

AOM130 Series

Manual Optical Mounts

360° rotation in azimuth and elevation

Excellent thermal and vibration stability

Standard models 152.4 mm (6 inches) through 609.6 mm (24 inches) optic diameters

Patented* sub-arc-second resolution drive

Negligible backlash and creep

Non-marring set screws on retaining clips

Custom precision mounting designs are available for centering non-circular payloads on the gimbal



*U.S. Patent No. 3,727,471

AOM130 series mounts have been designed to position large, heavy optics to 609.6 mm (24 inches) in diameter. These mounts are used in major fusion and high-powered laser research and development projects due to their excellent thermal stability and sub-arc-sec resolution.

AOM130 series optical mounts have 360° rotation capability in both the azimuth and elevation axes. They have ball bearing gimbal pivots to eliminate unwanted motion (cross-talk); movement in azimuth and elevation is orthogonal and decoupled. A unique azimuth bearing system permits operation of a fully-loaded mount in any plane including upside-down. With Aerotech's patented* sub arc second resolution drive, the angular range is quickly achieved while maintaining resolution as fine as 0.026 arc-seconds.

The fine thimble has a 32-division scale for reference. The spring loaded drive mechanism assures smooth, low stiction and backlash-free motion. 360° rotation is obtained by releasing the cell or yoke clamp screws (tool provided). The mount's precision drive mechanism is unaffected when the clamp screws are disengaged. The mount and drive mechanisms feature extremely low backlash and excellent thermal stability (less than two microradians per °C).

Adapters for 5, 8 and 10 inch (127.0, 203.2, and 254.0 mm) optics add versatility and value to the AOM130 series mounts. The optics and/or adapters are held in place with three retaining clips with non-marring set screws. The non-marring set screws permit rigid placement of various optic thicknesses.

AOM130 Series SPECIFICATIONS

Basic Model	AOM130-6	AOM130-9	AOM130-12	AOM130-16	AOM130-20	AOM130-24
Resolution ⁽¹⁾	0.2 μrad (0.041 arc sec)	0.15 μrad (0.031 arc sec)			0.13 μrad (0.026 arc sec)	
Thimble Graduation	4.4 μrad (0.90 arc sec)	3.3 μrad (0.689 arc sec)			2.8 μrad (0.58 arc sec)	
Clear Aperture	144.27 mm (5.68 in)	218.95 mm (8.62 in)	292.1 mm (11.5 in)	393.7 mm (15.5 in)	488.95 mm (19.25 in)	590.55 mm (23.25 in)
Range ⁽²⁾ (rotational freedom)	360° AZ/EL					
Range (Adjustment knob)	± 4° AZ/EL			± 3° AZ/EL		
Component Diameter (max)	152.4 mm (6 in)	228.6 mm (9 in)	304.8 mm (12 in)	406.4 mm (16 in)	508.0 mm (20 in)	609.6 mm (24 in)
Component Thickness (max)	26.92 mm (1.06 in)	41.4 mm (1.63 in)	53.85 mm (2.12 in)	63.5 mm (2.5 in)	88.9 mm (3.5 in)	101.6 mm (4.0 in)
Component Weight	4.5 kg (10 lb)	15 kg (34 lb)	35 kg (77 lb)	73 kg (160 lb)	160 kg (350 lb)	264 kg (500 lb)
Vacuum Capability (optional)	10 ⁻⁶ mbar					
Material	Aluminum					
Finish	Black Epoxy Paint					
Weight	8.2 kg (18 lb)	16.4 kg (35 lb)	20.9 kg (46 lb)	24.1 kg (64 lb)	61.8 kg (136 lb)	74.6 kg (164 lb)

Notes:

1. Per 0.5° of the fine adjustment.
2. For 360° rotational freedom, release clamp screws.

Ordering Example

AOM130	-2	-VAC6	6T5
	Optic Diameter	Options	Accessories
	-6	-VAC3	6T5
	-9	-VAC6	9T8
	-12		12T10
	-16		
	-20		
	-24		

