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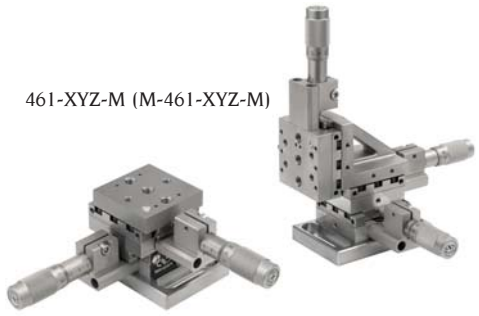
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Find the *Newport 462* at our website: ***Click HERE***

## 461/462 Series

# ULTRAlign™ Precision Integrated Crossed-Roller Bearing Linear Stages



461-XYZ-M (M-461-XYZ-M)

461-XY-M (M-461-XY-M)

*Order actuators separately*

- 1 in. (25.4 mm) and compact 0.5 in. (12.7 mm) travel versions
- Stainless steel construction with crossed-roller bearings for high stability and rigidity
- Angular deviation better than 100 µrad about any axis — guaranteed
- Left and right-hand configurations

461 and 462 Series ULTRAlign™ Precision Integrated Crossed-Roller Bearing Linear Stages feature stainless steel construction for high stability, with thermally matched, hardened steel crossed-roller bearings for unsurpassed performance. The crossed-roller bearings and precision-manufactured bearing reference surfaces provide exceptionally linear travel, with angular deviation better than 100 µrad about any axis.

Our analysis has shown that optimum stability demands that not only the stage be built of stainless steel, but also the angle brackets, actuator mounts, and even the assembly hardware.

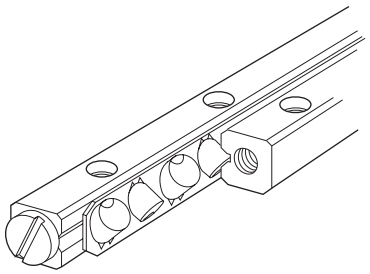
ULTRAlign stages overcome the limitations of multi-axis stages derived from traditional tooling industry designs. The actuators are located out-of-the-way of oversized loads. Z-axis stages do not depend on springs for support, ensuring maximum vertical load capacity.

Generous hole patterns provide easy mounting, with your choice of English (1/4-20) or Metric (M6) threaded holes and spacing. The mounting base can be removed for a lower profile. Each axis features a non-influencing locking mechanism for negligible motion of the stage when locking or unlocking. Specially designed actuator mounting blocks allow quick and easy actuator changes, on any axis, at any time.

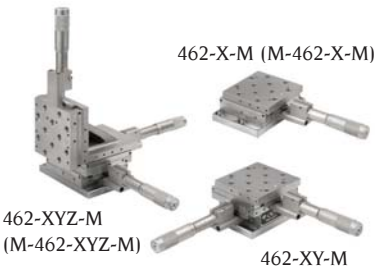
Both right and left-handed stages are available for convenient actuator adjustment. When a smaller footprint is necessary, side-drive versions are available for the 462 Series Stages.

## Specifications

| | 461 Series | 462 Series |
|---|---|---|
| Maximum Stage Travel [in. (mm)] | 0.5 (13) | 1.0 (25) |
| Angular Deviation (µrad) | <100 | <100 |
| Load Capacity, Centered [lb (N)] | 20 (89) | 43 (191) |
| Load Capacity, Vertical [lb (N)] | 8 (36) | 15 (67) |



*Preloaded crossed-roller bearings provide repeatable, zero stick-slip linear motion with negligible side-play. The roller strips hold cylindrical rollers alternately inclined 90° to assure constant linear contact with the hardened and ground ways.*



462-X-M (M-462-X-M)

462-XYZ-M (M-462-XYZ-M)

462-XY-M (M-462-XY-M)

