

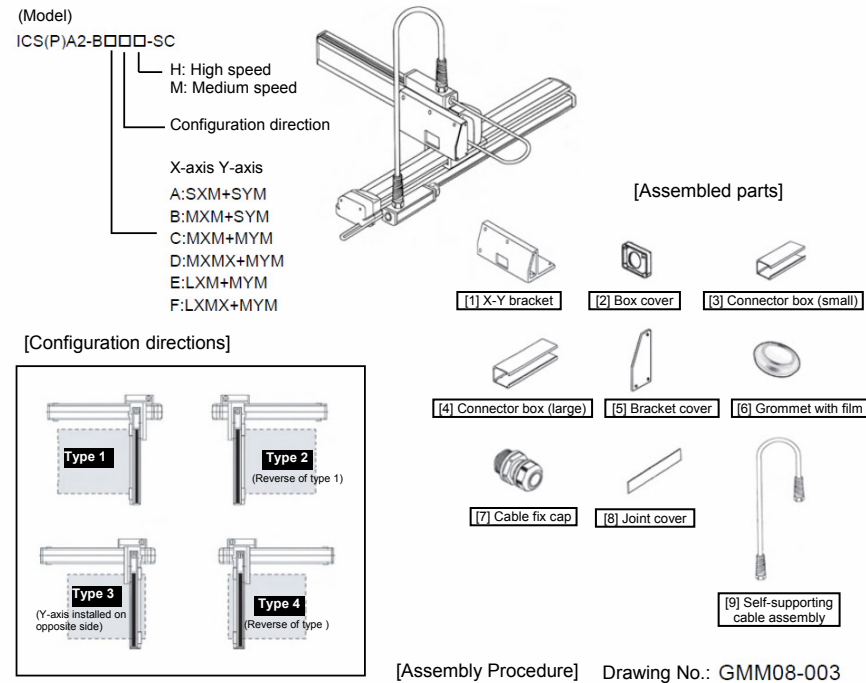


ICS(P)A Cartesian Robot Assembly Procedures Third Edition

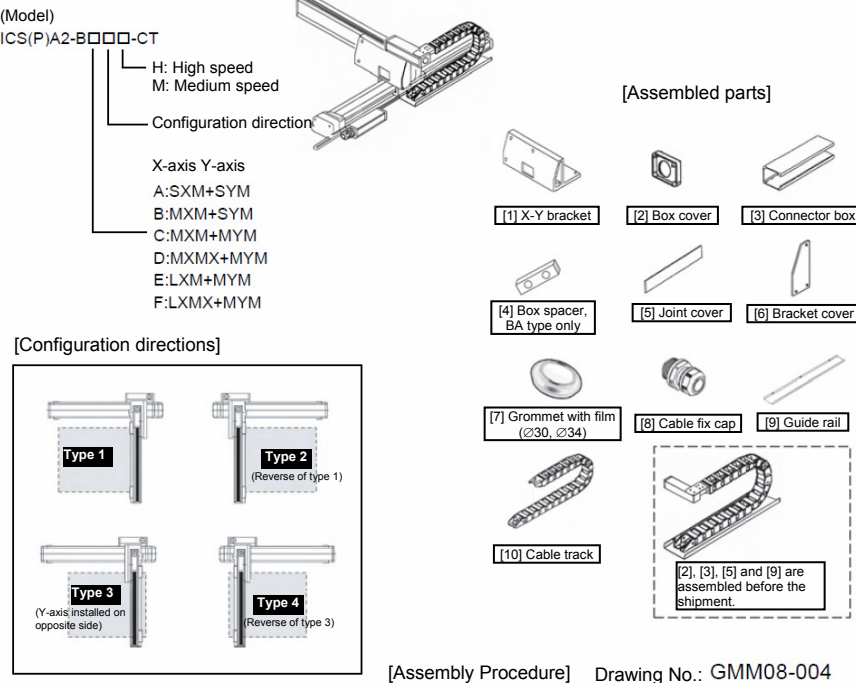
Thank you for purchasing an IAI product.
Assemble your product correctly by referring to this Assembly Procedures.
Be sure to read the operation manual (CD/DVD) supplied separately for each actuator and handle the actuator correctly.

No.	Number of configured axes	Mounting method	Wiring method/type				Model	Drawing No. Completed Drawing List	Drawing No. Assembly Procedures
			Between X-axis and Y-axis	Between Y-axis and Z-axis	Between X-axis and Z-axis	Between Y-axis and ZR-axis			
1	2 axes	Y-axis base	Self-supporting cable	-	-	-	ICS(P)A2-B□□□-SC	GMM09-001(1/2)	GMM08-003
2	2 axes	Y-axis base	Cable track	-	-	-	ICS(P)A2-B□□□-CT	GMM09-001(1/2)	GMM08-004
3	2 axes	Gantry	Cable track	-	-	-	ICS(P)A2-G□□□-CT	GMM09-001(1/2)	GMM08-005
4	2 axes	Y-axis slider	Self-supporting cable	-	-	-	ICS(P)A2-S□□□-SC	GMM09-001(1/2)	GMM08-006
5	2 axes	Y-axis slider	-	Self-supporting cable	-	-	ICS(P)A2-Y□□□-SC	GMM09-001(1/2)	GMM08-007
6	2 axes	Z-axis base	-	-	Cable track	-	ICS(P)A2-Z□□□-CT	GMM09-001(1/2)	GMM08-008
7	3 axes	X-Y base, Z-axis base	Cable track	Cable track	-	-	ICS(P)A3-B□□□B□□-CT-CT	GMM09-001(2/2)	GMM08-009
8	3 axes	X-Y base, Z-axis base	Cable track	Self-supporting cable	-	-	ICS(P)A3-B□□□B□□-CT-SC	GMM09-001(2/2)	GMM08-010
9	3 axes	X-Y base, Z-axis base	Self-supporting cable	Self-supporting cable	-	-	ICS(P)A3-B□□□B□□-SC-SC	GMM09-001(2/2)	GMM08-011
10	3 axes	X-Y base, Z-axis slider	Self-supporting cable	Self-supporting cable	-	-	ICS(P)A3-B□□□S□□-SC-SC	GMM09-001(2/2)	GMM08-012
11	3 axes	X-Y gantry, Z-axis base	Cable track	Cable track	-	-	ICS(P)A3-G□□□B□□-CT-CT	GMM09-001(2/2)	GMM08-013
12	3 axes	X-Y gantry, Z-axis slider	Cable track	Cable track	Self-supporting cable	-	ICS(P)A3-G□□□S□□-CT-SC	GMM09-001(2/2)	GMM08-014
13	2 axes	Y-axis base	Cable track			-	ICS(P)A2-B ^{K,L,P,Q} □□-CT	GMM09-001(3/3)	GMM09-002
14	4 axes	Y-axis mount	Cable track			Cable track	ICS(P)A4-B□□HZR□-CT-CT	GMM09-001(3/3)	GMM09-003

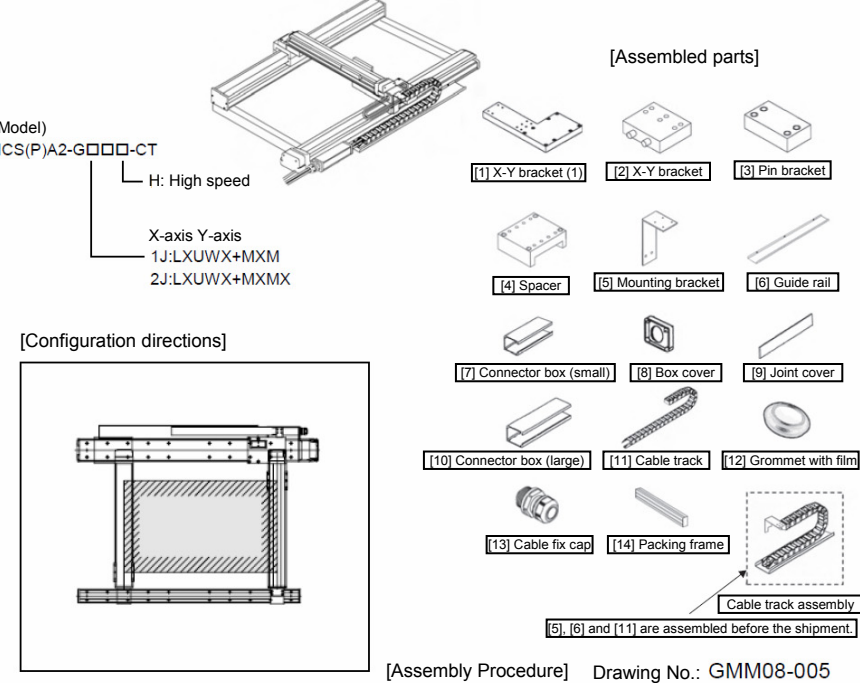
1 ICS(P)A2-B□□□-SC XYB (X-axis Base Mount)
Self-supporting Cable Specification



