



Quality and Innovation



# Cartesian Robots

## ICSA2/ICSPA2

## ICSA3/ICSPA3

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ISPA/ICSPA Catalog

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# Cartesian Robot Series Contents

Single-Axis Robots

Cartesian Robots

Two-Axes Configuration	X-Y Two-Axes Configuration	XYB (Y-Axis Base Mount) Type																		
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\* In the above model names, □ indicates the configuration direction (1 through 4).

# Cartesian Robot Series Features

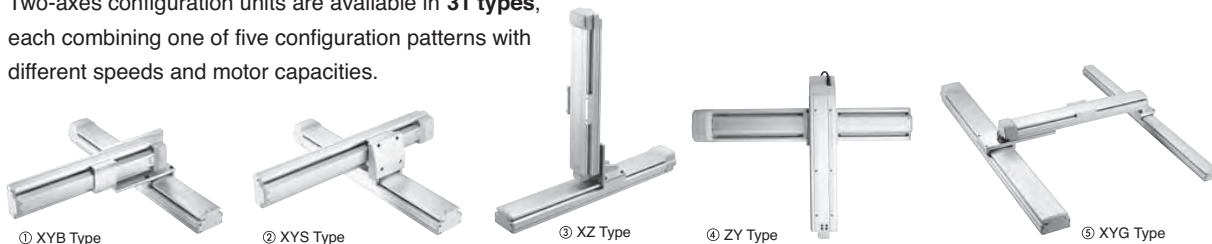
The ICSA/ICSPA Cartesian robots are configuration units based on the two-axes and three-axes configuration patterns that are frequently used. These actuators come pre-wired with brackets attached, so they can be installed in your equipment and used immediately after delivery.

## 1. Configuration Variations

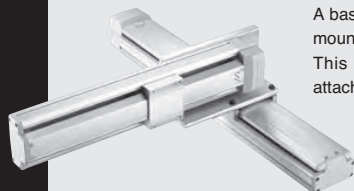
Fifty-seven standard configuration types are provided, so the user can find the model best suited to existing conditions. We can also build custom configurations not currently represented in the standard range. Please contact us regarding your specifications.

### Two-Axes Configuration Type

Two-axes configuration units are available in **31 types**, each combining one of five configuration patterns with different speeds and motor capacities.



#### ① XYB (Y-Axis Base Mount) Type



A basic configuration type where the Y-axis base is mounted to the X-axis bracket. This actuator operates with a device or Z-axis attached to the Y-axis slider.

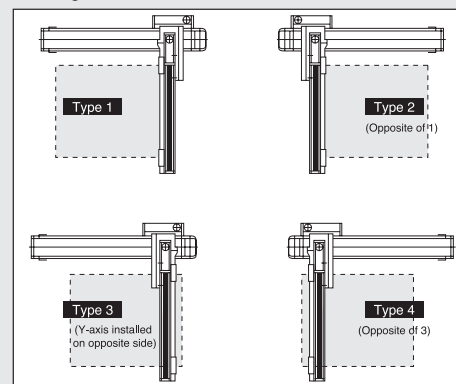
**Point 1**

There are four patterns of Y-axis configuration directions to choose from (refer to the figure shown to right).

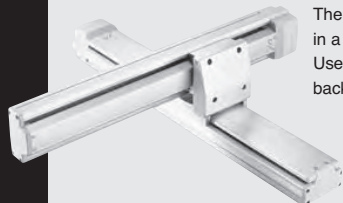
**Point 2**

Select the Y-axis wiring specification from the two options of self-standing cable (standard) and cable track.

#### ■ Configuration Direction



#### ② XYS (Y-Axis Slider Mount) Type



The Y-axis slider is mounted to the X-axis bracket in a manner allowing the Y-axis to move. Use this type when the Y-axis itself must be moved back and forth to avoid an obstacle, etc.

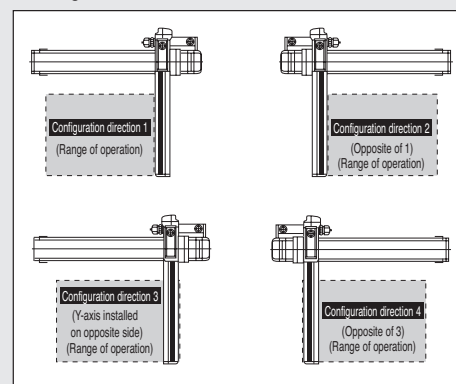
**Point 1**

There are four patterns of Y-axis configuration directions to choose from (refer to the figure shown to right).

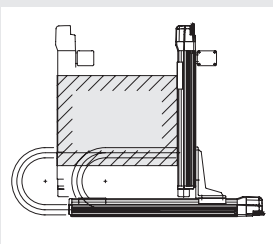
**Point 2**

Only the self-standing cable option is available for the Y-axis wiring specification.

#### ■ Configuration Direction



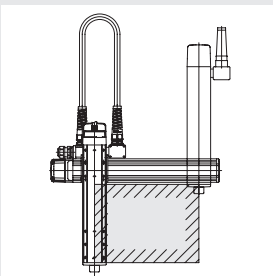
### ③ XZ (Z-Axis Base Mount) Type



The Z-axis (vertical axis) is positioned vertically on the X-axis. Use this type in such applications as inserting loads into a stocker or moving a pallet up and down.

- Point 1** Since the Z-axis comes standard with a brake, the slider will not drop even when the power is turned off.
- Point 2** The maximum stroke is 2500 mm for the X-axis and 500mm for the Z-axis. (Consult IAI if you need a longer stroke.)

### ④ YZ (Y-Axis Slider Mount) Type

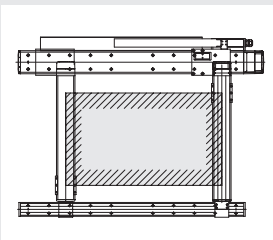


The Y-axis is positioned on its side and its slider is connected to the slider of the Z-axis (vertical axis).

Since the Z-axis moves vertically, this type can be fitted with a chuck or other device on the Z-axis for transfer of loads.

- Point 1** Since the Z-axis comes standard with a brake, the slider will not drop even when the power is turned off.
- Point 2** The standard wiring specification of the Z-axis is the self-standing cable, but the cable track can also be used (custom order).
- Point 3** The Z-axis base can be mounted (custom order).

### ⑤ XYG (Gantry) Type



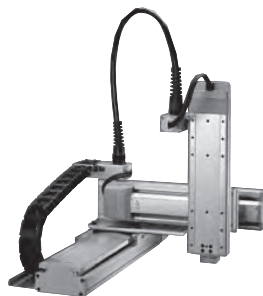
The Y-axis of the XYB type is placed flat and a support guide is attached at the tip of the Y-axis.

Use this type for transferring heavy objects or when the Y-axis stroke is long and the tip might sag.

- Point 1** A maximum of 40 kg can be transferred.
- Point 2** The maximum stroke is 2500 mm for the X-axis and 1200 mm for the Y-axis. (Consult IAI if you need a longer stroke.)

## Three-Axes Configuration Type

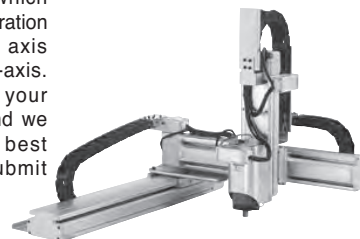
Three-axes configuration units are available in **102 types**, each combining either the basic XYB (Y-axis base mount) type or high-rigidity XYG (gantry) type with a Z-axis (vertical axis) of high-speed, medium-speed or low-speed specification, providing a maximum load capacity of 19 kg.



**Consult IAI for details on three-axes combined types.**

## Four-Axes Configuration Type

We also offer four-axes configuration types, which are three-axes configuration units with a rotating axis integrated with the Z-axis. Please advise us of your desired conditions, and we will select the best configuration and submit drawings.



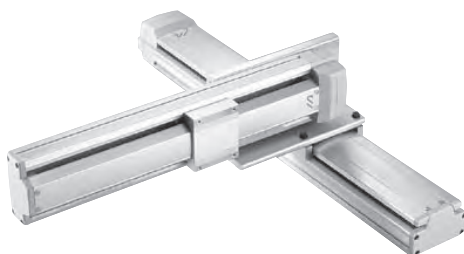
■ Two-Axes Configuration

**X-Y Two-Axes Configuration**

**Y-axis base mount**

The Y-axis slider moves horizontally.

**XYB** type    BA□H, BA□M    BK□H, BK□M  
                   BB□H, BB□M    BL□H, BL□M  
                   BC□H, BC□M    BP□H, BP□M  
                   BD□H            BQ□H, BQ□M  
                   BE□H, BE□M  
                   BF□H

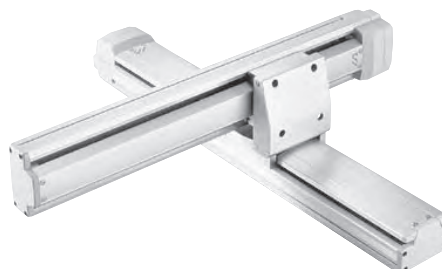


P67~102

**Y-axis slider mount**

The entire Y-axis moves horizontally.

