

NanoRotator™ 360° Stage

The NanoRotator™ rotation stage provides arcsecond resolution when driven from a microstepping stepper motor control. The low-profile design, just 2.17" (55 mm) high, is made possible by the use of two compact precision bearings. The rotating carriage of the stage provides continuous rotation of on-axis loads up to 110 lbs (50 kg) and has a Ø2" (Ø50 mm) clear aperture to allow a light source to pass directly through the stage.

The main body of the stage is made from an aluminum alloy and can attach directly to an optical table. Alternatively, it can be mounted at any orientation via the nine mounting holes provided along four surfaces of the device. A worm gear assembly is used to transfer the rotary motion of the stepper motor into rotary motion of the carriage. There is a mechanical reduction in this gear assembly that causes one revolution of the carriage for every 66 turns of the stepper motor.

The hybrid stepper motor used in the NR360S actuator is ideally suited for microstepping applications that require high resolution. The rotor, with 50 individual magnetic teeth, ensures smoother low-speed motion by allowing the discrete 1.8° step size associated with vibrational noise to be reduced to much smaller steps with inherently lower resultant vibrational noise.

When used with the apt™ Series BSC101 Stepper Motor Controller (see page 559), the stepper motor provides 25,600 microsteps per revolution, resulting in a platform rotation of $0.213^\circ \times 10^{-3}$ (3.7 μrad) per microstep.

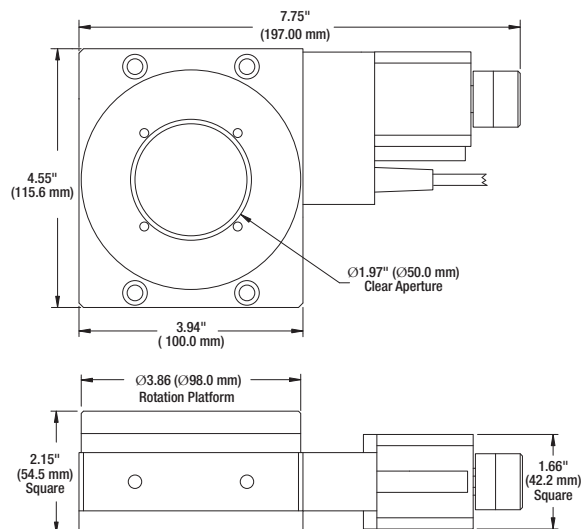


Features

- High Load Capacity
- Manual Control of the Rotating Carriage
- Preloaded Worm Gear Drive Mechanism with Minimal Backlash
- Origin Indicating Switch Every 360°

Specifications

- **Travel:** 360° of Continuous Rotation
- **On-Axis Load Capacity:** 110 lbs (50 kg)
- **Bidirectional Repeatability:** 10 arcsec
- **Min Achievable Incremental Motion:** <1 arcsec
- **Max Accuracy (over 10° Range):** 5 arcmin
- **Eccentricity (Run-Out) of Top Plate:** <50 μm
- **Max Speed:** 15°/sec
- **Max Torque:** 0.9 Nm
- **Construction:** Aluminum Body and Platform with Black Finish
- **Weight:** 3.1 lbs (1.4 kg)
- **Recommended Controller:** BSC101

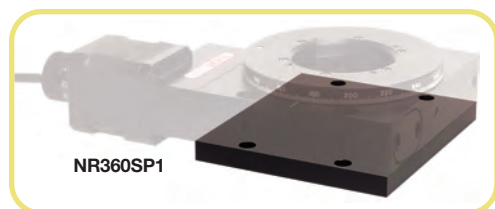


 **Mechanical**
Drawings Available on the
WEB

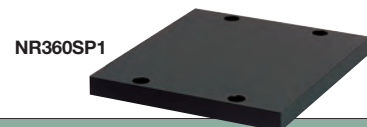
Rotation Stage with Stepper Motor Drive

ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
NR360S	NR360S/M	\$ 2,425.00	£ 1,681.00	€ 2,153.00	¥ 20,477.00	Rotation Stage with Stepper Motor, Ø50 mm Center Hole

Table Spacer Plate for NR Series Rotation Stage



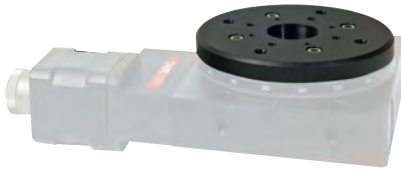
This adapter plate is used to mount the NR360S rotation stage to a large flat surface. The 10 mm thickness ensures that the stage sits flat to the mounting surface, providing clearance for the stepper motor that extends below the bottom surface of the stage.



ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
NR360SP1	NR360SP1/M	\$ 71.00	£ 49.30	€ 63.10	¥ 599.60	Adapter Plate for the NR360S

NR Series SM1-Compatible Adapter Plate

NR360SP8



This adapter plate bolts to the top of the NR360S NanoRotator™ Stage. An SM1-threaded through hole allows Ø1" optics and Thorlabs' SM1 family of products to be mounted to the stage. Thorlabs' standard 30 mm cage assemblies can be attached via #4-40 taps.

- SM1-Threaded Through Hole
- Four Each of #4-40 Taps, #8-32 Taps, 1/4"-20 Taps, and #8 (M4) Counterbores

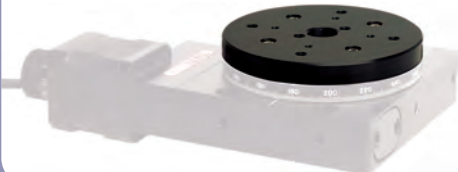
NR360SP8



ITEM#	\$	£	€	RMB	DESCRIPTION
NR360SP8	\$ 48.00	£ 33.30	€€ 42,70	¥ 405.40	SM1-Compatible Adapter Plate for the NR360S Stage

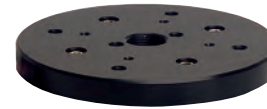
NR Series M16 Adapter Plate

NR360SP3



This adapter plate is used to provide a number of different mounting options when attaching devices to our NR360S rotation stage. The mounting holes on the carriage consist of six 1/4"-20 (M6 x 1.0) through holes and four counterbores for #8-32 (M4 x 0.6) cap screws, all centered about a central M16 x 1.0 through hole.

NR360SP3



ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
NR360SP3	NR360SP3/M	\$ 112.00	£ 77.70	€ 99,50	¥ 945.80	M16 Adapter Plate for the NR360S Stage

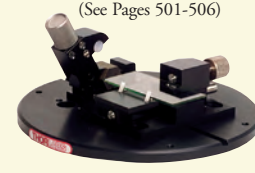
NR Series Grooved Adapter Plate

NR360SP4



This adapter plate provides an easy means to integrate all of the miscellaneous accessories from our fiber launch product line, including optical mounts, tip-tilt mounts, and fiber holders. Please refer to page 496 for the complete selection of products.

Adapter Plate Shown with Waveguide and Fiber Accessories
(See Pages 501-506)



ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
NR360SP4	NR360SP4/M	\$ 112.00	£ 77.70	€ 99,50	¥ 945.80	Grooved Adapter Plate for the NR360S Stage

Vertical Mounting Bracket

The NR360SP2 Vertical Mounting Bracket allows the NR360S NanoRotator™ Stage to be mounted in a vertical orientation. The bracket can be attached to an optical table or breadboard using the seven 1/4"-20 (M6 x 1.0) mounting holes.

The photograph to the right shows the NR360SP2 with a NanoRotator NR360S.



NR360SP2

ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
NR360SP2	NR360SP2/M	\$226.00	£156.70	€ 200,70	¥ 1,908.40	Verticle Mounting Bracket

NR Series Adapter Plates

NR360SP5
Bottom Mounting
Adapter

The NR360SP5 allows the NR360S NanoRotator™ to be mounted directly to any LNR or NRT stage. The LNR stage is found on pages 432-433, while the NRT stage is found on pages 454-455.



ITEM#	METRIC ITEM#	\$	£	€	RMB	DESCRIPTION
NR360SP5	NR360SP5/M	\$ 89.00	£ 61.70	€ 79,10	¥ 751.60	Mounting Adapter Plate