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Motion Control

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Flexure Accessories

NanoMax™ 600 Manual Six-Axis, Parallel Flexure Platform

These NanoMax™ six-axis platforms, fully detailed on the previous two pages, have all the high-stability features inherent in our patented parallel flexure design. The three most important practical results of this completely new design approach are the following:

Patented
6,186,016
6,467,762

MAX603

- The common point of rotation is located on the optical axis defined by the accessory beam height; this feature simplifies, and consequently increases, the speed with which alignment tasks can be performed

- Increased stiffness of the backlash-free flexure mechanism that provides the stage's movement, a direct result of significantly fewer linkages being required to implement our parallel flexure design and thus providing greater stability and immunity to vibration as well as improved resistance to external forces that may arise in the assembly or bonding process

- All six actuators are stationary and held firmly to the base by the system's rigid frame. This ensures that the mass of the actuators does not add to the inertia of the moving platform and isolates the system from the disturbances induced by the operator using the touch controls.

These features, plus many more, make this stage ideal for fiber alignment and positioning tasks, particularly those involving multi-channel optical waveguides and complex optical circuits.
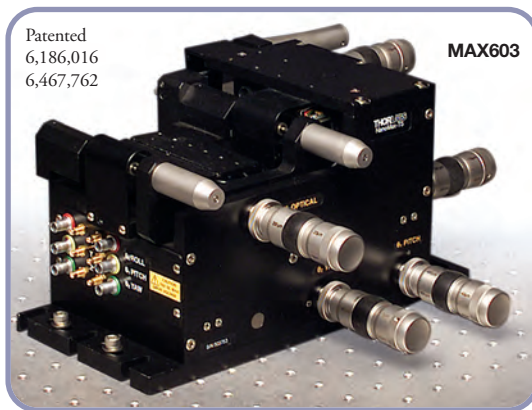
Specifications

■ **Travel**
- **Coarse Travel:**
  0.16" (4 mm) (X, Y, Z), 6° (θx, θy, θz)
- **Fine Travel:**
  300 μm (X, Y, Z), 18 arcmin (θx, θy, θz)
- **Optional Piezo Actuator Travel:**
  30 μm (X, Y, Z), 1.8 arcmin (θx, θy, θz)

■ **Stiffness:**
1 N/μm in X and Z, 0.5 N/μm in Y

■ **Resonant Frequency:**
>130 Hz (to ±10%) Bidirectional

■ **Resolution and Repeatability**
- **Coarse Travel:**
  1 μm (X, Y, Z), 4 arcsec (θx, θy, θz)
- **Fine Travel:**
  50 nm (X, Y, Z), 0.3 arcsec (θx, θy, θz)
- **Optional Piezoelectric Actuators:**
  30 nm (X, Y, Z), 0.1 arcsec (θx, θy, θz)
- **Optional Piezoelectric Actuator with Feedback:**
  10 nm Closed-Loop (X, Y, Z),
  0.03 arcsec (θx, θy, θz)

■ **RMS Repeatability:** 30 nm over 30 μm
0.1% Over full travel range

General Data
■ **Load Capacity:** 2.2 lbs (1 kg)
■ **Optional Piezoelectric Drive Voltage:**
0 - 75 VDC
■ **Moving Top Plate Size:**
2.75" x 2.36" (70.0 mm x 60.0 mm)

Your Choice!

If you require two stepper motors and one manual drive for your application or any other combination, please see page 494 to configure a stage to your specific needs or speak to a member of our technical support staff.

ITEM#	METRIC ITEM#	$	£	€	RMB	DESCRIPTION
MAX601	MAX601/M	$ 5,765.00	£ 3,997.00	€ 5.119,00	¥ 48,680.00	NanoMax™ 6-Axis Manual Positioning Stage

All models are available in a left-handed configuration; please call for details.

Two Models Offered with Piezoelectric Actuators

■ **Piezoelectric Travel:** 30 μm Linear, 1.8 arcmin Angular in Each Direction

■ **Displacement Sensor (MAX603):** Increases Resolution by a Factor of Four and Enables Closed-Loop Operation

■ **Piezoelectric Drive Voltage:** Maximum Piezoelectric Drive Voltage is 75 VDC

+Mechanical
Drawings Available on the
WEB

Piezoelectric Actuator and Optional Displacement Sensor

PIN 1: +15 V
PIN 2: OSCILLATOR+
PIN 3: 0 V
PIN 4: SIG OUT-
PIN 5: SIG OUT+
PIN 6: -15 V
PIN 7: TRAVEL

The strain gauge displacement sensor, directly attached to the body of the piezoelectric element, provides an analog signal that is proportional to its displacement. With low noise electronics, the resolution obtained is better than 10 nm over a 30 μm range.

NanoMax 602: Differential Manual Drives and Piezoelectric Actuators

ITEM#	METRIC ITEM#	$	£	€	RMB	DESCRIPTION
MAX602	MAX602/M	$ 9,625.00	£ 6,673.00	€ 8.546,00	¥ 81,274.00	NanoMax™ 6-Axis Manual Positioning Stage with Piezos

NanoMax 603: Differential Manual Drives, Piezoelectric Actuators, and Displacement Sensors

ITEM#	METRIC ITEM#	$	£	€	RMB	DESCRIPTION
MAX603	MAX603/M	$ 11,799.00	£ 8,180.00	€ 10.476,00	¥ 99,632.00	NanoMax™ 6-Axis Manual Stage with Piezos and Sensors