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

Stroke 100~300

Spec.Change Printed in Purple

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

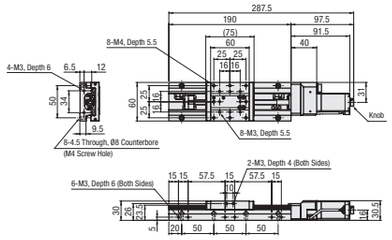
XCVL (w/o Cover)

XCVLC (with Cover)

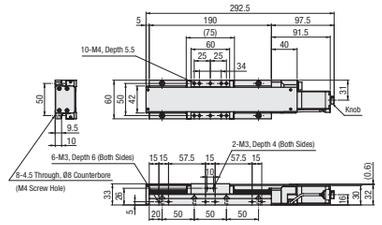
M Material: 440C Stainless Steel Equivalent
S Surface Treatment: Electroless Nickel Plating
A Accessory: SUS Hex Socket Screw M4-14 (in pcs.)
- XCVL6100/XCVLC6100: 8 pcs.
- XCVL6150/XCVLC6150 (14 pcs.)
- XCVL6200/XCVLC6200 (12 pcs.)
- XCVL6300/XCVLC6300 (16 pcs.)

RoHS10

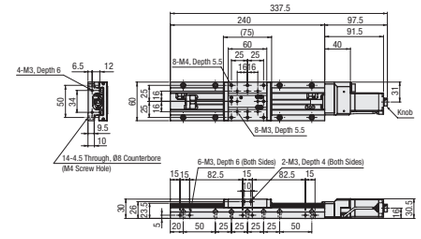
XCVL6100



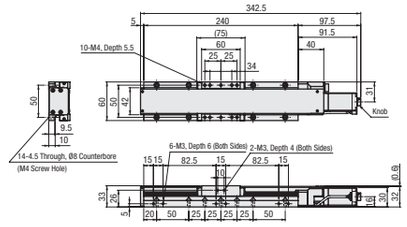
XCVLC6100



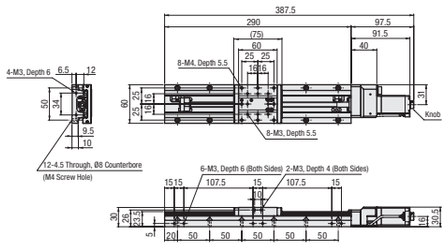
XCVL6150



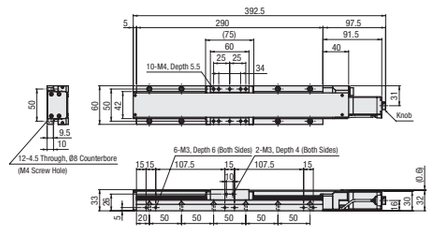
XCVLC6150



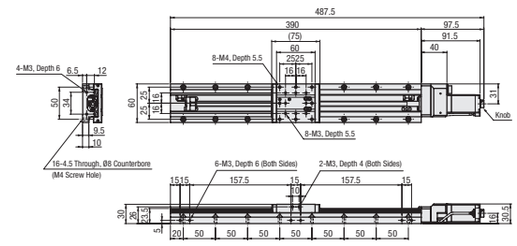
XCVL6200



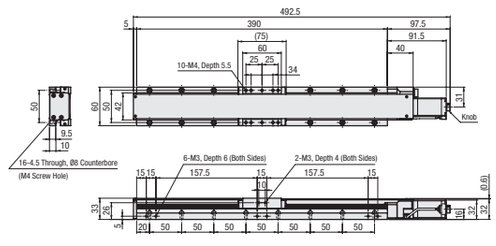
XCVLC6200



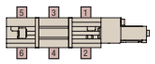
XCVL6300



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.

For CAD data, see the MISUMI website.

Part Number	Lead	Sensor	Motor	Cable	Mechanical Standards: Stage Surface (mm)	Mechanical Standards: Travel Distance (mm)	Mechanical Standards: Weight (kg)	Accuracy Standards: Unidirectional Positioning Accuracy	Accuracy Standards: Motion Straightness	Accuracy Standards: Motion Parallelism	Accuracy Standards: Pitching	Accuracy Standards: 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*1)	10μm	5μm	10μm	25"	20"
XCVL6150 (w/o Cover) XCVLC6150 (with Cover)						150	2.1(2.16*1)	15μm	5μm	15μm	25"	20"
XCVL6200 (w/o Cover) XCVLC6200 (with Cover)						200	2.42(2.48*1)	15μm	7μm	20μm	30"	20"
XCVL6300 (w/o Cover) XCVLC6300 (with Cover)						300	3.02(3.12*1)	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 as the Set. When the Option U is selected, the Amplifier is included with. The cable is available for Option M, P, U and is unavailable for Option N.
: 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

Feed Screw		Ball Screw Ø8, Lead 2
Guide		Linear Ball Guide
Resolution	Full	4μm
	Half	2μm
	Fine Feed upon 1/20 partitioned	0.2μm
Max. Speed		45mm/sec
Positioning repeatability		±0.5μm
Load Capacity		117.6N
Moment Rigidity	Pitch	0.05"/N•cm
	Yawing	0.05"/N•cm
	Rolling	0.05"/N•cm
Lost Motion		1μm
Backlash		1μm
Straightness		3μm
Parallelism		15μm
Motion Parallelism		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		F: High Torque	G: High Resolution	MA: With Electromagnetic Brake	PA: Tuningless	U: High Speed
Motor	Type	5-Phase Stepping Motor 0.75A/Phase (Oriental Motor Co., Ltd.)			α- Step Motor	AC Servo Motor
	Step Angle	0.72°	0.36°	0.72°	0.36°(When set to 1000 P/R)	18-bit Encoder (262144P/R)
Connector	Applicable Receptacle Connector	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.)
Sensor	Limit Sensor	Provided				
	Home Sensor	Not Provided by standard (Photomicrosensor PM-L25 (Panasonic Industrial Devices SUNX Co., Ltd.) is available as the option.)				
	Near Home Sensor	-				
	Power Supply Voltage	DC5~24V ±10%				
	Current Consumption	45mA or less (15mA or less per sensor)				
	Control Output	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)				
	Output Logic	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

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