**XYS** type    SA□H, SA□M  
                   S1C□H, S1C□M  
                   S2C□H  
                   SG□H



P103~114

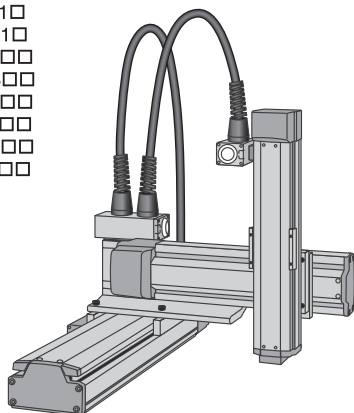
■ Three-Axes Configuration

**X-Y Base Mount (XYB)+Z-Axis Configuration**

**Z-Axis Base Mount Type**

The Z-axis is base mounted to the Y slider.  
 The Z slider moves vertically.  
 The Y-axis slider moves horizontally.

BA□MB1□  
 BB□HB1□  
 BB□MB1□  
 BC□HB□□  
 BC□MB□□  
 BD□HB□□  
 BE□HB□□  
 BE□MB□□  
 BF□HB□□

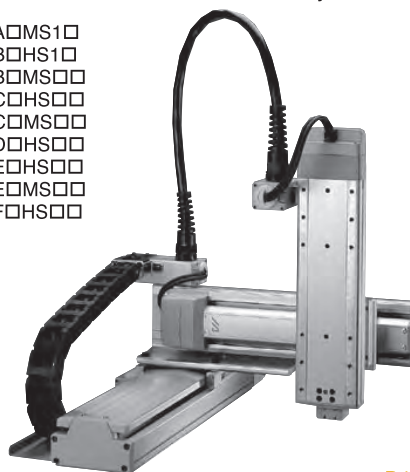


P145~186

**Z-Axis Slider Mount Type**

The Z-axis slider is mounted to the Y-axis slider.  
 The body of the Z-axis moves vertically.  
 The Y-axis slider moves horizontally.

BA□MS1□  
 BB□HS1□  
 BB□MS□□  
 BC□HS□□  
 BC□MS□□  
 BD□HS□□  
 BE□HS□□  
 BE□MS□□  
 BF□HS□□



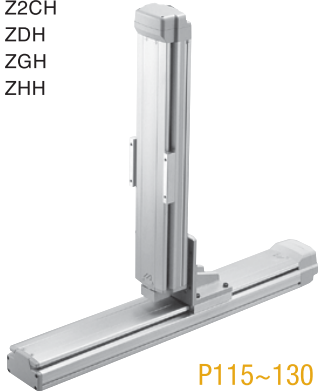
P187~216

**Z-axis base mount**

The Z-axis is positioned vertically and mounted to the X-axis. The Z-axis slider moves vertically.

**XZ** type

- ZAH, ZAM
- Z1CH, Z1CM
- Z2CH
- ZDH
- ZGH
- ZHH



P115~130

**Y-axis slider mount**

The Z-axis slider is mounted to the Y-axis positioned on its side. The entire Z-axis moves vertically.

**YZ** type

- YAH, YAM
- YCH, YCM
- YGH



P131~140

**Gantry**

A support axis is added in parallel with the X-axis and the Y-axis base is mounted to the sliders on the two axes. The Y-axis slider moves horizontally.

**XYG** type

- G1JH
- G2JH



P141~144

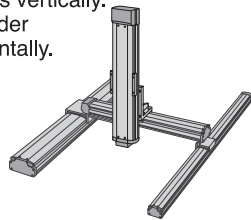
**Four-Axes Configuration**

**X-Y Gantry (XYG)+Z-Axis Configuration**

**Z-Axis Base Mount Type**

The Z-axis base mounted to the Y-axis, Z slider moves vertically. The Y-axis slider moves horizontally.

- G1JHB□□
- G2JHB□□

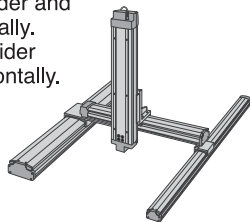


P217~228

**Z-Axis Slider Mount Type**

The Z-axis slider is mounted to the Y-axis slider and moves vertically. The Y-axis slider moves horizontally.

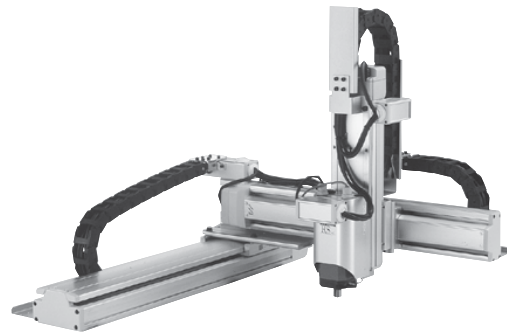
- G1JHS□□
- G2JHS□□



P229~240

**X-Y Base Mount + Z-Axis + Rotating-Axis Configuration**

Rotating-axis mounted to the Z-axis base (Z-slider mounted to Y) of three-axes configuration provides theta motion.



# Cartesian Robot Series Two-Axes Configuration Unit Selection Table

## How to Select a Unit (Explanation of the Table)

Start from ① and move toward right as you confirm each condition to select a desired type.

### ① Select the configuration.

**XYB type** The Y-axis base is mounted to the X-axis. (The Y-axis slider moves horizontally.)

**XYS type** The Y-axis slider is mounted to the X-axis. (The Y-axis itself moves horizontally.)

**XZ type** The Z-axis is positioned vertically and mounted to the X-axis. (The Z-axis slider moves vertically.)

**YZ type** The Z-axis slider is mounted to the Y-axis positioned on its side. (The Z-axis itself moves vertically.)

**XYG type** A support axis is added in parallel with the X-axis and the Y-axis base is mounted to the sliders on the two axes. (The Y-axis slider moves horizontally.)

### ② Select the line that satisfies both the required Y-axis (Z-axis) stroke and load capacity, and then follow that line to the next column on right. (Fields with a "-" indicate that this particular configuration is not supported.)

### ③ Check the X-axis stroke.

If the condition is not satisfied, go down to the line below and select a larger type.

### ④ Select the desired speed.

### ⑤ You have selected the type that satisfies all your desired conditions.

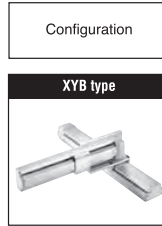
Refer to page 43 for the X/Y-axis configuration directions.

Select the X/Y-axis and Z-axis wiring specifications from the following two options:

SC : Self-standing cable  
CT : Cable track

\* Refer to page 45.

①

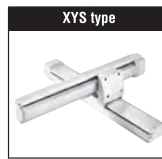


Configuration

XYB type

②

Configuration	Y-axis stroke (mm)						
	100	200	300	400	500	600	700
Load capacity (kg)	5.2	4.5	3.8	3.1	-	-	-
	18.2	16.6	12.1	8.1	-	-	-
	12.0	11.8	11.1	-	-	-	-
	25.0	-	21.8	-	-	-	-
	20.0	-	-	18.7	-	-	-
	28.8	27.8	26.8	21.8	18.7	-	-
	20.0	-	-	18.7	-	-	-
	-	40.0	33.0	27.3	22.9	19.3	-
	-	51.2	40.5	33.0	27.3	22.9	19.3
	-	40.0	33.0	27.3	22.9	19.3	-



XYS type

Configuration	Y-axis stroke (mm)						
	100	200	300	400	500	600	700
Load capacity (kg)	6.2	5.5	4.8	4.1	-	-	-
	19.2	14.3	9.3	6.4	-	-	-
	9.7	8.7	7.7	6.7	5.6	-	-
	29.7	29.1	19.3	13.6	9.7	-	-
	29.2	28.2	19.3	13.6	9.7	-	-
	-	-	20.7	18.2	12.5	8.4	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-



XZ type

Configuration	Z-axis stroke (mm)						
	100	200	300	400	500	600	700
Load capacity (kg)	4.0	3.3	2.6	-	-	-	-
	10.0	7.5	6.0	-	-	-	-
	8.5	7.5	6.5	5.5	-	-	-
	19.0	17.0	14.0	12.0	-	-	-
	19.0	16.0	13.0	11.0	-	-	-
	19.0	16.0	13.0	11.0	-	-	-
	22.0	18.0	16.0	12.0	10.0	-	-
	22.0	18.0	16.0	12.0	10.0	-	-
	-	-	-	-	-	-	-



YZ type

Configuration	Z-axis stroke (mm)						
	100	200	300	400	500	600	700
Load capacity (kg)	3.0	2.3	1.6	-	-	-	-
	11.0	10.3	9.6	-	-	-	-
	11.9	10.9	9.9	8.9	-	-	-
	13.1	12.1	11.1	10.1	-	-	-
	27.0	25.5	23.9	22.3	20.7	-	-
	-	-	-	-	-	-	-



