

Newport M-UMR12.80

## Single Row, Ball Bearing, Steel Linear Stage



**\$695.00**

**In Stock**

**Qty Available: 1**

**Used and in Excellent Condition**

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## High Load, Double Row, Ball Bearing Steel Linear Stages

UMR Series Double-Row Ball Bearing Linear Stages feature a robust steel construction and double-row ball bearings that provide excellent, smooth, linear travel while also capable of carrying high loads. The moving carriage is preloaded by two springs, ensuring constant contact with the micrometer and backlash-free motion. All micrometers sold separately.



- Linear, single axis, double row ball-bearing stages
- Widest selection of sizes and travel ranges
- Low-profile steel construction for high stability and rigidity
- Centered load capacities up to 200 lb
- Offered with & without thread mounted micrometers and <200 µrad deviation

[See All Features](#)

Compare	Model	Maximum Stage Travel	Load Capacity	Thread Type	Availability?	Price
	<b>M-UMR12.40</b> Linear Stage, Single-Row Ball Bearing, 40 mm Travel, M5 and M6	40 mm	400 N	M5 and M6	In Stock 	\$615
	<b>M-UMR12.63</b> Linear Stage, Single-Row Ball Bearing, 63 mm Travel, M5 and M6	63 mm	400 N	M5 and M6	In Stock 	\$830
	<b>M-UMR12.80</b> Linear Stage, Single-Row Ball Bearing, 80 mm Travel, M5 and M6	80 mm	400 N	M5 and M6	In Stock 	\$952
	<b>M-UMR3.5</b> Linear Stage, Double-Row Ball Bearing, 5 mm Travel, M4	5 mm	600 N	M4	In Stock 	\$260
	<b>M-UMR5.16</b> Linear Stage, Double-Row Ball Bearing, 16 mm Travel, M3, M4 and M6	16 mm	600 N	M3, M4 and M6	In Stock 	\$264
	<b>M-UMR5.25</b> Linear Stage, Double-Row Ball Bearing, 25 mm Travel, M3, M4 and M6	25 mm	600 N	M3, M4 and M6	In Stock 	\$363
	<b>M-UMR5.5</b> Linear Stage, Double-Row Ball Bearing, 5 mm Travel, M3, M4 and M6	5 mm	600 N	M3, M4 and M6	In Stock 	\$363
	<b>M-UMR8.25</b> Linear Stage, Double-Row Ball Bearing, 25 mm Travel, M4 and M6	25 mm	900 N	M4 and M6	In Stock 	\$341
	<b>M-UMR8.4</b> Linear Stage, Double-Row Ball Bearing, 4 mm Travel, M4 and M6	4 mm	900 N	M4 and M6	In Stock 	\$341


**Notes:**

Actuators are not included. Please see specifications for recommended actuators. We also offer Aperture Versions.

## Specifications




Models	UMR3.5	UMR5.5	UMR5.16	UMR5.25	UMR8.4
Maximum Stage Travel	5 mm	5 mm	16 mm	25 mm	4 mm
Load Capacity	600 N	600 N	600 N	600 N	900 N
Vertical Load Capacity	40 N	40 N	40 N	40 N	100 N
Thread Type <sup>1</sup>	8-32	4-40, 8-32 and 1/4-20	4-40, 8-32 and 1/4-20	4-40, 8-32 and 1/4-20	8-32 and 1/4-20
Platform Size	29 x 38.5 mm	50 x 58 mm	50 x 58 mm	50 x 68 mm	80 x 92 mm
Angular Deviation	<100 µrad	<100 µrad	<200 µrad	<200 µrad	<200 µrad
Compliance in Roll	0.7 mrad/Nm	0.1 mrad/Nm	0.1 mrad/Nm	0.1 mrad/Nm	0.05 mrad/Nm
Compliance in Pitch	0.3 mrad/Nm	0.2 mrad/Nm	0.2 mrad/Nm	0.2 mrad/Nm	0.05 mrad/Nm
Compliance in Yaw	0.5 mrad/Nm	0.2 mrad/Nm	0.2 mrad/Nm	0.2 mrad/Nm	0.05 mrad/Nm

					
Models	UMR3.5	UMR5.5	UMR5.16	UMR5.25	UMR8.4
Material	Steel	Steel	Steel	Steel	Steel
Bearings	Double-Row Ball Bearings	Double-Row Ball Bearings	Double-Row Ball Bearings	Double-Row Ball Bearings	Double-Row Ball Bearings
Drive Location	Center drive	Center drive	Center drive	Center drive	Center drive
Recommended BM Micrometer	BM11.5	BM11.5	BM11.16	BM11.25	BM17.04N
Recommended DM Differential Micrometer	DM11-5	DM11-5	DM11-16	DM11-25	

Notes:

-M versions and Aperture Versions have the same specifications as the imperial versions shown.

