	3.70	0.0001	7.40	0.0003	
⅓" 1024x768:							
FOV	1.19	0.05	2.38	0.09	4.76	0.19	
Pixel Res.*	1.16	0.00005	2.33	0.0001	4.65	0.0002	
½" 640 x 480:							
FOV	1.58	0.0625	3.17	0.125	6.39	0.25	
Pixel Res.*	2.47	0.0001	4.95	0.0002	9.9	0.0004	
½" 1280 x 1024:							
FOV	1.49	0.06	2.98	0.12	5.95	0.23	
Pixel Res.*	1.16	0.00005	2.33	0.0001	4.65	0.0002	
⅜" 1600x1200:							
FOV	1.76	0.07	3.52	0.14	7.04	0.28	
Pixel Res.*	1.10	0.00004	2.20	0.0001	4.40	0.0002	

* Metric pixel resolution is in microns

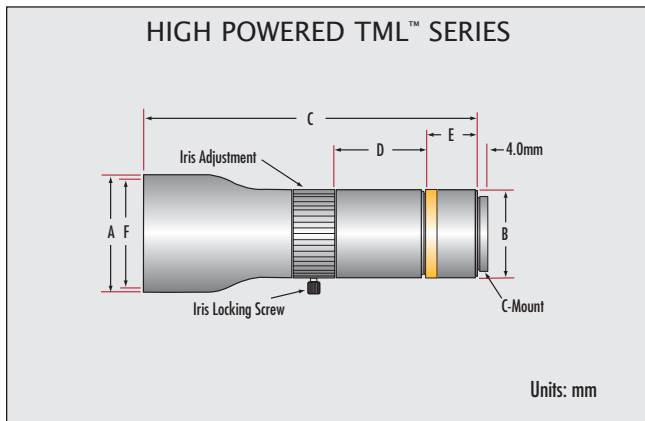
MVO® TML™-HP TELECENTRIC MEASURING LENSES SPECIFICATIONS				Dimensions on back page
Primary Magnification	4.0X	2.0X	1.0X	
Working Distance (± 3mm):	44mm	75mm	83mm	
Res. (Image Space @ F10):	>40% at 40 lp/mm	>40% at 40 lp/mm	>40% at 40 lp/mm	
Telecentricity:	<0.1°	<0.1°	<0.1°	
Distortion (Max.):	<0.3%	<0.3%	<0.3%	
DOF (10% Contrast @ 20 lp/mm):	±0.03mm at F10	±0.13mm at F10	±0.5mm at F10	
Aperture (f/#):	F6 – Closed	F6 – Closed	F6 – Closed	
Lens Element Coating:	BBAR from 425-675nm	BBAR from 425-675nm	BBAR from 425-675nm	
Lens Stock No.	#58-432	#58-431	#58-430	

Customizations Available Upon Request

MOUNTING SPECIFICATIONS



STANDARD SERIES DIMENSIONS (mm)							
Primary Magnification	0.60X	0.50X	0.40X	0.30X	0.25X	0.20X	0.16X
Max. Outer Dia. (A):	42mm	40mm	45mm	46mm	48mm	60mm	65mm
Mounting Dia. (B):	30mm	30mm	30mm	30mm	30mm	30mm	30mm
Length (C):	156mm	153mm	159mm	158mm	158mm	188mm	191mm
Mounting Length (D):	57mm	42mm	67mm	60mm	49mm	42mm	50mm
Mounting Offset (E):	46mm	68mm	33mm	43mm	44mm	45mm	43mm
Filter Size (Mount dia. x thread pitch) (F):	M40.5 x 0.5mm	M37 x 0.75mm	M43 x 0.75mm	M43 x 0.75mm	M46 x 0.75mm	M58 x 0.75mm	M62 x 0.75mm



HP SERIES DIMENSIONS (mm)			
Primary Magnification	4.0X	2.0X	1.0X
Max. Outer Diameter (A):	61mm	45mm	40mm
Mounting Diameter (B):	30mm	30mm	30mm
Length (C):	249mm	141mm	114mm
Mounting Length (D):	99mm	45mm	32mm**
Mounting Offset (E):	17mm	17mm	17mm
Filter Size (F): (mount dia. x thread pitch)	M58x0.75mm	M43x0.75mm	M37x0.75mm

**TML Mounting Clamps fit over Iris

MOUNTING CLAMPS	
TML™ Mounting Clamp, 1.75" Centerline	#56-870
TML™ Mounting Clamp, 2.25" Centerline	#56-871

