

# [Motorized] Linear Ball Guide Stages

X-Axis

Features: Integrated Linear Ball Guide stage with high accuracy and rigidity, yet economical. The carriage height is 20 mm.

## X-Axis Motorized Stages

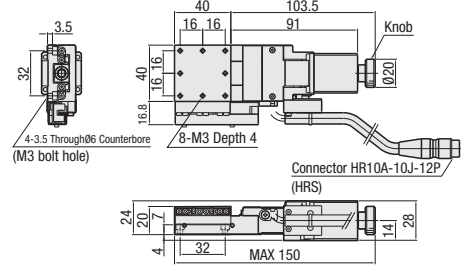


ⓘ For the controller and Handset Terminal, see P.2127.

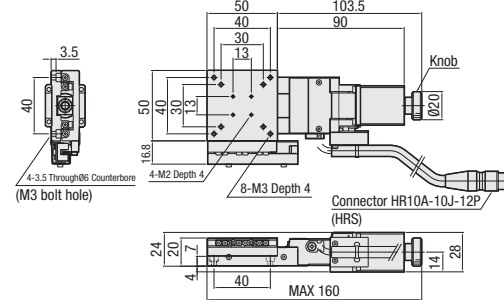
ⓘ The photos shown are cover position R type.

**Material:** 440C Stainless Steel  
**Surface Treatment:** Electroless Nickel Plating  
**Accessory:** XMSG413/513/430/530: SCB3-8, 4pcs.  
 XMSG615/715/650/750: SCB4-8, 4pcs.

### XMSG413

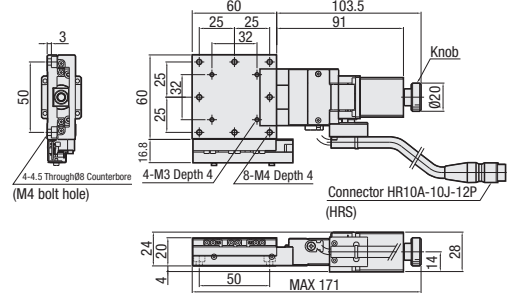


### XMSG513

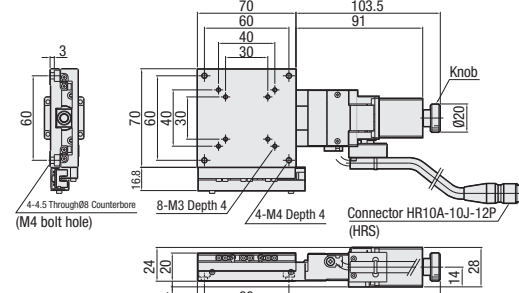


ⓘ The drawing shown L (left) cover position.

