

# CARTESIAN 4-6 AXIS ROBOT SYSTEM

# ICSPA-BN

## Cartesian Robot 4-axis Combinations

### XMYB Type (X-axis Multi-Slider/Y-axis Base Mount)

Series	Type	Encoder type	Stroke (mm)			Payload (kg) <sup>a</sup>	Max. speed (mm/s)			Reference page
			X-axis maximum	Y-axis maximum	Z-axis maximum		X-axis	Y-axis	Z-axis	
ICSPA4 (NS+ISPA+ISPA 4-axis Combinations)	B3N1H	I/A	2250	700	—	21.2	2400	1200	—	P.341
	B3N1M	I/A	2250	700	—	40	1300	1200	—	P.343

<sup>a</sup> The payload shown is the maximum value for the rated acceleration.

## Cartesian Robot 6-axis Combinations

### XMYB+ZB Type (X-axis Multi-Slider/Y-axis Side Base Mount/Z-axis Base Mount)

Series	Type	Encoder type	Stroke (mm)			Payload (kg) <sup>a</sup>	Max. speed (mm/s) <sup>a</sup>			Reference page
			X-axis maximum	Y-axis maximum	Z-axis maximum		X-axis	Y-axis	Z-axis	
ICSPA6 (NS+ISPA+ISPA+ ISPA+ISPA 6-axis Combinations)	B3N1HB3□	I/A	2250	700	500	9/11.2	2400	1200	1200/600	P.345
	B3N1MB3□	I/A	2250	700	500	9/19	1300	1200	1200/600	P.347

<sup>a</sup> The payload shown is the maximum value for the rated acceleration. <sup>a</sup> For those with multiple lead types, the payload and maximum speed are listed in the order of high lead/medium lead/low lead.

### XMYB+ZS Type (X-axis Multi-Slider/Y-axis Side Base Mount/Z-axis Slider Mount)

Series	Type	Encoder type	Stroke (mm)			Payload (kg) <sup>a</sup>	Max. speed (mm/s)			Reference page
			X-axis maximum	Y-axis maximum	Z-axis maximum		X-axis	Y-axis	Z-axis	
ICSPA6 (NS+ISPA+ISPA+ ISPA+ISPA 6-axis Combinations)	B3N1HS3M	I/A	2250	700	400	11.5	2400	1200	600	P.349
	B3N1MS3M	I/A	2250	700	400	13	1300	1200	600	P.351

<sup>a</sup> The payload shown is the maximum value for the rated acceleration.



# ICSPA4-B3N1H

High-Precision Specification

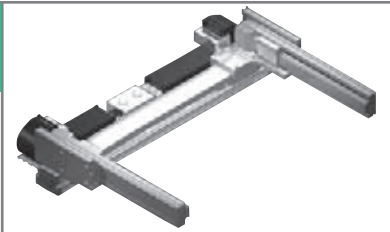


XY+XY 4-axis (NS+ISPA)

XMYB (X Multi-Slider Y Base Mount)

High Speed Type

X:Lg (400W) Y:Md (200W)



## Model Specification Items

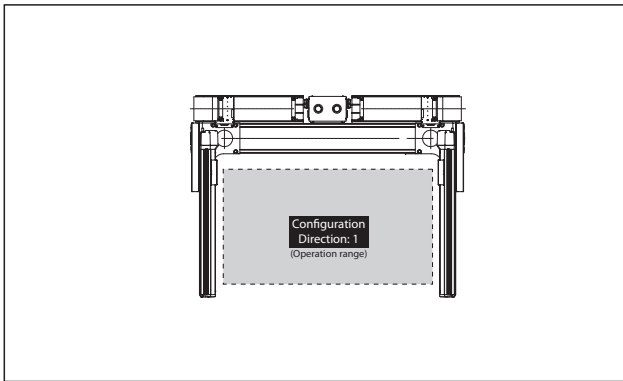
<b>Series</b> ICSPA4: High precision 4-axis (2-axis + 2-axis) specification	<b>Type</b> Refer to Model Specification table below	<b>Encoder Type</b> A: Absolute I: Incremental	<b>X-axis Stroke/Option</b> 25: 250mm 225: 2250mm (Every 50mm)	<b>Refer to Options table below.</b>	<b>Y1/Y2-axis Stroke/Option</b> 20: 200mm 70: 700mm (Every 50mm)	<b>Refer to Options table below.</b>	<b>Applicable Controllers</b> T2: SCQN XSEL-P/Q XSEL-RA/SA* * Coming soon	<b>Cable Length</b> 3L: 3m 5L: 5m □L: Specified length	<b>Y-axis Cable Management</b> CT: Cable Track
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## Model Specification

XY configuration direction *1	Model
1	ICSPA4-B3N1H-①-②-③-④-⑤-T2-⑥-⑦

\*1 Please refer to the following diagram under XY Configuration Direction. Please refer to the table on the right for details of ① through ⑦ in the model names above.

## XY Configuration Direction



## Axis Configuration

Axis configuration	Model	Reference page
X-axis	NS-LXMM-①-400-40-②-T2-③-NT1	→ Please contact IAI for more details
Y1-axis	ISPA-MYM-④-200-20-⑤-T2-⑥	→ Please contact IAI for more details
Y2-axis	ISPA-MYM-⑦-200-20-⑧-T2-⑨	→ Please contact IAI for more details

\* Refer to the symbols within the table Explanation of Model Designations at upper right for ① through ⑨ in the above model names.  
Note that the strokes are indicated in mm (millimeters).  
Note: Although the rotating nut types and linear servo types are equipped with cable tracks even for individual axes, a different cable track is used when it is assembled in a Cartesian system, so replacement actuators should specify the no-cable track specification (NT1).

## Maximum Speed by Stroke (mm/s)

	200	250	300	400	500	600	700	800~2250	
X-axis	—	2400							
Y1-axis, Y2-axis	1200							—	—

## Payload by Acceleration/Deceleration (kg) (Note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	21.2	20.3	19.4	18.4	17.5	16.6
	0.4	12.2	11.3	10.4	9.4	8.5	7.6
	0.5	7.7	6.8	5.9	4.9	4.0	3.1
	0.6	3.2	2.3	1.4	—	—	—
	0.7	—	—	—	—	—	—
	0.8	—	—	—	—	—	—
	0.9	—	—	—	—	—	—
1.0	—	—	—	—	—	—	

## Explanation of Model Designations

No.	Description	Notation
①	Encoder type	A: Absolute I: Incremental
②	X-axis stroke (Note 1)	25: 250mm 225: 2250mm
③	X-axis option	Refer to Options table below.
④	Y-axis stroke (Note 1)	20: 200mm 70: 700mm
⑤	Y-axis option	Refer to Options table below.
⑥	Cable length (Note 2)	3L: 3m 5L: 5m □L: □m
⑦	Y-axis Cable Management	CT: Cable track

\* The above shows details of ③ through ⑦ for the model names on the left.

## Options

The option codes should be entered after the stroke for each axis. Make sure to indicate the standard equipped option in the model number. When selecting multiple options, specify them in **alphabetical order**.

Type	Model	Reference page
AQ seal (standard equipment)	AQ	See P.353
Brake (Y-axis only) *1	B	See P.353
Creep sensor *2	C	See P.353
Home limit switch *2	L	See P.353
Non-motor end specification (Y-axis only)	NM	See P.353
Guide with ball-retaining mechanism	RT	See P.354

\*1 Brake option for Y-axis increases the length of the non-motor side. Please contact IAI for details.  
\*2 When selecting the creep sensor and home limit switch, the mounting position differs according to the configuration direction, but the creep sensor is specified in the model name as "C" and the home limit switch as "L" regardless of the mounting position. Please refer to P.11 for more information.

