

# [High Precision] Motorized X-Axis - Linear Ball, CAVE-X POSITIONER

Stroke 100~300



For CAD data, see the MISUMI website.

Features: Have high rigidity and are compact in width. Support 100~300mm of travel distance.

**XCVL (w/o Cover)**

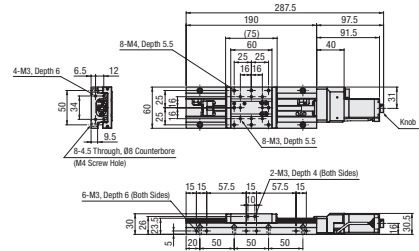
**XCVLC (with Cover)**

**M** Material: 440C Stainless Steel Equivalent  
**S** Surface Treatment: Electroless Nickel Plating  
**A** Accessory: SUS Hex Socket Screw M4-14 (in pcs.)

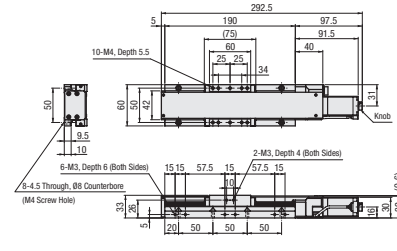
- XCVL6100/XCVLC6100: 8 pcs.
- XCVL6150/XCVLC6150 (14 pcs.)
- XCVL6200/XCVLC6200 (12 pcs.)
- XCVL6300/XCVLC6300 (16 pcs.)

**RoHS10**

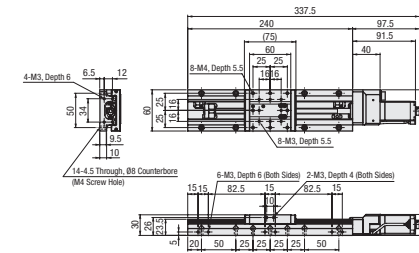
## XCVL6100



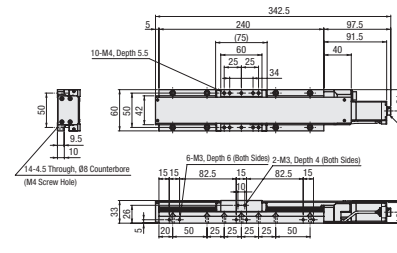
## XCVLC6100



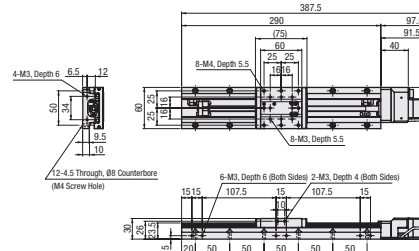
## XCVL6150



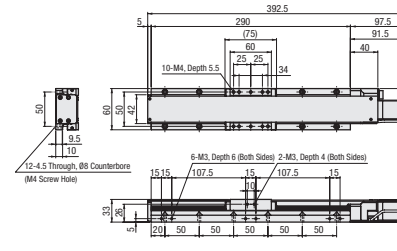
## XCVLC6150



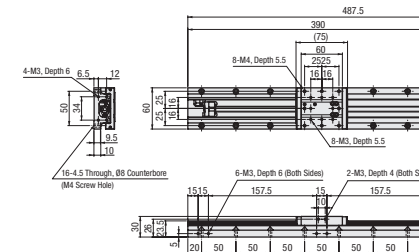
## XCVL6200



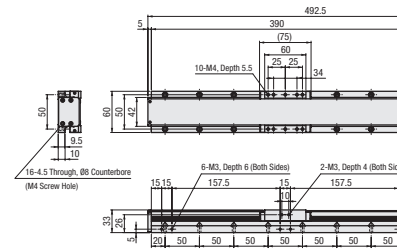
## XCVLC6200



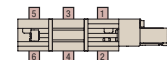
## XCVL6300



## XCVLC6300



### Sensor Mounting Position



The above diagrams are for stages incorporating Motor F. For detailed dimensions about stages incorporating Motor G, MA, PA, U, see the relevant CAD data.

Part Number	Lead	Sensor	Motor	Cable	Mechanical Standards			Accuracy Standards				
					Stage Surface (mm)	Travel Distance (mm)	Weight (kg)	Unidirectional Positioning Accuracy	Motion Straightness	Motion Parallelism	Pitching	Yawing
XCVL6100 (w/o Cover) XCVLC6100 (with Cover)	2 (Lead 2mm)	N (W/o Sensor) 1 (CCW Right) 2 (CCW Left) 3 (Right-center) 4 (Left-center) 5 (CW Right) 6 (CW Left)	F (High Torque) G (High Resolution) MA (With Electromagnetic Brake) PA (α-Step) U (Servo Motor, Amplifier)	N (Cable not included (separately sold)) M (For Motor with Electromagnetic Brake) P (For α-Step) U (For combination of motors and cables, see the table below.)	60 × 60	100	1.8(1.86")	10μm	5μm	10μm	25"	20"
XCVL6150 (w/o Cover) XCVLC6150 (with Cover)					150	2.1(2.16")	15μm	5μm	15μm	25"	20"	
XCVL6200 (w/o Cover) XCVLC6200 (with Cover)					200	2.42(2.48")	15μm	7μm	20μm	30"	20"	
XCVL6300 (w/o Cover) XCVLC6300 (with Cover)					300	3.02(3.12")	25μm	7μm	25μm	35"	20"	

\*1. When the "With Cover" option is selected, When the Motor Option MA or PA is selected, the driver is included with the Set. When the Option U is selected, the Amplifier is included with the Set. The cable is available for Option M, P, U and is unavailable for Option N.  
 \*2. The value differs depending on the type of motor. The above values are for stages incorporating Motor F (High Torque). For details, see P.1-1735-15

**Ordering Example**

Part Number - Lead - Sensor - Motor - Cable

XCVL6100 - 2 - N - F - N

**Days to Ship**

[Configure Online](#)

### Motor/Cable Application Table

The available cable differs depending on the type of motor.