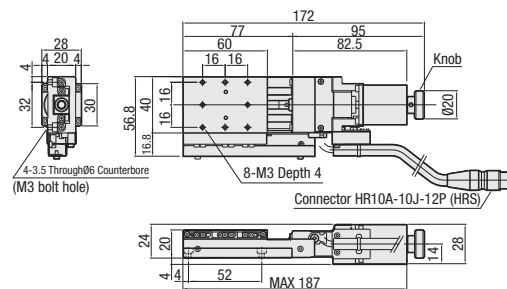
### XMSG615



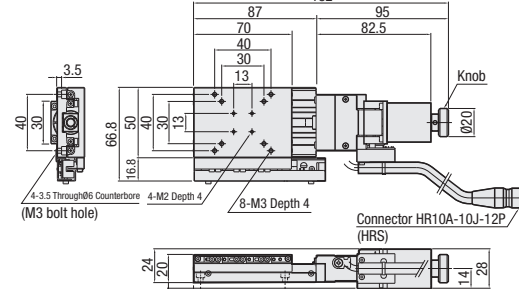
### XMSG715



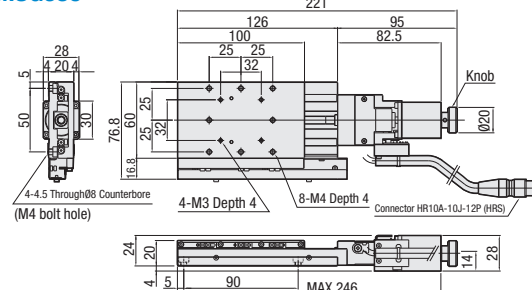
### XMSG430



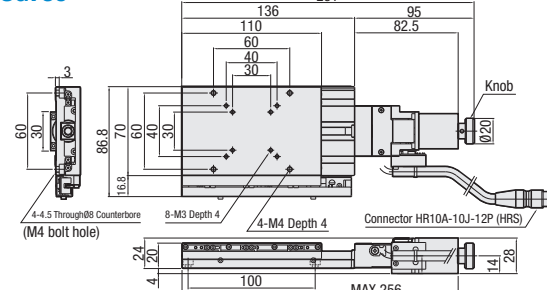
### XMSG530



### XMSG650



### XMSG750



# [Motorized] Linear Ball Guide Stages

X-Axis, continued

Part Number	Sensor				Motor	Cable	Mechanical Standards			Accuracy Standards											
	Type	No.	Cover Position	Logic			Voltage (V)	Stage Surface (mm)	Travel Distance (mm)	Weight*3 (kg)	Unidirectional Positioning Accuracy (for a single axis/stage horizontally placed)			Rolling	Yawing						
XMSG	413	L (Standard)	R (Reversed)	A (All N.C.)	5*1 24*1	C (Standard) D (High Torque) E (High Resolution) MA*2 (With brake) PA*2 (αSTEP) UA*2 (Servo Motor)	N (Cable not included (separately sold)) M*2 (For motor with brake) P*2 (For αSTEP) U*2 (For Servo Motor) ⓘ For combination of motors and cables, see the table below.	40 x 40	13	0.5	6μm or less	0.22	0.17	0.12	15"	10"					
	513			B (All N.O.)				50 x 50		0.6		0.14	0.1	0.06							
	615			C (Limit Switches are N.C.; Home Sensor is N.O.)				60 x 60		0.7		0.08	0.07	0.03							
	715												70 x 70	15	0.9	0.03	0.03	0.01			
	430												40 x 60	30	0.6	12μm or less	0.24	0.18	0.26	20"	15"
	530											50 x 70	0.8	0.12	0.13	0.1					
	650											60 x 100	1.1	0.05	0.05	0.05					
750							70 x 110	50	1.2	0.03	0.03	0.03									

\*1 24VDC sensors cannot be operated from the MSCTL102/112 controller. When selecting 5V for voltage configuration, applying over 5V voltage will cause breakage.

\*2 For motor options MA and PA, the driver is included in the set. For motor option UA, the amp is included in the set. With motor option MA, only cable option M is selectable. With motor option PA, only cable option P is selectable. With motor option UA, only cable option U is selectable. In all three cases, cable option N (no cable) is not selectable.

\*3 The value is for C Type of Motor.

\*4 Accuracy specifications are for single axis (horizontal orientation) configuration.

## Common Specifications

Feed Screws	Screw Ø6, Lead 1	Load Capacity*2	98N
Guides	Linear Ball Guide	Lost Motion	Less than 1 μm
Resolution*1	2 μm/Pulse (Full) 1 μm/Pulse (Half)	Backlash	Less than 0.5 μm
Repeatability	Less than ±0.5 μm	Parallelism	Less than 15 μm

\*1 Stage travel per one pulse.

\*2 The load capacity is reduced to 49N for vertical use.

## Motor/Cable Application Table

Motor	Cable
C, D, E	N (Not Provided)
MA	M
PA	P
UA	U

ⓘ For the cable for C, F or G, see MSCB on P.2127.

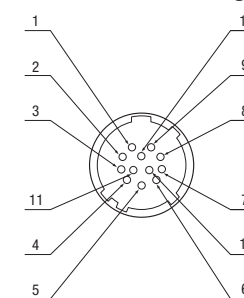
## Max speed

Motor	(mm/sec)	Motor	(mm/sec)
C	10	MA	20
D	30	PA	35
E	25	UA	50

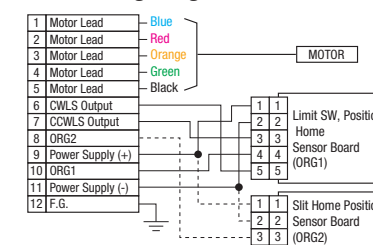
ⓘ Note that the speed and positioning time will vary depending on the usage conditions. The values shown here are MISUMI's reference values. Operation at these values is not guaranteed.

Part Number Example: XMSG413 - LA5 - C - M

## Connector Pin Arrangement

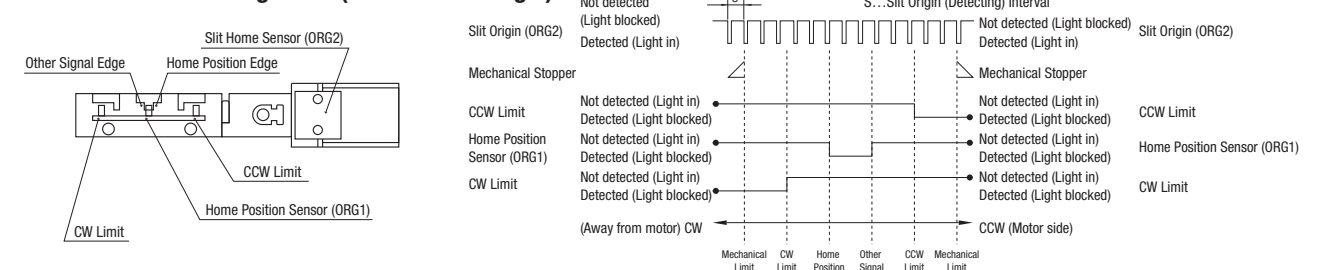


## Connecting Diagram



\*The dotted line connections are not functional when a standard cable is used.

## Included Sensor Timing Chart (For A Sensor Logic)



Travel Distance	Reference Position	Mechanical Limit	CW Limit	Other Signal Edge	Home	CCW Limit	Mechanical Limit
13	Homings	8	7.5	2	0	6.5	7
15	Homings	9	8.5	2	0	7.5	8
30	Homings	16.5	16	2	0	15	15.5
50	Homings	26.5	26	2	0	25	25.5
All Types			Slit Home Position (Detecting) Interval S=1				

- Homing Routine Above: When MSCTL102/112 controller is used and when the Homing Routine Type 3 (see below) is executed.

- The coordinates shown are design values. There may be approx. ±0.5mm misalignment on the physical dimensions.

## Recommended Homing Method (MSCTL102/112 P.2127) used

Type 3	Seeks in CCW rotation for an ORG1 signal on the CCW side edge.
Type 4	Seeks in CW rotation for an ORG1 signal on the CW side edge.
Type 9	Pattern (1) is executed, then the TIMING signal detection routine on the CCW side edge is processed.
Type 10	Pattern (2) is executed, then the TIMING signal detection routine on the CW side edge is processed.