AOM130 Series Optical Mount

AOM130-6	Gimbal mount for 6 in (152.4 mm) diameter optic
AOM130-9	Gimbal mount for 9 in (228.6 mm) diameter optic
AOM130-12	Gimbal mount for 12 in (304.8 mm) diameter optic
AOM130-16	Gimbal mount for 16 in (406.4 mm) diameter optic
AOM130-20	Gimbal mount for 20 in (508.0 mm) diameter optic
AOM130-24	Gimbal mount for 24 in (609.6 mm) diameter optic

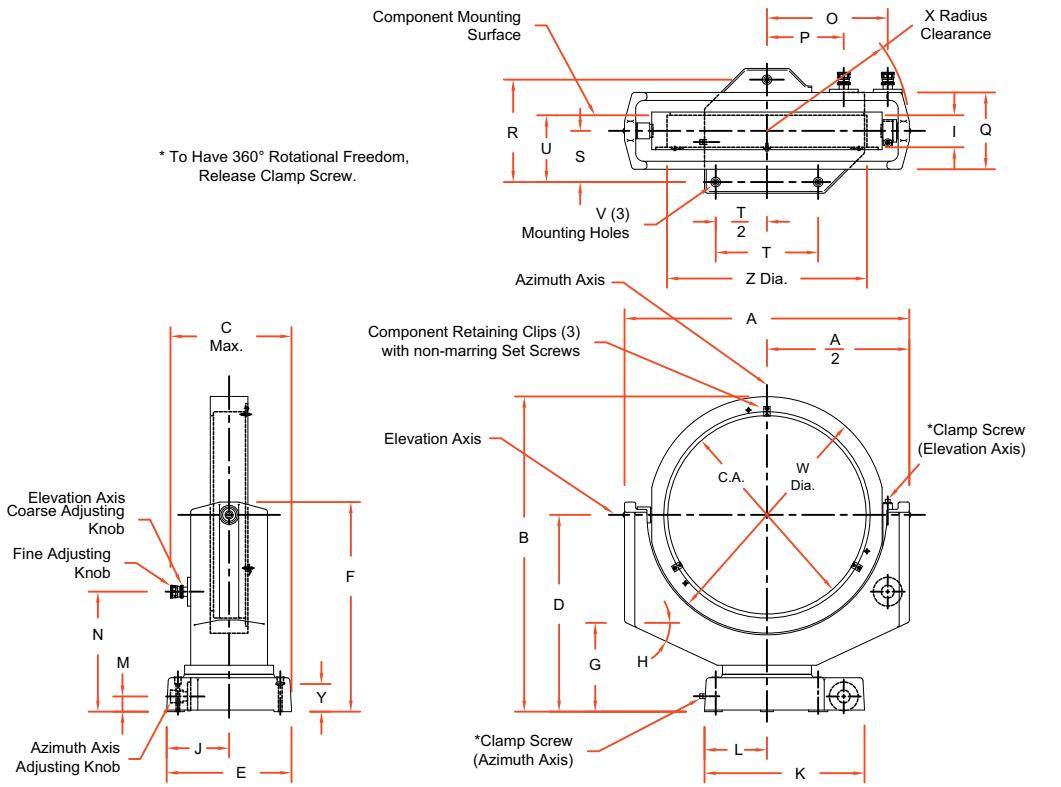
Accessories

AOM6T5	Adapter for 5 in (127.0 mm) diameter optic
AOM9T8	Adapter for 8 in (203.2 mm) diameter optic
AOM12T10	Adapter for 10 in (254.0 mm) diameter optic