XYG type

Configuration	Y-axis stroke (mm)	
	500 ~ 700	800 ~ 1200
Load capacity (kg)	40.0	-
	-	40.0



**Caution**

□□The maximum speed of some long-stroke types (indicated by \*) □□has been reduced to prevent the ball screw □□ from reacting a dangerous speed □□once the desired type □□has been selected □□  
 □□Check the actual speed specification on the page corresponding to the selected type □□

③

④

⑤ Applicable type

X-axis stroke (mm)	Maximum speed (X-axis/Y-axis) (mm/sec)	Configuration type	Page
100 ~ 600	800/800	BA□ H	
100 ~ 600	400/400	BA□ M	
200 ~ 800	*1000/800	BB□ H	
200 ~ 800	*500/400	BB□ M	
200 ~ 800	*1000/1000	BC□ H	
200 ~ 800	*500/500	BC□ M	
800 ~ 2000	*1000/1000	BD□ H	
300 ~ 1000	*1000/1000	BE□ H	
300 ~ 1000	*500/500	BE□ M	
1000 ~ 2500	*1000/1000	BF□ H	

BK □ H  
 BK □ M  
 BL □ H  
 BL □ M  
 BP □ H  
 BP □ M  
 BQ □ H  
 BQ □ M

X-axis stroke (mm)	Maximum speed (X-axis/Y-axis) (mm/sec)	Configuration type	Page
100 ~ 600	800/800	SA□ H	
100 ~ 600	400/400	SA□ M	
200 ~ 800	*1000/1000	S1C□ H	
200 ~ 800	*500/500	S1C□ M	
200 ~ 800	*1000/1000	S2C□ H	
300 ~ 800	1000/1000	SG□ H	

X-axis stroke (mm)	Maximum speed (X-axis/Z-axis) (mm/sec)	Configuration type	Page
100 ~ 600	800/400	ZAH	
100 ~ 600	400/200	ZAM	
200 ~ 800	*1000/500	Z1CH	
200 ~ 800	*500/250	Z1CM	
200 ~ 800	*1000/500	Z2CH	
800 ~ 2000	*1000/500	ZDH	
200 ~ 800	1000/500	ZGH	
1000 ~ 2500	*1000/500	ZHH	

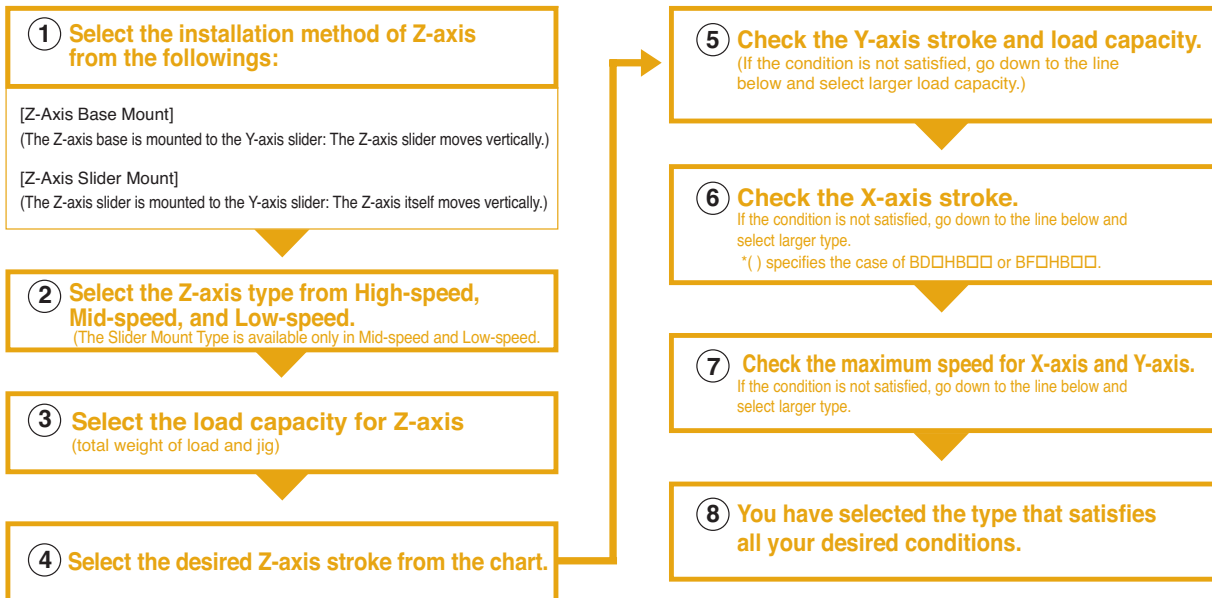
Y-axis stroke (mm)	Maximum speed (Y-axis/Z-axis) (mm/sec)	Configuration type	Page
100 ~ 400	800/400	YAH	
100 ~ 400	400/200	YAM	
200 ~ 700	1000/500	YCH	
200 ~ 700	*500/250	YCM	
200 ~ 700	1000/500	YGH	

X-axis stroke (mm)	Maximum speed (X-axis/Y-axis) (mm/sec)	Configuration type	Page
1000 ~ 2500	*1000/1000	G1JH	
1000 ~ 2500	*1000/1000	G2JH	



# Cartesian Robots Series Three-Axes Configuration Unit Selection Table

**How to Select a Unit (Explanation of the Table)** Start from ① and move toward right as you confirm each condition to select a desired type.



Refer to page 45 for the X/Y-Axis configuration directions.  
 Select the X/Y-Axis and Z-Axis wiring specifications from the two options to the right.  
 Only cable track is available for X/Y-Axis type D, F, 1J, and 2J.  
 Only Self-standing cable is available for Z-Axis Slider Mount Type.  
 We can also build custom configurations not currently represented in the standard range.  
 Please contact us regarding your specifications.

SC: Self-standing cable  
 CT: Cable track

\* Refer to page 241.

## [ Z-Axis Base Mount ] ①

Z-Axis Speed Type	Z-Axis				Y-Axis Stroke (mm)								
	Load Capacity	Stroke (mm)			100	200	300	400	500	600	700	800~1200	
High-Speed Type 800~1000 mm/sec	3kg or less	100~300	→	Load Capacity (kg)	3.0				-	-	-	-	
		100~400			3.0				-	-	-		
		100~500			-	3.0				-	-	-	
		100~600			-	-	-	-	3.0		-	-	
		100~600			-	-	-	-	-	-	-	3.0	
	9kg or less	100	→	Load Capacity (kg)	9.0				-	-	-	-	
		200			9.0				-	-	-	-	
		300			9.0	8.4	-	-	-	-	-		
		400			-	9.0				-	-	-	
		500			8.6	7.3	-	-	-	-	-		
		1000~600			-	9.0				7.9	-	-	
					7.6	6.3	-	-	-	-	-		
					-	9.0				6.9	-	-	
					-	9.0				5.8	-	-	
	-	-	-	-	9.0		-	-	-				
	-	-	-	-	-	-	-	-	9.0				

**Example of Selection**

**Conditions**

The Z-Axis is subject to base mount.  
 Allowable tip load : 2kg  
 Speed : 800mm/sec or more  
 Z-Axis Stroke : 200mm  
 Y-Axis Stroke : 500mm  
 X-Axis Stroke : 700MM

- ① Select the chart of [Z-Axis Base Mount Type].
- ② Select ""High-speed"" type since the desired speed is 800mm/sec."
- ③ Select "3kg or less" since the load capacity is 2kg."
- ④ Move the line for 100~300 to the right since Z-Axis stroke is 200mm.
- ⑤ The crossed column for Z-Axis stroke 100~300mm and Y-Axis stroke 500mm reads "----" (Not applicable), so apply the line below. Since the Y-Axis stroke on the line covers 500mm, shift to the right."
- ⑥ The X-Axis stroke is applicable up to 800mm, so shift to the right."
- ⑦ The maximum speed for X-Axis/ Y Axis is 1000mm/sec and satisfy the condition. Shift to the right.
- ⑧ As a result, Unit Type [BC□HB1H] is the selected suitable model."

**Note** The numbers in ( ) in X-Axis stroke in the chart below are for models in ( ) listed in Applicable Type's configuration type.  
 Example: If the X-Axis stroke in the above example is 1000mm, configuration Applicable Type will be [BD□HB1H].

⑥ \*( ) is for the type BD□HB□□ or BF□HB□□.

