

Compact motorized beam expanders MEX



Motorized laser beam expanders MEX series are used to increase the laser beam diameter and adjust divergence. Standard or custom-made beam expanders feature a unique mechanical closed loop sliding-lens design ensuring high pointing stability and minimal dimensions.

These variable magnification (zoom) beam expanders and reducers are designed for required wavelength and each type of our beam expanders have motorized divergence adjustability.

Main features

- Highest beam pointing stability (< 0,1 mrad)
- All-in-one design with integrated controller
- Two lens simultaneous movement assuring no misfocus
- Absolute encoder (both lenses)
- Adjustment time <1s (all magnifications)
- Fused silica optical elements
- No homing after switching on/off
- Diffraction limited performance for all magnifications

Application examples

- Precise laser micromachining
- Life sciences
- Research

Standard specifications

MOTORIZED BEAM EXPANDERS SPECIFICATIONS	
Adjustment	Motorized
Divergence	Adjustable
Clear input aperture	11,5 mm
Lens material	UVFS
Transmission	>97%
Controller	Integrated
Control interface	USB or RS232
Housing material	Black anodized aluminum
LIDT	3 J/cm ² (10 ns @ 355nm) 5 J/cm ² (10 ns @ 532 nm) 10 J/cm ² (10 ns @ 1064 nm)

*Custom design available

Standard products

ITEM MODEL	EXPANSION	CLEAR INPUT APERTURE	CLEAR OUTPUT APERTURE	RECOMMENDED MAX. INPUT BEAM SIZE, 1/E ²	DIMENSIONS (H X W X L)	WAVELENGTH	POINTING STABILITY
MEX13	1,0x - 3,0x continuous	11,5 mm	23 mm	ø7 mm - 1x ø6 mm - 3x	45 x 45 x 140 mm	343-355 nm	< 0,2 mrad
						343-355 nm	< 0,5 mrad
						515-532 nm	< 0,2 mrad
						515-532 nm	< 0,5 mrad
						1030-1064 nm	< 0,5 mrad
						1030-1064 nm	< 0,2 mrad
						343-355 + 515-532 nm	< 0,2 mrad
						343-355 + 515-532 nm	< 0,5 mrad
MEX18	1,0x - 8,0x continuous	11,5 mm	38 mm	ø7 mm - 1x ø5 mm - 5x ø3 mm - 8x	45 x 45 x 237 mm	515-532 + 1030-1064 nm	< 0,5 mrad
						343-355 nm	< 0,5 mrad
						350-800 nm	< 0,5 mrad
						515-532 nm	< 0,5 mrad
						1030-1064 nm	< 0,5 mrad
						343-355 + 515-532 nm	< 0,5 mrad
515-532 + 1030-1064 nm	< 0,5 mrad						

Mounting options for motorized beam expanders MEX

MOUNTING OPTION	FOR BEAM HEIGHT OF
Manual 4 axis translation stage MSTAGE	27 mm (±2 mm travel)

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High-power motorized beam expanders MEX-HP



High power motorized laser beam expanders MEX series are used to increase the laser beam diameter and adjust divergence. The optical design is dedicated for high power ultrafast femtosecond laser applications. These magnification (zoom) beam expanders are designed for required

wavelength and each type of our beam expanders has motorized divergence adjustability. Standard or custom-made beam expanders feature a unique mechanical closed loop sliding-lens design ensuring high pointing stability and minimal dimensions.

Main features

- High power optical design (up to 200 W @ 1030 nm, 500 fs, 1 Mhz)
- No internal reflections on optical elements
- Highest beam pointing stability < 0,2 mrad
- All-in-one design with an integrated controller
- Two lens simultaneous movement assuring no misfocus
- Absolute encoder (both lenses)
- Fused silica optical elements
- Diffraction limited performance for all magnifications

Application examples

- Precise laser micromachining
- High power laser beam management
- Research

Standard specifications

HIGH POWER MOTORIZED LASER BEAM EXPANDERS SPECIFICATIONS	
Adjustment	Motorized
Divergence	Adjustable
Lens material	UVFS
Transmission	>97% (MEX13-HP), >95% (MEX15-HP)
Control interface	USB or RS232
Controller	Integrated
Housing material	Black anodized aluminum
Max. laser power	Up to 200 W @ 1030 nm, 500 fs, 1 MHz
LIDT	3 J/cm ² (10 ns @ 355nm)
	5 J/cm ² (10 ns @ 532 nm)
	10 J/cm ² (10 ns @ 1064 nm)

