

# High Power Laser Beam Expander **BEHP** RoHS

It is capable of 1x to 3x times changing high-power zoom Laser beam expander.

It supports a broader wavelength range than the current models.

It can be used in an optical system with high precision, such as a laser interferometer and processing by the lens design that takes into account the wavefront aberration.

- The optical design of the beam expander is an air gap configuration that does not use an adhesive to bond the lenses. This allows the beam expander to be used with a high-power laser.
- It is designed and coated to enable to use in a broader wavelength range than the current models.
- By turning the diopter ring that is attached to the center of the beam expander, you can make variable beams such as the focused beam, collimated beam, and the divergent beam. It is used when you want to vary the position of the beam waist and if strict collimation adjustment is necessary.



Common Specifications	
Material	Synthetic fused silica
Housing Material	Aluminum
Housing Finish	Black Anodized
Acceptance angle	$\pm 1^\circ$ ( $\phi 6\text{mm}$ )(w/o vignetting)
Coating	R<10% @600-700
Transmitted wavefront distortion	$< \lambda/10$ @ $\phi 6\text{mm}$ (design value)
ポインティング	$< 0.5\text{mrad}$ (Reference value)

Specifications							
Part number	Design wavelength [nm]	Wavelengths [nm]	Variable expansion ratio	Input aperture [mm]	Transmittance [%]	Laser Damage Threshold* [J/cm <sup>2</sup> ]	Weight [kg]
<b>BEHP-1.5-250/280</b>	250-266	250-280	1.5	$\phi 11$	>99	2(J/cm <sup>2</sup> )@266nm	0.25
<b>BEHP-1.5-340/380</b>	340-355	340-380	1.5	$\phi 11$	>99	4(J/cm <sup>2</sup> )@355nm	0.25
<b>BEHP-1.5-500/570</b>	500-532	500-570	1.5	$\phi 11$	>99	5(J/cm <sup>2</sup> )@532nm	0.25
<b>BEHP-1.5-1030/1100</b>	1030-1064	1030-1100	1.5	$\phi 11$	>99	7(J/cm <sup>2</sup> )@1064nm	0.25
<b>BEHP-2-250/280</b>	250-266	250-280	2	$\phi 10$	>99	2(J/cm <sup>2</sup> )@266nm	0.21
<b>BEHP-2-340/380</b>	340-355	340-380	2	$\phi 10$	>99	4(J/cm <sup>2</sup> )@355nm	0.21
<b>BEHP-2-500/570</b>	500-532	500-570	2	$\phi 10$	>99	5(J/cm <sup>2</sup> )@532nm	0.21
<b>BEHP-2-1030/1100</b>	1030-1064	1030-1100	2	$\phi 10$	>99	7(J/cm <sup>2</sup> )@1064nm	0.21
<b>BEHP-3-250/280</b>	250-266	250-280	3	$\phi 8$	>99	2(J/cm <sup>2</sup> )@266nm	0.21
<b>BEHP-3-340/380</b>	340-355	340-380	3	$\phi 8$	>99	4(J/cm <sup>2</sup> )@355nm	0.21
<b>BEHP-3-500/570</b>	500-532	500-570	3	$\phi 8$	>99	5(J/cm <sup>2</sup> )@532nm	0.21
<b>BEHP-3-1030/1100</b>	1030-1064	1030-1100	3	$\phi 8$	>99	7(J/cm <sup>2</sup> )@1064nm	0.21

\*Laser pulse width ; 10ns , Repetition frequency ; 20Hz

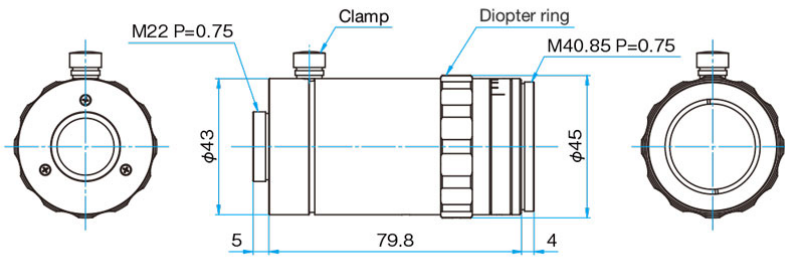
## Guide

- ▶ We provide the laser beam expander holders (KLH-BE) for optical axis adjustment of the laser beam expander.
- ▶ We can also provide a beam expander for wavelengths not listed on-line or in our catalog, please contact our Sales Division with your request.