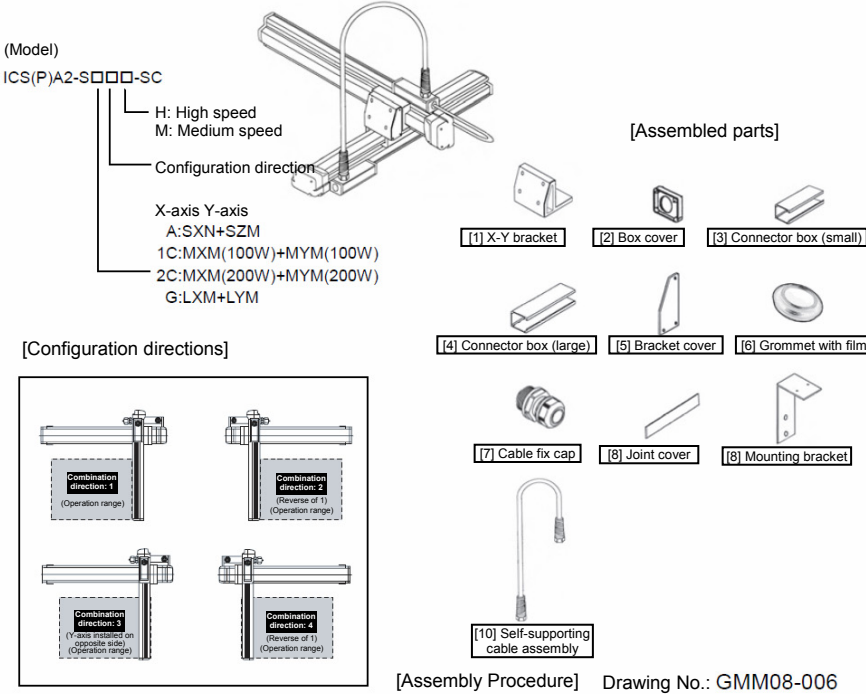
2 ICS(P)A2-B□□□-CT XYB (Y-axis Base Mount)
Cable Track Specification



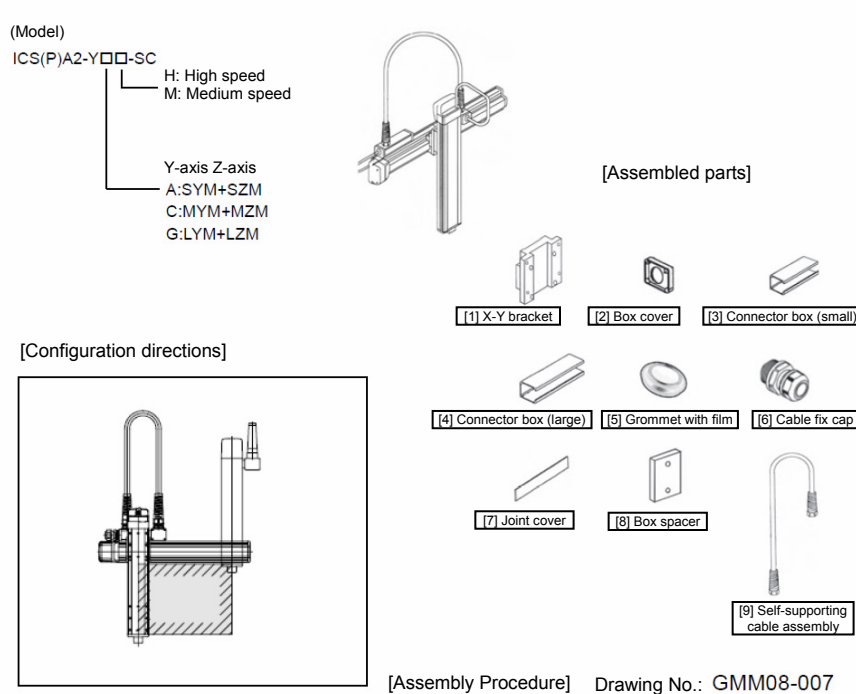
3 ICS(P)A2-G□□□ XYG (Gantry) Type
Cable Track Specification



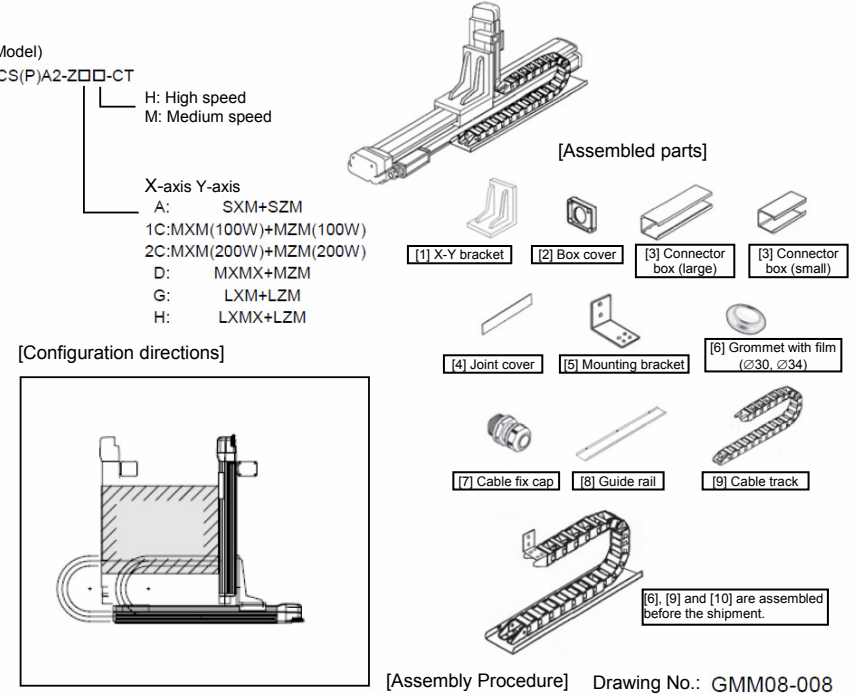
4 ICS(P)A2-S□□□ XYB (Y-axis Slider Mount)
Self-supporting Cable Specification



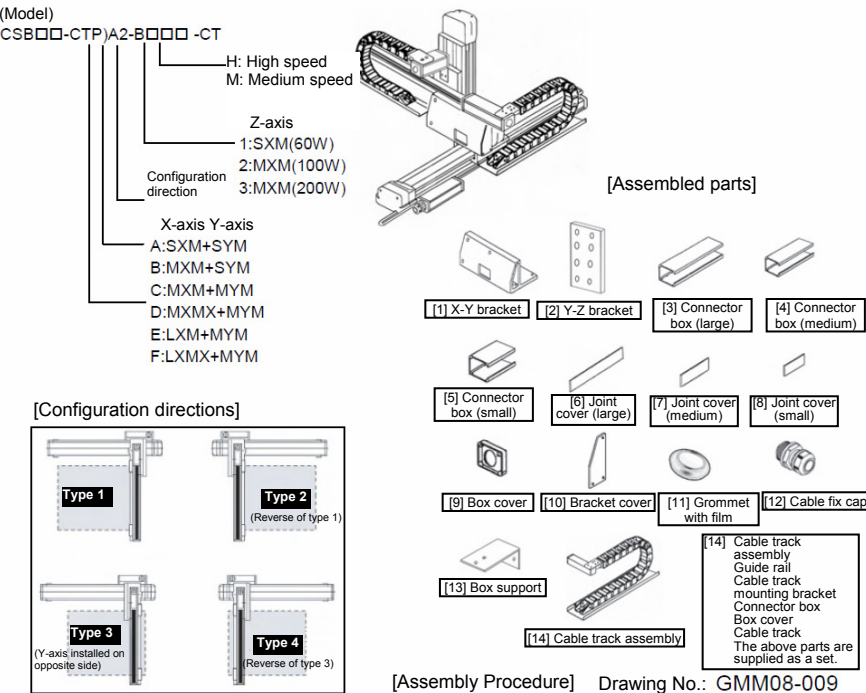
5 ICS(P)A2-Y□□□ YZ (Y-axis Slider Mount)



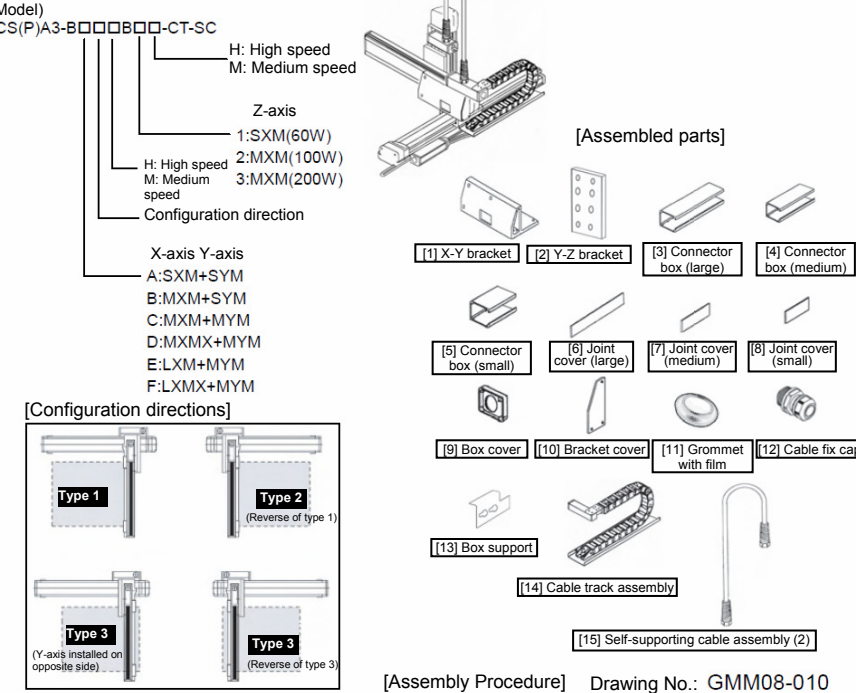
6 ICS(P)A2-Z□□□ XZ (Z-axis Base Mount)