## Common Specifications

Drive system	Ball screw, equivalent to rolled C5
Positioning repeatability	±0.01mm
Lost motion	0.02mm or less
Guide	Integrated with base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400W/40mm
Y-axis motor output/lead	200W/20mm

## Applicable Controllers

Contact IAI. The controller for this system needs to be purchased/prepared separately.



Notes

- (Note 1) The strokes in the model names of the Cartesian Robots are specified in cm (centimeters).
- (Note 2) The cable length is the length between the X-axis connector box and the controller. The standard lengths are 3m and 5m, but other lengths can also be specified in meters. The maximum length is 20m.
- (Note 3) The rated acceleration is 0.3G. Although it is operable up to 1G, increasing the acceleration will reduce the payload.

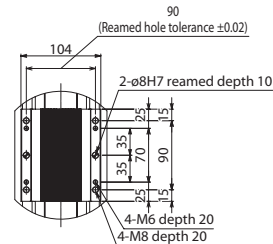
# ICSPA4-B3N1H-CT (Cable track specification)

## Dimensions

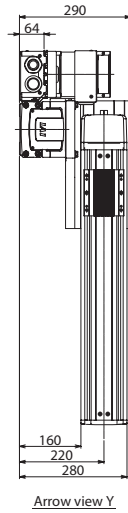
CAD drawings can be downloaded from our website.



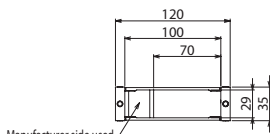
\* The configuration position in the figure is the home position. To change the home position, indicate NM in the options. Note that changing the home position after purchase will require the actuator to be returned to IAI for adjustment.



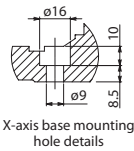
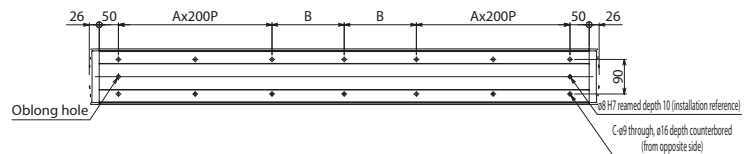
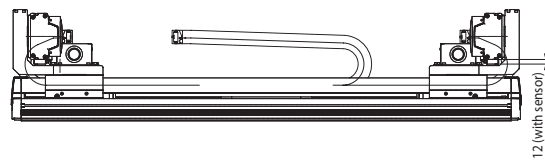
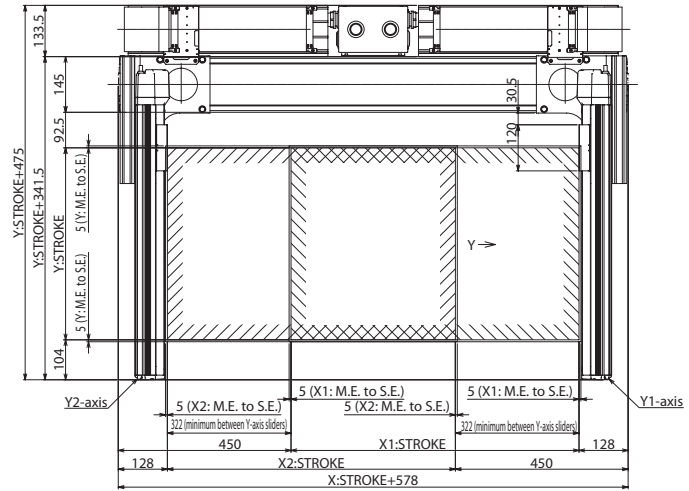
Y-axis slider details



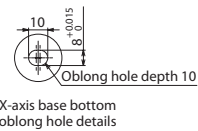
Arrow view Y



Cable track sectional view



X-axis base mounting hole details



X-axis base bottom oblong hole details

X stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	113	138	163	188	213	238	263	288	313	138	163	188	213
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	138	163	188	213	238	263	288	313	138	163	188	213	238	263	288	313	138
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

# ICSPA4-B3N1M

High-Precision Specification

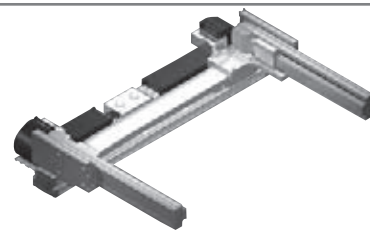


XY+XY 4-axis (NS+ISPA)

XMYB (X Multi-Slider Y Base Mount)

Medium Speed Type

X-Lg (400W) Y-Md (200W)



## Model Specification Items

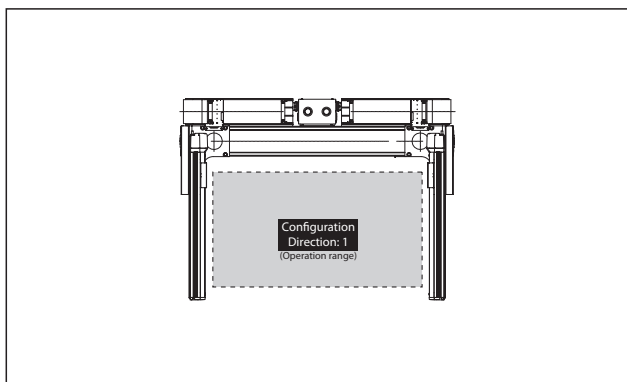
<b>Series</b> ICSPA4: High precision 4-axis (2-axis + 2-axis) specification	<b>Type</b> Refer to Model Specification table below	<b>Encoder Type</b> A: Absolute I: Incremental	<b>X-axis Stroke/Option</b> 25: 250mm 225: 2250mm (Every 50mm)	<b>Refer to Options table below.</b>	<b>Y1/Y2-axis Stroke/Option</b> 20: 200mm 70: 700mm (Every 50mm)	<b>Refer to Options table below.</b>	<b>Applicable Controllers</b> T2: SCON XSEL-P/Q XSEL-RA/SA* * Coming soon	<b>Cable Length</b> 3L: 3m 5L: 5m □L: Specified length	<b>Y-axis Cable Management</b> CT: Cable Track
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## Model Specification

XY configuration direction *1	Model
1	ICSPA4-B3N1M-①-②-③-④-⑤-T2-⑥-⑦

\*1 Please refer to the following diagram under XY Configuration Direction. Please refer to the table on the right for details of ① through ⑦ in the model names above.

## XY Configuration Direction



## Axis Configuration

Axis configuration	Model	Reference page
X-axis	NS-LXMM-①-400-20-②-T2-③-NT1	→ Please contact IAI for more details
Y1-axis	ISPA-MYM-①-200-20-②-T2-③	→ Please contact IAI for more details
Y2-axis	ISPA-MYM-①-200-20-②-T2-③	→ Please contact IAI for more details

\* Refer to the symbols within the table Explanation of Model Designations at upper right for ① through ③ in the above model names.  
Note that the strokes are indicated in mm (millimeters).  
Note: Although the rotating nut types and linear servo types are equipped with cable tracks even for individual axes, a different cable track is used when it is assembled in a Cartesian system, so replacement actuators should specify the no-cable track specification (NT1).