1. M-UMR stages have M4 threads. M-UMR5 stages have M3, M4 & M6 threads. M-UMR8 stages have M4 & M6 threads.

					
Models	UMR8.25 <sup>1</sup>	UMR8.51 <sup>2</sup>	UMR12.40 <sup>3</sup>	UMR12.63 <sup>4</sup>	UMR12.80
Maximum Stage Travel	25 mm	50 mm	40 mm	63 mm	80 mm
Load Capacity	900 N	900 N	400 N	400 N	400 N
Vertical Load Capacity	100 N	100 N	440 N	440 N	440 N
Thread Type	8-32 and 1/4-20	8-32 and 1/4-20	10-24 and 1/4-20	10-24 and 1/4-20	10-24 and 1/4-20
Platform Size	80 x 92 mm	80 x 118 mm	120 x 142.5 mm	120 x 166.5 mm	120 x 210.5 mm
Angular Deviation	<200 µrad	150 µrad	<200 µrad	<200 µrad	<200 µrad
Compliance in Roll	0.05 mrad/Nm	0.05 mrad/Nm	0.02 mrad/Nm	0.02 mrad/Nm	0.02 mrad/Nm
Compliance in Pitch	0.05 mrad/Nm	0.05 mrad/Nm	0.02 mrad/Nm	0.02 mrad/Nm	0.02 mrad/Nm
Compliance in Yaw	0.05 mrad/Nm	0.05 mrad/Nm	0.02 mrad/Nm	0.02 mrad/Nm	0.02 mrad/Nm
Material	Steel	Steel	Alloy Steel	Alloy Steel	Alloy Steel
Bearings	Double-Row Ball Bearings	Double-Row Ball Bearings	Single-Row Ball Bearings	Double-Row Ball Bearings	Double-Row Ball Bearings
Drive Location	Center drive	Center drive	Center drive	Center drive	Center drive
Recommended BM Micrometer	BM17.25	BM17.51	BM25.40	BM25.63	BM32.80
Recommended DM Differential Micrometer	DM17-25				
Recommended LTA Motorized Actuator	LTA-HL	LTA-HS	LTA-HS	LTA-HS	

Notes:

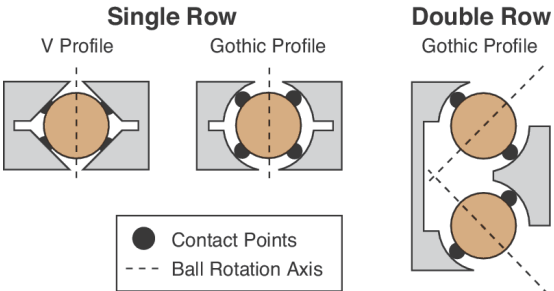
-M versions and Aperture Versions have the same specifications as the imperial versions shown.

- 1. Can also be fitted with TRA25 or TRB25 motorized actuators when using the ADAPT-TRA25 adapter.
- 2. Requires ADAPT-BM17-375 adapter when used with LTA-HS actuator.
- 3. Travel limited to 40 mm and additional adapter is required when used with LTA-HS actuator.
- 4. Travel limited to 50 mm and additional adapter is required when used with LTA-HS actuator.

Features

Low Profile and a Wide Variety of Sizes

These UMR Linear Stages are offered with translation from 0.2 in (5 mm) all the way to 3.15 in (80 mm). Stages can be sold separately or with thread mounted micrometers of either 1 or 0.1 µm sensitivity to fit your particular need. Stages are also available with a center aperture for applications needing optical access.



The type of bearing used will affect the travel of the stage.