⑦

⑧ Applicable Type

	X-Axis Stroke		Maximum Speed (X-axis / Y-axis)		Configuration Type	Page
	(mm)		(mm/sec)			
→	200~800		1000/800	→	ICSA [ICSPA] 3-BB□HB1H	
	200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB1H (BD□HB1H)	
	300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB1H (BF□HB1H)	
	1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB1H	
→	1000~2500		1000/1000	→	ICSA [ICSPA] 3-G2JHB1H	
	200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3H (BD□HB3H)	
	300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3H (BF□HB3H)	
	200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3H (BD□HB3H)	
	300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3H (BF□HB3H)	
	200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3H (BD□HB3H)	
	300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3H (BF□HB3H)	
	200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3H (BD□HB3H)	
	300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3H (BF□HB3H)	
	200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3H (BD□HB3H)	
	300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3H (BF□HB3H)	
	1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3H	
			1000/1000		ICSA [ICSPA] 3-G2JHB3H	

[ Z-Axis Base Mount ] ①

Z-Axis Speed Type	Z-Axis			Y-Axis Stroke (mm)								
	Load Capacity	Stroke (mm)		100	200	300	400	500	600	700	800-1200	
Mid-Speed Type 400-500 mm/sec	6kg or less	100	→	6.0				2.9	-	-	-	-
				6.0				5.9	-	-	-	-
		6.0				-	-	-	-	-		
		6.0				2.3	-	-	-	-		
		6.0				5.3	-	-	-	-		
		6.0				-	-	-	-	-		
		6.0				5.7	1.7	-	-	-		
		6.0				5.4	4.7	-	-	-		
	6.0				-	-	-	-	-			
	6.0				-	-	-	-	-			
	-				6.0				-	-		
	-				-	-	-	6.0		-		
	-				-	-	-	-	-	6.0		
	9kg or less	100	→	9.0				-	-	-	-	
				9.0				-	-	-	-	
		9.0				-	-	-	-			
		9.0				8.4	-	-	-			
		9.0				-	-	-	-			
		8.6				7.3	-	-	-			
		9.0				-	-	7.9	-			
		7.6				6.3	-	-	-			
	9.0				-	-	6.9	-				
	9.0				-	-	5.8	-				
	-				-	-	9.0		-			
	-				-	-	-	-	9.0			
	19kg or less	100	→	10.7				9.4	-	-	-	
				19.0	18.5	17.5	12.5	9.4	-	-	-	
				-	19.0			18.0	13.6	10.0	-	
				-	-	-	-	19.0			-	
		9.7				8.4	-	-	-			
18.5		17.5	16.5	11.5	8.4	-	-	-				
-		19.0			17.0	12.6	9.0	-				
-		-	-	-	19.0			-				
-		-	-	-	-	-	-	19.0				
8.6				7.3	-	-	-					
17.4		16.4	15.4	10.4	7.3	-	-	-				
-		19.0			15.9	11.5	7.9	-				
-		-	-	-	19.0			-				
7.6				6.3	-	-	-					
16.4	15.4	14.4	9.4	6.3	-	-	-					
-	19.0			14.9	10.5	6.9	-					
-	-	-	-	18.7			-					
-	-	-	-	-	-	-	18.7					
-	19.0			13.8	9.4	5.8	-					
-	-	-	-	17.6			-					
-	-	-	-	-	-	-	17.6					
-	-	-	-	16.6			-					
-	-	-	-	-	-	-	16.6					

6 * ( ) is for the type BD□HB□□ or BF□HB□□.		7		8 Applicable Type	
X-Axis Stroke		Maximum Speed (X-axis / Y-axis)		Configuration Type	Page
(mm)		(mm/sec)			
100~600		400/400		ICSA [ICSPA] 3-BA□MB1M	
200~800		1000/800		ICSA [ICSPA] 3-BB□HB1M	
200~800		500/400		ICSA [ICSPA] 3-BB□MB1M	
100~600		400/400		ICSA [ICSPA] 3-BA□MB1M	
200~800		1000/800		ICSA [ICSPA] 3-BB□HB1M	
200~800		500/400		ICSA [ICSPA] 3-BB□MB1M	
100~600		400/400		ICSA [ICSPA] 3-BA□MB1M	
200~800		1000/800		ICSA [ICSPA] 3-BB□HB1M	
200~800		500/400		ICSA [ICSPA] 3-BB□MB1M	
200~800		1000/1000		ICSA [ICSPA] 3-BC□HB1M (BD□HB1M)	
300~1000		1000/1000		ICSA [ICSPA] 3-BE□HB1M (BF□HB1M)	
		1000/1000		ICSA [ICSPA] 3-G1JHB1M	
1000~2500		1000/1000		ICSA [ICSPA] 3-G2JHB1M	
200~800		500/400		ICSA [ICSPA] 3-BB□MB2M	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB2M (BD□HB2M)	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2M (BF□HB2M)	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB2M (BD□HB2M)	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2M (BF□HB2M)	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB2M (BD□HB2M)	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2M (BF□HB2M)	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB2M (BD□HB2M)	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2M (BF□HB2M)	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB2M (BD□HB2M)	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2M (BF□HB2M)	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB2M	
		1000/1000		ICSA [ICSPA] 3-G2JHB2M	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3M (BD□HB3M)	
200~800		500/500		ICSA [ICSPA] 3-BC□MB3M	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3M (BF□HB3M)	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3M	
		1000/1000		ICSA [ICSPA] 3-G2JHB3M	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3M (BD□HB3M)	
200~800		500/500		ICSA [ICSPA] 3-BC□MB3M	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3M (BF□HB3M)	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3M	
		1000/1000		ICSA [ICSPA] 3-G2JHB3M	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3M (BD□HB3M)	
200~800		500/500		ICSA [ICSPA] 3-BC□MB3M	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3M (BF□HB3M)	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3M	
		1000/1000		ICSA [ICSPA] 3-G2JHB3M	
200~800 (800~2000)		1000/1000		ICSA [ICSPA] 3-BC□HB3M (BD□HB3M)	
200~800		500/500		ICSA [ICSPA] 3-BC□MB3M	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3M (BF□HB3M)	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3M	
		1000/1000		ICSA [ICSPA] 3-G2JHB3M	
300~1000 (1000~2500)		1000/1000		ICSA [ICSPA] 3-BE□HB3M (BF□HB3M)	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3M	
		1000/1000		ICSA [ICSPA] 3-G2JHB3M	
1000~2500		1000/1000		ICSA [ICSPA] 3-G1JHB3M	
		1000/1000		ICSA [ICSPA] 3-G2JHB3M	

[ Z-Axis Base Mount ] ①

Z-Axis Speed Type	Z-Axis			Y-Axis Stroke (mm)									
	Load Capacity	Stroke (mm)		100	200	300	400	500	600	700	800-1200		
Low-Speed Type 200-250 mm/sec	14kg or less	100	Load Capacity (kg)	13.0	11.4	6.9	2.9	-	-	-	-	-	-
				7.1	6.9	6.2	-	-	-	-	-		
				14.0	-	-	-	-	-	-	-		
				14.0	13.5	-	-	-	-	-	-		
				-	14.0	-	-	-	-	-	-		
				12.4	10.8	6.3	2.3	-	-	-	-	-	-
				6.1	5.9	5.2	-	-	-	-	-	-	-
		14.0		-	-	-	-	-	-	-	-	-	
		14.0		12.9	-	-	-	-	-	-	-	-	
		-		14.0	13.5	-	-	-	-	-	-	-	
		11.8		10.2	5.7	1.7	-	-	-	-	-	-	
		5.6		5.4	4.7	-	-	-	-	-	-	-	
		14.0		-	-	-	-	-	-	-	-	-	
		14.0		12.3	-	-	-	-	-	-	-	-	
	-	14.0	12.9	-	-	-	-	-	-	-			
	13.5	11.7	-	-	-	-	-	-	-	-			
	-	14.0	12.3	-	-	-	-	-	-	-			
	-	14.0	11.7	-	-	-	-	-	-	-			
	-	-	-	-	14.0	-	-	-	-	-			
	-	-	-	-	-	-	-	-	-	14.0			
	19kg or less	100	Load Capacity (kg)	15.9	12.7	-	-	-	-	-	-	-	
				10.7	9.4	-	-	-	-	-	-		
				19.0	18.5	17.5	12.5	9.4	-	-	-	-	
				-	19.0	18.0	13.6	10.0	-	-	-	-	
				-	-	-	-	19.0	-	-	-	-	
				-	-	-	-	-	-	-	-	19.0	
				14.6	11.4	-	-	-	-	-	-	-	
		9.7		8.4	-	-	-	-	-	-	-		
18.5		17.5		16.5	11.5	8.4	-	-	-	-			
-		19.0		17.0	12.6	9.0	-	-	-	-			
-		-		-	-	19.0	-	-	-	-			
-		-		-	-	-	-	-	-	19.0			
13.8		10.6		-	-	-	-	-	-	-			
8.6		7.3		-	-	-	-	-	-	-			
17.4	16.4	15.4	10.4	7.3	-	-	-	-					
-	19.0	15.9	11.5	7.9	-	-	-	-					
-	-	-	-	19.0	-	-	-	-					
-	-	-	-	-	-	-	-	19.0					
12.8	9.6	-	-	-	-	-	-	-					
7.6	6.3	-	-	-	-	-	-	-					
16.4	15.4	14.4	9.4	6.3	-	-	-	-					
-	19.0	14.9	10.5	6.9	-	-	-	-					
-	-	-	-	18.7	-	-	-	-					
-	-	-	-	-	-	-	-	18.7					
-	19.0	13.8	9.4	5.8	-	-	-	-					
-	-	-	-	17.6	-	-	-	-					
-	-	-	-	-	-	-	-	17.6					
-	-	-	-	16.6	-	-	-	-					
-	-	-	-	-	-	-	-	16.6					