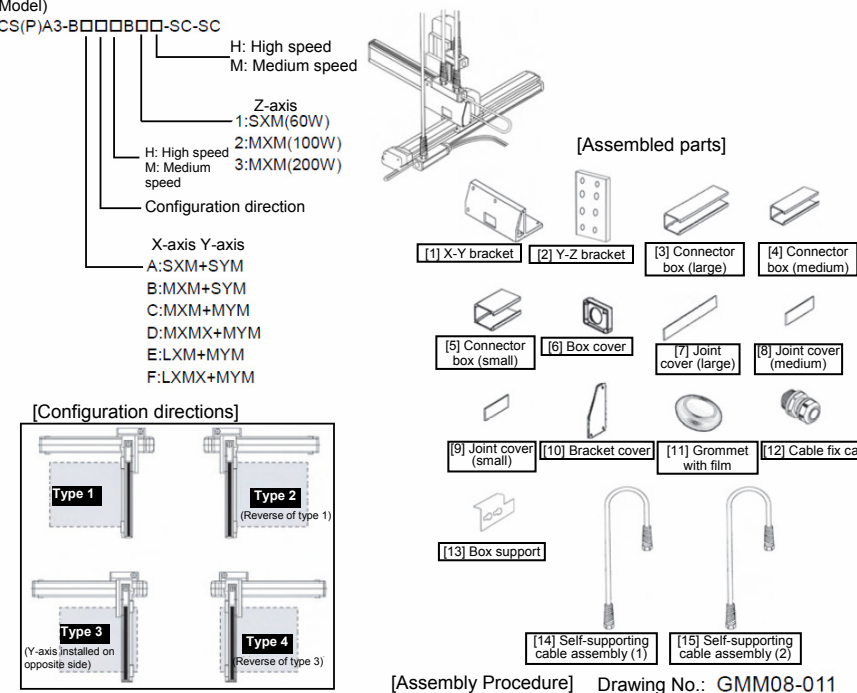
7 ICS(P)A3-B□□□B□□-CT-CT
X-Y Base Mount (XYB) + Z-axis, Z-axis Base Mount



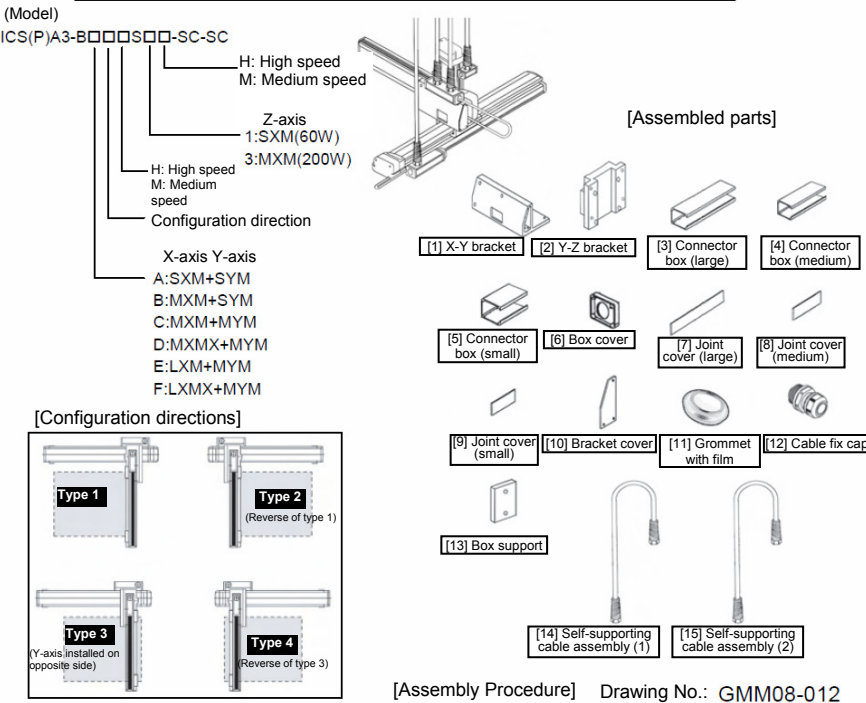
8 ICS(P)A3-B□□□B□□-CT-SC
X-Y Base Mount (XYB) + Z-axis, Z-axis Base Mount



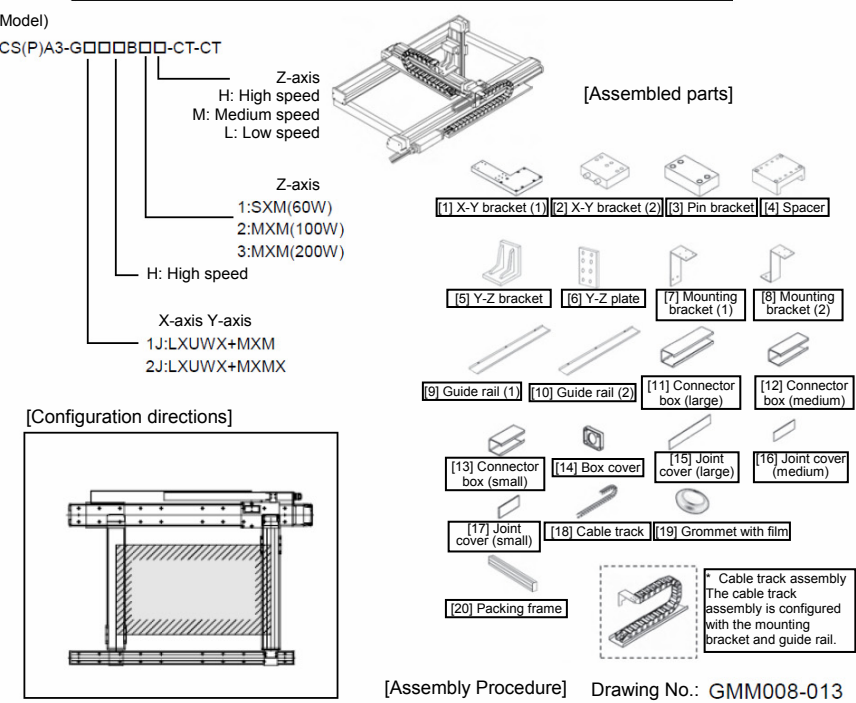
9 ICS(P)A3-B□□□B□□-SC-SC
X-Y Base Mount (XYB) + Z-axis, Z-axis Base Mount



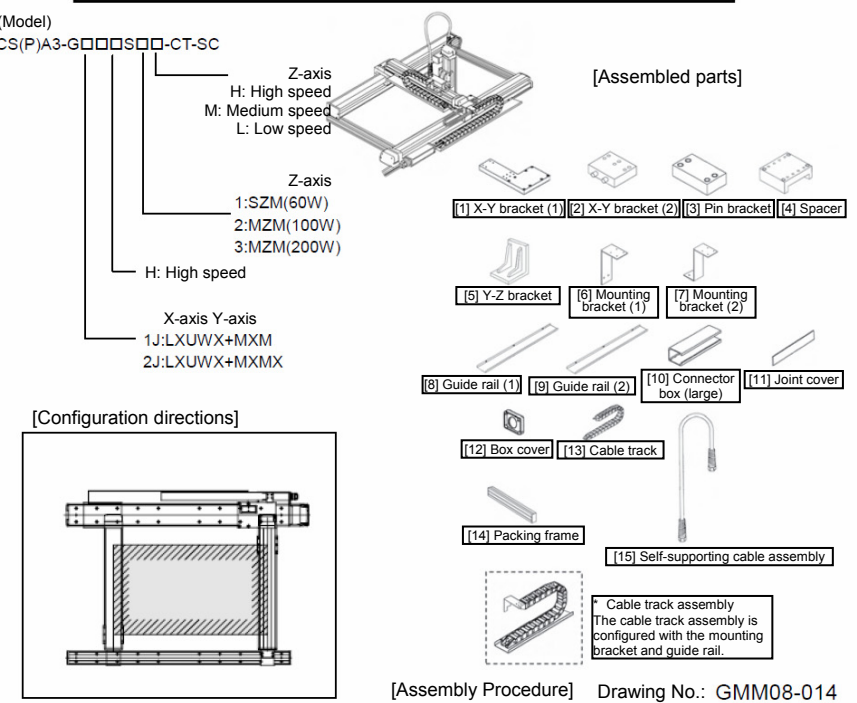
10 ICS(P)A3-B□□□S□□
X-Y Base Mount (XYB) + Z-axis, Z-axis Slider Mount



11 ICS(P)A3-G□□□B□□-CT-CT
X-Y Gantry Configuration (XYG) + Z-axis, Z-axis Base Mount



12 ICS(P)A3-G□□□S□□-CT-SC
X-Y Gantry Configuration (XYG) + Z-axis Slider Mount



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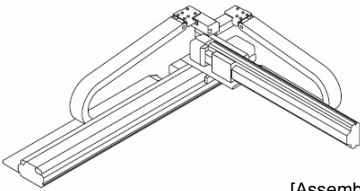
ICS(P)A-B□K,L,P,Q□□-CT XYB (Y-axis Base Mount)
Cable Track Specification

(Model)
ICS(P)A2-B□□□-CT

H: High speed
M: Medium speed

Configuration direction
X-axis Y-axis

K:WXM(600W)+LYM
L:WXM(600W)+LYM
P:WXM(750W)+LYM
Q:WXM(750W)+LYM



[Assembled parts]

[1] X-Y plate

[2] X-Y bracket

[3] Bracket cover

[4] Grommet

[5] Track mounting bracket

[6] Cable track

[7] Bracket cover

[8] Controller-actuator cable

[9] Connector box (large)

[10] Joint cover

[11] Box cover (large)

[12] Guide rail (1)

[12] Guide rail (2)

[13] Cable track

[Configuration directions]

Type 1

Type 2
(Reverse of type 1)

Type 3
(Y-axis installed on opposite side)

Type 4
(Reverse of type 3)

[Assembly Procedure]

