

## Zoom Lens

This lens is designed for use with Panasonic's applicable projectors.

With ultra-short throw-distance and exible zoom, this lens is designed to project in extremely tight spaces., with minimal screen shadowing.

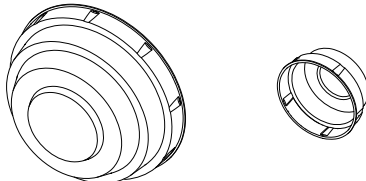

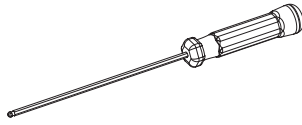
\*Please use the lens only on the specified Panasonic projector.

### Specifications (Specifications are subject to change without notice.)

F value		1.9
Focal distance (f)		7.23 mm ~ 7.73 mm
Throw ratio		0.330 – 0.353:1 (Aspect 16:10)
		0.329 – 0.353:1 (Aspect 16:9)
		0.396 – 0.425:1 (Aspect 4:3)
Dimensions	Width	200 mm (7-7/8 inch)
	Height	200 mm (7-7/8 inch)
	Depth	509 mm (20-1/32 inch)
Weight		Approx. 7.20 kg (15.87 lbs)
Applicable projector		PT-MZ16K/PT-MZ13K/PT-MZ10K* (Laser Classification:Risk Group 2 (IEC 62471-5:2015) (with ET-EMU100))

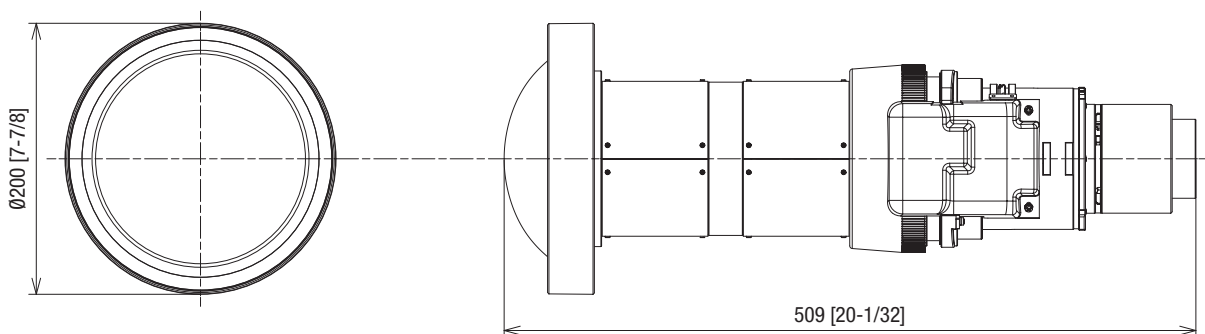
\*ET-EMU100 attached to PT-MZ16K/PT-MZ13K/PT-MZ10K is subject to specific installation and usage conditions. Consult your sales representative for details before purchase. Use of ET-EMU100 requires PT-MZ16K/PT-MZ13K/PT-MZ10K with main projector firmware Ver. 1.23 or later or Ver. 2.10 or later.

### Supplied Accessories

Product name	Lens cover	Lens fixing screw* (DPHD1008ZA/X1)	Hex driver*
Appearance (quantity)	 <p>1 each (front and rear cover)</p>	 <p>x 4</p>	 <p>x 1</p>

\* Used when attaching the projection lens to the projector.

