

MTN-BLHS Series

Mid-Travel Steel Linear Stages



MTN-BLHS's are reliable, all-steel construction stages with excellent stiffness, load capacity and thermal stability. They are ideal for applications that require moving heavy loads at high-speeds with very fine repeatability.

Available in 100, 200 and 300 mm travel versions, the MTN-BLHS stages can bear up to 100 kg centered load, when mounted horizontally. The linear guides guarantee smooth and accurate motion trajectory, while the non migrating ball cage design prevents from drift.

The MTN-BLHS is much faster than MTN-CC and MTN-PP series and provides same 10 kg axial load capacity in both directions due to ball screw drive mechanism (note, that this is the back drivable load).

XY /XYZ Stage Stacks and Table Mounting

For XY configurations of MTNBLHS stages, use the M-CAP-M61 captive screws. MTN-BP base plate is needed to mount XY stack to any surface.

Plug and Play ESP Compatible

The MTN is an ESP compatible stage. When connected to a Newport controller, it is quickly recognized and its operating parameters are configured without the need for user input, facilitating the startup and usability of the MTNBLHS. This Plug and Play feature is not only transparent to the use, but it also ensures the safe operation of the stage.



Features and Benefits

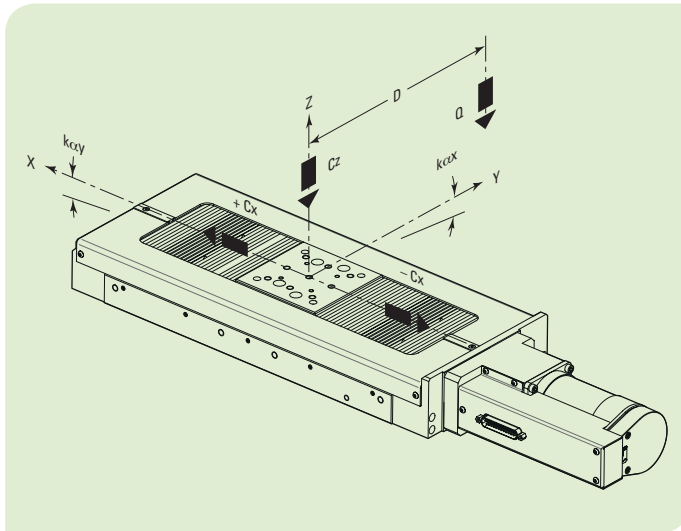
- 100kg central and 10 kg axial load capacity
- All steel construction for high stiffness and thermal stability
- Ball screw drive for high dynamics and long lifetime
- Non-migrating ball cage design for reliable performance
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- Plug and Play - ESP compatible

Design Details

Base Material	Stainless Steel
Bearings	Linear ball bearings with anti- cage migration
Drive Mechanism	Ballscrew drive
Drive Screw Pitch	4 mm
Feedback	40,000 cts/rev.
Limit Switches	Optical
Origin	Optical, centered
Cable	3 m



Load Characteristics and Stiffness



C_z , Normal centered load capacity on bearings	1000 N
+ C_x , Axial load capacity	200 N
- C_x , Inverse axial load capacity	200 N
Holding force at power off	100N
$k_{\alpha x}$, Compliance in roll	4 $\mu\text{rad}/\text{Nm}$
$k_{\alpha y}$, Compliance in pitch	6 $\mu\text{rad}/\text{Nm}$
$k_{\alpha z}$, Compliance in yaw	5 $\mu\text{rad}/\text{Nm}$
Q , Off-center load where: D = Cantilever distance in mm	$Q \leq C_z \div (1 + D/100)$

