[High Precision] Motorized XY-Axis - Linear Ball, CAVE-X POSITIONER
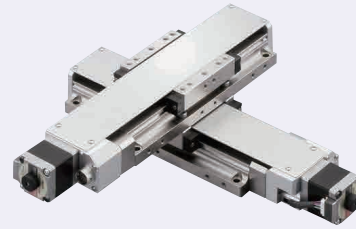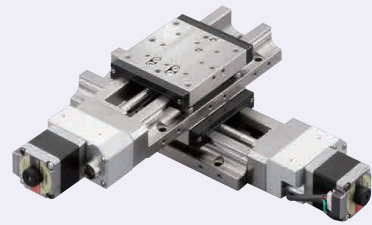
Spec.Change
Printed in Purple

■**Features:** Have high rigidity and compactness in width. Support 30~75mm of travel distance.

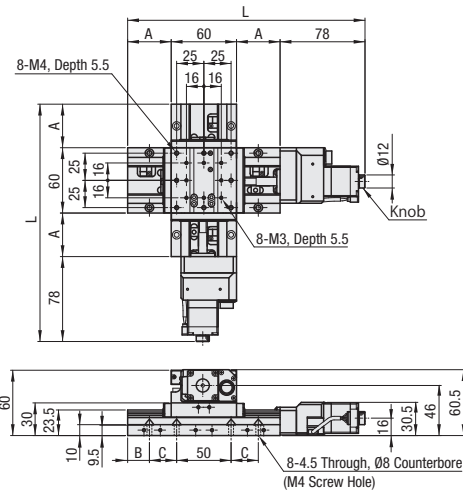◉ **For CAD data, see the MISUMI website.**

■ XY-Axis: XYCVL (w/o Cover)
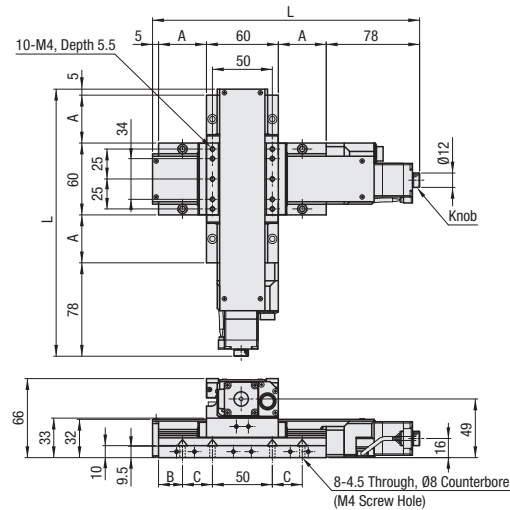
■ XY-Axis: XYCVLC (with Cover)

M Material: 440C Stainless Steel
S Surface Treatment: Electroless Nickel Plating
A Accessory: SCB4-14 (8 pcs.)

◉For Controllers, Handset Terminals, see P.**1**-1735-93~P.**1**-1735-94

RoHS10
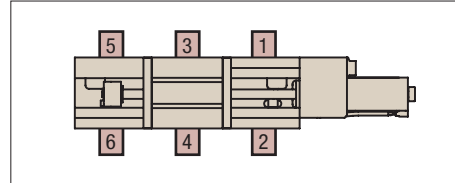
XYCVL (w/o Cover)

8-M4, Depth 5.5
8-M3, Depth 5.5
Knob
8-4.5 Through, Ø8 Counterbore (M4 Screw Hole)

XYCVLC (with Cover)

10-M4, Depth 5.5
Knob
8-4.5 Through, Ø8 Counterbore (M4 Screw Hole)

Additional Position for mounting Home Sensor (Option)

| 5 | 3 | 1 |
| 6 | 4 | 2 |

◉See the CAD data for detailed dimensions.