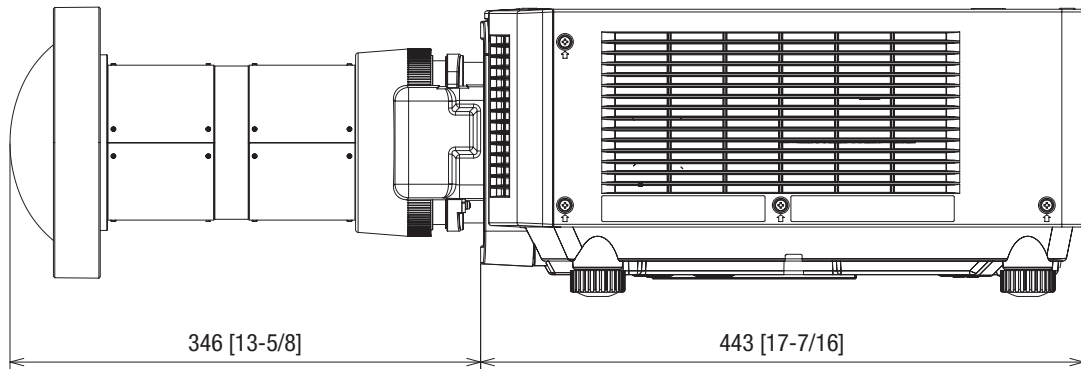
### Dimensions



unit : mm [inch]  
This illustration is not drawn to scale.

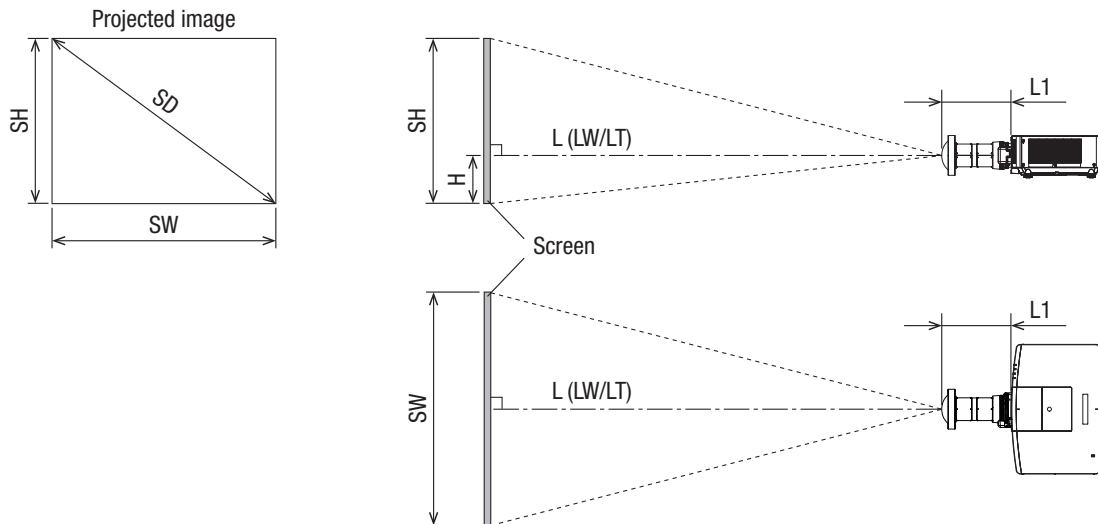
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Figure attached to the [PT-MZ16K/PT-MZ13K/PT-MZ10K] projector



unit : mm [inch]  
This illustration is not drawn to scale.

### Projection relationship diagram



**Note**

- This diagram assumes that the size and position of the projected image will be adjusted so that the image fits the entire screen.
- This illustration is not drawn to scale.
- The values are approximate.

L		Projection distance
	LW	Minimum distance
	LT	Maximum distance
L1		Lens protrusion dimension
SH		Projected image height
H		Distance from the lens center to the lower edge of the projected image
SW		Projected image width
SD		Projected image size

unit : m

Projection lens Model No.	Lens protrusion dimensions (L1)
PT-MZ16K/PT-MZ13K/PT-MZ10K	0.346

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**Projection distance**

Screen aspect ratio 16:10

Unit: m

Throw ratio*1		0.330 – 0.353:1				Height position (Distance from the lens center to the lower edge of the projected image) (H)
Projected image size		Projection distance (L)*2		Min.(LW)	Max.(LT)	
Diagonal (SD)		Height (SH)	Width (SW)			
inches	m					
100	2.54	1.346	2.154	0.70	0.75	0.00 ~ 0.94
120	3.05	1.615	2.585	0.84	0.91	0.00 ~ 1.13
150	3.81	2.019	3.231	1.06	1.14	0.00 ~ 1.41
200	5.08	2.692	4.308	1.43	1.54	0.00 ~ 1.88
250	6.35	3.365	5.385	1.79	1.93	0.00 ~ 2.36
300	7.62	4.039	6.462	2.16	2.32	0.00 ~ 2.83
350	8.89	4.712	7.539	2.52	2.71	0.00 ~ 3.30
400	10.16	5.385	8.616	2.89	3.11	0.00 ~ 3.77