## Maximum Speed by Stroke (mm/s)

	200	250	300	400	500	600	700	800~2250	
X-axis	—	1300							
Y1-axis, Y2-axis	1200							—	—

## Payload by Acceleration/Deceleration (kg) (Note 3)

		Y-axis stroke					
		200	300	400	500	600	700
Acceleration	0.3	40.0	40.0	33.0	27.3	22.9	19.3
	0.4	30.0	30.0	30.0	27.3	22.9	19.3
	0.5	21.6	21.6	21.6	21.6	21.6	19.3
	0.6	18.0	18.0	18.0	18.0	17.5	16.6
	0.7	15.3	14.9	14.0	13.0	12.1	11.2
	0.8	12.2	11.3	10.4	9.4	8.5	7.6
	0.9	9.5	8.6	7.7	6.7	5.8	4.9
	1.0	6.8	5.9	5.0	—	—	—

## Explanation of Model Designations

No.	Description	Notation
①	Encoder type	A: Absolute I: Incremental
②	X-axis stroke (Note 1)	25: 250mm ? : 225: 2250mm
③	X-axis option	Refer to Options table below.
④	Y-axis stroke (Note 1)	20: 200mm ? : 70: 700mm
⑤	Y-axis option	Refer to Options table below.
⑥	Cable length (Note 2)	3L: 3m 5L: 5m □L: □m
⑦	Y-axis Cable Management	CT: Cable track

\* The above shows details of ③ through ⑦ for the model names on the left.

## Options

The option codes should be entered after the stroke for each axis. Make sure to indicate the standard equipped option in the model number. When selecting multiple options, specify them in **alphabetical order**.

Type	Model	Reference page
AQ seal (standard equipment)	AQ	See P.353
Brake (Y-axis only) *1	B	See P.353
Creep sensor *2	C	See P.353
Home limit switch *2	L	See P.353
Non-motor end specification (Y-axis only)	NM	See P.353
Guide with ball-retaining mechanism	RT	See P.354

\*1 Brake option for Y-axis increases the length of the non-motor side. Please contact IAI for details.  
\*2 When selecting the creep sensor and home limit switch, the mounting position differs according to the configuration direction, but the creep sensor is specified in the model name as "C" and the home limit switch as "L" regardless of the mounting position. Please refer to P.11 for more information.

## Common Specifications

Drive system	Ball screw, equivalent to rolled C5
Positioning repeatability	±0.01 mm
Lost motion	0.02 mm or less
Guide	Integrated with base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400W/20mm
Y-axis motor output/lead	200W/20mm

## Applicable Controllers

Contact IAI. The controller for this system needs to be purchased/prepared separately.



Notes

- (Note 1) The strokes in the model names of the Cartesian Robots are specified in cm (centimeters).
- (Note 2) The cable length is the length between the X-axis connector box and the controller. The standard lengths are 3m and 5m, but other lengths can also be specified in meters. The maximum length is 20m.
- (Note 3) The rated acceleration is 0.3G. Although it is operable up to 1G, increasing the acceleration will reduce the payload.



# ICSPA6-B3N1HB3

High-Precision Specification

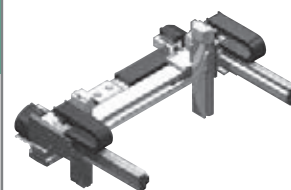


XYZ+XYZ 6-axis (NS+ISPA)

XMYB+ZB (X: Multi-Slider Y: Side Base Z: Base Mount)

High Speed Type

X: Lg (400W)  
Y: Md (200W)  
Z: Md (200W)



## Model Specification Items

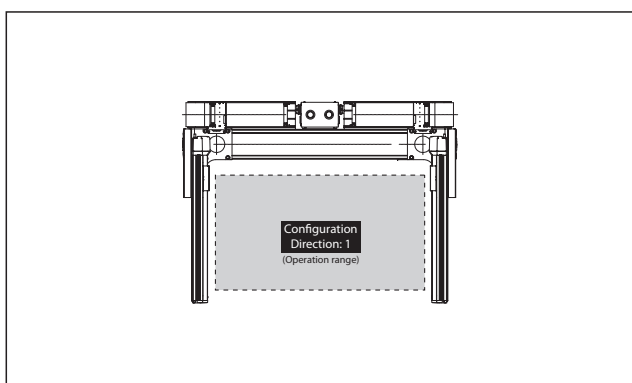
<b>Series</b> ICSPA6: High precision 6-axis (3-axis + 3-axis) specification	<b>Type</b> Refer to Model Specification table below	<b>Encoder Type</b> A: Absolute I: Incremental	<b>X-axis Stroke/Option</b> 25: 250mm 225: 2250mm (Every 50mm)	<b>Y-axis Stroke/Option</b> 20: 200mm 70: 700mm (Every 50mm)	<b>Z1/Z2-axis Stroke/Option</b> 10: 100mm 50: 500mm (Every 50mm)	<b>Applicable Controllers</b> T2: SCON XSEL-P/Q XSEL-RA/SA* *Coming soon	<b>Cable Length</b> 3L: 3m 5L: 5m □L: Specified length	<b>Y-axis - Z-axis Cable Management</b> Explanation of Model Designations below
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## Model Specification

XY configuration direction *1	Z-axis speed type *2	Model
1	H	ICSPA6-B3N1HB3H-①-②-③-④-⑤-⑥-⑦-T2-⑧-⑨
	M	ICSPA6-B3N1HB3M-①-②-③-④-⑤-⑥-⑦-T2-⑧-⑨

\*1 Please refer to the following diagram under XY Configuration Direction.  
\*2 The payload and the max speed may vary depending on the type of Z-axis.  
Please refer to the table on the right for details of ① through ⑨ in the model names above.

## XY Configuration Direction



## Axis Configuration

Axis configuration	Model	Reference page
X-axis	NS-LXMM-①-400-40-②-T2-③-NT1	→ Please contact IAI for more details
Y1-axis	ISPA-MYM-①-200-20-②-T2-⑤	→ Please contact IAI for more details
Y2-axis	ISPA-MYM-①-200-20-③-T2-⑤	→ Please contact IAI for more details
Z1-axis	ISPA-MXM-①-200-④-⑤-T2-⑦	→ Please contact IAI for more details
Z2-axis	ISPA-MXM-①-200-④-⑥-T2-⑦	→ Please contact IAI for more details

\* Refer to the symbols within the table Explanation of Model Designations at upper right for ① through ⑨ in the above model names.  
Note that the strokes are indicated in mm (millimeters).  
\* Lead is specified with ⑤ in the above model names.  
20: For Z-axis High Speed type  
10: For Z-axis Medium Speed type  
Note: Although the rotating nut types and linear servo types are equipped with cable tracks even for individual axes, a different cable track is used when it is assembled in a Cartesian system, so replacement actuators should specify the no-cable track specification (NT1).

## Explanation of Model Designations

No.	Description	Notation
①	Encoder type	A: Absolute I: Incremental
②	X-axis stroke (Note 1)	25: 250mm 225: 2250mm
③	X-axis option	Refer to Options table below.
④	Y-axis stroke (Note 1)	20: 200mm 70: 700mm
⑤	Y-axis option	Refer to Options table below.
⑥	Z-axis stroke (Note 1)	10: 100mm 50: 500mm
⑦	Z-axis option	Refer to Options table below.
⑧	Cable length (Note 2)	3L: 3m 5L: 5m □L: □m
⑨	Y-axis - Z-axis Cable Management	CT-CT: Cable track

## Options

The option codes should be entered after the stroke for each axis.  
Make sure to indicate the standard equipment option in the model number.  
When selecting multiple options, specify them in **alphabetical order**.

Type	Model	Reference page
AQ seal (standard equipment)	AQ	See P.353
Brake (Y/Z-axis only (equipped as standard on Z-axis)) *1	B	See P.353
Creep sensor *2	C/CL	See P.353
Home limit switch *2	L/LL	See P.353
Non-motor end specification (Y/Z-axis only)	NM	See P.353
Guide with ball-retaining mechanism	RT	See P.354

\*1 Brake option for Y-axis increases the length of the non-motor side. Please contact IAI for details.  
\*2 When selecting the creep sensor and home limit switch, the mounting position differs according to the configuration direction, but the creep sensor is specified in the model name as "C" and the home limit switch as "L" regardless of the mounting position.  
Please refer to P.11 for more information.