■Dimension Table

Part Number		L	A	B	C
Type	No.				
XYCVL	630	198	30	10	25
	650	218	40	20	25
	675	243	52.5	7.5	50

Part Number		L	A	B	C
Type	No.				
XYCVLC	630	203	30	10	25
	650	223	40	20	25
	675	248	52.5	7.5	50

Part Number				Mechanical Standards			Accuracy Standards		
Type	No.	Lead (mm)	Sensor	Motor	Cable	Stage Surface (mm)	Travel Distance (mm)	Weight (kg)	Unidirectional Positioning Accuracy (for a single axis)	Pitching	Yawing
XYCVL (w/o Cover) XYCVLC (with Cover)	630	1	N (W/o Sensor) 1 (CCW Right) 2 (CCW Left) 3 (Right-center) 4 (Left-center) 5 (CW Right) 6 (CW Left)	C (Standard) F (High Torque) G (High Resolution) MA*¹(With Electromagnetic Brake) PA*¹ (α-Step) U*¹ (Servo Motor, Amplifier)	N (Cable not included (separately sold)) M (For Motor with Electromagnetic Brake) P*¹ (For α-Step) U*¹ (For Servo Motor)	60×60	30	2.6 (2.7*²)	5µm	20''	15''
	650	1					50	2.8 (2.9*²)			
		2									
	675	1					75	3.1 (3.3*²)	7µm		
		2									

*1. For motor options MA and PA, the driver is included in the set. For motor option U, the amplifier is included in the set. With motor options MA, PA and U, the selectable cable options are M, P and U, respectively and exclusively. Note that the cable option N is not selectable.
*2. Values in ( ) are for stages with Cover.
◉The accuracy specifications above are certified for single-axis horizontal mounting orientation.

Ordering Example

Part Number	-	Lead	-	Sensor	-	Motor	-	Cable
XYCVL630	-	1	-	N	-	C	-	N
XYCVLC675	-	2	-	6	-	U	-	U

Days to Ship

Configure Online

■Motor/Cable Application Table

Motor	Cable
C,F,G	N
MA	M
PA	P
U	U

◉For the cable for C, F or G, see MSCB_ on P.**1**-1735-95

■Max. Speed

Motor	(mm/sec)
C	30
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.
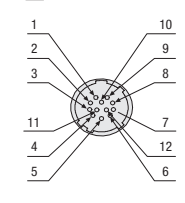
■Common Specifications

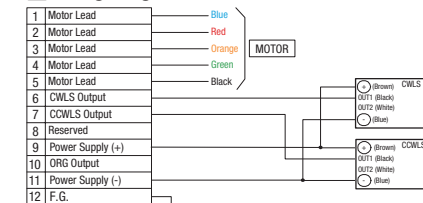| Feed Screw		Ball Screw Ø8, Lead 1	Ball Screw Ø8, Lead 2
Guide		Linear Ball Guide	
Resolution	Full	2µm	4µm
	Half	1µm	2µm
	Fine (At 1/20)	0.1µm	0.2µm
Max. Speed		30mm/sec	35mm/sec
Positioning repeatability*		±0.5µm	
Load Capacity		98N	
Lost Motion*		1µm	
Backlash*		1µm	
Straightness*		3µm	
Parallelism*		15µm	
Motion Parallelism*		10µm	

* The above accuracy standard is for a single axis.
◉The figures in ☐ will vary depending on the motor. For details, see page P.**1**-1735-15.

■Connector Pin Configuration   ■Wiring Diagram

| 1 | Motor Lead | Blue |
2	Motor Lead	Red
3	Motor Lead	Orange
4	Motor Lead	Green
5	Motor Lead	Black
6	CWLS Output	
7	CCWLS Output	
8	Reserved	
9	Power Supply (+)	
10	ORG Output	
11	Power Supply (-)	
12	F.G.	

◉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		C	F	G	MA	PA	U
		Standard	High Torque	High Resolution	With Electromagnetic Brake	Tuningless	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°	0.72°	0.36°	0.72°	0.36° (When 1000P/R is set)	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 per Sensor)					
	Control Output	NPN Open Collector Output DC30V, 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)					

◉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
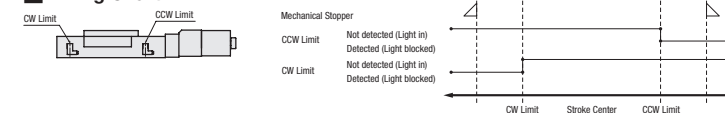
(Unit: mm) CW Direction → ← CCW Direction

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.
◉For details about Homing, see P.**1**-1735-97

■Recommended Method for Return to Origin

Type5	Detect in the direction of CCW and perform detected process for CW edge of CWLS signal.
Type6	Detect in the direction of CW and perform detected process for CCW edge of CWLS signal.
Type11	After finished type5, perform detected process for CCW edge of TIMING signal.
Type12	After finished type6, perform detected process for CW edge of TIMING signal.