*Order actuators separately*

CAD *See our website for CAD files*



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# Ordering Information

## Stages

| Model | Actuators Required* |
|---|---|
| **461 Series [0.5 in. (13 mm) travel versions]** | |
| 461-X-M (M-461-X-M) | 1 |
| 461-XY-M (M-461-XY-M) | 2 |
| 461-XY-LH-M (M-461-XY-LH-M) | 2 |
| 461-XYZ-M (M-461-XYZ-M) | 3 |
| 461-XYZ-LH-M (M-461-XYZ-LH-M) | 3 |
| 461-XZ-M (M-461-XZ-M) | 2 |
| 461-Z-M (M-461-Z-M) | 1 |
| **462 Series [1 in. (25 mm) travel versions]** | |
| 462-X-M (M-462-X-M) | 1 |
| 462-X-SD (M-462-X-SD) | 1 |
| 462-XY-M (M-462-XY-M) | 2 |
| 462-XY-SD (M-462-XY-SD) | 2 |
| 462-XY-LH-M (M-462-XY-LH-M) | 2 |
| 462-XYZ-M (M-462-XYZ-M) | 3 |
| 462-XYZ-SD (M-462-XYZ-SD) | 3 |
| 462-XYZ-LH-M (M-462-XYZ-LH-M) | 3 |
| 462-XYZ-LH-SD (M-462-XYZ-LH-SD) | 3 |
| 462-XZ-M (M-462-XZ-M) | 2 |
| 462-Z-M (M-462-Z-M) | 1 |
| **Side-Drive Mounting Kits for 462 Series** | |
| SDK-1 | Side-Drive Kit, X or Y Axis |
| SDK-2 | Side-Drive Kit, Z Axis |

* Actuators must be ordered separately

## Recommended Actuators

| Manual Drives | Description | 461 Series | 462 Series | Travel (mm) | Sensitivity (µm) |
|---|---|---|---|---|---|
| AJS Series | Fine Adjustment Screw | • | • | 13–25 | 0.6–0.75 |
| SM-13 | Micrometer | • | | 13 | 1 |
| SM-25 | Micrometer | | • | 25 | 1 |
| HR-13 | High-Resolution Micrometer | • | | 13 | 0.5 |
| HR-1 | Long Travel, High-Resolution Micrometer | | • | 25 | 0.25 |
| DM-13 | Differential Micrometer | • | | 13 | 0.1 |
| DM-13L | Differential Micrometer | • | | 13 | 0.1 |
| DM-25L | Differential Micrometer | | • | 25 | 0.1 |
| **Motorized Drives** | | | | | |
| LTA Series | Motorized Actuator | • | • | 25 | 0.1-0.05 |
| NSA12 | Motorized Actuator | • | • | 11 | 0.2 |
| CMA Series | Motorized Actuator | • | • | 12.5–25 | 0.2–0.5 |
| PZA12 Actuator | NanoPZ actuator, 12.5 mm travel | • | • | 12.5 | 0.03 |

## Side-Drive Mounting Kits

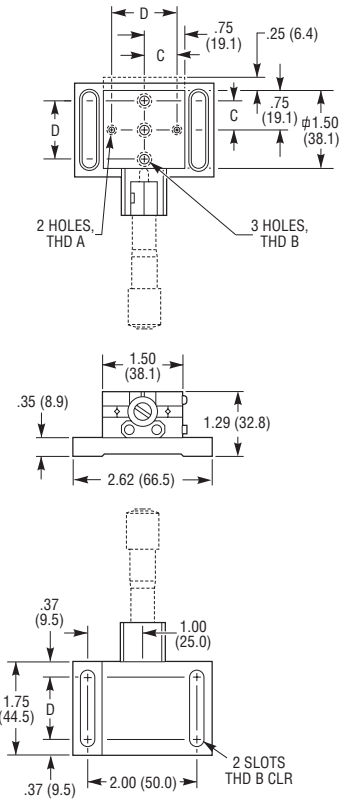
| Configuration | Kit(s) Required | No. Required |
|---|---|---|
| X-Axis | SDK-1 | 1 |
| XY-Axis | SDK-1 | 2 |
| XYZ-Axis | SDK-1 and SDK-2 | 2 and 1 |

Left-handed versions of the XY and XYZ configurations contain "-LH" in the model number.
For Vacuum Compatible versions please contact Newport. Please see page 695 for specifics.
For space saving side-drive mounting configurations (no additional cost at time of order), substitute "SD" for "M", i.e. 462-X-SD.
Field upgrades to side-mounted actuator configurations are available for 462 models.