## Common Specifications

Drive system	Ball screw, equivalent to rolled C5
Positioning repeatability	±0.01mm
Lost motion	0.02mm or less
Guide	Integrated with base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400W/40mm
Y-axis motor output/lead	200W/20mm
Z-axis motor output/lead	200W/20mm <H>, 10mm <M>

## Applicable Controllers

Contact IAI. The controller for this system needs to be purchased/prepared separately.



Notes

(Note 1) The strokes in the model names of the Cartesian Robots are specified in cm (centimeters).  
(Note 2) The cable length is the length between the X-axis connector box and the controller.  
The standard lengths are 3m and 5m, but other lengths can also be specified in meters.  
The maximum length is 20m.  
(Note 3) The rated acceleration is 0.3G. Although it is operable up to 1G, increasing the acceleration will reduce the payload.

**Payload (kg)**

**■B3N1HB3H**

		Y-axis stroke					
		200	300	400	500	600	700
Z-axis stroke	100	9.0					
	~200	9.0		8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

**■B3N1HB3M**

		Y-axis stroke					
		200	300	400	500	600	700
Z-axis stroke	100	11.2	10.2	9.2	8.2	7.2	6.2
	~200	10.2	9.3	8.3	7.2	6.2	5.2
	~300	9.0	8.3	7.3	6.2	5.2	4.2
	~400	8.2	7.3	6.3	5.2	4.2	3.2
	~500	7.1	6.2	5.2	4.1	3.1	2.1

**Maximum Speed by Stroke (mm/s)**

**■B3N1HB3H**

	Stroke									
	100	200	250	300	400	500	600	700	800~2250	
X-axis	—	—	2400							—
Y-axis	—	1200						—	—	
Z-axis	1200			—	—	—	—	—		

**■B3N1HB3M**

	Stroke									
	100	200	250	300	400	500	600	700	800~2250	
X-axis	—	—	2400							—
Y-axis	—	1200						—	—	
Z-axis	600			—	—	—	—	—		

**ICSPA6-B3N1HB3□-CT-CT (Cable track specification)**

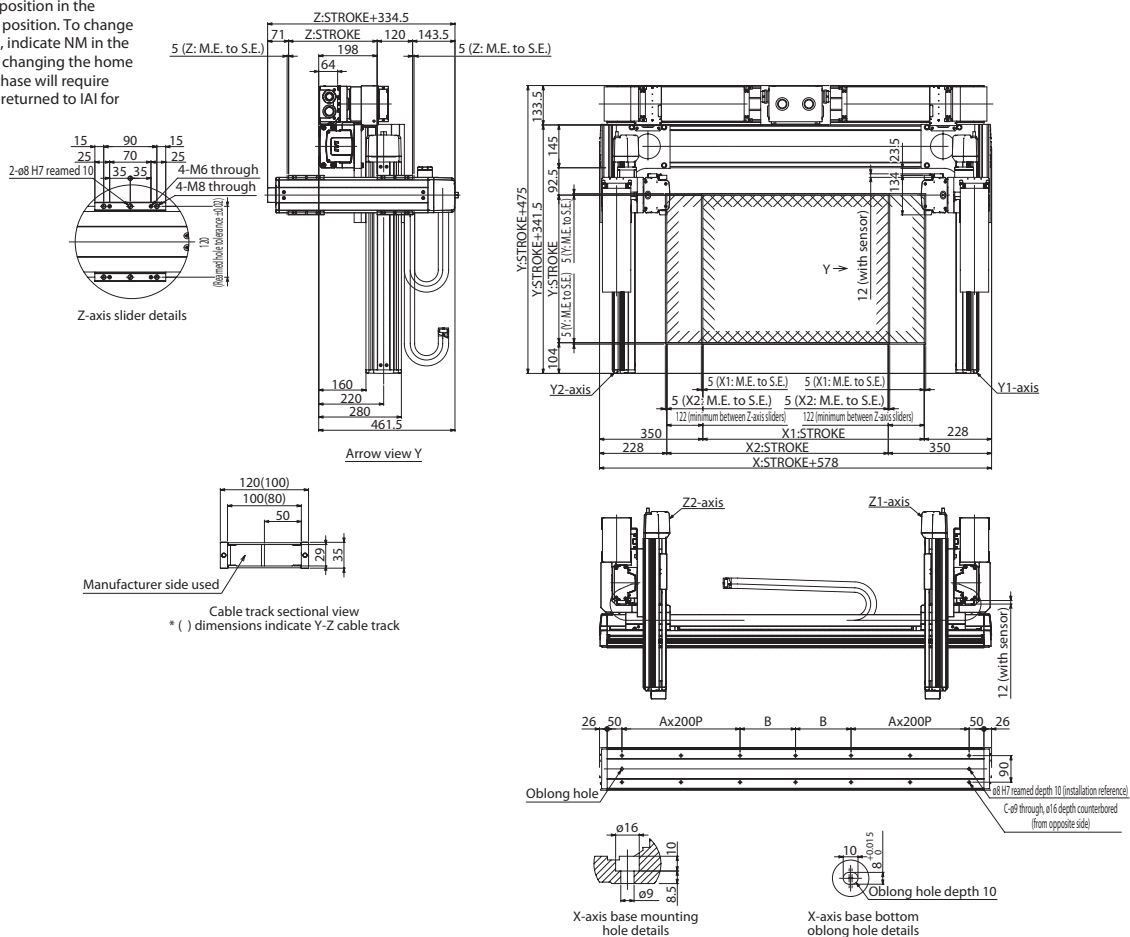
**Dimensions**

CAD drawings can be downloaded from our website.

M.E: Mechanical end  
S.E: Stroke end



\* The configuration position in the figure is the home position. To change the home position, indicate NM in the options. Note that changing the home position after purchase will require the actuator to be returned to IAI for adjustment.



X stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30



# ICSPA6-B3N1MB3

High-Precision Specification

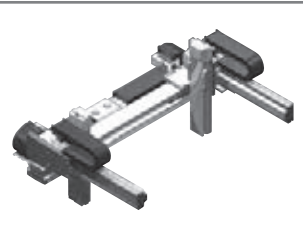


XYZ+XYZ  
6-axis  
(NS+ISPA)

XMYB+ZB  
(X: Multi-Slider  
Y: Side Base  
Z: Base Mount)

Medium  
Speed  
Type

X: Lg (400W)  
Y: Md (200W)  
Z: Md (200W)



## Model Specification Items

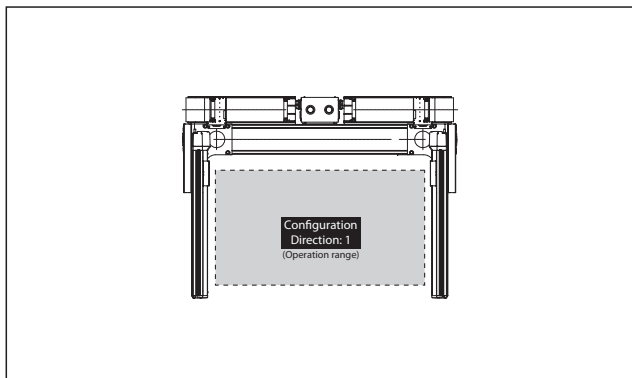
<b>Series</b> ICSPA6: High precision 6-axis (3-axis + 3-axis) specification	<b>Type</b> Refer to Model Specification table below	<b>Encoder Type</b> A: Absolute I: Incremental	<b>X-axis Stroke/Option</b> 25: 250mm 225: 2250mm (Every 50mm)	<b>Y-axis Stroke/Option</b> 20: 200mm 70: 700mm (Every 50mm)	<b>Z1/Z2-axis Stroke/Option</b> 10: 100mm 50: 500mm (Every 50mm)	<b>Applicable Controllers</b> T2: SCON XSEL-P/Q XSEL-RA/SA* *Coming soon	<b>Cable Length</b> 3L: 3m 5L: 5m □L: Specified length	<b>Y-axis - Z-axis Cable Management</b> Explanation of Model Designations below
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## Model Specification

XY configuration direction *1	Z-axis speed type *2	Model
1	H	ICSPA6-B3N1MB3H-①-②-③-④-⑤-⑥-⑦-T2-⑧-⑨
	M	ICSPA6-B3N1MB3M-①-②-③-④-⑤-⑥-⑦-T2-⑧-⑨

\*1 Please refer to the following diagram under XY Configuration Direction.  
\*2 The payload and the max speed may vary depending on the type of Z-axis.  
Please refer to the table on the right for details of ① through ⑨ in the model names above.