Drawing No.: GMM09-002

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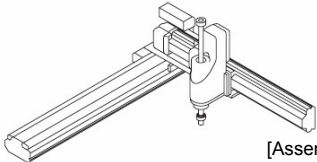
ICS(P)A4-B□□HZR□-CT-CT XYB (Y-axis Base Mount)
Cable Track Specification

(Model)
ICS(P)A4-B□□HZR□-CT

S:ZR-S
M:ZR-M

Configuration direction
X-axis Y-axis

B:MXM+SYM
E:LXM+SYM



[Assembled parts]

[1] YXR (MXS) plate

[2] Box support ZRS (M)

[3] Cable track support

[4] Connector box Y-Z

[5] Cable track

[Configuration directions]

Type 1

Type 2
(Reverse of type 1)

Type 3
(Y-axis installed on opposite side)

Type 4
(Reverse of type 3)

[Assembly Procedure]

Drawing No.: GMM09-003

• Parts Used on ICS(P)A2 Combining 2 Axes

	Hexagonal bolt		Hexagonal socket head bolt																					
	M6 x 30	M8 x 35	M3 x 12	M4 x 6	M4 x 8	M4 x 10	M4 x 12	M4 x 14	M4 x 16	M4 x 20	M5 x 10	M6 x 8	M6 x 10	M6 x 12	M6 x 20	M6 x 28	M6 x 35	M6 x 45	M8 x 15	M8 x 28	M8 x 30	M8 x 40	M8 x 45	
BA-SC	4		16				2	2							4									
BA-CT	4		16				2	2		2	3	4	4		4									
BB-SC		4	16	2			2								4									
BB-CT		4	16	2			2				3	4	4		4									
BC-SC		4	16	2			2													4				
BC-CT		4	16	2			2				3	4	4							4				
BD-CT		4	16	2			2				3	4	4							4				
BE-SC		4	16	2			2													4				
BE-CT BF-CT		4	16	2			2				3	4	4							4				
SA-SC	4		16			2		2						2	4									
S1C-SC S2C-SC SG-SC		4	16	2		2													2	4				
ZA-CT			16			2		2				4	4		8									
ZC-CT ZD-CT ZG-CT ZH-CT			16	2		2						4	4								8			
YA-SC	4		16		2				2							4								
YC-SC		4	16		2				2													4		
YG-SC		4	16		2				2												4			
G1J-CT G2J-CT			16			4						4					4	4			6		8	

• Parts Used on ICS(P)A2 Combining 2 Axes

	Thin-head TP		Flange-head hexagonal socket head bolt	Parallel pin		M8 flat washer	High-tension washer		Hexagonal nut			Grommet with film (Takigen)	M8 dedicated flat washer	Flange-head hexagonal socket head bolt	Hexagonal nut
	M3 x 6	M4 x 6	M4 x 8	Ø6h7 x 15	Ø8h7 x 18	Ø8.5 x Ø18 x t1.6	M6	M8	M4	M5	M6	C-30-SG-34A-EP-UL (ivory)		M4 x 6	M4
BA-SC	6			4			4		2			2			
BA-CT	6			4			4		2	3	8	5		*	*
BB-SC	6			2	2			4	2			2			
BB-CT	6			2	2			4	2	3	8	5		*	*
BC-SC		6			4			4	2			2	4		
BC-CT		6			4			4	2	3	8	5	4	*	*
BD-CT		6			4			4	2	3	8	5	4	*	*
BE-SC		6			4			4	2			2	4		
BE-CT BF-CT		6			4			4	2	3	8	5	4	*	*
SA-SC	6			4			4		4			4			
S1C-SC S2C-SC SG-SC		6			4			4	4			4	4		
ZA-CT			2	4					4		8	4		*	*
ZC-CT ZD-CT ZG-CT ZH-CT			2		4	8			4		8	4		*	*
YA-SC				4			4		2			3			
YC-SC					4			4	2			3	4		
YG-SC					4			4	2			3	4		
G1J-CT G2J-CT				2	4	8					8	4	6	*	*

*: Varies depending on the number of tumbler-shaped holes in the guide rail.

• Parts Used on ICS(P)A3 Combining 3 Axes

	Hexagonal bolt		Hexagonal socket head bolt												
	M6 x 30	M8 x 35	M3 x 12	M4 x 6	M4 x 8	M4 x 12	M4 x 14	M4 x 20	M5 x 10	M6 x 8	M6 x 10	M6 x 12	M6 x 20	M6 x 28	M8 x 28
BA-B1 -SC-SC	4		24		2	2	2						12		
BA-B1 -CT-CT	4		24	2		4	2	2	6	8	8	2	12		
BB-B1 -SC-SC		4	24	2	2	2							12		
BB-B2/B3 -SC-SC		4	24	2	2	2							4	4	4
BB-B1 -CT-CT		4	24	4		4			6	8	8	2	12		
BB-B2/B3 -CT-CT		4	24	4		4			6	8	8	2	4	4	4
BC-B1 -SC-SC		4	24	2	2	2							8		4
BC-B2/B3 -SC-SC		4	24	2	2	2									12
BC-B1 -CT-CT		4	24	4		4			6	8	8	2	8		4
BC-B2/B3 -CT-CT		4	24	4		4			6	8	8	2			12
BD-B1 -CT-SC		4	24	2	2	2			3	4	4		8		4
BD-B2/B3 -CT-SC		4	24	2	2	2			3	4	4				12
BD-B1 -CT-CT		4	24	4		4			6	8	8	2	8		4
BD-B2/B3 -CT-CT		4	24	4		4			6	8	8	2			12
BE-B1 -SC-SC		4	24	2	2	2			3	4	4		8		4
BE-B2/B3 -SC-SC		4	24	2	2	2			3	4	4				12
BE-B1 -CT-CT		4	24	4		4			6	8	8	2	8		4
BE-B2/B3 -CT-CT		4	24	4		4			6	8	8	2			12

• Parts Used on ICS(P)A3 Combining 3 Axes

	Hexagonal bolt		Hexagonal socket head bolt																						
	M6 x 30	M8 x 35	M3 x 12	M4 x 6	M4 x 8	M4 x 10	M4 x 12	M4 x 14	M4 x 16	M4 x 40	M5 x 10	M6 x 8	M6 x 10	M6 x 12	M6 x 18	M6 x 20	M6 x 25	M6 x 28	M6 x 35	M6 x 45	M8 x 20	M8 x 28	M8 x 30	M8 x 40	M8 x 45
BF-B1 -CT-SC		4	24	2	2		2				3	4	4			8						4			
BF-B2/B3 -CT-SC		4	24	2	2		2				3	4	4									12			
BF-B1 -CT-CT		4	24	4			4				6	8	8	2		8						4			
BF-B2/B3 -CT-CT		4	24	4			4				6	8	8	2								12			
BA-S1 -SC-SC	8		24				2	2	2							4		4							
BB-S1 -SC-SC	4	4	24	2			2		2							4		4							
BC-S1 -SC-SC	4	4	24	2			2		2									4				4			
BC-S2/S3 -SC-SC		8	24	2			2		2													4		4	
BD-S1 -CT-SC	4	4	24	2			2		2		3	4	4					4				4			
BD-S2/S3 -CT-SC		8	24	2			2		2		3	4	4									4		4	
BE-S1 -SC-SC	4	4	24	2			2		2									4				4			
BE-S2/S3 -SC-SC		8	24	2			2		2													4		4	
BF-S1 -CT-SC	4	4	24	2			2		2		3	4	4					4				4			
BF-S2/S3 -CT-SC		8	24	2			2		2		3	4	4									4		4	
G*J-B1 -CT-CT			24			8						8	4		4	4			4	4			10		8
G*J-B2/B3 -CT-CT			24			8						8	4						4	4	4	4	10		8
G*J-S1 -CT-CT-SC			32			8				2		8	4				4		4	4			10		8
G*J-S2/S3 -CT-CT-SC			32			8						8	4						4	4			14		8

• Parts Used on ICS(P)A3 Combining 3 Axes

	M8 flat washer	High-tension washer		Flange-head hexagonal socket head bolt	Parallel pin		Hexagonal nut			Grommet with film (Takigen)	M8 dedicated flat washer	Thin-head TP		Flange-head hexagonal socket head bolt	Hexagonal nut
	Ø8.5 x Ø18 x t1.6	M6	M8	M4 x 8	Ø6h7 x 15	Ø8h7 x 18	M4	M5	M6	C-30-SG-34A-EP-UL (ivory)		M3 x 6	M4 x 6	M4 x 6	M4
BA-B1-SC-SC		4		2	7		6			2		6			
BA-B1-CT-CT		4			7		2	6	8	6		6		*	*
BB-B1-SC-SC			4	2	5	2	6			2		6			
BB-B2/B3-SC-SC			4	2	4	3	6			2		6			
BB-B1-CT-CT			4		5	2	2	6	8	6		6		*	*
BB-B2/B3-CT-CT			4		4	3	2	6	8	6		6		*	*
BC-B1-SC-SC			4	2	1	6	6			2	4		6		
BC-B2/B3-SC-SC	4		4	2		7	6			2	8		6		
BC-B1-CT-CT			4		1	6	2	6	8	6	4		6	*	*
BC-B2/B3-CT-CT	4		4			7	2	6	8	6	8		6	*	*
BD-B1-CT-SC			4	2	1	6	6	3	8	5	4		6	*	*
BD-B2/B3-CT-SC	4		4	2		7	6	3	8	5	8		6	*	*
BD-B1-CT-CT			4		1	6	2	6	8	5	4		6	*	*
BD-B2/B3-CT-CT	4		4			7	2	6	8	6	8		6	*	*
BE-B1-SC-SC			4	2	1	6	6	3	8	5	4		6	*	*
BE-B2/B3-SC-SC	4		4	2		7	6	3	8	5	8		6	*	*
BE-B1-CT-CT			4		1	6	2	6	8	6	4		6	*	*
BE-B2/B3-CT-CT	4		4			7	2	6	8	6	8		6	*	*

*: Varies depending on the number of tumbler-shaped holes in the guide rail.