6 * ( ) is for the type BD□HB□□ or BF□HB□□.		7		8 Applicable Type	
X-Axis Stroke		Maximum Speed (X-axis / Y-axis)		Configuration Type	Page
(mm)		(mm/sec)			
100-600		400/400		ICSA [ICSPA] 3-BA□MB1L	
200-800		1000/1000		ICSA [ICSPA] 3-BB□HB1L	
200-800		500/400		ICSA [ICSPA] 3-BB□MB1L	
200-800 (800-2000)		1000/1000		ICSA [ICSPA] 3-BC□HB1L (BD□HB1L)	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB1L (BF□HB1L)	
100-600		400/400		ICSA [ICSPA] 3-BA□MB1L	
200-800		1000/1000		ICSA [ICSPA] 3-BB□HB1L	
200-800		500/400		ICSA [ICSPA] 3-BB□MB1L	
200-800 (800-2000)		1000/1000		ICSA [ICSPA] 3-BC□HB1L (BD□HB1L)	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB1L (BF□HB1L)	
100-600		400/400		ICSA [ICSPA] 3-BA□MB1L	
200-800		1000/1000		ICSA [ICSPA] 3-BB□HB1L	
200-800		500/400		ICSA [ICSPA] 3-BB□MB1L	
200-800 (800-2000)		1000/1000		ICSA [ICSPA] 3-BC□HB1L (BD□HB1L)	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB1L (BF□HB1L)	
200-800		1000/1000		ICSA [ICSPA] 3-BC□HB1L (BD□HB1L)	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB1L (BF□HB1L)	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB1L (BF□HB1L)	
1000-2500		1000/1000		ICSA [ICSPA] 3-G1JHB1L	
1000-2500		1000/1000		ICSA [ICSPA] 3-G2JHB1L	
200-800		1000/1000		ICSA [ICSPA] 3-BB□MB2L	
200-800 (800-2000)		500/500		ICSA [ICSPA] 3-BC□HB2L (BD□HB2L)	
200-800		1000/1000		ICSA [ICSPA] 3-BC□MB2L	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2L (BF□HB2L)	
1000-2500		1000/1000		ICSA [ICSPA] 3-G1JHB2L	
1000-2500		500/400		ICSA [ICSPA] 3-G2JHB2L	
200-800		1000/1000		ICSA [ICSPA] 3-BB□MB2L	
200-800		500/500		ICSA [ICSPA] 3-BC□HB2L (BD□HB2L)	
200-800		1000/1000		ICSA [ICSPA] 3-BC□MB2L	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2L (BF□HB2L)	
1000-2500		1000/1000		ICSA [ICSPA] 3-G1JHB2L	
1000-2500		500/400		ICSA [ICSPA] 3-G2JHB2L	
200-800		1000/1000		ICSA [ICSPA] 3-BB□MB2L	
200-800 (800-2000)		500/500		ICSA [ICSPA] 3-BC□HB2L (BD□HB2L)	
200-800		1000/1000		ICSA [ICSPA] 3-BC□MB2L	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2L (BF□HB2L)	
1000-2500		1000/1000		ICSA [ICSPA] 3-G1JHB2L	
1000-2500		1000/1000		ICSA [ICSPA] 3-G2JHB2L	
300-1000 (1000-2500)		1000/1000		ICSA [ICSPA] 3-BE□HB2L (BF□HB2L)	
1000-2500		1000/1000		ICSA [ICSPA] 3-G1JHB2L	
1000-2500		1000/1000		ICSA [ICSPA] 3-G2JHB2L	
1000-2500		1000/1000		ICSA [ICSPA] 3-G1JHB2L	
1000-2500		1000/1000		ICSA [ICSPA] 3-G2JHB2L	

[ Z-Axis Slider Mount ] ①

Z-Axis Speed Type	Z-Axis			Y-Axis Stroke (mm)								
	Load Capacity	Stroke (mm)		100	200	300	400	500	600	700	800-1200	
Mid-Speed Type 400-500 mm/sec	3kg or less	100	→	3.0				-	-	-	-	-
				3.0				-	-	-	-	-
				3.0				-	-	-	-	-
				3.0				-	-	-	-	-
				3.0				-	-	-	-	-
				3.0				-	-	-	-	-
		3.0				-	-	-	-	-		
		3.0				-	-	-	-	-		
		3.0				-	-	-	-	-		
		3.0				-	-	-	-	-		
		3.0				-	-	-	-	-		
		3.0				-	-	-	-	-		
	200	2.3				-	-	-	-	-		
		2.3				-	-	-	-	-		
		2.3				-	-	-	-	-		
		2.3				-	-	-	-	-		
		2.3				-	-	-	-	-		
		2.3				-	-	-	-	-		
	300	1.6				-	-	-	-	-		
		1.6				-	-	-	-	-		
		1.6				-	-	-	-	-		
		1.6				-	-	-	-	-		
		1.6				-	-	-	-	-		
		1.6				-	-	-	-	-		
400	0.9				-	-	-	-	-			
	0.9				-	-	-	-	-			
	0.9				-	-	-	-	-			
	0.9				-	-	-	-	-			
	0.9				-	-	-	-	-			
	0.9				-	-	-	-	-			
12kg or less	100	→	10.0				8.7	-	-	-		
			11.9				-	10.5	-	-		
			11.9				-	-	-	-		
			11.9				-	-	-	-		
			11.9				-	-	-	-		
			11.9				-	-	-	-		
	200		9.0				7.7	-	-	-		
			10.9				-	9.5	-	-		
			10.9				-	-	-	-		
			10.9				-	-	-	-		
			10.9				-	-	-	-		
			10.9				-	-	-	-		
300	8.0				6.7	-	-	-				
	9.9				-	8.5	-	-				
	9.9				-	-	-	-				
	9.9				-	-	-	-				
	9.9				-	-	-	-				
	9.9				-	-	-	-				
400	8.9				-	7.5	-	-				
	8.9				-	-	-	-				
	8.9				-	-	-	-				
	8.9				-	-	-	-				
	8.9				-	-	-	-				
	8.9				-	-	-	-				
500	7.8				-	19.0	-	-				
	7.8				-	-	-	-				
	7.8				-	-	-	-				
	7.8				-	-	-	-				
	7.8				-	-	-	-				
	7.8				-	-	-	-				

6 ( ) is for the type BD□HB□□ or BF□HB□□.		7		8 Applicable Type	
X-Axis Stroke		Maximum Speed (X-axis / Y-axis)		Configuration Type	Page
(mm)		(mm/sec)			
100~600 200~800 200~800 200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 100~600 200~800 200~800 200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 100~600 200~800 200~800 200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 300~1000 (1000~2500) 1000~2500	→	→	→	ICSA [ICSPA] 3-BA□MS1M	
				ICSA [ICSPA] 3-BB□HS1M	
				ICSA [ICSPA] 3-BB□MS1M	
				ICSA [ICSPA] 3-BC□HS1M (BD□HS1M)	
				ICSA [ICSPA] 3-BE□HS1M (BF□HS1M)	
				ICSA [ICSPA] 3-G1JHS1M	
				ICSA [ICSPA] 3-G2JHS1M	
				ICSA [ICSPA] 3-BA□MS1M	
				ICSA [ICSPA] 3-BB□HS1M	
				ICSA [ICSPA] 3-BB□MS1M	
				ICSA [ICSPA] 3-BC□HS1M (BD□HS1M)	
				ICSA [ICSPA] 3-BE□HS1M (BF□HS1M)	
				ICSA [ICSPA] 3-G1JHS1M	
				ICSA [ICSPA] 3-G2JHS1M	
				ICSA [ICSPA] 3-BA□MS1M	
				ICSA [ICSPA] 3-BB□HS1M	
				ICSA [ICSPA] 3-BB□MS1M	
				ICSA [ICSPA] 3-BC□HS1M (BD□HS1M)	
ICSA [ICSPA] 3-BE□HS1M (BF□HS1M)					
ICSA [ICSPA] 3-G1JHS1M					
ICSA [ICSPA] 3-G2JHS1M					
ICSA [ICSPA] 3-G2JHS1M					
200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 200~800 (800~2000) 300~1000 (1000~2500) 1000~2500 300~1000 (1000~2500) 1000~2500 300~1000 (1000~2500) 1000~2500	→	→	→	ICSA [ICSPA] 3-BC□HS3M (BD□HS3M)	
				ICSA [ICSPA] 3-BE□HS3M (BF□HS3M)	
				ICSA [ICSPA] 3-G1JHS3M	
				ICSA [ICSPA] 3-G2JHS3M	
				ICSA [ICSPA] 3-BC□HS3M (BD□HS3M)	
				ICSA [ICSPA] 3-BE□HS3M (BF□HS3M)	
				ICSA [ICSPA] 3-G1JHS3M	
				ICSA [ICSPA] 3-G2JHS3M	
				ICSA [ICSPA] 3-BC□HS3M (BD□HS3M)	
				ICSA [ICSPA] 3-BE□HS3M (BF□HS3M)	
				ICSA [ICSPA] 3-G1JHS3M	
				ICSA [ICSPA] 3-G2JHS3M	
				ICSA [ICSPA] 3-BC□HS3M (BD□HS3M)	
				ICSA [ICSPA] 3-BE□HS3M (BF□HS3M)	
				ICSA [ICSPA] 3-G1JHS3M	
				ICSA [ICSPA] 3-G2JHS3M	
				ICSA [ICSPA] 3-G1JHS3M	
				ICSA [ICSPA] 3-G2JHS3M	
ICSA [ICSPA] 3-G1JHS3M					
ICSA [ICSPA] 3-G2JHS3M					