## Attention

- ▶ The laser energy density at small aperture(output aperture) will become higher than LIDT when reducing the beam diameter and the Beam expander might be broken.
- ▶ It may not be able to obtain the expected function when the beam expander is used in the opposite direction (reducing the beam diameter). Please refer the technical note of the laser beam expander for details.

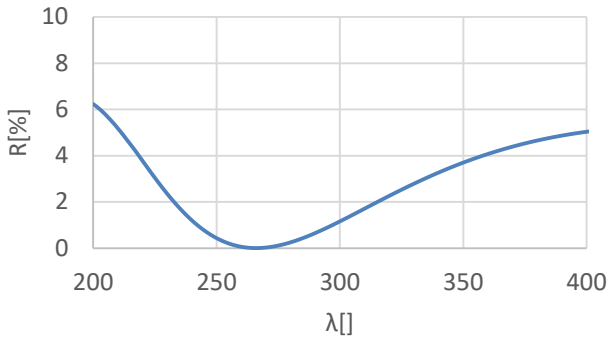
**BEHP**



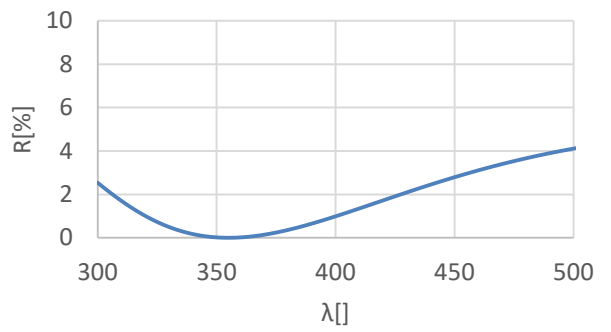
Typical Reflectance Data (Reference data)

R: Reflectance

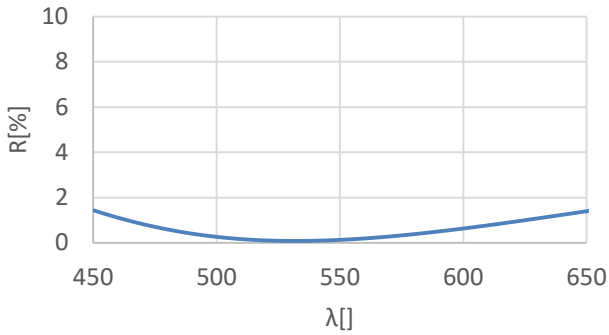
**BEHP-250/280**



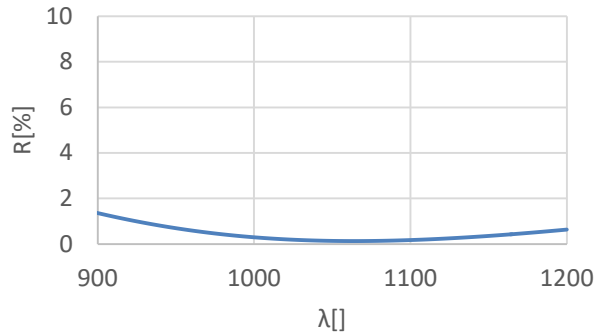
**BEHP-340/380**



**BEHP-500/570**



**BEHP-1030/1100**



Holder for laser beam expander



KLH-BE

**Dedicated holder for laser beam expander**  
Adjust angle of output beam and center of brightness distribution.

# High-Power Zoom Laser Beam Expander

**BEZHP**

**RoHS**

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## Guide

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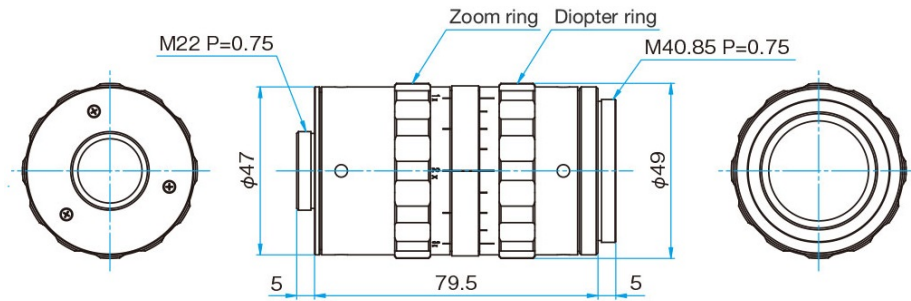
## Attention

- ▶ The laser energy density at small aperture(output aperture) will become higher than LIDT when reducing the beam diameter and the Beam expander might be broken.
- ▶ It may not be able to obtain the expected function when the beam expander is used in the opposite direction (reducing the beam diameter). Please refer the technical note of he laser beam expander for details.