Screen aspect ratio 16:9

Unit: m

Throw ratio*1		0.329 – 0.353:1				Height position (Distance from the lens center to the lower edge of the projected image) (H)
Projected image size		Projection distance (L)*2		Min.(LW)	Max.(LT)	
Diagonal (SD)		Height (SH)	Width (SW)			
inches	m					
100	2.54	1.245	2.214	0.72	0.77	-0.07 ~ 0.90
120	3.05	1.494	2.657	0.87	0.93	-0.08 ~ 1.08
150	3.81	1.868	3.321	1.09	1.18	-0.10 ~ 1.35
200	5.08	2.491	4.428	1.47	1.58	-0.14 ~ 1.80
250	6.35	3.113	5.535	1.84	1.98	-0.17 ~ 2.25
300	7.62	3.736	6.641	2.22	2.39	-0.21 ~ 2.70
350	8.89	4.358	7.748	2.59	2.79	-0.24 ~ 3.15
400	10.16	4.981	8.855	2.97	3.20	-0.28 ~ 3.60

Screen aspect ratio 4:3

Unit: m

Throw ratio*1		0.396 – 0.425:1				Height position (Distance from the lens center to the lower edge of the projected image) (H)
Projected image size		Projection distance (L)*2		Min.(LW)	Max.(LT)	
Diagonal (SD)		Height (SH)	Width (SW)			
inches	m					
100	2.54	1.524	2.032	0.79	0.85	0.00 ~ 1.07
120	3.05	1.829	2.438	0.96	1.03	0.00 ~ 1.28
150	3.81	2.286	3.048	1.21	1.30	0.00 ~ 1.60
200	5.08	3.048	4.064	1.62	1.74	0.00 ~ 2.13
250	6.35	3.810	5.080	2.03	2.19	0.00 ~ 2.67
300	7.62	4.572	6.096	2.45	2.63	0.00 ~ 3.20
350	8.89	5.334	7.112	2.86	3.08	0.00 ~ 3.73
400	10.16	6.096	8.128	3.28	3.52	0.00 ~ 4.27

\*1 The throw ratio is an approximate value that represents the horizontal size of the screen/projection distance.  
The throw ratio is based on the value during projection with the projected image size of 3.81 m (150")

\*2 A ±5 % error in listed projection distances may occur. In addition, when [KEystone] is used, distance is corrected to become smaller than the specified screen size.

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**Projection distance**

Screen aspect ratio 16:10

Unit: feet

Throw ratio*1		0.330 – 0.353:1				Height position (Distance from the lens center to the lower edge of the projected image) (H)
Projected image size				Projection distance (L)*2		
Diagonal (SD)		Height (SH)	Width (SW)	Min.(LW)	Max.(LT)	
inches	m					
100	2.54	4.42	7.07	2.30	2.46	0.00 ~ 3.09
120	3.05	5.30	8.48	2.76	2.99	0.00 ~ 3.71
150	3.81	6.62	10.60	3.48	3.74	0.00 ~ 4.64
200	5.08	8.83	14.13	4.69	5.05	0.00 ~ 6.18
250	6.35	11.04	17.67	5.87	6.33	0.00 ~ 7.73
300	7.62	13.25	21.20	7.09	7.61	0.00 ~ 9.27
350	8.89	15.46	24.73	8.27	8.89	0.00 ~ 10.82
400	10.16	17.67	28.27	9.48	10.20	0.00 ~ 12.37

Screen aspect ratio 16:9

Unit: feet

Throw ratio*1		0.329 – 0.353:1				Height position (Distance from the lens center to the lower edge of the projected image) (H)
Projected image size				Projection distance (L)*2		
Diagonal (SD)		Height (SH)	Width (SW)	Min.(LW)	Max.(LT)	
inches	m					
100	2.54	4.08	7.26	2.36	2.53	-0.23 ~ 2.95
120	3.05	4.90	8.72	2.85	3.05	-0.26 ~ 3.54
150	3.81	6.13	10.90	3.58	3.87	-0.33 ~ 4.43
200	5.08	8.17	14.53	4.82	5.18	-0.46 ~ 5.90
250	6.35	10.21	18.16	6.04	6.50	-0.56 ~ 7.38
300	7.62	12.26	21.79	7.28	7.84	-0.69 ~ 8.85
350	8.89	14.30	25.42	8.50	9.15	-0.79 ~ 10.33
400	10.16	16.34	29.05	9.74	10.50	-0.92 ~ 11.80