[ Z-Axis Slider Mount ] ①

Z-Axis Speed Type	Z-Axis		Load Capacity (kg)	Y-Axis Stroke (mm)							
	Load Capacity	Stroke (mm)		100	200	300	400	500	600	700	800~1200
	Low-Speed Type 400~500 mm/sec	11 kg or less		100	→	11.0	7.6	3.6	-	-	-
7.2			7.0			6.3	-	-	-	-	
11.0			-			-	-	-			
11.0			-			-	-	-			
-						11.0			-		
-						11.0			-		
-				-			11.0				
200			10.3	6.9		2.9	-	-	-	-	
			6.5	6.3		5.6	-	-	-	-	
			10.3			-	-	-	-		
			10.3			-	-	-	-		
			-				10.3			-	
		-				10.3			-		
		-				-			10.3		
		300	9.6	6.2		2.2	-	-	-	-	
5.8			5.6	4.9		-	-	-	-		
9.6			-	-		-	-				
9.6			-	-		-	-				
-				9.6			-				
-				9.6			-				
-				-			9.6				
400	-			8.9			-				
	-			8.9			-				
	-			-			8.9				
	-			-			8.9				

6 * ( ) is for the type BD□HS□□ or BF□HS□□.		7		8 Applicable Type	
X-Axis Stroke		Maximum Speed (X-axis / Y-axis)		Configuration Type	Page
(mm)		(mm/sec)			
100~600		400~400		ICSA [ICSPA] 3-BA□MS1L	
200~800		1000~800		ICSA [ICSPA] 3-BB□HS1L	
200~800		500~400		ICSA [ICSPA] 3-BB□MS1L	
200~800 (800~2000)		1000~1000		ICSA [ICSPA] 3-BC□HS1L (BD□HS1L)	
300~1000 (1000~2500)		1000~1000		ICSA [ICSPA] 3-BE□HS1L (BF□HS1L)	
1000~2500		1000~1000		ICSA [ICSPA] 3-G1JHS1L	
		1000~1000		ICSA [ICSPA] 3-G2JHS1L	
100~600		400~400		ICSA [ICSPA] 3-BA□MS1L	
200~800		1000~800		ICSA [ICSPA] 3-BB□HS1L	
200~800		500~400		ICSA [ICSPA] 3-BB□MS1L	
200~800 (800~2000)		1000~1000		ICSA [ICSPA] 3-BC□HS1L (BD□HS1L)	
300~1000 (1000~2500)		1000~1000		ICSA [ICSPA] 3-BE□HS1L (BF□HS1L)	
1000~2500		1000~1000		ICSA [ICSPA] 3-G1JHS1L	
		1000~1000		ICSA [ICSPA] 3-G2JHS1L	
100~600		400~400		ICSA [ICSPA] 3-BA□MS1L	
200~800		1000~800		ICSA [ICSPA] 3-BB□HS1L	
200~800		500~400		ICSA [ICSPA] 3-BB□MS1L	
200~800 (800~2000)		1000~1000		ICSA [ICSPA] 3-BC□HS1L (BD□HS1L)	
300~1000 (1000~2500)		1000~1000		ICSA [ICSPA] 3-BE□HS1L (BF□HS1L)	
1000~2500		1000~1000		ICSA [ICSPA] 3-G1JHS1L	
		1000~1000		ICSA [ICSPA] 3-G2JHS1L	
300~1000 (1000~2500)		1000~1000		ICSA [ICSPA] 3-BE□HS1L (BF□HS1L)	
1000~2500		1000~1000		ICSA [ICSPA] 3-G1JHS1L	
		1000~1000		ICSA [ICSPA] 3-G2JHS1L	

X-Y Two-Axes Configuration

ICSA2(ICSPA2)-BK□ H	87
ICSA2(ICSPA2)-BK□ M	89
ICSA2(ICSPA2)-BL□ H	91
ICSA2(ICSPA2)-BL□ M	93
ICSA2(ICSPA2)-BP□ H	95
ICSA2(ICSPA2)-BP□ M	97
ICSA2(ICSPA2)-BQ□ H	99
ICSA2(ICSPA2)-BQ□ M	101

Check out the New Models!

Notes on Catalog Specifications

**Speed**

**"Speed"** refers to the specified speed at which the actuator slider will move. The slider accelerates from a stationary state, and once the specified speed is reached it will maintain that speed until the specified position (immediately before the target position), where it will begin decelerating to stop at the target position.

**< Caution >**

- ① With all Cartesian robot models, the maximum speed will not change even when the load placed on the slider is changed.
- ② The time needed to reach the specified speed will vary according to the acceleration (deceleration).
- ③ If the travel distance is short, the specified speed may not be reached.
- ④ With a long-stroke axis, the maximum speed will drop to avoid reaching a dangerous speed.  
(If you are using a 600 or longer stroke, check the maximum speed for the applicable stroke.)
- ⑤ When calculating the travel time, consider acceleration, deceleration and stabilization periods in addition to the travel time at the specified speed. (Refer to pages 39 and 40 for the method to calculate travel time.)
- ⑥ Speed can be set in increments of 1 mm/sec in a program.

**Acceleration/Deceleration**

**"Acceleration"** refers to the rate of change of speed when the speed rises from zero (stationary state) to the specified speed. **"Deceleration"** refers to the rate of change of speed when the specified speed drops to zero (stationary state).

**< Caution >**

- ① Increasing the acceleration (deceleration) will shorten the duration the actuator accelerates (decelerates) and decrease the travel time. However, doing so will also cause rapid acceleration (deceleration), resulting in increased shock.
- ② The load capacity of each type assumes operation at the rated acceleration and maximum speed.  
(The rated acceleration is 0.3 G for the standard type and 0.15 G when the lead is 4 or 5 mm.)
- ③ The ICSA2/ICSPA2 supports a maximum acceleration of 1.0 G.  
The load capacity will decrease when the specified acceleration is increased beyond the rated acceleration.  
For the load capacity at a raised acceleration, refer to the table of load capacity by acceleration corresponding to each actuator type.
- ④ Acceleration can be set (specified) in increments of 0.01 G for each position movement in a program.

**Positioning Repeatability**

**"Positioning repeatability"** refers to the positioning accuracy of repeated movements to a pre-stored position. This is not the same as "absolute positioning accuracy," so exercise caution.

**Home**

The home is set on the motor side for the standard specification, or on the counter-motor side for the reversed-home specification.

**< Caution >**

- The incremental actuator always requires homing every time the power is reconnected. (Homing is not required for the absolute type even after reconnecting the power.)
- During homing the slider (or rod or arm) will move to the mechanical end before reversing, so be careful to prevent contact with surrounding parts.
- Note that changing the home position from the standard to reverse homing specification will require the actuator to be returned to IAI for adjustment.

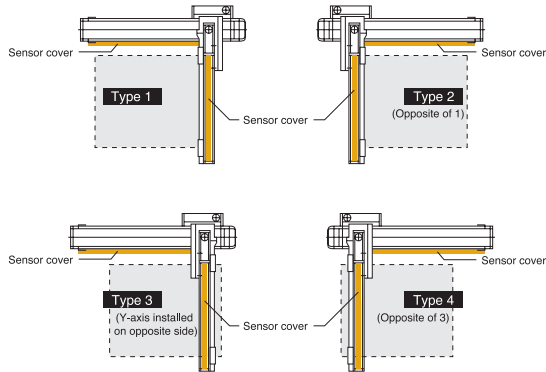
**Duty**

IAI recommends that our actuators be used at a duty of 50% or less as a guideline in view of the relationship of service life and accuracy.

$$\text{Duty (\%)} = \frac{\text{Acceleration / Deceleration Time}}{\text{Motion time + Inactivity}} \times 100$$

# Options

If the creep sensor (C) or home limit switch (L) is specified, a sensor cover will be provided on the side face of each axis. Therefore, be careful to prevent contact between each cover and peripheral equipment. As a rule, a sensor cover is installed on the inside of the X-axis (Y-axis overhung direction), or the top side of the Y-axis. The installation position on the Z-axis will vary depending on the configuration pattern. With a single-axis robot, the option codes will change when the sensor installation position is reversed (opposite side specification). With a Cartesian robot, however, the option codes need not be changed (only C and L are available).



**[ICSA2/ICSPA2]**

\* In the standard specification the creep sensor (C) and home limit switch (L) are installed on the right side as viewed from the motor.