• Parts Used on ICS(P)A3 Combining 3 Axes

	M8 flat washer	High-tension washer		Flange-head hexagonal socket head bolt	Parallel pin		Hexagonal nut			Grommet with film (Takigen)	M8 dedicated flat washer	Thin-head TP		Flange-head hexagonal socket head bolt	Hexagonal nut
	Ø8.5 x Ø18 x t1.6	M6	M8	M4 x 8	Ø6h7 x 15	Ø8h7 x 18	M4	M5	M6	C-30-SG-34A-EP-UL (ivory)		M3 x 6	M4 x 6	M4 x 6	M4
BF-B1-CT-SC			4	2	1	6	6	3	8	5	4		6	*	*
BF-B2/B3-CT-SC	4		4	2		7	6	3	8	5	8		6	*	*
BF-B1-CT-CT			4		1	6	2	6	8	6	4		6	*	*
BF-B2/B3-CT-CT	4		4			7	2	6	8	6	8		6	*	*
BA-S1-SC-SC		8			8		4			2		6			
BB-S1-SC-SC		4	4		6	2	4			2		6			
BC-S1-SC-SC		4	4		2	6	4			2	4		6		
BC-S2/S3-SC-SC			8			8	4			2	8		6		
BD-S1-CT-SC		4	4		2	6	4	3	8	5	4		6	*	*
BD-S2/S3-CT-SC			8			8	4	3	8	5	8		6	*	*
BE-S1-SC-SC		4	4		2	6	4			2	4		6		
BE-S2/S3-SC-SC			8			8	4			2	8		6		
BF-S1-CT-SC		4	4		2	6	4	3	8	5	4		6	*	*
BF-S2/S3-CT-SC			8			8	4	3	8	5	8		6	*	*
G*J-B1-CT-CT	12				2	9			8	5	6			*	*
G*J-B2/B3-CT-CT	16				2	9			8	5	6			*	*
G*J-S1-CT-CT-SC	12				2	6	4		8	6	6			*	*
G*J-S2/S3-CT-CT-SC	12				2	8	4		8	6	6			*	*

*: Varies depending on the number of tumbler-shaped holes in the guide rail.

Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

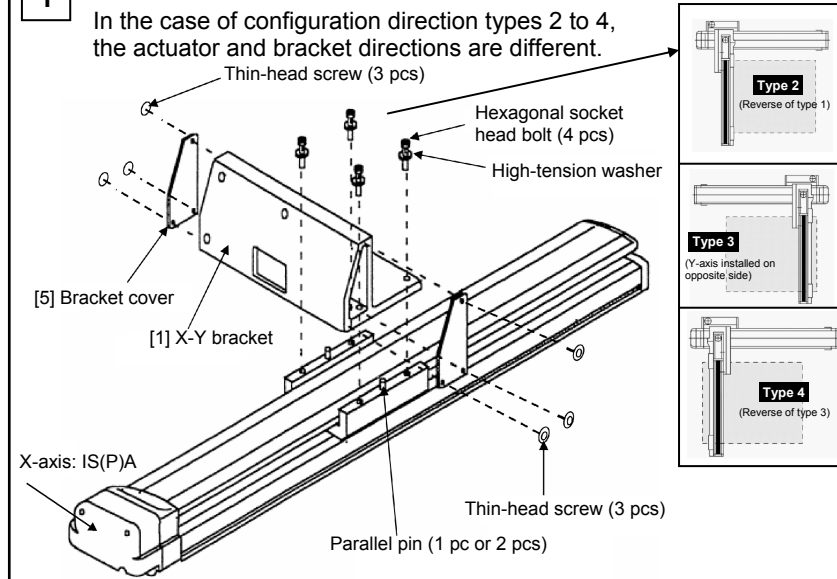
ICS(P)A Cartesian Robot, 2-axis Configuration XYB (Y-axis Base Mount) Type
ICS(P)A2-B□□□-SC Self-supporting Cable

Drawing No. GMM08-003

1/1

1 [Tools] Allen wrench

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.

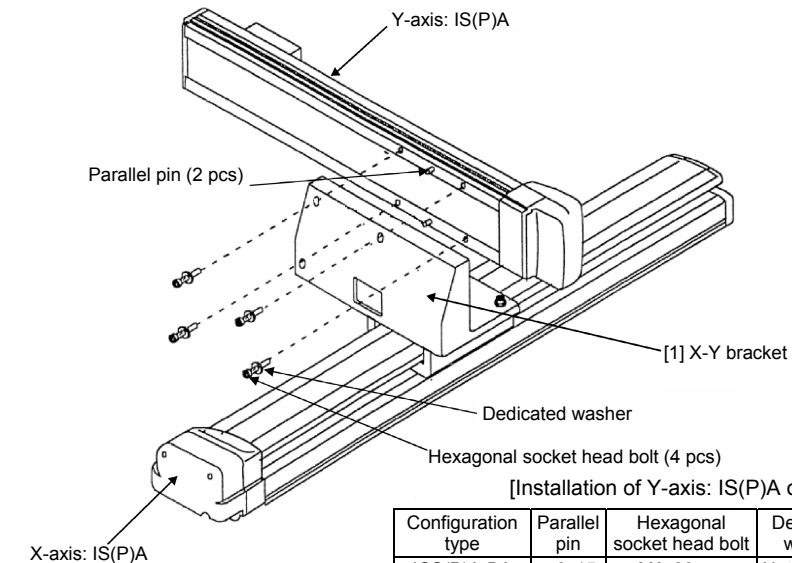
[Installation of X-Y bracket [1] on X-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-BA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BB	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BC	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BD	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BE	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BF	M4x6mm	20.8kgf·cm/204N·cm

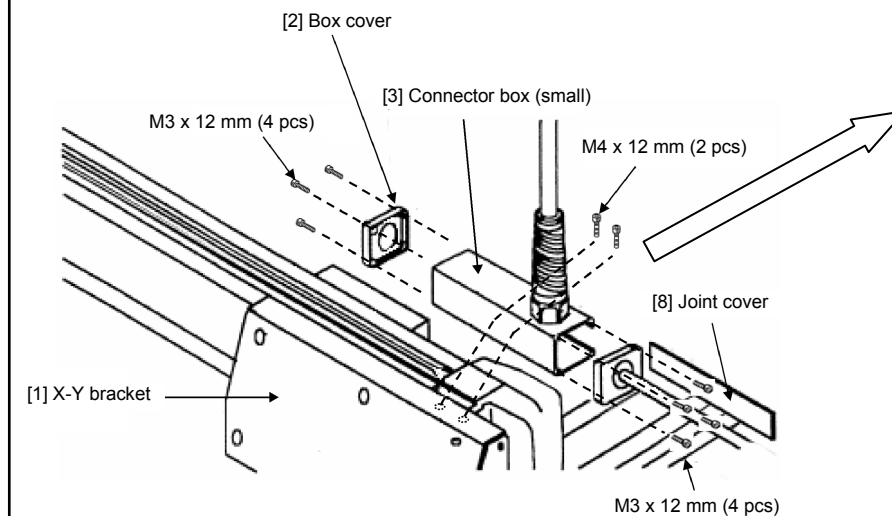
2



[Installation of Y-axis: IS(P)A on X-Y bracket [1]]

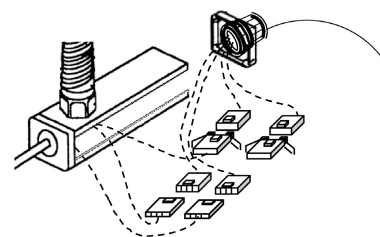
Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