Common Specifications	
Material	Synthetic fused silica
Housing Material	Aluminum
Housing Finish	Black Anodized
Acceptance angle	$\pm 1^\circ$ ( $\phi 6\text{mm}$ )(w/o vignetting)
Output aperture diameter	$\phi 25\text{mm}$
Coating	R<10%@600-700
Transmitted wavefront distortion	$< \lambda/7$ @ $\phi 5\text{mm}$ (design value)
Pointing	$< 0.5\text{mrad}$ (Reference value)

Specifications							
Part number	Design wavelength [nm]	Wavelengths [nm]	Variable expansion ratio	Input aperture [mm]	Transmittance [%]	Laser Damage Threshold* [J/cm <sup>2</sup> ]	Weight [kg]
<b>BEZHP-1/3-250/280</b>	250-266	250-280	1-3x	$\phi 14(1x)-6(3x)$	>98	2(J/cm <sup>2</sup> )@266nm	0.21
<b>BEZHP-1/3-340/380</b>	340-355	340-380	1-3x	$\phi 14(1x)-6(3x)$	>98	4(J/cm <sup>2</sup> )@355nm	0.21
<b>BEZHP-1/3-500/570</b>	500-532	500-570	1-3x	$\phi 14(1x)-6(3x)$	>98	5(J/cm <sup>2</sup> )@532nm	0.21
<b>BEZHP-1/3-1030/1100</b>	1030-1064	1030-1100	1-3x	$\phi 14(1x)-6(3x)$	>98	7(J/cm <sup>2</sup> )@1064nm	0.21

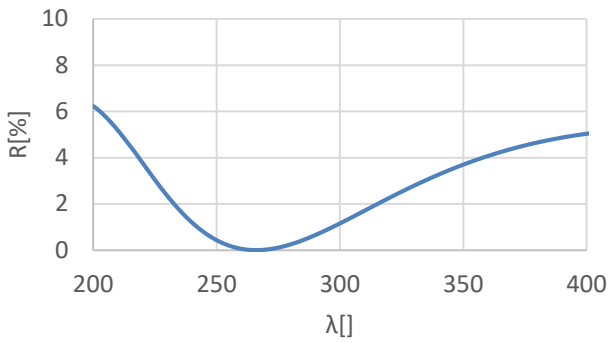
\*Laser pulse width ; 10ns , Repetition frequency ; 20Hz



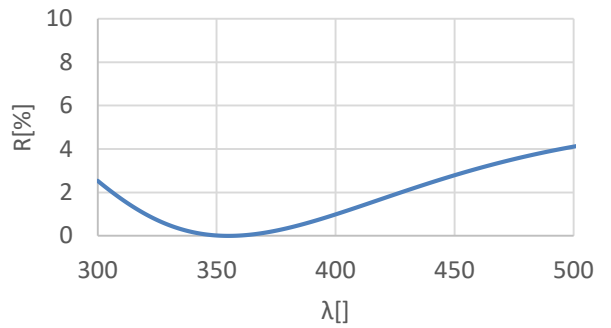
Typical Reflectance Data (Reference data)

R: Reflectance

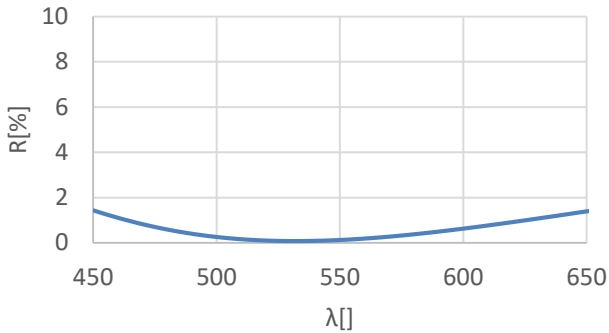
**BEZHP-1/3-250/280**



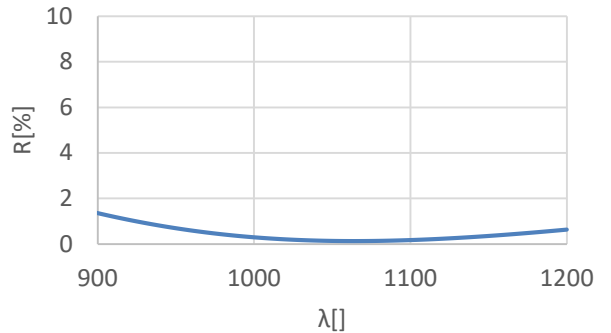
**BEZHP-1/3-340/380**



**BEZHP-1/3-500/570**



**BEZHP-1/3-1030/1100**



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