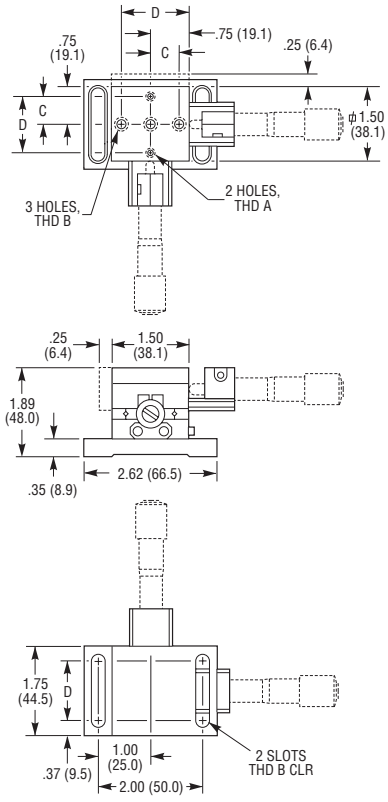



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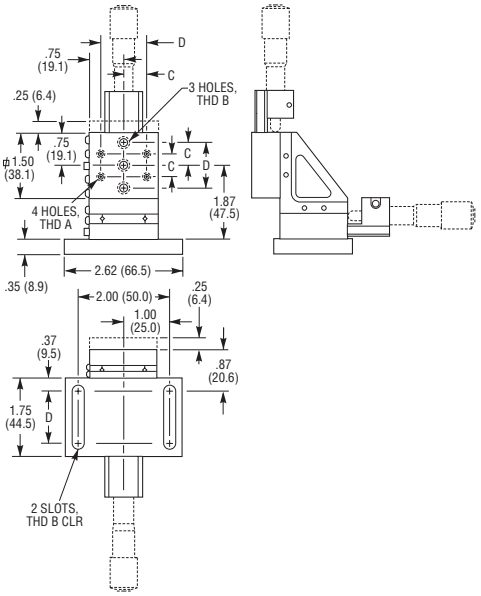
## Model 461-X-M