Configuration type	Configuration direction	X-axis installation side	Y-axis installation side	Z-axis installation side
<b>XYB</b>	<b>1</b>	Opposite side	Opposite side	—
	<b>2</b>	Standard	Standard	—
	<b>3</b>	Opposite side	Standard	—
	<b>4</b>	Standard	Opposite side	—
<b>XYs</b>	<b>1</b>	Opposite side	Standard	—
	<b>2</b>	Standard	Opposite side	—
	<b>3</b>	Opposite side	Opposite side	—
	<b>4</b>	Standard	Standard	—
<b>XZ</b>		Opposite side	—	Opposite side
<b>YZ</b>		—	Standard	Opposite side
<b>XYG</b>		Opposite side	Opposite side	—

# Cartesian Robot Series Explanation of Model Specification Items

Cartesian robot series features two-axes and three-axes.

Refer to the right page for the explanation of each model specification item.

The selection range for each item will vary depending on the actuator type. For details, refer to the page corresponding to each actuator type.

Number of axes	(1)	(2)	(3)	(4)		(5)		(6)		(7)	(8)	(9)	(10)
	Series	Type	Encoder type	Axis 1 (X-axis, Z-axis)		Axis 2 (X-axis, Z-axis)		Axis 3 (Z-axis)		Applicable controller	Cable length	Cable management between axis 1 and 2	Cable management between axis 2 and 3
				Stroke (cm)	Options	Stroke (cm)	Options	Stroke (cm)	Options				
2 axes	ICSA2 ICSPA2	BA□H BK□H BA□M BK□M BB□H BL□H BB□M BL□M BC□H BP□H BC□M BP□M BD□H BQ□H BE□H BQ□H BE□M BF□H SA□H SA□M S1C□H S1C□M SA□M S2C□H SG□M ZAH ZAM Z1CH Z1CM Z2CH ZDH ZGH ZHH YAH YAM YCH YCM YGH G1JH G2JH	A I	10 ~ 250	AQ B C L NM RT	10 ~ 120	AQ B C L NM RT			T1	3L 5L	CT SC	
												□ L (Custom order)	
3 axes	ICSA3 ICSPA3	BB□MB□□ BC□HB□□ BC□MB□□ BD□HB□□ BE□HB□□ BE□MB□□ BF□HB□□ G1JHB□□ G2JHB□□ BA□MS1□ BB□HS1□ BB□MS1□ BC□HS□□ BC□MS□□ BD□HS□□ BE□HS□□ BE□MS□□ BF□HS□□ G1JHS□□ G2JHS□□		10 ~ 250	AQ B C L NM RT	10 ~ 120	AQ B C L NM RT	10 ~ 60	AQ B C L NM RT				CT-CT SC-SC (CT-SC)

\* In the above model names, □ indicates the configuration direction (1 through 4) (refer to page 43).

**(1) Series**

Indicate the name of each series.

- ICSA2: ISA Two-axes configuration
- ICSPA2: ISPA Two-axes configuration
- ICSA3: ISA Three-axes configuration
- ICSPA3: ISPA Three-axes configuration

**(2) Type**

Indicate the configuration pattern, configuration direction, configuration model and speed type.

Two-Axes Configuration  $\frac{B}{(1)} \frac{B}{(2)} \frac{1}{(3)} \frac{H}{(4)}$       Three-Axes Configuration  $\frac{B}{(1)} \frac{B}{(2)} \frac{1}{(3)} \frac{H}{(4)} \frac{B}{(5)} \frac{1}{(6)} \frac{M}{(7)}$

- (1) XY-axis configuration / component type (\*1)    B:XYB Type / S: XYS Type / Z: XZ Type / Y: YZ Type / G: XYG Type
- (2) XY-axis configuration / size type            A / B / C / 1C / 2C / D / E / F / G / 1J / 2J
- (3) XY-axis configuration direction (\*2)        1 / 2 / 3 / 4
- (4) XY-axis speed type                            H: High-speed type / M: Mid-speed type
- (5) Z-axis installation type                      B: Base mounted / S: Slider mounted
- (6) Z-axis motor output                         1: 60W / 2: 100W / 3: 200W
- (7) Z-axis speed type                            H: High-speed type / M: Mid-speed type / L: Low-speed type

(\*1) B(XYB type) and G(XYG type) are available for three-axes configuration.  
 (\*2) Specify only when XY-axis configuration type is B(XYB type) or S(XYS type).

**(3) Encoder type**

Indicate whether the encoder installed in the actuator is an “absolute type” or “incremental type.”

- A: Absolute type                                    Since the current slider position will be retained after the power is turned off, homing is not required when the actuator is powered up.
- I: Incremental type                                Since the slider position data are cleared when the power is turned off, homing must be performed every time the actuator is powered up.

**(4) Axis 1 details**

Indicate the stroke of axis 1 of the two-axes configuration type, as well as an option(s) to be equipped on that axis. Enter the stroke in centimeters (e.g., 500-mm stroke → 50). When selecting multiple options, specify them in alphabetical order without a hyphen in between (e.g., AQ seal + Creep sensor + Limit switch + Reversed home specification → AQCLNM).

\* Refer to the explanation of single-axis robot models (page 13) for the details of options.

**(5) Axis 2 details**

Indicate the stroke of axis 2 of the two-axes configuration type, as well as an option(s) to be equipped on that axis. Other details are the same as above.

**(6) Axis 3 details**

Indicate the stroke of axis 3 of the three-axes configuration type, as well as an option(s) to be equipped on that axis. Other details are the same as above.

**(7) Applicable controller**

Indicate the type of controller to be used with the actuator.  
 T1: XSEL-J/K, E-Con, P-Driver  
 T2: XSEL-P/Q

**(8) Cable length**

Indicate the length of the motor/encoder cable connecting the actuator to the controller.  
 Two standard lengths of 3L (3 m) and 5L (5 m) are available. You can also specify a different length as a custom order. (Maximum length is 20m)

**(9) Cable management between axis 1 and 2**

Indicate the cable management between axis 1 and 2.  
 SC: Self-standing cable  
 CT: Cable track  
 \* The cable management between axis 1 and 2 for types below are available in cable track (CT).  
 B□□H, B□□H, B□□HB□□, B□□HB□□,  
 G1JHB□□, G2JHB□□, B□□HS□□,  
 B□□HS□□, G1JHS□□, G2JHS□□

**(10) Cable management between axis 2 and 3**

Indicate the cable management from axis 2 to axis 3.  
 SC: Self-standing cable  
 CT: Cable track  
 \* The cable management between axis 2 and 3 is basically the same as that between axis 1 and 2 except the types listed to the left.

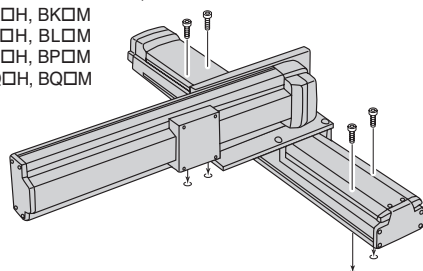
# Cartesian Robots Installation Method ICSA2/ICSPA2/ICSA3/ICSPA3

## Two-Axes Configuration

### XYB type

■ Affix the actuators using the through holes provided on the bottom surface of the X-axis.

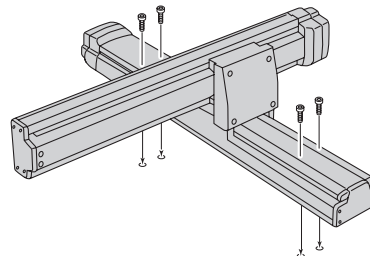
- BA□H, BA□M :  $\phi 7$  (P15 ISA-SXM Refer to the bottom plan view.)
- BB□H, BB□M :  $\phi 9$  (P18 ISA-MXM Refer to the bottom plan view.)
- BC□H, BC□M :  $\phi 9$  (P19 ISA-MXM Refer to the bottom plan view.)
- BD□H, :  $\phi 9$  (P20 ISA-MXM Refer to the bottom plan view.)
- BE□H, BE□M :  $\phi 9$  (P26 ISA-LXM Refer to the bottom plan view.)
- BF□H, :  $\phi 9$  (P28 ISA-LXM Refer to the bottom plan view.)
- BK□H, BK□M
- BL□H, BL□M
- BP□H, BP□M
- BQ□H, BQ□M



### XYs type

■ Affix the actuators using the through holes provided on the bottom surface of the X-axis.

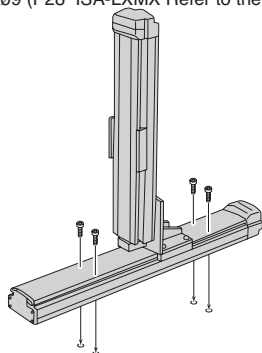
- SA□H, SA□M :  $\phi 7$  (P15 ISA-SXM Refer to the bottom plan view.)
- S1C□H, S1C□M :  $\phi 9$  (P18 ISA-MXM Refer to the bottom plan view.)
- S2C□H :  $\phi 9$  (P19 ISA-MXM Refer to the bottom plan view.)