## XY Configuration Direction



## Axis Configuration

Axis configuration	Model	Reference page
X-axis	NS-LXMM-①-400-20-②-T2-③-NT1	→ Please contact IAI for more details
Y1-axis	ISPA-MYM-①-200-20-③-T2-⑤	→ Please contact IAI for more details
Y2-axis	ISPA-MYM-①-200-20-③-T2-⑤	→ Please contact IAI for more details
Z1-axis	ISPA-MXM-①-200-⑩-⑥-T2-⑦	→ Please contact IAI for more details
Z2-axis	ISPA-MXM-①-200-⑩-⑥-T2-⑦	→ Please contact IAI for more details

\* Refer to the symbols within the table Explanation of Model Designations at upper right for ① through ⑨ in the above model names.  
Note that the strokes are indicated in mm (millimeters).  
\* Lead is specified with ⑩ in the above model names.  
20: For Z-axis High Speed type  
10: For Z-axis Medium Speed type  
Note: Although the rotating nut types and linear servo types are equipped with cable tracks even for individual axes, a different cable track is used when it is assembled in a Cartesian system, so replacement actuators should specify the no-cable track specification (NT1).

## Explanation of Model Designations

No.	Description	Notation
①	Encoder type	A: Absolute I: Incremental
②	X-axis stroke (Note 1)	25: 250mm 225: 2250mm
③	X-axis option	Refer to Options table below.
④	Y-axis stroke (Note 1)	20: 200mm 70: 700mm
⑤	Y-axis option	Refer to Options table below.
⑥	Z-axis stroke (Note 1)	10: 100mm 50: 500mm
⑦	Z-axis option	Refer to Options table below.
⑧	Cable length (Note 2)	3L: 3m 5L: 5m □L: □m
⑨	Y-axis - Z-axis Cable Management	CT-CT: Cable track

## Options

The option codes should be entered after the stroke for each axis.  
Make sure to indicate the standard equipped option in the model number.  
When selecting multiple options, specify them in **alphabetical order**.

Type	Model	Reference page
AQ seal (standard equipment)	AQ	See P.353
Brake (Y/Z-axis only (equipped as standard on Z-axis)) *1	B	See P.353
Creep sensor *2	C/CL	See P.353
Home limit switch *2	L/LL	See P.353
Non-motor end specification (Y/Z-axis only)	NM	See P.353
Guide with ball-retaining mechanism	RT	See P.354

\*1 Brake option for Y-axis increases the length of the non-motor side. Please contact IAI for details.  
\*2 When selecting the creep sensor and home limit switch, the mounting position differs according to the configuration direction, but the creep sensor is specified in the model name as "C" and the home limit switch as "L" regardless of the mounting position.  
Please refer to P.11 for more information.

## Common Specifications

Drive system	Ball screw, equivalent to rolled C5
Positioning repeatability	±0.01mm
Lost motion	0.02mm or less
Guide	Integrated with base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400W/20mm
Y-axis motor output/lead	200W/20mm
Z-axis motor output/lead	200W/20mm <H>, 10mm <M>

## Applicable Controllers

Contact IAI. The controller for this system needs to be purchased/prepared separately.



Notes

- (Note 1) The strokes in the model names of the Cartesian Robots are specified in cm (centimeters).
- (Note 2) The cable length is the length between the X-axis connector box and the controller.  
The standard lengths are 3m and 5m, but other lengths can also be specified in meters.  
The maximum length is 20m.
- (Note 3) The rated acceleration is 0.3G. Although it is operable up to 1G, increasing the acceleration will reduce the payload.



Payload (kg)

■B3N1MB3H

		Y-axis stroke					
		200	300	400	500	600	700
Z-axis stroke	100						8.9
	~ 200						7.9
	~ 300						6.9
	~ 400						5.9
	~ 500						4.8

■B3N1MB3M

		Y-axis stroke					
		200	300	400	500	600	700
Z-axis stroke	100					12.6	8.9
	~ 200					11.6	7.9
	~ 300					10.6	6.9
	~ 400					9.6	5.9
	~ 500	19.0	18.8	13.0	8.5	4.8	

Maximum Speed by Stroke (mm/s)

■B3N1MB3H

	Stroke									
	100	200	250	300	400	500	600	700	800~2250	
X-axis	—	—	1300							—
Y-axis	—	1200						—	—	
Z-axis	1200			—	—	—	—	—		

■B3N1MB3M

	Stroke									
	100	200	250	300	400	500	600	700	800~2250	
X-axis	—	—	1300							—
Y-axis	—	1200						—	—	
Z-axis	600			—	—	—	—	—		

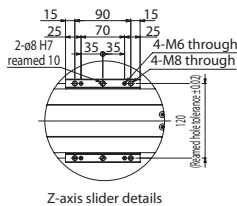
ICSPA6-B3N1MB3□-CT-CT (Cable track specification)

Dimensions

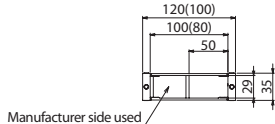
CAD drawings can be downloaded from our website.



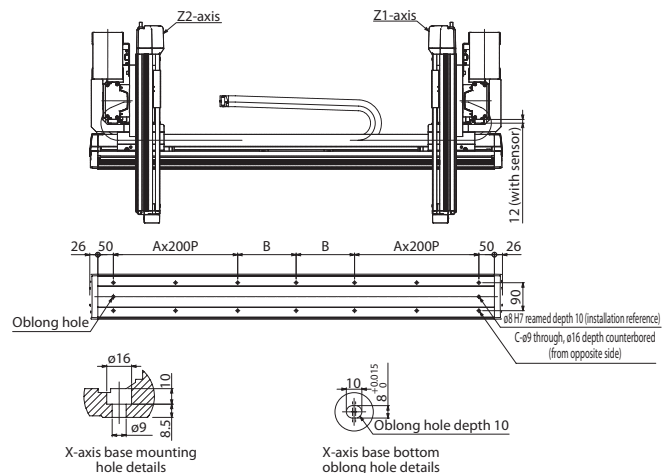
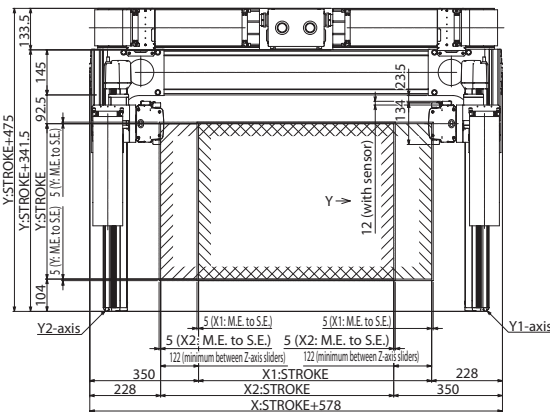
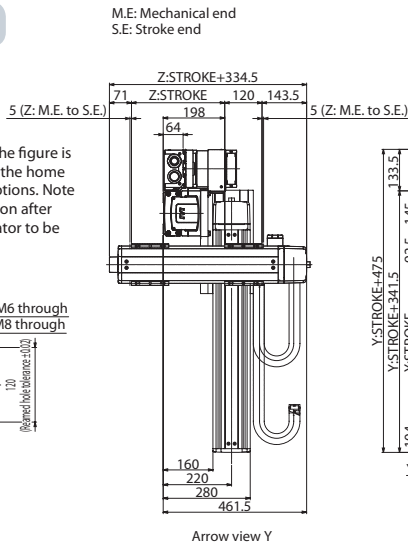
\* The configuration position in the figure is the home position. To change the home position, indicate NM in the options. Note that changing the home position after purchase will require the actuator to be returned to IAI for adjustment.