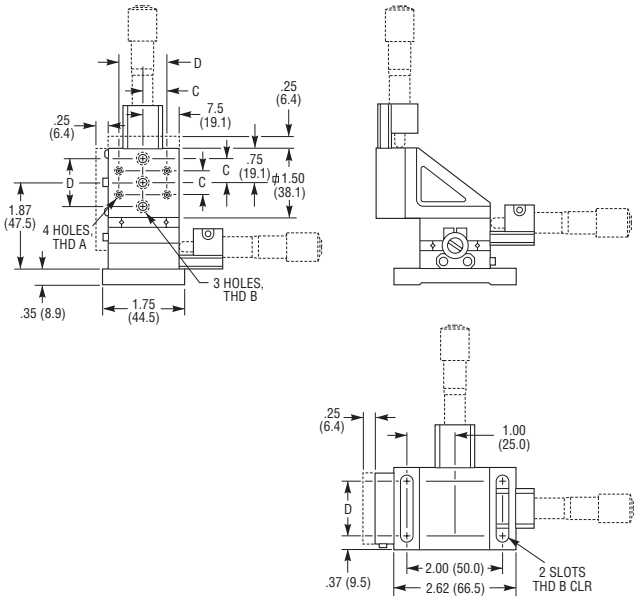

## Model 461-XY-M (RH shown, LH opposite)



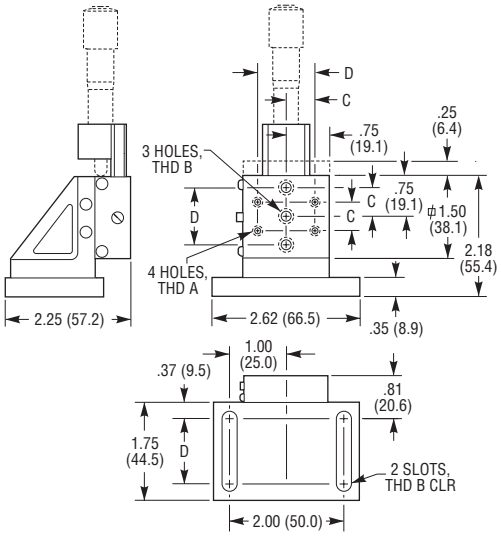

## Model 461-XZ-M




## Model 461-XYZ-M (RH shown, LH opposite)



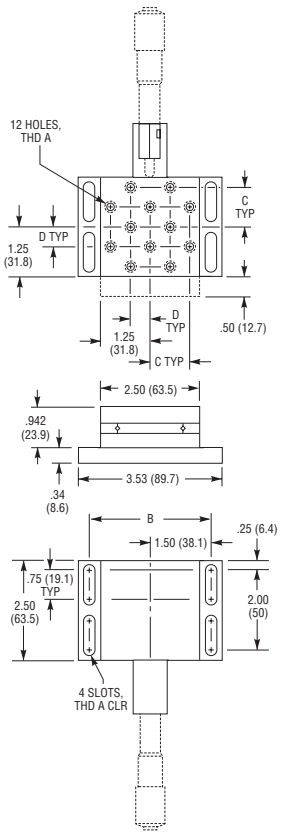

## Model 461-Z-M



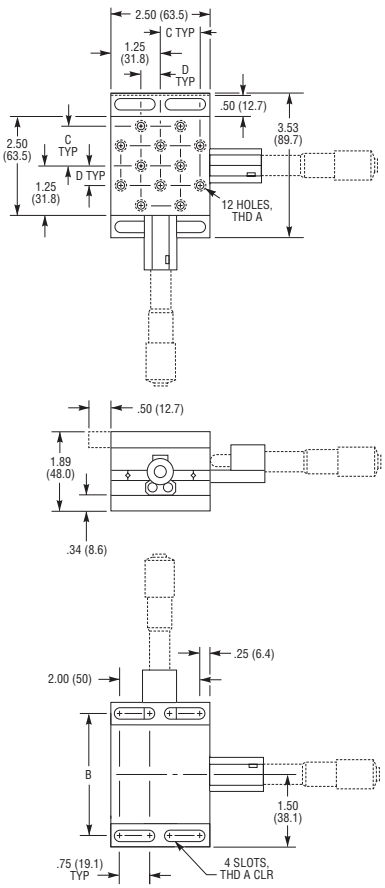

| | Thread | | Dimension [in. (mm)] | |
|---|---|---|---|---|
| Model (Metric) | A | B | C | D |
| 461-X-M (M-461-X-M) | 8-32 (M4) | 1/4-20 (M6) | 0.500 (12.5) | 1.000 (25.0) |
| 461-XY-M (M-461-XY-M) | 8-32 (M4) | 1/4-20 (M6) | 0.500 (12.5) | 1.000 (25.0) |
| 461-XYZ-M (M-461-XYZ-M) | 8-32 (M4) | 1/4-20 (M6) | 0.500 (12.5) | 1.000 (25.0) |
| 461-XZ-M (M-461-XZ-M) | 8-32 (M4) | 1/4-20 (M6) | 0.500 (12.5) | 1.000 (25.0) |
| 461-Z-M (M-461-Z-M) | 8-32 (M4) | 1/4-20 (M6) | 0.500 (12.5) | 1.000 (25.0) |


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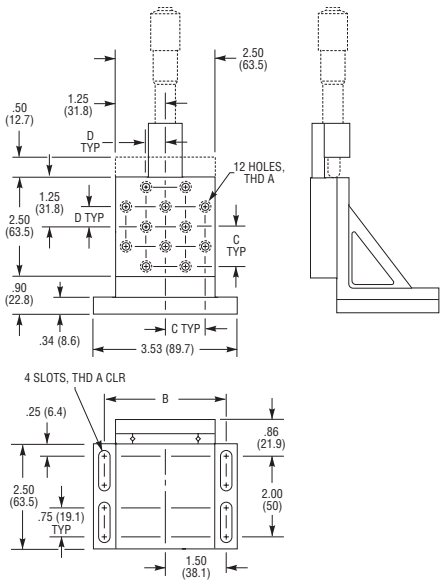
## Model 462-X-M