3



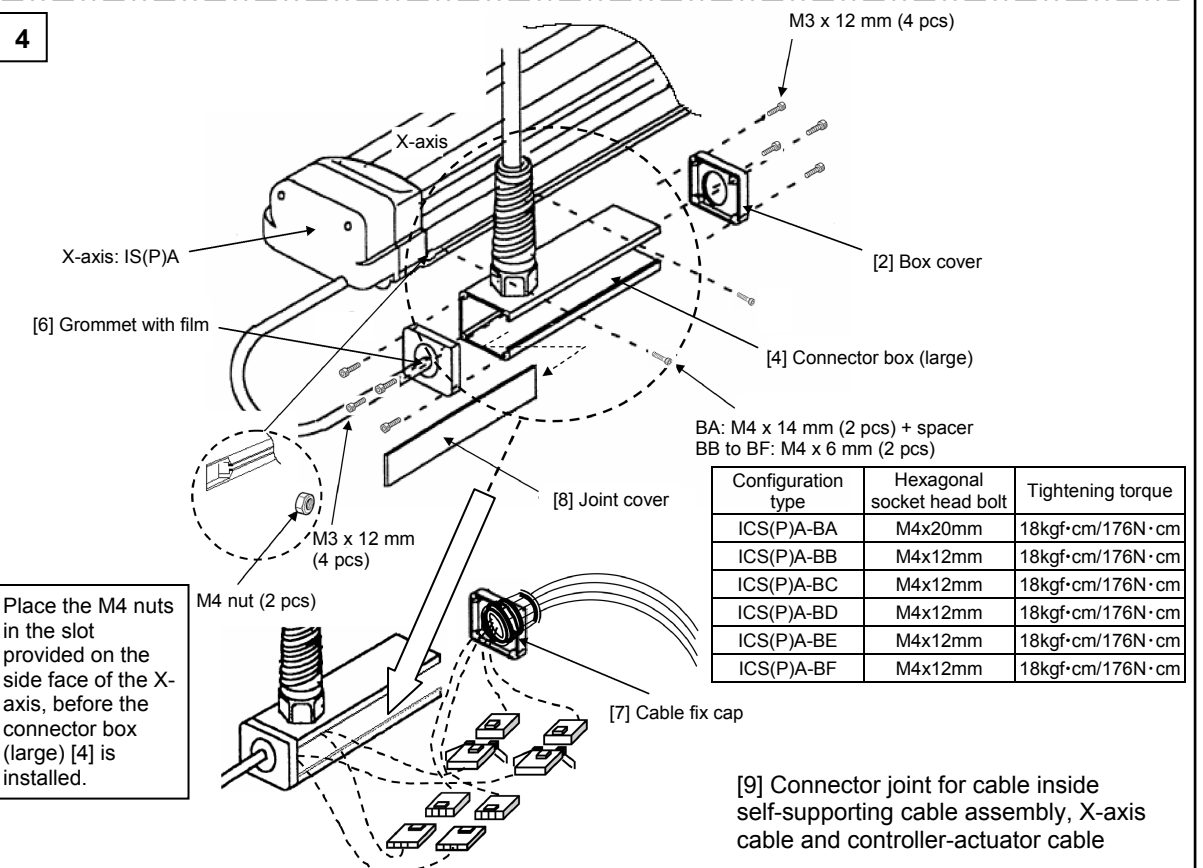
[Installation of connector box (small) [3] on X-Y bracket [1]]
[Installation of box cover [2] on connector box (small) [3]]

Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x12mm	18kgf·cm/176N·cm



[9] Connector joint for cable inside self-supporting cable assembly and Y-axis cable

4



BA: M4 x 14 mm (2 pcs) + spacer
BB to BF: M4 x 6 mm (2 pcs)

Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x20mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x12mm	18kgf·cm/176N·cm

* This assembly procedure applies to combination direction 1. If other combination direction such as 2, 3 or 4 is used, the actuator and bracket directions vary. However, you can still use this assembly drawing as a reference.

⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

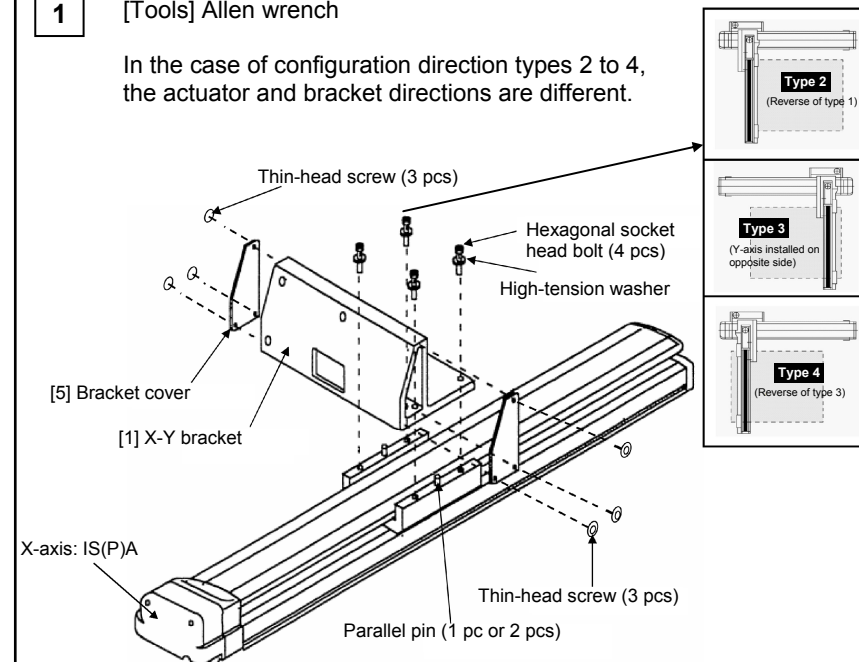
ICS(P)A Cartesian Robot, 2-axis Configuration XYB (Y-axis Base Mount) Type
ICS(P)A2-B□□□-CT Cable Track

Drawing No. GMM08-004

1/2

1 [Tools] Allen wrench

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



[Installation of X-Y bracket [1] on X-axis: IS(P)A]

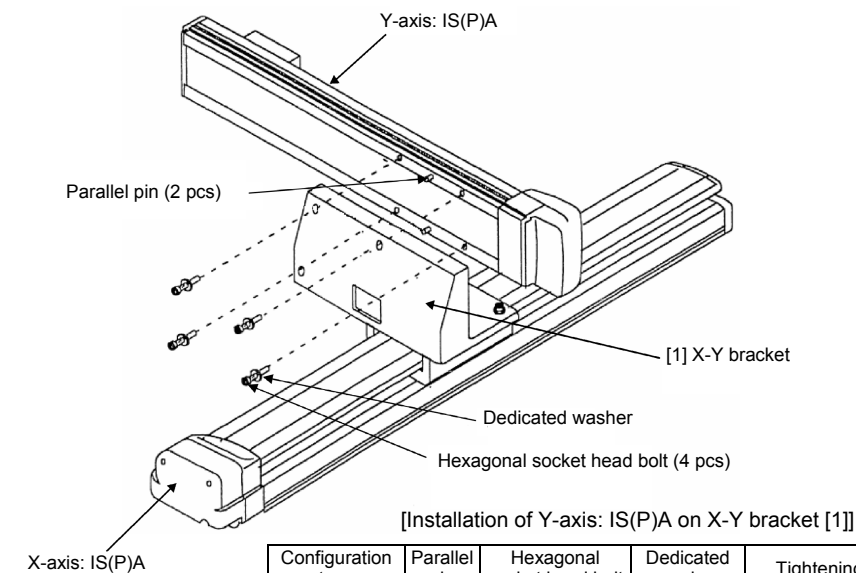
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-BA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BB	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BC	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BD	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BE	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BF	M4x6mm	20.8kgf·cm/204N·cm

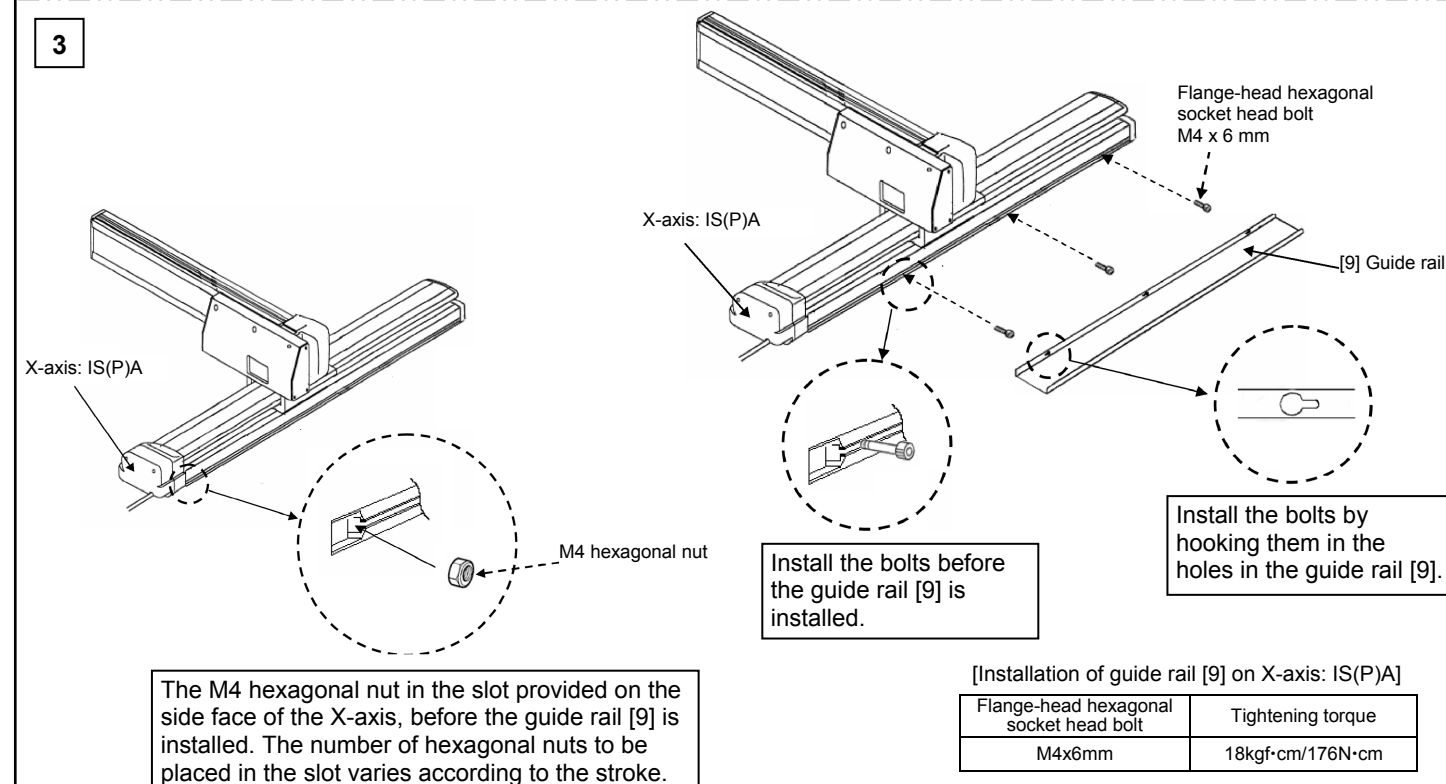
Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.