Options

-VAC3	Vacuum prep. for 10 ⁻³ mbar
-VAC6	Vacuum prep. for 10 ⁻⁶ mbar

AOM130 Series DIMENSIONS



Dimensions - Millimeters [Inches]									
Basic Model	A	B	C	D	E	F	G	H	I
AOM130-6	269.7 [10.62]	294.4 [11.59]	211.8 [8.34]	206.3 [8.12]	209.6 [8.25]	231.7 [9.12]	63.5 [2.50]	No Angle	27.0 [1.06]
AOM130-9	368.3 [14.50]	412.8 [16.25]	240.5 [9.47]	279.4 [11.00]	247.7 [9.75]	304.8 [12.00]	95.3 [3.75]	No Angle	41.4 [1.63]
AOM130-12	457.2 [18.00]	500.1 [19.69]	240.5 [9.47]	322.3 [12.69]	247.7 [9.75]	347.7 [13.69]	106.4 [4.19]	5°	53.9 [2.12]
AOM130-16	565.2 [22.25]	625.6 [24.63]	240.5 [9.47]	390.6 [15.38]	247.7 [9.75]	416.0 [16.38]	177.8 [7.00]	25°	63.5 [2.50]
AOM130-20	704.9 [27.75]	787.4 [31.00]	272.3 [10.72]	495.3 [19.50]	340.0 [13.38]	530.3 [20.88]	231.6 [9.12]	30°	88.9 [3.50]
AOM130-24	806.5 [31.75]	906.5 [35.69]	272.3 [10.72]	558.8 [22.00]	340.0 [13.38]	593.8 [23.38]	261.1 [10.28]	30°	101.6 [4.00]

Basic Model	J	K	L	M	N	O	P	Q	R
AOM130-6	95.3 [3.75]	247.7 [9.75]	95.3 [3.75]	31.8 [1.25]	92.0 [3.62]	96.8 [3.81]	114.3 [4.50]	95.3 [3.75]	175.0 [7.00]
AOM130-9	124.0 [4.88]	317.5 [12.50]	124.0 [4.88]	30.7 [1.21]	127.0 [5.00]	141.2 [5.56]	152.4 [6.00]	114.3 [4.50]	200.0 [8.00]
AOM130-12	124.0 [4.88]	317.5 [12.50]	124.0 [4.88]	30.7 [1.21]	169.9 [6.69]	185.7 [7.31]	152.4 [6.00]	114.3 [4.50]	200.0 [8.00]
AOM130-16	124.0 [4.88]	317.5 [12.50]	124.0 [4.88]	30.7 [1.21]	238.2 [9.38]	239.0 [9.41]	152.4 [6.00]	152.4 [6.00]	200.0 [8.00]
AOM130-20	119.1 [4.69]	422.3 [16.63]	193.8 [7.63]	41.2 [1.62]	314.4 [12.38]	301.7 [11.88]	181.4 [7.14]	190.5 [7.50]	300.0 [12.00]
AOM130-24	119.1 [4.69]	422.3 [16.63]	193.7 [7.63]	41.3 [1.62]	377.4 [14.86]	352.5 [13.88]	181.4 [7.14]	203.2 [8.00]	300.0 [12.00]

Basic Model	S	T	U	V	W	X	Y	Z	C.A.
AOM130-6	75.0 [3.00]	150.0 [6.00]	87.1 [3.43]	7.1 [0.28]	176.3 [6.94]	149.9 [5.88]	47.6 [1.88]	153.9 [6.06]	144.3 [5.68]
AOM130-9	100.0 [4.00]	200.0 [8.00]	119.9 [4.72]	7.1 [0.28]	266.7 [10.50]	188.9 [7.44]	54.0 [2.13]	230.9 [9.09]	218.9 [8.62]
AOM130-12	100.0 [4.00]	200.0 [8.00]	125.2 [4.93]	7.1 [0.28]	355.6 [14.00]	233.4 [9.19]	54.0 [2.13]	307.9 [12.12]	292.1 [11.50]
AOM130-16	100.0 [4.00]	200.0 [8.00]	132.6 [5.22]	7.1 [0.28]	469.9 [18.50]	284.2 [11.19]	54.0 [2.13]	409.5 [16.12]	393.7 [15.50]
AOM130-20	100.0 [4.00]	350.0 [14.00]	146.1 [5.75]	10.4 [0.41]	584.2 [23.00]	371.4 [14.62]	74.6 [2.94]	571.1 [20.12]	489.0 [19.25]
AOM130-24	100.0 [4.00]	350.0 [14.00]	152.4 [6.00]	10.4 [0.41]	695.5 [27.38]	419.1 [16.50]	74.6 [2.94]	612.7 [24.12]	590.6 [23.25]