Specifications

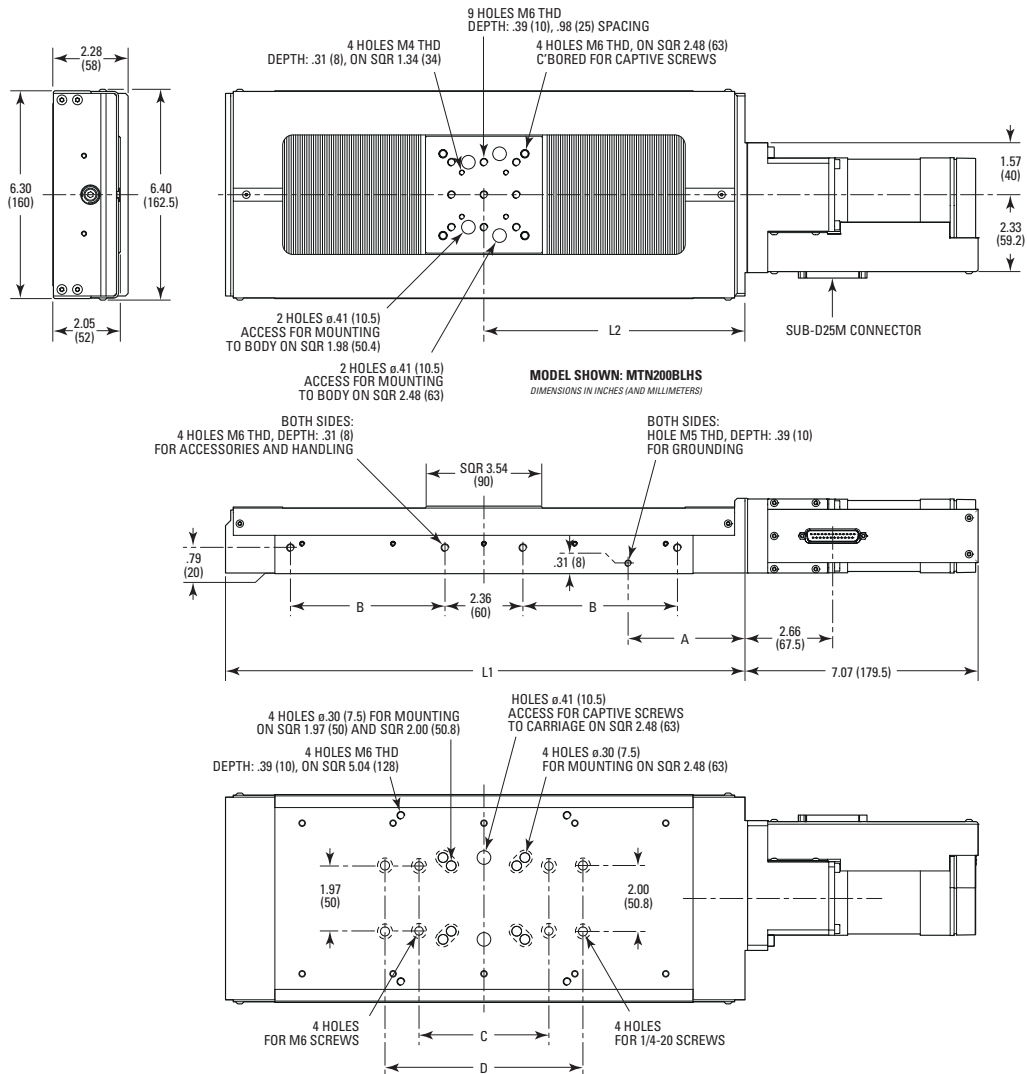
Travel Range (mm)	100	200	300
MIM (μm)	0.3	0.3	0.3
Uni-directional Repeatability (μm), Typical (Guaranteed) ⁽¹⁾	± 0.2 (± 0.3)		
Bi-directional Repeatability (μm) Typical (Guaranteed) ⁽¹⁾	± 0.3 (± 0.5)		
Accuracy (μm), Typical (Guaranteed) ⁽¹⁾	± 2.0 (± 4.0)		
Maximum Speed (mm/s)	250		
Pitch, Typical (Guaranteed) ⁽¹⁾⁽²⁾ (μrad) ⁽³⁾	± 10 (± 20)	± 20 (± 40)	± 30 (± 60)
Yaw (μrad) ⁽³⁾ , Typical (Guaranteed) ⁽¹⁾⁽²⁾	± 10 (± 17)	± 17 (± 35)	± 30 (± 53)

1) For the definition of Typical and Guaranteed specifications see "Motion Basics Terminology & Standards" at www.newport.com.

2) Over 100 mm travel.

3) To obtain arcsec units, divide mrad value by 4.8..

Dimensional Drawing



Model	A	B	C	D	L1	L2
MTN100BLHS	2.95 (75)	2.20 (56)	-	-	11.81 (300)	5.94 (151)
MTN200BLHS	3.54 (90)	4.69 (119)	3.94 (100)	6.00 (152.4)	15.75 (400)	7.91 (201)
MTN300BLHS	3.54 (90)	6.14 (156)	8.00 (203.2)	9.84 (250)	19.69 (500)	9.88 (251)

Recommended Controllers/Drivers

MODEL	DESCRIPTION
XPS-Dx	1- to 8-axis universal high-performance motion controller/driver
XPS-RLDx	1 to 4 axis universal motion controller
XPS-DRV11BL	Digital driver card for MTN brushless motor

Ordering Information

MODEL	DESCRIPTION
MTN100BLHS	100 mm Travel Steel Linear Stage, Brushless Motor
MTN200BLHS	200 mm Travel Steel Linear Stage, Brushless Motor
MTN300BLHS	300 mm Travel Steel Linear Stage, Brushless Motor

Accessories



Use EQ160 right-angle bracket for vertical mounting configurations.

MODEL	DESCRIPTION
EQ160	Right-Angle Bracket
MTN-BP	Base Plate
MTN-TP	Top Plate with Imperial Hole Pattern
M-CAP-M61	Captive Screws for MTN XY Mounting

www.newport.com

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