Screen aspect ratio 4:3

Unit: feet

Throw ratio*1		0.396 – 0.425:1				Height position (Distance from the lens center to the lower edge of the projected image) (H)
Projected image size				Projection distance (L)*2		
Diagonal (SD)		Height (SH)	Width (SW)	Min.(LW)	Max.(LT)	
inches	m					
100	2.54	5.00	6.67	2.59	2.79	0.00 ~ 3.50
120	3.05	6.00	8.00	3.15	3.38	0.00 ~ 4.20
150	3.81	7.50	10.00	3.97	4.27	0.00 ~ 5.25
200	5.08	10.00	13.33	5.31	5.71	0.00 ~ 7.00
250	6.35	12.50	16.67	6.66	7.18	0.00 ~ 8.75
300	7.62	15.00	20.00	8.04	8.63	0.00 ~ 10.50
350	8.89	17.50	23.33	9.38	10.10	0.00 ~ 12.25
400	10.16	20.00	26.67	10.75	11.56	0.00 ~ 14.00

\*1 The throw ratio is an approximate value that represents the horizontal size of the screen/projection distance. The throw ratio is based on the value during projection with the projected image size of 3.81 m (150")

\*2 A ±5 % error in listed projection distances may occur. In addition, when [KEYSTONE] is used, distance is corrected to become smaller than the specified screen size.

**Calculation of the projection distance**

To use a projected image size not listed in this manual, check the projected image size SD (m) and use the respective formula to calculate projection distance.

The unit of all the formulae is m. (Values obtained by the following calculation formulae contain a slight error.)

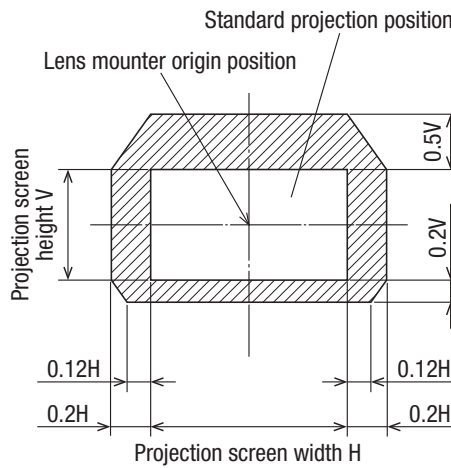
When calculating a projection distance using image size designation (Value in inches), multiply the value in inches by 0.0254 and substitute it into SD in the formula for calculating the projection distance.

