

Newport 3-axis linear stage table

X-Y-Z stage table assembled from Newport 6000 series components, and allows performing complex motion in 3 axes with high precision and repeatability. Stages assembled on lightweight aluminum breadboard, allowing transportation on a standard 24x36 plastic cart.

General Specifications

X-Y stages:

- Stage model: Newport IMS6000CHHA
- Velocity, max (X, Y): 200mm/sec
- Acceleration, max: 600mm/sec²
- Travel range, mm: 0 to 600
- Resolution, μm : 0.1
- On-axis accuracy, μm : 9
- Weight, kg: 22

Z stage:

- Stage model: Newport ILS250CCHA
- Velocity, max: 100mm/sec
- Acceleration, max: 500mm/sec²
- Travel range, mm: -125 to 125
- Resolution, μm : 0.1
- On-axis accuracy, μm : 4
- Weight, kg: 5.4

Y-Z Bracket:

- Model: Newport EQ120
- Weight, kg: 3.1

Breadboard:

- Model: Thorlabs PBG12106
- Size, inch: 36 x 30 x 2.2
- Weight, kg: 30

Assembly specifications:

- Total weight, kg: 82
- Total size, inch: 39W x 39L x 34H

Velocity profiles:

- trapezoidal (constant acceleration – constant velocity – constant deceleration)
- S-curve (linear acceleration – constant velocity – linear deceleration)

Maximum load capacities stages can move while maintaining specifications:

- X stage alone, centered load, kg: 60
- X-Y assembly, centered load, kg: 38
- X-Y assembly, at max travel, kg: 14
- X-Y-Z assembly, centered load, kg: 4
- X-Y-Z assembly, at max travel, kg: 4

Test programs developed:

- Program1-Homing.txt
- Program2-Y-Motion.txt
- Program3-Z-Motion.txt
- Program4-X-Motion.txt
- Program5-X-Y-Z-Motion.txt
- Program6-X-Y-Z-Cycle.txt
- Program7-Parking.txt

