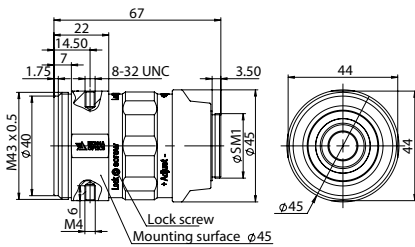


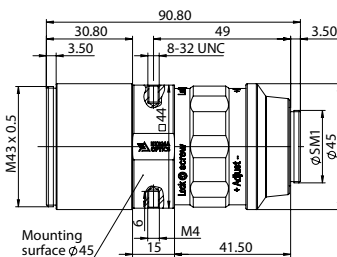
## FIXED RATIO BEAM EXPANDERS FOR HIGH POWER LASERS

### Features

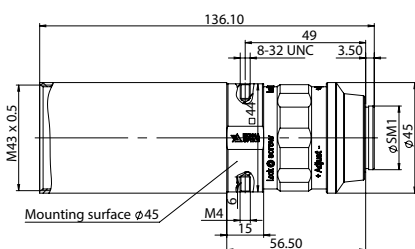
- Designed for high power laser applications:
  - IBS-coated UV FS thin lenses
  - High total transmission: > 99%
  - Low GDD: relative pulse broadening < 20%
- AR-coated for: 1030 nm, 515 nm, 355 nm
- Fixed magnifications from 1.5X to 10X
- Divergence adjustment: non-rotating optics, sliding lens design



Model for 1.5X and 2X expanders



Model for 3X and 5X expanders



Model for 7.5X and 10X expanders

EKSMA Optics offers Galilean type beam expanders with thin UV FS lenses suitable for femtosecond applications. Fixed Ratio Beam Expanders are designed to increase the diameter of a collimated input high power laser beam to a larger collimated output

beam. Fixed Ratio Beam Expanders can be adjusted for the input beam divergence angle to obtain collimated, divergent or focused beam at the output. They feature non-rotating divergence adjustment by sliding lens design.

### Specifications

Transmitted Wavefront Distortion (TWD)	$\lambda/6$ at 633nm	
Focus Range	1.7	
Laser Damage Threshold	1064 nm 532 nm 355 nm	>10 J/cm <sup>2</sup> , 10 ns pulse, 10 Hz >7 J/cm <sup>2</sup> , 10 ns pulse, 10 Hz >5 J/cm <sup>2</sup> , 10 ns pulse, 10 Hz
Input Thread	SM1 external	
Output Thread	M43x0.5 external	
Mounting Options	M43x0.5, SM1, M27, M4, 8-32 UNC	

#### Designed for 1030 nm, coating R<0.1% @ 1000 – 1080 nm

Expansion ratio	Input clear aperture, mm	Output clear aperture, mm	Diffracted limited input beam diameter, mm	Focus range, m	GDD @ 1030 nm, fs <sup>2</sup>	Catalogue number	Price, EUR
1.5X	11.0	22.8	11.0	4 – ∞	66	161-1.5X-1H	450
2X	11.0	22.8	9.0	2 – ∞	76	161-2X-1H	450
3X	11.0	34.5	9.0	2.5 – ∞	114	161-3X-1H	550
5X	10.0	34.5	4.5	1.7 – ∞	123	161-5X-1H	550
7.5X	8.0	36.0	3.5	3.5 – ∞	152	161-7.5X-1H	670
10X	8.0	36.0	3.0	3.2-∞	152	161-10X-1H	670

#### Designed for 515 nm, coating R<0.1% @ 500 – 535 nm

Expansion ratio	Input clear aperture, mm	Output clear aperture, mm	Diffracted limited input beam diameter, mm	Focus range, m	GDD @ 515 nm, fs <sup>2</sup>	Catalogue number	Price, EUR
1.5X	11.0	22.8	11.0	4-∞	240	161-1.5X-2H	450
2X	11.0	22.8	9.0	2-∞	275	161-2X-2H	450
3X	11.0	34.5	9.0	2.5-∞	412	161-3X-2H	550
5X	10.0	34.5	4.5	1.7-∞	447	161-5X-2H	550
7.5X	8.0	36.0	3.5	3.5-∞	550	161-7.5X-2H	670
10X	8.0	36.0	3.0	3.2-∞	550	161-10X-2H	670

#### Designed for 343 nm, coating R<0.2% @ 340 – 355 nm

Expansion ratio	Input clear aperture, mm	Output clear aperture, mm	Diffracted limited input beam diameter, mm	Focus range, m	GDD @ 343nm, fs <sup>2</sup>	Catalogue number	Price, EUR
1.5X	11.0	22.8	11.0	4-∞	432	161-1.5X-3H	530
2X	11.0	22.8	9.0	2-∞	495	161-2X-3H	530
3X	11.0	34.5	9.0	2.5-∞	741	161-3X-3H	630
5X	10.0	34.5	4.5	1.7-∞	803	161-5X-3H	630
7.5X	8.0	36.0	3.5	3.5-∞	988	161-7.5X-3H	750
10X	8.0	36.0	3.0	3.2-∞	988	161-10X-3H	750