Motor/Cable Application Table	Motor	Cable
	F, G	N (Not Provided)
	MA	M
	PA	P
	U	U

For the cable for F or G, see P.1-1735-95

### Max. Speed

Motor	(mm/sec)
F	35
G	25
MA	25
PA	40
U	50

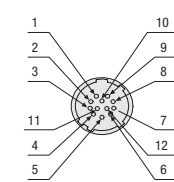
Note that the speed and positioning time will vary depending on the usage conditions. The values shown here are MISUMI's reference values. Operation at these values is not guaranteed.

### Common Specifications

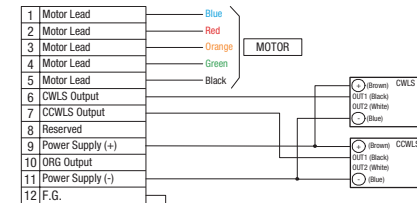
<b>Feed Screw</b>	Ball Screw Ø8, Lead 2	
<b>Guide</b>	Linear Ball Guide	
<b>Resolution</b>	Full	4μm
	Half	2μm
	Fine Feed upon 1/20 partitioned	0.2μm
<b>Max. Speed</b>	45mm/sec	
<b>Positioning repeatability</b>	±0.5μm	
<b>Load Capacity</b>	117.6N	
<b>Moment Rigidity</b>	Pitch	0.05"/N•cm
	Yawing	0.05"/N•cm
	Rolling	0.05"/N•cm
<b>Lost Motion</b>	1μm	
<b>Backlash</b>	1μm	
<b>Straightness</b>	3μm	
<b>Parallelism</b>	15μm	
<b>Motion Parallelism</b>	10μm	

The value differs depending on the type of motor. For details, see P.1-1735-15

### Connector Pin Configuration



### Wiring Diagram



The above is the connector pin configuration / wiring diagram for F, G.

For connector pin configuration / wiring for other types of motors, see P.1-1735-16

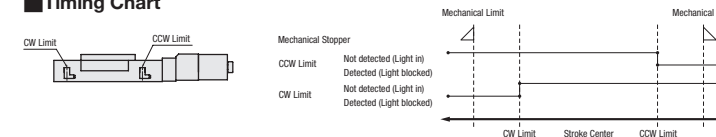
### Electrical Specifications

Motor Option	Type	F	G	MA	PA	U
		High Torque	High Resolution	With Electromagnetic Brake	Tuningless	High Speed
<b>Motor</b>		5-Phase Stepping Motor 0.75A/Phase (Oriental Motor Co., Ltd.)				
<b>Motor</b>	<b>Step Angle</b>	0.72°	0.36°	0.72°	0.36° (When set to 1000 P/R)	18-bit Encoder (262144P/R)
<b>Connector</b>	<b>Applicable Receptacle Connector</b>	HR10A-10P-12S (73) (Hirose Electric Co., LTD.)		5559-06R-210 (Molex Japan LLC)	43020-1000 (Molex Japan LLC)	Motor Cable JN4FT04SJ1-R (Japan Aviation Electronics Industry, Ltd.) Encoder 1674320-1 (Tyco Electronics Japan G.K.)
<b>Sensor</b>	<b>Limit Sensor</b>	Provided				
	<b>Home Sensor</b>	Not Provided by standard (Photomicrosensor PM-L25 (Panasonic Industrial Devices SUNX Co., Ltd.) is available as the option.)				
	<b>Near Home Sensor</b>	-				
	<b>Power Supply Voltage</b>	DC5~24V ±10%				
	<b>Current Consumption</b>	45mA or less (15mA or less per sensor)				
	<b>Control Output</b>	NPN Open Collector Output DC30V or less, 50mA or less Residual Voltage 2V or less (when load current is 50mA) Residual Voltage 1V or less (when load current is 16mA)				
	<b>Output Logic</b>	Detecting (Dark): Output Transistor OFF (Non-Conducting)				

For Electrical Specifications other than described above, see P.1-1735-15

Sensors with Part Number PM-□24 are to be discontinued and replaced by next-generation products with Part Number PM-□25 from April 2017.

### Timing Chart



(Unit: mm) CW Direction ← → CCW Direction

	Reference Position	Mechanical Limit	CW Limit	CCW Limit	Mechanical Limit
XCVL 6100	Stroke Center	52.5	50.5	50.5	52.5
XCVL 6150	Stroke Center	77.5	75.5	75.5	77.5
XCVL 6200	Stroke Center	102.5	100.5	100.5	102.5
XCVL 6300	Stroke Center	152.5	150.5	150.5	152.5

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

### Recommended Homing Method

<b>Type5</b>	After detection is executed in the CCW direction, the process of detecting in the CW direction is begun based on the CWLS signal.
<b>Type6</b>	After detection is executed in the CW direction, the process of detecting in the CCW direction is begun based on the CWLS signal.
<b>Type11</b>	After Type 5 is executed, the process of detecting in the CCW direction is begun based on the TIMING signal.
<b>Type12</b>	After Type 6 is executed, the process of detecting in the CW direction is begun based on the TIMING signal.