Double-Row Ball Bearings for Smooth Travel & Heavier Loads

Ball bearing slides provide smoother translation from a rolling motion. Ball bearings are captured in guide ways by means of hardened steel rods with a gothic profile. This creates only two points of contact for minimal friction, and

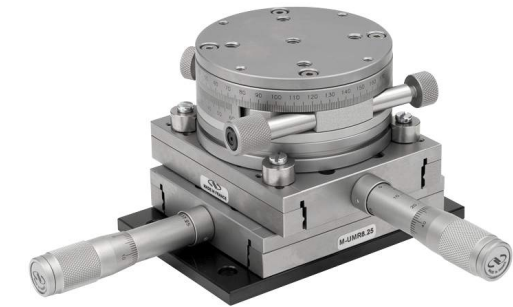


The type of bearing way, ball diameter, and number of balls affect the load capacity of a stage.

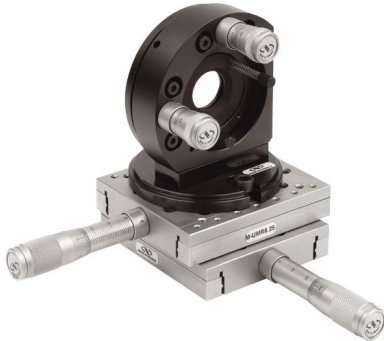
provides extremely smooth travel for even the smallest of incremental movements. Fewer points of contact also mean less differential slip and provide higher load capacities compared to the 4-point contact of other ball-bearing designs. The lower differential slip keeps friction and wear minimal, adding to the durability and lifetime of these stages.

Easy Configuration

Abundant tapped hole patterns on these stages are included to provide the most options for mounting components on the stage mounting surface. Two stages can be easily stacked to provide X-Y translation as well as secure mounting to a table or breadboard with an optional M-PBN Mounting Base (not needed for UMR8 and UMR12). Vertical stage configurations can be easily assembled also using our EQ Series Angle Brackets. Additionally, UMR Stages are compatible with UTR and URM Rotation Stages and BGM Goniometers, which provide countless configuration possibilities to fit the needs of both smaller and larger scale optical systems.



Two UMR5.25 stages with a UTR rotation stage.



Two UMR stages with an SL optical mount.

Optical Mount Application

Low profile UMR stages work great for XY positioning of optical mounts in optical systems.

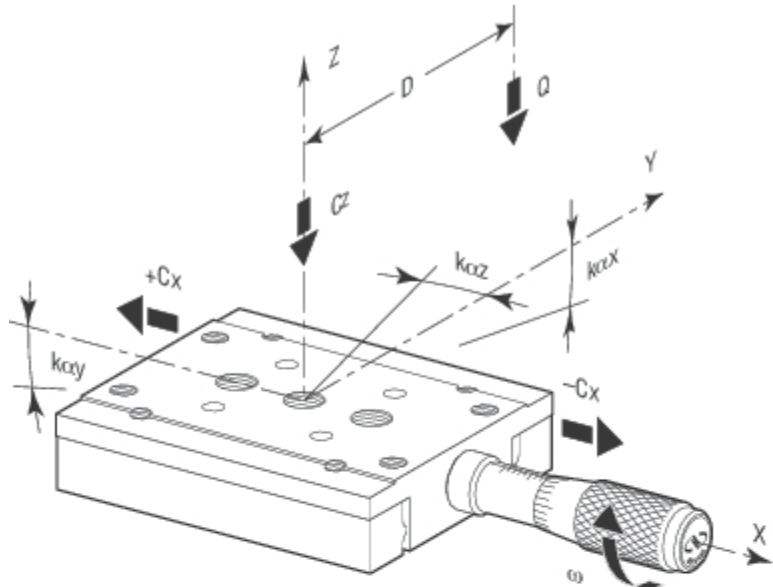
Compatible Bases and Brackets

Brackets and bases are available for creating multiaxis configurations of UMR stages. PBN Series steel base plates are used to connect stages with bottom-surface mounting holes to support structures that are inaccessible from below, such as breadboards and optical tables. EQ Series Angle Brackets are made with an open-corner design to allow more mounting space and easier access to adjustments. These right-angle brackets are available in either an exterior (-E) or interior (-I) model, for a building X-Z and X-Y-Z motion control in a wider variety of configurations.