## Model 462-XY-M
## (RH shown, LH opposite)

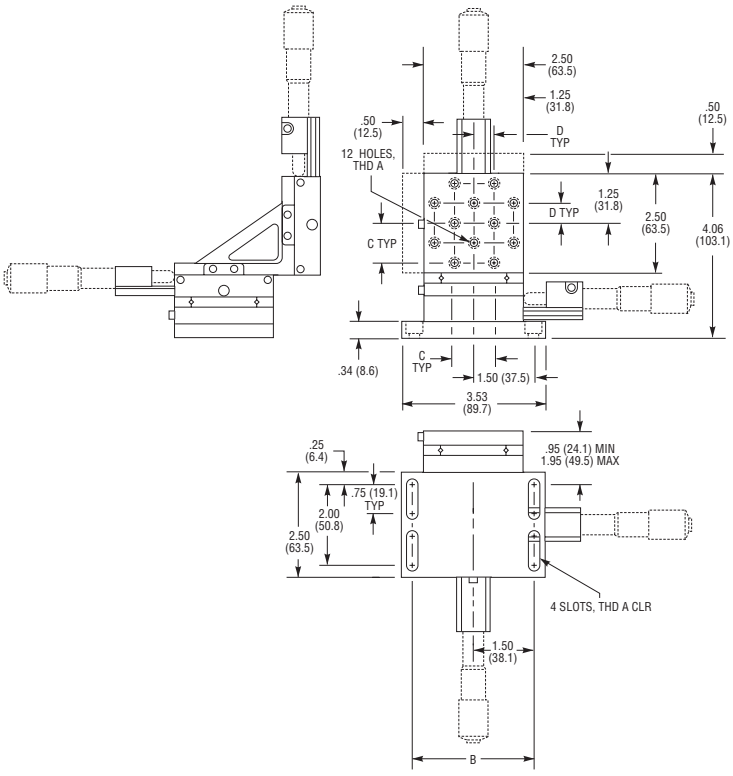



## Model 462-Z-M

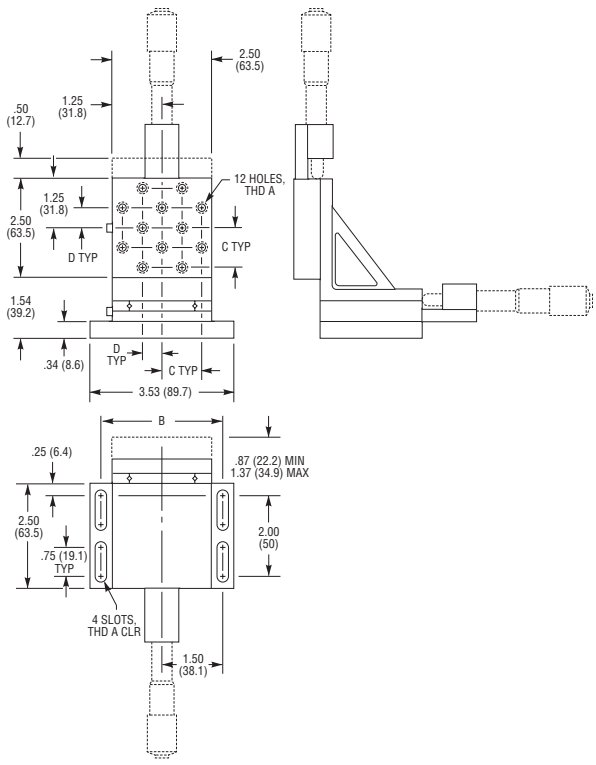



| Model (Metric) | Thread A | Dimension [in. (mm)] B | C | D |
|---|---|---|---|---|
| 462-X-M | 1/4-20 | 3.0 | 1.000 | 0.500 |
| (M-462-X-M) | (M6) | (75) | (25.0) | (12.5) |
| 462-XY-M | 1/4-20 | 3.0 | 1.000 | 0.500 |
| (M-462-XY-M) | (M6) | (75) | (25.0) | (12.5) |
| 462-XYZ-M | 1/4-20 | 3.0 | 1.000 | 0.500 |
| (M-462-XYZ-M) | (M6) | (75) | (25.0) | (12.5) |
| 462-XZ-M | 1/4-20 | 3.0 | 1.000 | 0.500 |
| (M-462-XZ-M) | (M6) | (75) | (25.0) | (12.5) |
| 462-Z-M | 1/4-20 | 3.0 | 1.000 | 0.500 |
| (M-462-Z-M) | (M6) | (75) | (25.0) | (12.5) |

## Model 462-XYZ-M
## (RH shown, LH opposite)




## Model 462-XZ-M






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