Unit: m

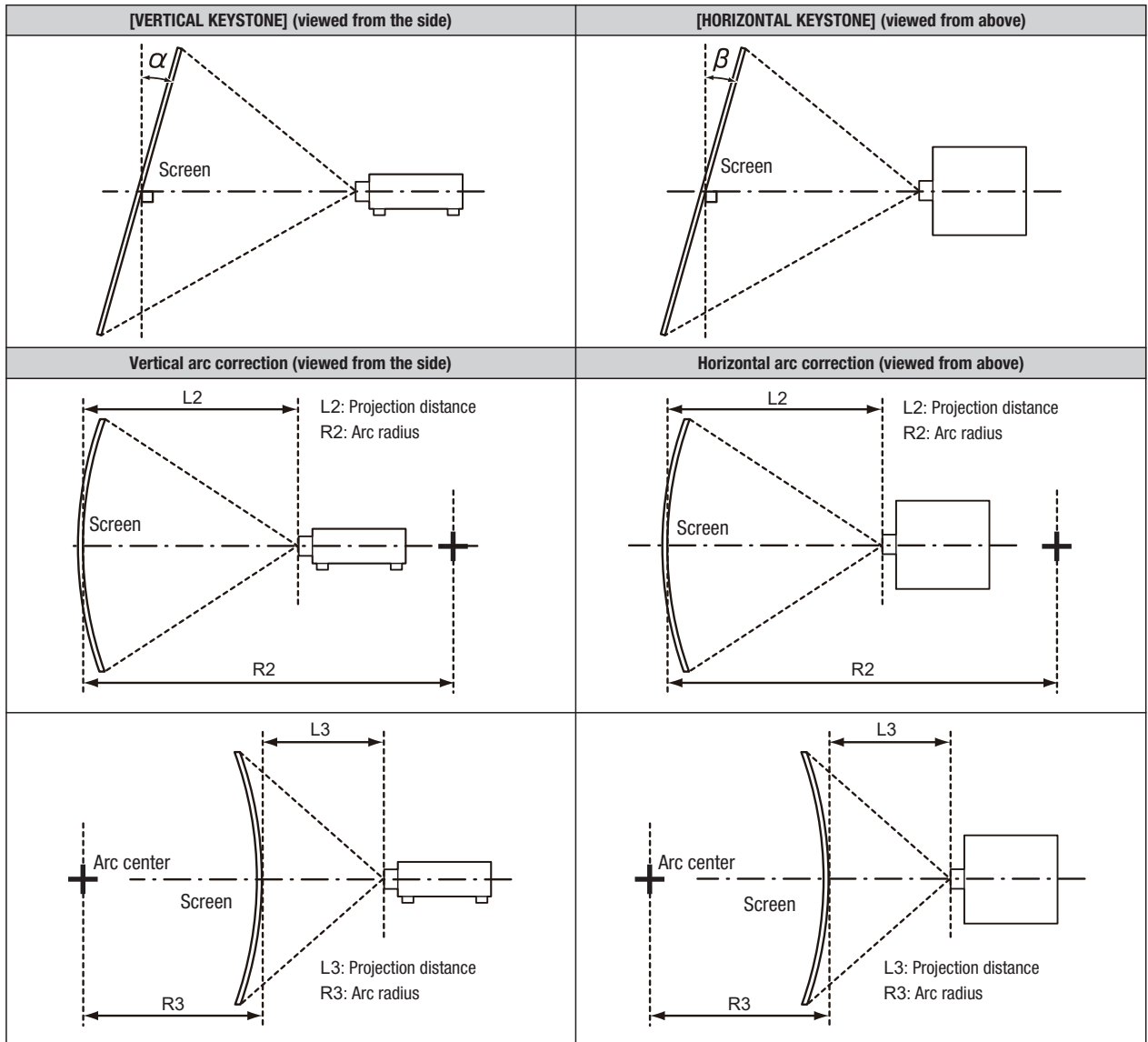
Aspect ratio	Throw ratio	Projection distance (L) formula	
		Min. (LW)	Max. (LT)
16:10	0.330 – 0.353 : 1	$=0.2879 \times SD - 0.0355$	$=0.3095 \times SD - 0.0363$
16:9	0.329 – 0.353 : 1	$=0.2959 \times SD - 0.0355$	$=0.3181 \times SD - 0.0363$
4:3	0.396 – 0.425 : 1	$=0.3259 \times SD - 0.0355$	$=0.3503 \times SD - 0.0363$

**Lens shift range**

Optical axis shift function allows to shift the position of a projected image as shown below.



[SCREEN ADJUSTMENT] projection range



Projector Model No.	Only [KEYSTONE] used		[KEYSTONE] and [CURVED CORRECTION] used together				Only [CURVED CORRECTION] used	
	Vertical keystone correction angle $\alpha$ (°)	Horizontal keystone correction angle $\beta$ (°)	Vertical keystone correction angle $\alpha$ (°)	Horizontal keystone correction angle $\beta$ (°)	Min. value of R2/L2	Min. value of R3/L3	Min. value of R2/L2	Min. value of R3/L3
PT-MZ16K PT-MZ13K PT-MZ10K	$\pm 5$	$\pm 0$	-	-	-	-	-	-

\*Same when using the optional upgrade kit (ET-UK20)

**Note**

- When [SCREEN ADJUSTMENT] is used, the focus of the entire screen may be lost as correction increases.