*Custom design available

Standard products

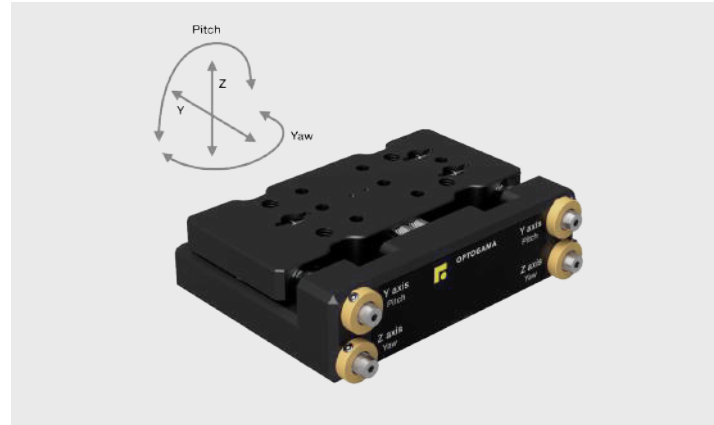
ITEM MODEL	EXPANSION	CLEAR INPUT APERTURE	CLEAR OUTPUT APERTURE	RECOMMENDED MAX. INPUT BEAM SIZE, 1/E ²	DIMENSIONS (H X W X L)	WAVELENGTH	POINTING STABILITY
MEX13-HP	1,0x - 3,0x continuous	11,5 mm	28 mm	ø7 mm - 1x ø6 mm - 3x	60 x 60 x 207 mm	343-355 nm	< 0,5 mrad
						343-355 nm	< 0,2 mrad
						515-532 nm	< 0,5 mrad
						515-532 nm	< 0,2 mrad
						1030-1064 nm	< 0,5 mrad
						1030-1064 nm	< 0,2 mrad
						343-355 + 515-532 nm	< 0,5 mrad
						343-355 + 515-532 nm	< 0,2 mrad
MEX15-HP	1,0x - 5,0x continuous	11,5 mm	24 mm	ø7 mm - 1x ø3,3 mm - 5x	65 x 65 x 250 mm	515-532 nm	< 0,5 mrad
						1030-1064 nm	< 0,5 mrad
						343-355 + 515-532 nm	< 0,5 mrad
						515-532 + 1030-1064 nm	< 0,5 mrad
						515-532 + 1030-1064 nm	< 0,2 mrad
						515-532 nm	< 0,5 mrad

Mounting options for high-power motorized beam expanders MEX-HP

MOUNTING OPTION	FOR BEAM HEIGHT OF
Manual 4 axis translation stage MSTAGE-HP (Additional adapter included)	27 mm (±2 mm travel)

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Manual 4 axis translation stage



MSTAGE is an industrial mounting solution for MEX compact series beam expanders. This 4-axis manual translation stage contains a locking mechanism preserving the aligned position. It features sapphire contact pads determining long-lasting and smooth micro screw operation.

There are four M6 x 0,25 micro screws for adjusting platform's pitch, yaw, Y and Z axis. Two micro screws control platform's pitch and Z axis, while another two-control yaw and Y axis. All of them can be adjusted with 2 mm HEX screwdriver.

Main features

- Sapphire contact pads
- Platform's locking mechanism
- Industrial design
- 4 axis fine adjustment
- Maximum load up to 1,5 kg

Application examples

- Motorized beam expander MEX fine adjustment
- Precise alignment of optical components and other laser accessories

Standard specifications

	SPECIFICATIONS
Travel range	Y axis: 8 mm (±4 mm)
	Z axis: 4 mm (±2 mm)
	Yaw: ±5.5 deg
	Pitch: ±2.5 deg
Resolution	Y axis: 8 mm (±4 mm)
	Z axis: 145 µm/rev
	Yaw: 0.018 deg/rev Pitch: 0.010 deg/rev
Maximum load	Mounted horizontally 1.5 kg
	Mounted vertically 0.6 kg

Standard products

MODEL	DIMENSION (W X H X L)	WEIGHT	HEX SCREWDRIVER
Mstage	75 x 28 x 100 mm	27 mm (±2 mm travel)	3mm, 2mm, 1.5 mm HEX

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