

# TECHSPEC® FIXED POWER LASER BEAM EXPANDERS

- 532nm, 1064nm, and Broadband Options Available
- High Damage Threshold
- Superior Transmitted Wavefront Characteristics
- Compact Design For Easy System Integration
- Wavelength Optimized Designs & Coatings
- Focusing With No Internal Rotation of Optics

EO's TECHSPEC® Laser Beam Expanders feature a high performance optical design in a compact package, available in 3X, 5X, and 10X magnifications for common Nd:YAG and a variety of other laser sources. The diffraction-limited optical performance combined with large input aperture eliminates the need for critical alignment. TECHSPEC® Laser Beam Expanders guarantee  $\frac{1}{10}\lambda$  transmitted wavefront for a 1mm input beam diameter and  $\frac{1}{4}\lambda$  transmitted wavefront at specified beam diameters (see table below). The focus adjustment can be used for divergence correction, collimation, and focusing.



**Lens Element Material:** All Fused Silica, Corning 7980  
**Transmitted Wavefront:**  $\frac{1}{10}\lambda$  at 1mm Input Beam Diameter  
**Transmitted Wavefront:**  $\frac{1}{4}\lambda$  at Input Beam Diameter:  
 4mm (3X), 3mm (5X),  
 2mm (10X)  
**Focus Range:** 1.5m to Infinity  
**Focus Travel:**  $\pm 8$ mm  
**Exit Beam Max. Diameter:** 30mm  
**Exit Aperture Diameter:** 33mm

**Damage Threshold:**  
 532: 5 J/cm<sup>2</sup> @ 8ns pulse @ 532nm  
 1064: 15 J/cm<sup>2</sup> @ 10ns pulse @ 1064nm  
 NIR: 5 J/cm<sup>2</sup> @ 8ns pulse @ 785nm  
 VIS: 5 J/cm<sup>2</sup> @ 8ns pulse @ 633nm  
 UV: 1 J/cm<sup>2</sup> @ 10ns pulse @ 355nm  
 2 J/cm<sup>2</sup> @ 10ns pulse @ 266nm

**Mounting:** Input: Male C-Thread (1"x32 TPI)  
 Output: Male T2-Thread (M42x0.75mm)  
**Housing Max. Diameter:** 46mm

TECHSPEC® FIXED POWER LASER BEAM EXPANDERS

Expansion Power	Design Wavelength	Coating	Entrance Max. Beam Dia. (1/e <sup>2</sup> )	Input Aperture Diameter	Housing Max. Length (Including threads)	Stock No.
3X	532nm	V @ 532nm	10mm	11mm	92mm	#59-125
5X	532nm		6mm	10mm	89mm	#59-126
10X	532nm		3mm	8mm	102mm	#59-127
3X	1064nm	V @ 1064nm	10mm	11mm	92mm	#59-128
5X	1064nm		6mm	10mm	89mm	#59-129
10X	1064nm		3mm	8mm	102mm	#59-130
3X	Broadband	BBAR for UV	10mm	11mm	92mm	#68-270
5X	Broadband		6mm	10mm	89mm	#68-271
10X	Broadband		3mm	8mm	102mm	#68-272
3X	Broadband	BBAR for VIS	10mm	11mm	92mm	#59-131
5X	Broadband		6mm	10mm	89mm	#59-132
10X	Broadband		3mm	8mm	102mm	#59-133
3X	Broadband	BBAR for NIR	10mm	11mm	92mm	#59-134
5X	Broadband		6mm	10mm	89mm	#59-135
10X	Broadband		3mm	8mm	102mm	#59-136

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# FIXED POWER HeNe BEAM EXPANDERS

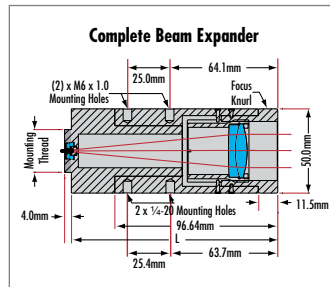
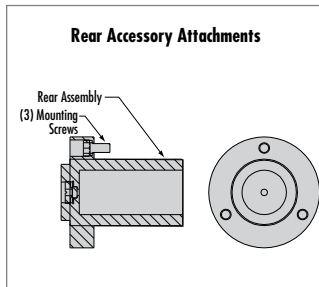
FIXED POWER HeNe BEAM EXPANDERS