### XZ type

■ Affix the actuators using the through holes provided on the bottom surface of the X-axis.

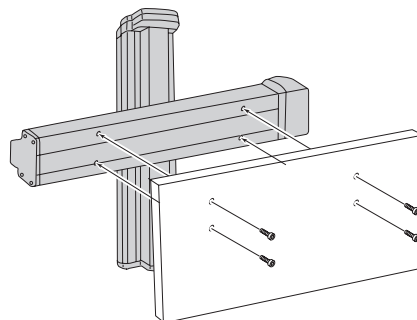
- ZAH, ZAM :  $\phi 7$  (P15 ISA-SXM Refer to the bottom plan view.)
- Z1CH, Z1CM :  $\phi 9$  (P18 ISA-MXM Refer to the bottom plan view.)
- Z2CH :  $\phi 9$  (P19 ISA-MXM Refer to the bottom plan view.)
- ZDH, :  $\phi 9$  (P20 ISA-MXM Refer to the bottom plan view.)
- ZGH :  $\phi 9$  (P26 ISA-LXM Refer to the bottom plan view.)
- ZHH :  $\phi 9$  (P28 ISA-LXM Refer to the bottom plan view.)



### YZ type

■ Affix the actuators using the threaded holes provided on the bottom surface of the actuator.

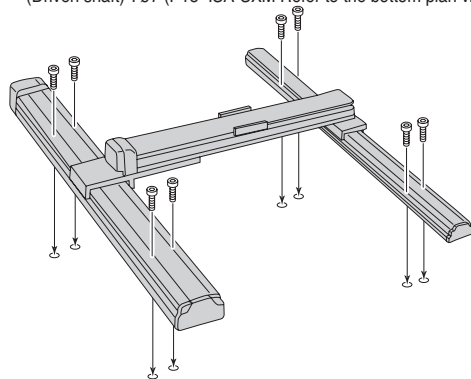
- YAH, YAM : M6 (P16 ISA-SYM Refer to the bottom plan view.)
- YCH, YCM : M8 (P22 ISA-MYM Refer to the bottom plan view.)
- YGH : M8 (P32 ISA-LYM Refer to the bottom plan view.)



### XYG type

■ Affix the actuators using the through holes provided on the bottom surface of the X-axis (driving shaft / driven shaft).

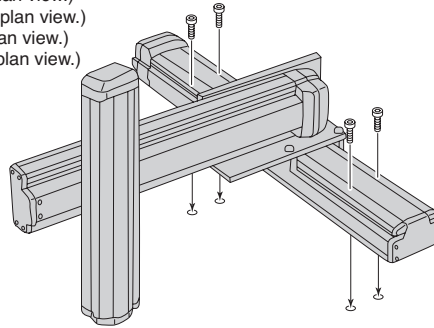
- G1JH (Driving shaft) :  $\phi 9$  (P30 ISA-LXUWX Refer to the bottom plan view.)  
(Driven shaft) :  $\phi 7$  (P15 ISA-SXM Refer to the bottom plan view.)
- G2JH (Driving shaft) :  $\phi 9$  (P30 ISA-LXUWX Refer to the bottom plan view.)  
(Driven shaft) :  $\phi 7$  (P15 ISA-SXM Refer to the bottom plan view.)



### Three-Axes Configuration

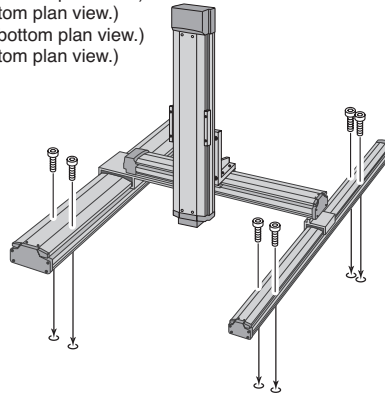
#### XYB+Z Axis type

- Affix the actuators using the through holes provided on the bottom surface of the X-axis.
- BA□MS□□ : ø7 (P15 ISA-SXM Refer to the bottom plan view.)
- BB□□□□□ : ø9 (P18 ISA-MXM Refer to the bottom plan view.)
- BC□□□□□ : ø9 (P19 ISA-MXM Refer to the bottom plan view.)
- BD□□□□□ : ø9 (P20 ISA-MXMX Refer to the bottom plan view.)
- BE□□□□□ : ø9 (P26 ISA-LXM Refer to the bottom plan view.)
- BF□□□□□ : ø9 (P28 ISA-LMX Refer to the bottom plan view.)



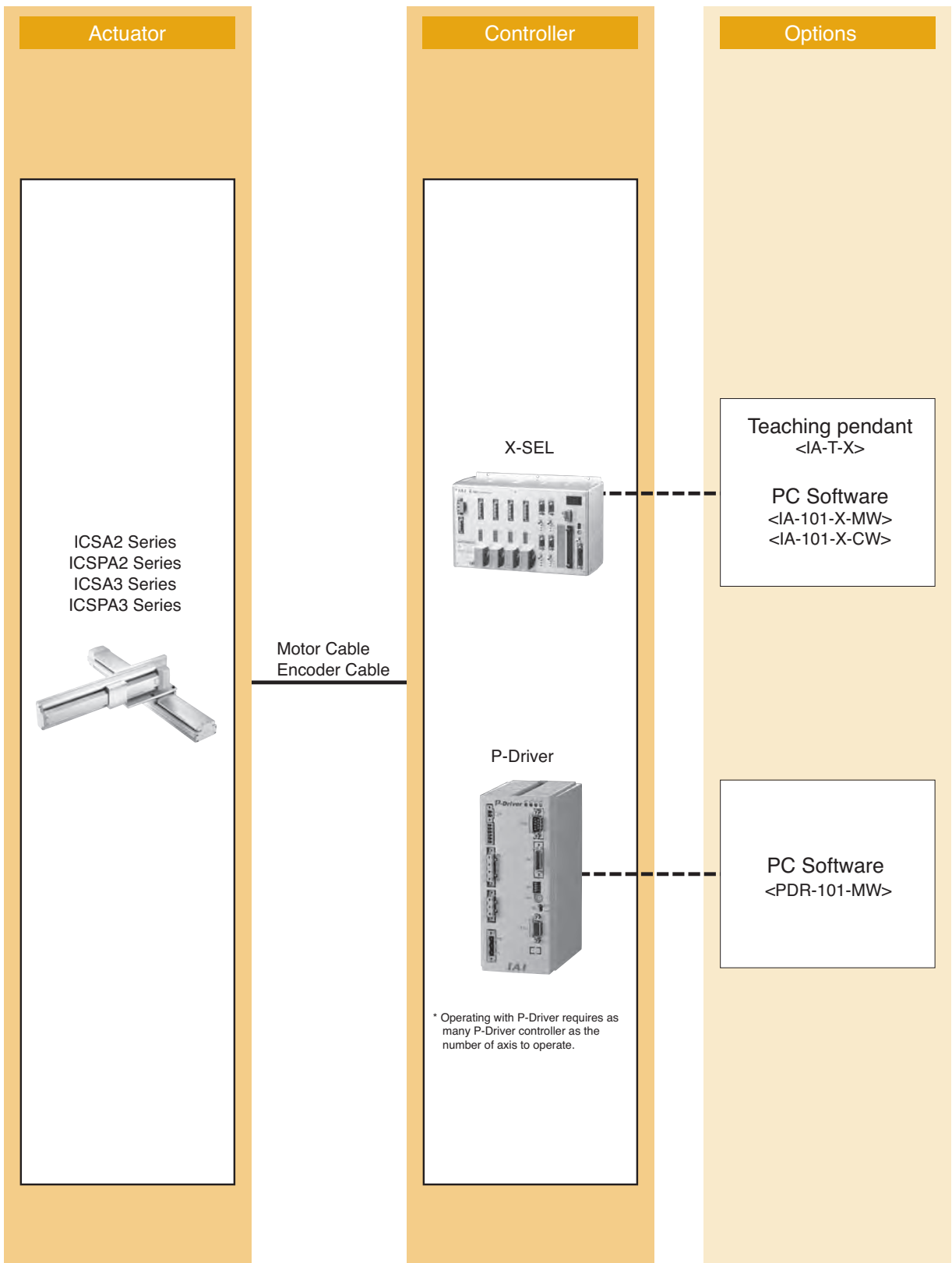
#### XYG+Z Axis type

- Affix the actuators using the through holes provided on the bottom surface of the X-axis (driving shaft / driven shaft).
- G1JH□□□ (Driving shaft) : ø9 (P30 ISA-LXUWX Refer to the bottom plan view.)  
(Driven shaft) : ø7 (P15 ISA-SXM Refer to the bottom plan view.)
- G2JH□□□ (Driving shaft) : ø9 (P30 ISA-LXUWX Refer to the bottom plan view.)  
(Driven shaft) : ø7 (P15 ISA-SXM Refer to the bottom plan view.)





# Cartesian Robots Series System Configurations



ISPA/ICSPA Catalog **66**