Z-axis slider details



Cable track sectional view  
\* ( ) dimensions indicate Y-Z cable track



X stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	14	18	18	18	18

X stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

# ICSPA6-B3N1HS3M

High-Precision Specification

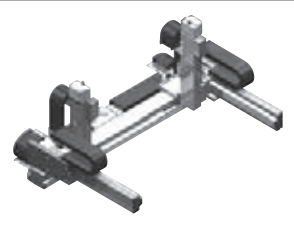


XYZ+XYZ  
6-axis  
(NS+ISPA)

XMYB+ZS  
(Multi-Slider  
Y-Side-Base Mount  
Z-Slide)

High Speed Type

X: Lg (400W)  
Y: Md (200W)  
Z: Md (200W)



## Model Specification Items

**ICSPA6—B3N1HS3M**

**Series**  
ICSPA6: High precision 6-axis (3-axis + 3-axis) specification

**Type**  
Refer to Model Specification table below

**Encoder Type**  
A: Absolute  
I: Incremental

**X-axis Stroke/Option**  
25: 250mm  
225: 2250mm (Every 50mm)

**Y-axis Stroke/Option**  
20: 200mm  
70: 700mm (Every 50mm)

**Z1/Z2-axis Stroke/Option**  
10: 100mm  
40: 400mm (Every 50mm)

**T2**  
Applicable Controllers  
T2: SCON  
XSEL-P/Q  
XSEL-RA/SA\*  
\*Coming soon

**Cable Length**  
3L: 3m  
5L: 5m  
□L: Specified length

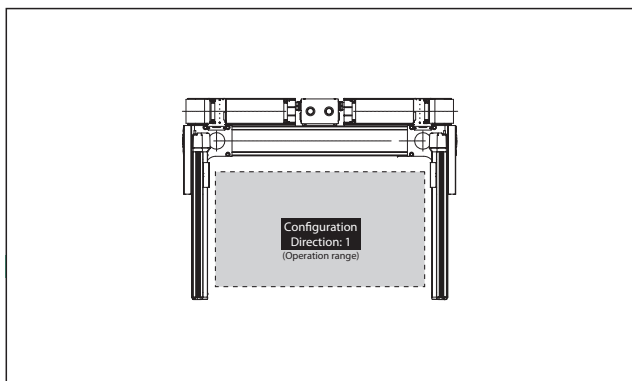
**Y-axis - Z-axis Cable Management**  
Explanation of Model Designations below

## Model Specification

XY configuration direction *1	Z-axis speed type	Model
1	M	ICSPA6-B3N1HS3M-①-②-③-④-⑤-⑥-⑦-T2-⑧-⑨

\*1 Please refer to the following diagram under XY Configuration Direction.  
Please refer to the table on the right for details of ① through ⑨ in the model names above.

## XY Configuration Direction



## Axis Configuration

Axis configuration	Model	Reference page
X-axis	NS-LXMM-①-400-40-②-T2-③-NT1	→ Please contact IAI for more details
Y1-axis	ISPA-MYM-①-200-20-④-T2-⑤	→ Please contact IAI for more details
Y2-axis	ISPA-MYM-①-200-20-④-T2-⑤	→ Please contact IAI for more details
Z1-axis	ISPA-MZM-①-200-10-⑥-T2-⑦	→ Please contact IAI for more details
Z2-axis	ISPA-MZM-①-200-10-⑥-T2-⑦	→ Please contact IAI for more details

\* Refer to the symbols within the table Explanation of Model Designations at upper right for ① through ⑨ in the above model names.  
Note that the strokes are indicated in mm (millimeters).  
Note: Although the rotating nut types and linear servo types are equipped with cable tracks even for individual axes, a different cable track is used when it is assembled in a Cartesian system, so replacement actuators should specify the no-cable track specification (NT1).

## Explanation of Model Designations

No.	Description	Notation
①	Encoder type	A: Absolute I: Incremental
②	X-axis stroke (Note 1)	25: 250mm 225: 2250mm
③	X-axis option	Refer to Options table below.
④	Y-axis stroke (Note 1)	20: 200mm 70: 700mm
⑤	Y-axis option	Refer to Options table below.
⑥	Z-axis stroke (Note 1)	10: 100mm 40: 400mm
⑦	Z-axis option	Refer to Options table below.
⑧	Cable length (Note 2)	3L: 3m 5L: 5m □L: □m
⑨	Y-axis - Z-axis Cable Management	CT-CT: Cable track

## Options

The option codes should be entered after the stroke for each axis.  
Make sure to indicate the standard equipped option in the model number.  
When selecting multiple options, specify them in **alphabetical order**.

Type	Model	Reference page
AQ seal (standard equipment)	AQ	See P.353
Brake (Y/Z-axis only (equipped as standard on Z-axis)) *1	B	See P.353
Creep sensor *2	C/CL	See P.353
Home limit switch *2	L/LL	See P.353
Non-motor end specification *3 (Y/Z-axis only (standard Z-axis setting))	NM	See P.353
Guide with ball-retaining mechanism	RT	See P.354

\*1 Brake option for Y-axis increases the length of the non-motor side. Please contact IAI for details.  
\*2 When selecting the creep sensor and home limit switch, the mounting position differs according to the configuration direction, but the creep sensor is specified in the model name as "C" and the home limit switch as "L" regardless of the mounting position. Please refer to P.11 for more information.  
\*3 The configuration position in the figure is the home position. The normal setting for Z-axis is non-motor end (NM). To set the Z-axis descent position as home, remove the non-motor end (NM) designation. Note that changing the home position after purchase will require the actuator to be returned to IAI for adjustment.

## Common Specifications

Drive system	Ball screw, equivalent to rolled C5
Positioning repeatability	±0.01mm
Lost motion	0.02mm or less
Guide	Integrated with base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400W/40mm
Y-axis motor output/lead	200W/20mm
Z-axis motor output/lead	200W/10mm

## Applicable Controllers

Contact IAI. The controller for this system needs to be purchased/prepared separately.



(Note 1) The strokes in the model names of the Cartesian Robots are specified in cm (centimeters).  
(Note 2) The cable length is the length between the X-axis connector box and the controller.  
The standard lengths are 3m and 5m, but other lengths can also be specified in meters.  
The maximum length is 20m.  
(Note 3) The rated acceleration is 0.3G. Although it is operable up to 1G, increasing the acceleration will reduce the payload.