UMR Stages	Base Plates	Angle Brackets
UMR3.5	M-PBN3	339232, 339233
UMR5.16(A) UMR5.25(A)	M-PBN5	EQ50-E, EQ50-I
UMR8.4 UMR8.25(A) UMR8.51	M-PBN8	EQ80-E, EQ80-I
UMR12.40(A) UMR12.63 UMR12.80	M-PBN12	EQ120-E, EQ120-I

UMR Stage Load Characteristics



Cz,	Normal centered load capacity	
-Cx,	Axial load capacity in the direction toward the actuator	
+Cx,	Axial load capacity in the direction away from the actuator	
Kαx,	Compliance in roll	
Kαy,	Compliance in pitch	
Kαz,	Compliance in yaw	
ω,	Drive torque for +Cx = 10 N	
Q,	Off-center load (N)	$Q \leq Cz \div (1 + D/a)$
Where D = Cantilever distance (mm)		
a = Construction parameter (mm)		

Model	Cz	-Cx	+Cx [BM] <sup>(1)</sup>	+Cx [DM] <sup>(2)</sup>	a	ω	Kαx	Kαy	Kαz
	(N)				(mm)	(Nm)	(mrad/Nm)		
UMR3.5	600	10	40	30	20	0.04	0.7	0.3	0.5
UMR5.5	600	12	40	30	22	0.05	0.1	0.2	0.2
UMR5.16	600	15	40	30	22	0.05	0.1	0.2	0.2
UMR5.25	600	11	40	30	22	0.05	0.1	0.2	0.2
UMR8.4	900	18	100	50	40	0.07	0.05	0.05	0.05
UMR8.25	900	17	100	50	40	0.07	0.05	0.05	0.05
UMR8.51	900	11	100	—	40	0.07	0.05	0.05	0.05
UMR12.40	400	35	450	—	70	0.08	0.02	0.02	0.02
UMR12.63	400	25	450	—	70	0.08	0.02	0.02	0.02
UMR12.80	400	20	450	—	70	0.08	0.02	0.02	0.02

<sup>1)</sup> With a BM micrometer head.

<sup>2)</sup> With a DM differential micrometer head.

Accessories

























UMR Stage Accessories

Compare	Description	Drawings, CAD & Specs	Avail.	Price
	M-PBN3 Base Plate, Used with UMR3.5 Linear Stage		In Stock	\$58
	M-PBN5 Base Plate, Used with UMR5 Series, MVN50 & UTR46 Series		In Stock	\$68
	M-PBN8 Base Plate, Used with UMR8 Series, MVN80 & UTR80 Series		In Stock	\$91
	M-PBN12 Base Plate, Used with UMR12 Series, MVN120 & UTR120 Series		In Stock	\$114
	FP22-80 Fixed Positioning Kit, UMR12.80		In Stock	\$35
	FP18-40 Fixed Positioning Kit, UMR12.40		2 Weeks	\$35
	FP3-5 Fixed Positioning Kit, UMR3.5		In Stock	\$55
	ADAPT-TRA25 Actuator Adapter, TRA25, Opto-Mechanical Components		In Stock	\$66
	ADAPT-BM17-375 Motorized Actuator Adapter, UMR8 to VP-25AA, LTA-HS, TRA or PZA12		In Stock	\$55
	ADAPT-BM25-375 Motorized Actuator Adapter, UMR12 to VP-25AA and PZA12		In Stock	\$55

Carriage Locks

Carriage locking kits includes a screw that mounts in the stage body opposite the actuator. Two carriage locks are required for fixed positioning.

Compare	Description	Drawings, CAD & Specs	Avail.	Price
	CL12-25 Carriage Lock, UMR8.25, 2 Req. for Fixed Positioning		In Stock	\$35
	CL18-63 Carriage Lock, UMR12.63		In Stock	\$35
	CL12-51 Carriage Lock, UMR8.51, 2 Req. for Fixed Positioning		In Stock	\$35

Compare	Description	Drawings, CAD & Specs		Avail.	Price
	CL12-4 Carriage Lock, UMR8.4, 2 Req. for Fixed Positioning			In Stock 	\$35
	CL18-40 Carriage Lock, UMR12.40 or UMR12.40A			In Stock 	\$35
	CL3-5 Carriage Lock, UMR3.5			2 Weeks	\$46
	CL6-5 Carriage Lock, UMR5.5, 2 Req. for Fixed Positioning			In Stock 	\$35
	CL22-80 Carriage Lock, UMR12.80			In Stock	\$34
	CL6-16 Carriage Lock, UMR5.16, 2 Req. for Fixed Positioning			In Stock 	\$35
	CL6-25 Carriage Lock, UMR5.25, 2 Req. for Fixed Positioning			In Stock 	\$35

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