- 3X to 20X Expansion Powers
- Focus Mechanism with no Rotating Optics
- Minimally Aberrated Output Across Focus
- Common Interfaces for Integration with HeNe and Diode Lasers

Our family of fixed power beam expanders offers high performance optical designs packaged in a precise opto-mechanical platform. The 3X, 5X, 10X, 15X, and 20X versions are designed with a C-Mount input. The 4X and 6X models feature and M14 input, with available accessories to adapt to a C-Mount or the common dovetail mount featured on our High Performance Laser Diode Modules.

All models feature a precision focusing mechanism designed to prevent optics from rotating while focusing. This helps maintain boresight accuracy while providing a minimally aberrated focused beam. The focus is lockable, and two full rotations vary the output from collimated to the minimum distance of 1.2m.

Accessory attachments are an effortless, cost effective way to change beam expander magnification. Simply disassemble the back portion of the beam expander and replace it with the desired magnification attachment. Please note that accessory attachments cannot be used in series to increase magnification, and that HeNe (C-Mount) and Diode Beam Expander (M14) attachments are not interchangeable.



TECHSPEC® FIXED POWER HeNe BEAM EXPANDERS			
Description	Stock No.	Description	Stock No.
3X Complete Beam Expander	#58-208	3X Accessory Attachment	#58-210
5X Complete Beam Expander	#55-577	5X Accessory Attachment	#55-580
10X Complete Beam Expander	#55-578	10X Accessory Attachment	#55-581
15X Complete Beam Expander	#58-209	15X Accessory Attachment	#58-211
20X Complete Beam Expander	#55-579	20X Accessory Attachment	#55-582



### FIXED POWER HeNe BEAM EXPANDERS

<b>Beam Expansion Power:</b>	3X, 5X, 10X, 15X, or 20X
<b>Entrance Aperture:</b>	2.0mm max [Optimized for 1.0mm (1/e <sup>2</sup> )]
<b>Exit Aperture:</b>	Entrance Beam x Mag (27mm Max)
<b>Focus Range:</b>	1.2m to ∞
<b>Optics Coating:</b>	1/4λ MgF <sub>2</sub> @ 632.8nm
<b>Design Wavefront Error:</b>	1/4λ @ 632.8nm
<b>Length (L) of Complete Assembly:</b>	
	<b>3X:</b> 114.95mm
	<b>5X:</b> 107.5mm
	<b>10X:</b> 118.0mm
	<b>15X:</b> 120.5mm
	<b>20X:</b> 122.5mm
<b>Diameter:</b>	50.0mm
<b>Mount:</b>	C-Thread (1"-32 TPI)
<b>Housing:</b>	Black Anodized Aluminum

### DIODE BEAM EXPANDERS

<b>Beam Expansion Power:</b>	4X or 6X
<b>Entrance Aperture:</b>	4.0mm maximum
<b>Exit Aperture:</b>	Entrance Beam x Magnification (27mm Max)
<b>Focus Range:</b>	1.2m to ∞
<b>Optics Coating:</b>	BBAR coating from 450-750nm centered @ 633nm
<b>Design Wavefront Error:</b>	1/4λ @ 633-670nm
<b>Length (L) of Complete Assembly:</b>	105.5mm
<b>Diameter:</b>	50.0mm
<b>Mount:</b>	Male M14 x 0.5mm Thread
<b>Housing:</b>	Black Anodized Aluminum

TECHSPEC® DIODE BEAM EXPANDERS	
Description	Stock No.
4X Complete Diode Beam Expander	#58-271
6X Complete Diode Beam Expander	#58-272
4X Accessory Attachment	#58-273
6X Accessory Attachment	#58-274
Adapter with Male Dovetail, For High Performance Diode	#58-275
Female M-14 to Male C-Thread Adapter	#58-478

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