Payload (kg)

■B3N1HS3M

		Y-axis stroke					
		200	300	400	500	600	700
Z-axis stroke	100	11.5	10.5	9.5	8.4	7.5	6.5
	~200	10.5	9.5	8.5	7.4	6.5	5.5
	~300	9.5	8.5	7.5	6.4	5.5	4.5
	~400	8.4	7.4	6.5	5.4	4.4	3.4

Maximum Speed by Stroke (mm/s)

■B3N1HS3M

	Stroke									
	100	200	250	300	400	500	600	700	800~2250	
X-axis	—	—	2400							—
Y-axis	—	1200							—	—
Z-axis	600			—	—	—	—	—	—	

ICSPA6-B3N1HS3M-CT-CT (Cable track specification)

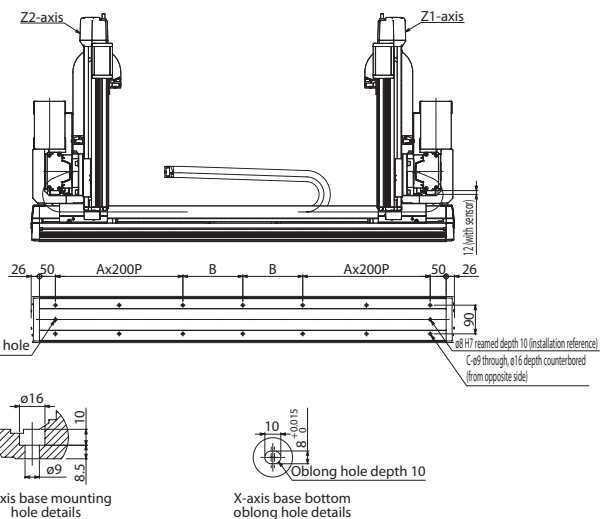
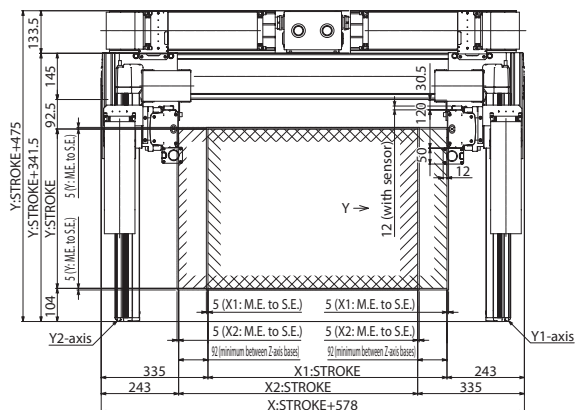
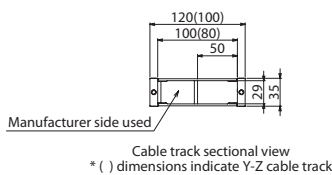
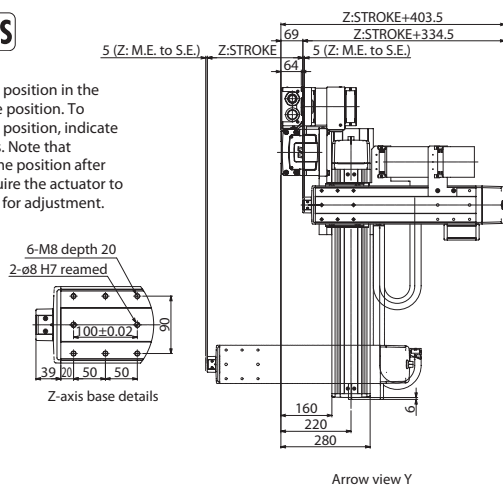
Dimensions

CAD drawings can be downloaded from our website.

M.E: Mechanical end  
S.E: Stroke end



\* The configuration position in the figure is the home position. To change the home position, indicate NM in the options. Note that changing the home position after purchase will require the actuator to be returned to IA for adjustment.



X stroke	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
A	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3
B	138	163	188	213	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613
C	10	10	10	10	10	10	10	14	14	14	14	14	14	14	14	18	18	18	18	18

X stroke	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	2200	2250
A	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6
B	238	263	288	313	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
C	18	18	18	18	22	22	22	22	22	22	22	22	26	26	26	26	26	26	26	26	30

# ICSPA6-B3N1MS3M High-Precision Specification

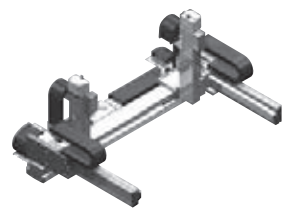


XYZ+XYZ  
6-axis  
(NS+ISPA)

XMYB+ZS  
4 Multi-Slider  
Y-Side-Base Mount  
Z-Slider

Medium  
Speed  
Type

X: Lg (400W)  
Y: Md (200W)  
Z: Md (200W)



## Model Specification Items

### ICSPA6-B3N1MS3M

**Series**  
ICSPA6: High precision 6-axis (3-axis + 3-axis) specification

**Type**  
Refer to Model Specification table below

**Encoder Type**  
A: Absolute  
I: Incremental

**X-axis Stroke/Option**  
25: 250mm  
225: 2250mm (Every 50mm)

**Y-axis Stroke/Option**  
20: 200mm  
70: 700mm (Every 50mm)

**Z1/Z2-axis Stroke/Option**  
10: 100mm  
40: 400mm (Every 50mm)

**Applicable Controllers**  
T2: SCON  
XSEL-P/Q  
XSEL-RA/SA\*

**Cable Length**  
3L: 3m  
5L: 5m  
□L: Specified length

**Y-axis - Z-axis Cable Management**  
Explanation of Model Designations below

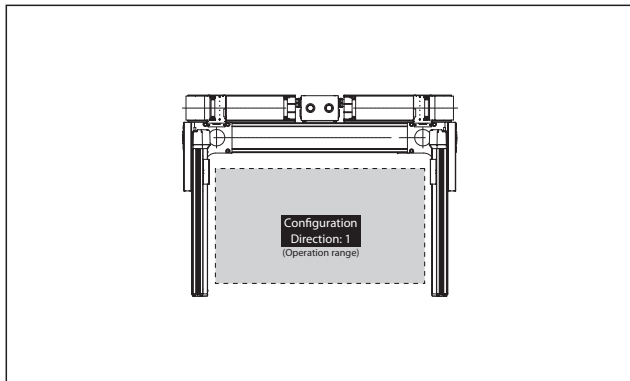
\*Coming soon

## Model Specification

XY configuration direction *1	Z-axis speed type	Model
1	M	ICSPA6-B3N1MS3M-①-②-③-④-⑤-⑥-⑦-T2-⑧-⑨

\*1 Please refer to the following diagram under XY Configuration Direction. Please refer to the table on the right for details of ① through ⑨ in the model names above.

## XY Configuration Direction



## Axis Configuration

Axis configuration	Model	Reference page
X-axis	NS-LXMM-①-400-20-②-T2-③-NT1	→ Please contact IAI for more details
Y1-axis	ISPA-MYM-①-200-20-④-T2-⑤	→ Please contact IAI for more details
Y2-axis	ISPA-MYM-①-200-20-④-T2-⑤	→ Please contact IAI for more details
Z1-axis	ISPA-MZM-①-200-10-⑥-T2-⑦	→ Please contact IAI for more details
Z2-axis	ISPA-MZM-①-200-10-⑥-T2-⑦	→ Please contact IAI for more details

\* Refer to the symbols within the table Explanation of Model Designations at upper right for ① through ⑨ in the above model names.  
Note that the strokes are indicated in mm (millimeters).  
Note: Although the rotating nut types and linear servo types are equipped with cable tracks even for individual axes, a different cable track is used when it is assembled in a Cartesian system, so replacement actuators should specify the no-cable track specification (NT1).

## Explanation of Model Designations

No.	Description	Notation
①	Encoder type	A: Absolute I: Incremental
②	X-axis stroke (Note 1)	25: 250mm 225: 2250mm
③	X-axis option	Refer to Options table below.
④	Y-axis stroke (Note 1)	20: 200mm 70: 700mm
⑤	Y-axis option	Refer to Options table below.
⑥	Z-axis stroke (Note 1)	10: 100mm 40: 400mm
⑦	Z-axis option	Refer to Options table below.
⑧	Cable length (Note 2)	3L: 3m 5L: 5m □L: □m
⑨	Y-axis - Z-axis Cable Management	CT-CT: Cable track

## Options

The option codes should be entered after the stroke for each axis. Make sure to indicate the standard equipped option in the model number. When selecting multiple options, specify them in **alphabetical order**.

Type	Model	Reference page
AQ seal (standard equipment)	AQ	See P.353
Brake (Y/Z-axis only (equipped as standard on Z-axis)) *1	B	See P.353
Creep sensor *2	C/CL	See P.353
Home limit switch *2	L/LL	See P.353
Non-motor end specification * (Y/Z-axis only (standard Z-axis setting))	NM	See P.353
Guide with ball-retaining mechanism (equipped as standard on X-axis)	RT	See P.354

\*1 Brake option for Y-axis increases the length of the non-motor side. Please contact IAI for details.  
\*2 When selecting the creep sensor and home limit switch, the mounting position differs according to the configuration direction, but the creep sensor is specified in the model name as "C" and the home limit switch as "L" regardless of the mounting position.  
Please refer to P.11 for more information.  
\* The configuration position in the figure is the home position. The normal setting for Z-axis is non-motor end (NM). To set the Z-axis descent position as home, remove the non-motor end (NM) designation. Note that changing the home position after purchase will require the actuator to be returned to IAI for adjustment.

## Common Specifications

Drive system	Ball screw, equivalent to rolled C5
Positioning repeatability	±0.01mm
Lost motion	0.02mm or less
Guide	Integrated with base
Base	Material: Aluminum with white alumite treatment
X-axis motor output/lead	400W/20mm
Y-axis motor output/lead	200W/20mm
Z-axis motor output/lead	200W/10mm

## Applicable Controllers

Contact IAI. The controller for this system needs to be purchased/prepared separately.



Notes

(Note 1) The strokes in the model names of the Cartesian Robots are specified in cm (centimeters).  
(Note 2) The cable length is the length between the X-axis connector box and the controller. The standard lengths are 3m and 5m, but other lengths can also be specified in meters. The maximum length is 20m.  
(Note 3) The rated acceleration is 0.3G. Although it is operable up to 1G, increasing the acceleration will reduce the payload.



## Cartesian Robot Options

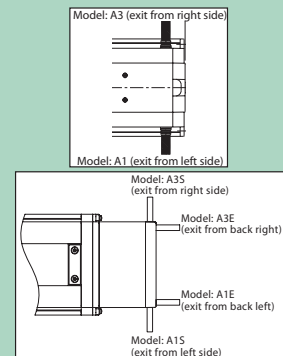
### Cable exit direction

**Model** A1/A3

**Description** Specify when changing the actuator cable exit direction.

**Model** A1S/A1E/A3S/A3E

**Description** The exit direction of the actuator cable can be selected from back left, side left, back right and side right.  
\* It is required to select an exit direction.



### AQ seal

**Model** AQ

**Description** AQ seal is a lubricant unit that uses a lubricating member made of lubricating oil solidified with resin. Because it is a porous member that contains a large amount of lubricating oil, the oil seeps out on the surface through capillary action. Lubricating oil is supplied by pressing the AQ seal on the surface of the guide and ball screw (steel ball rolling surface), enabling long-term use without maintenance in a synergistic effect by the combined use of the grease.

### Brake

**Model** B

**Description** When used vertically, this works as a holding mechanism that prevents the Z-axis slider from falling and damaging any attached fittings when the power or servo is turned off. As the Z-axis is designed to be used vertically, a brake will be equipped as a standard feature. For axes other than the Z-axis, please use the brake option as required.

### Creep sensor

**Model** C / CL

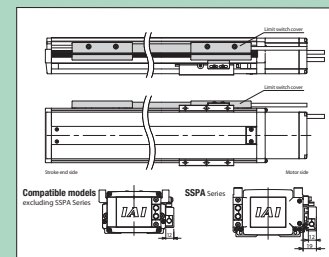
**Description** A sensor for performing homing at high speed. As homing is normally done by pressing the slider against the stopper on the motor side stroke end and reversing it, the homing speed is kept to 10~20mm/s. Therefore, types with long stroke take time until homing is completed. In order to shorten this, the proximity sensor is used to return the slider at high speed halfway through, then drop the speed to normal homing return speed just before home. The mounting position of the sensor is by default on the right side of the actuator body as viewed from the motor side (C) and the left side for the opposite type (CL). The mounting position of the sensor is determined by the axis configuration direction. Please refer to P.11 for more information.

### Home limit switch

**Model** L / LL

**Description** When performing home return, the standard type determines the home position by pushing against the mechanical end and reversing. This option allows reverse motion to be triggered by a sensor. Use when changing or adjusting the reversing position during home return or confirming that the home position has been reached. The mounting position of the limit switch and cover is by default on the right side of the actuator body as viewed from the motor side (L) and the left side for the opposite type (LL). The mounting position of the sensor is determined by the axis configuration direction. Please refer to P.11 for more information.

\* IS(S)P-W has a limit switch equipped as standard. Also, as the limit switch is built into the body, there is no cover on the body side.



### Non-motor end specification

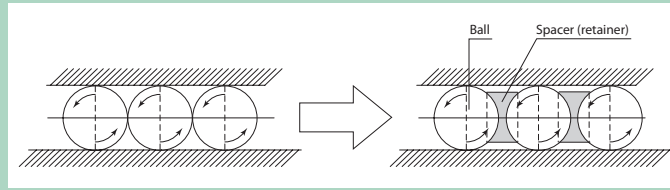
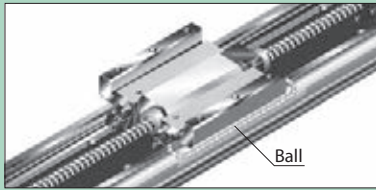
**Model** NM

**Description** The normal home position is set to the motor side, but this is the option to set the home position on the other side in order to accommodate variations in equipment layout, etc. (Please note that changing the home position after the actuators are shipped may require the products to be sent back to IAI for re-setting.)

## Guide with ball-retaining mechanism

**Model** RT

**Description** A spacer (retainer) is placed between steel balls of the guide in order to reduce noise and extend the service life. It eliminates metallic noise due to balls colliding with each other, reducing harsh noise. It reduces wear caused by friction of balls, extending the life of the guide. It eliminates the interference between balls, making the movement smoother and improving the operating capability of the slider.  
\* It cannot be used with ISB/ISPB-SXL/MXL/LXL or ISA/ISPA-WXM/WXMX.



## Cartesian Robot Application Examples

**CD-Rom Stacking** Incremental Positioning

RC Line IA Line RCS2-RA4C RCS2-RA5C ICSB2 Controller X-SEL

**Cutting** Positioning

IA Line ICSB2 Controller S-SEL (x 1)

**Pick & Place** Positioning

IA Line ICSB3 (x 2) Controller X-SEL (x 2)

**Circuit Board Inspection** Positioning

IA Line ICSB3 Controller X-SEL

**Parts Transfer** Positioning

IA Line RC Line ICSB2 RCS2-A5R Controller X-SEL

**Screwdriving** Positioning

IA Line ICSB2 Controller S-SEL

**Burr Removing & Inspection** Positioning

IA Line ICSA6 Controller X-SEL

**Dispensing** Path Move Index Mode

RC Line IA Line RCS2-RT6R ICSB3 Controller X-SEL

**Unloading** Positioning

IA Line ICSB3 Controller X-SEL



**ICSB&ICSA Series  
Catalogue No. 0417-E**



The information contained in this catalog is subject to change without notice for the purpose of product improvement



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