2



Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

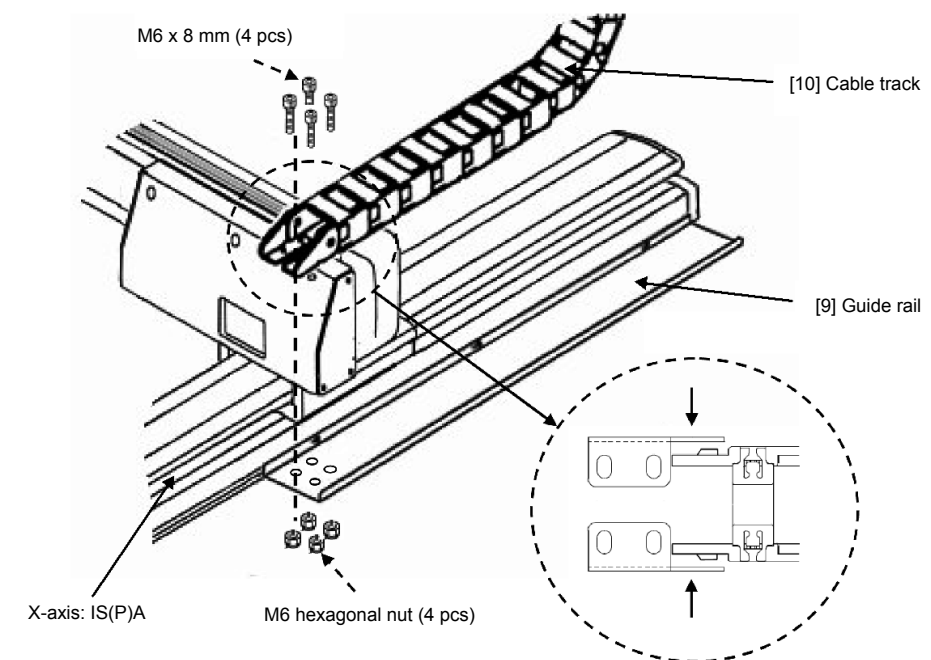
3



[Installation of guide rail [9] on X-axis: IS(P)A]

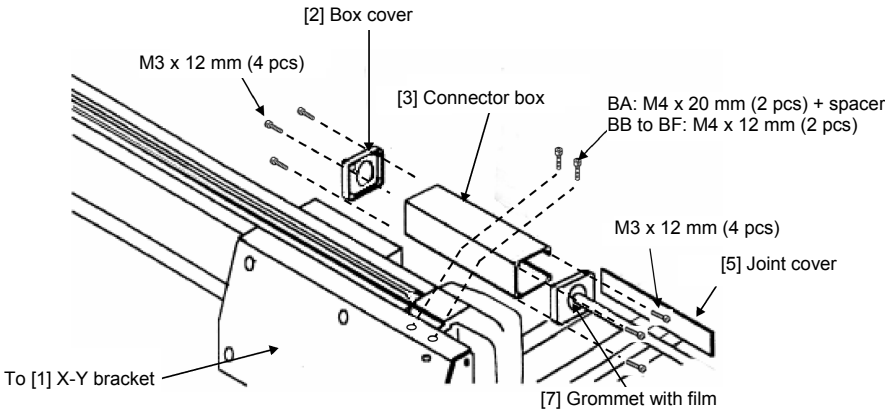
Flange-head hexagonal socket head bolt	Tightening torque
M4x6mm	18kgf·cm/176N·cm

4



* This assembly procedure applies to combination direction 1. If other combination direction such as 2, 3 or 4 is used, the actuator and bracket directions vary. However, you can still use this assembly drawing as a reference.

5



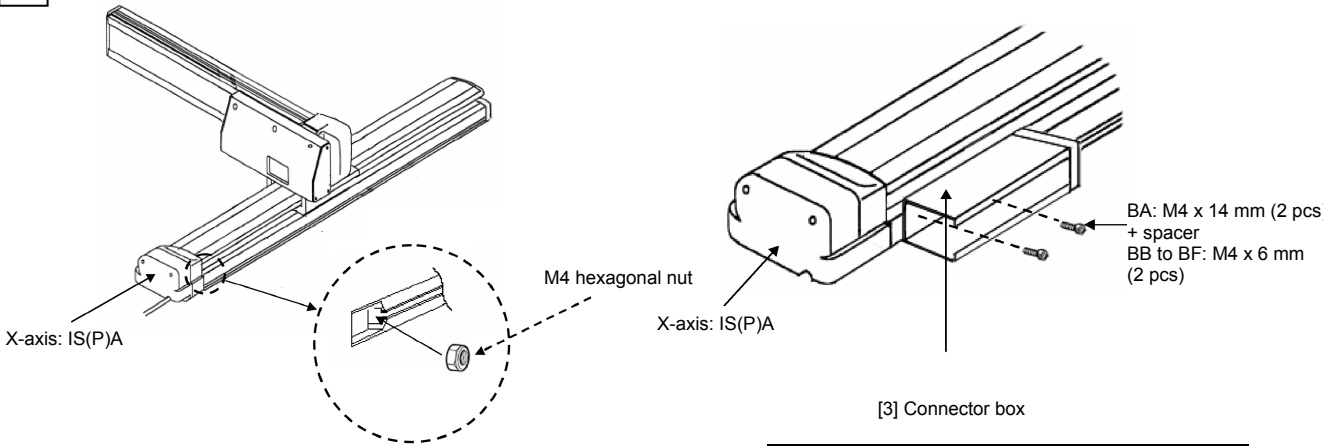
[Installation of connector box [3] on X-Y bracket [1]]

Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x20mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x12mm	18kgf·cm/176N·cm

[Installation of box cover [2] on connector box [3]]

Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm

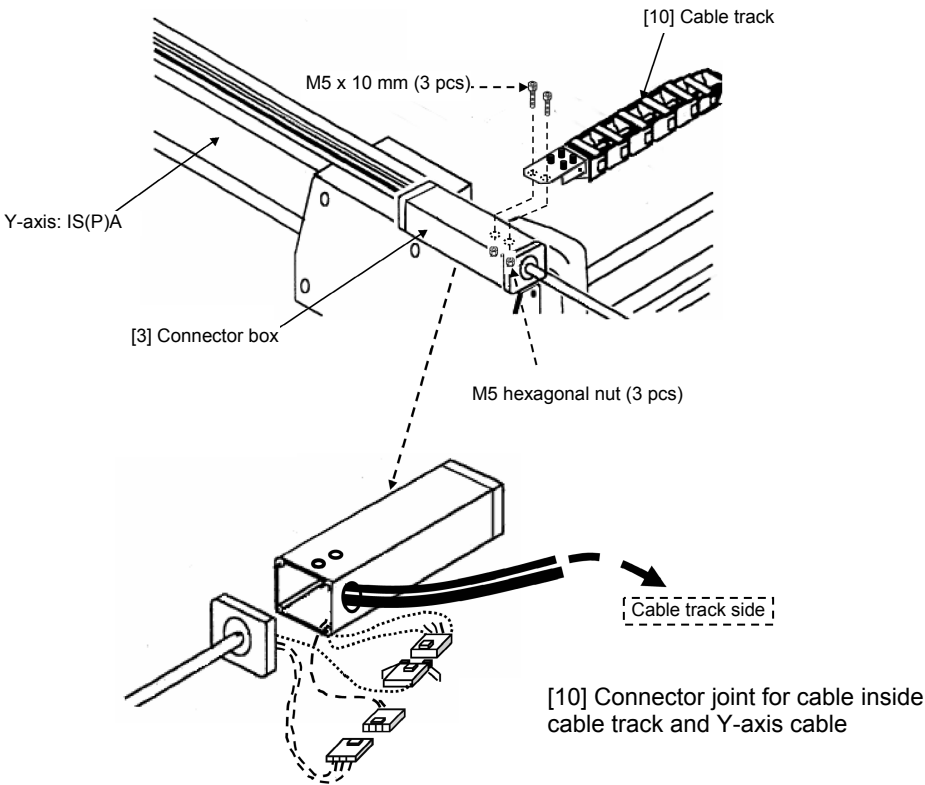
7



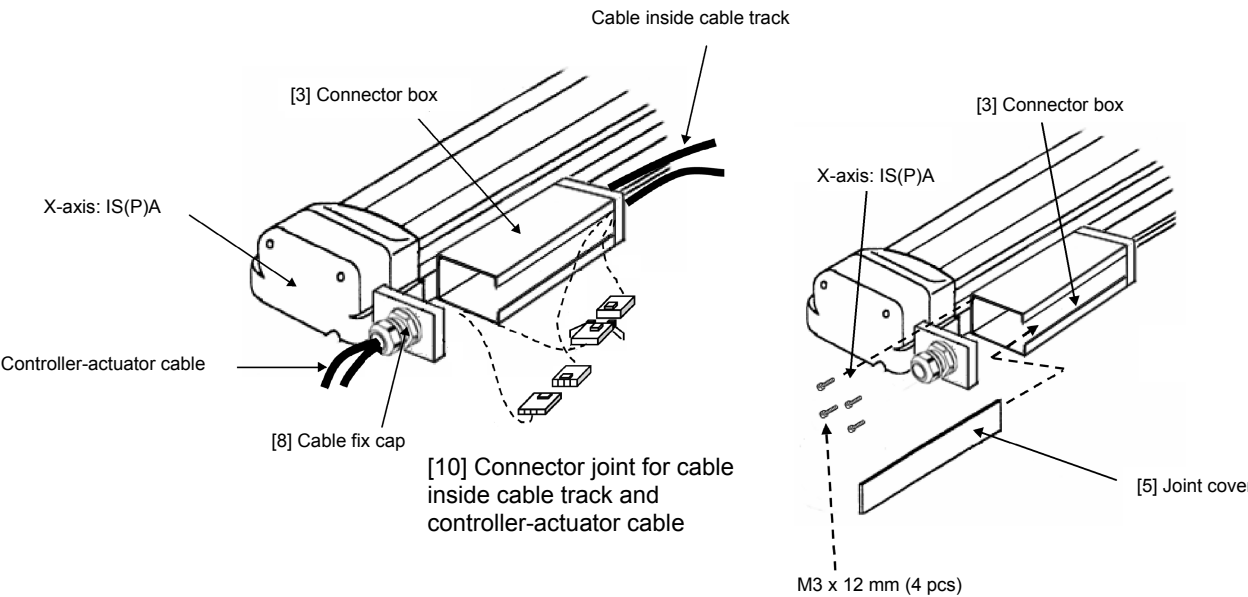
Place two M4 hexagonal nuts in the slot provided on the side face of the X-axis before the connector box [3] is installed.

Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x14mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x6mm	18kgf·cm/176N·cm

6



8



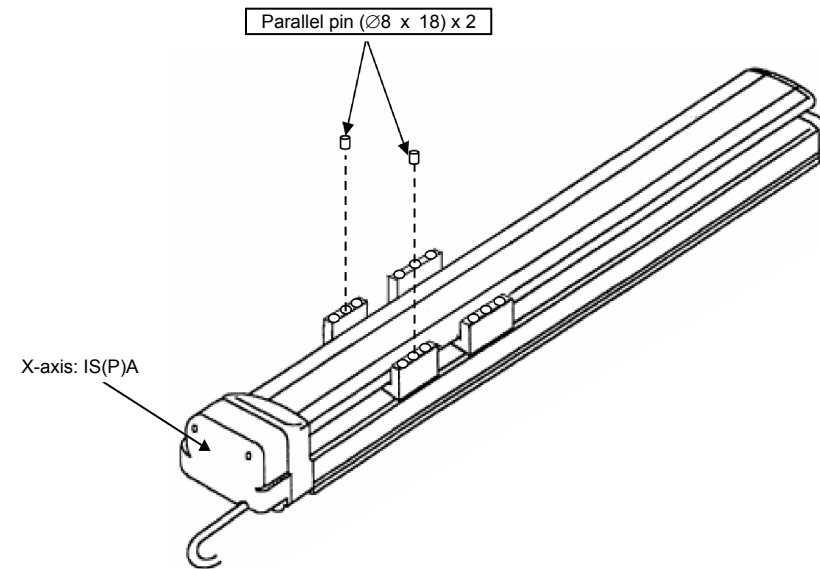
⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

ICS(P)A Cartesian Robot, 2-axis Configuration XYG (Gantry) Type
ICS(P)A2-G□□□-CT Cable Track

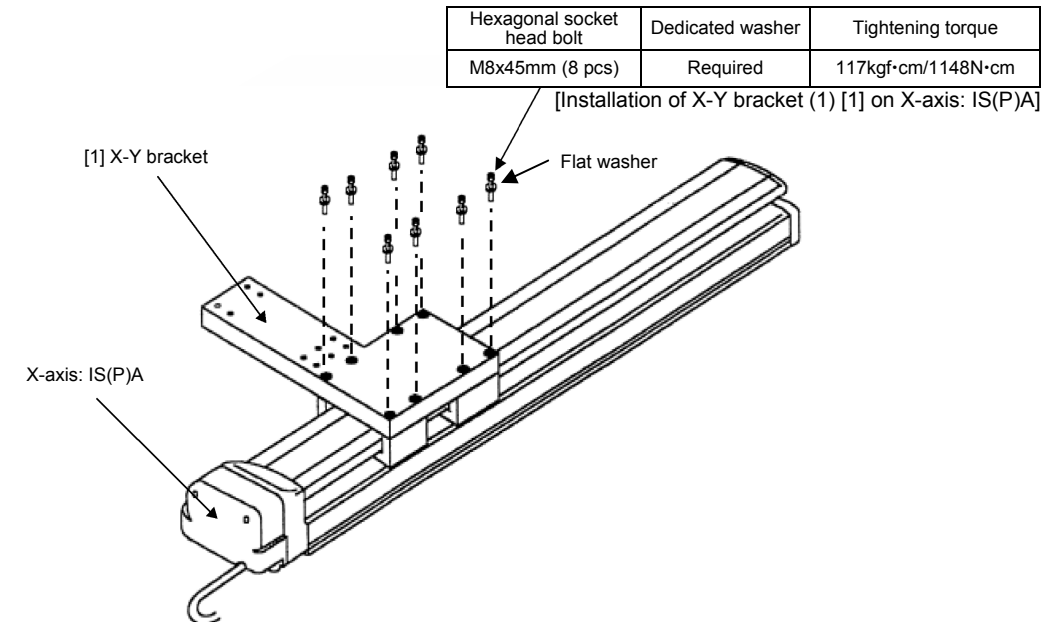
Drawing No. GMM08-005

1/2

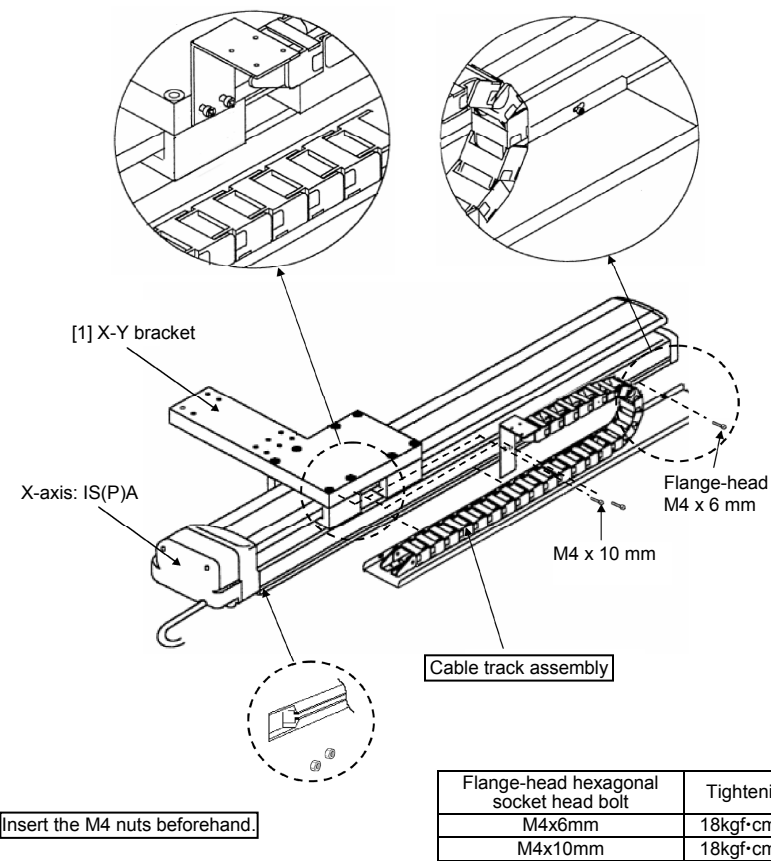
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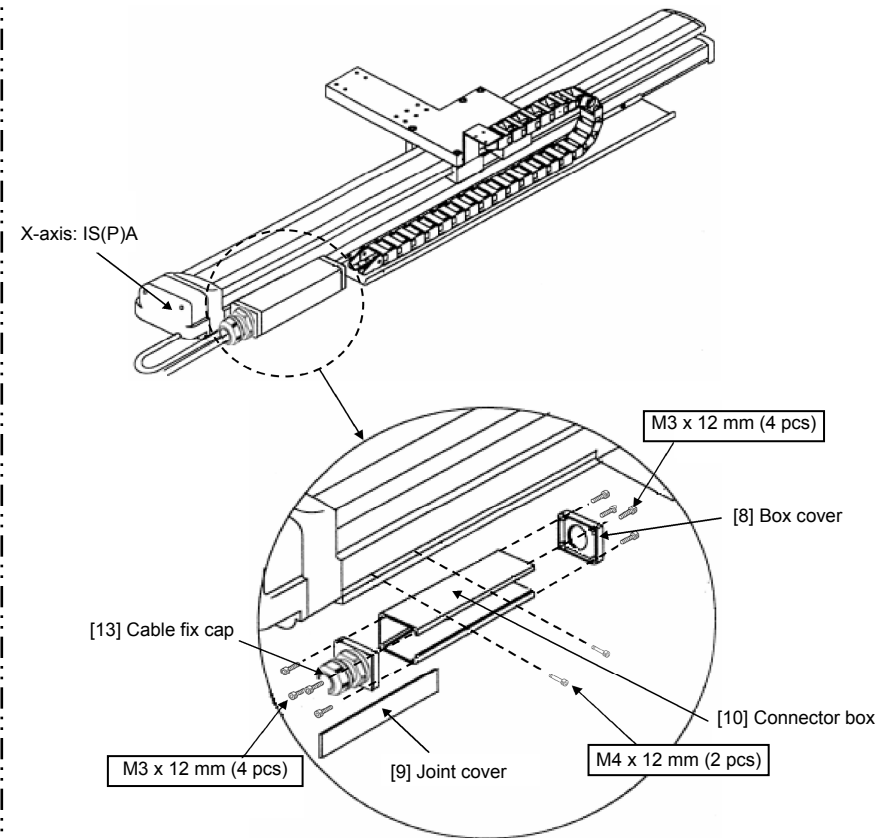
2



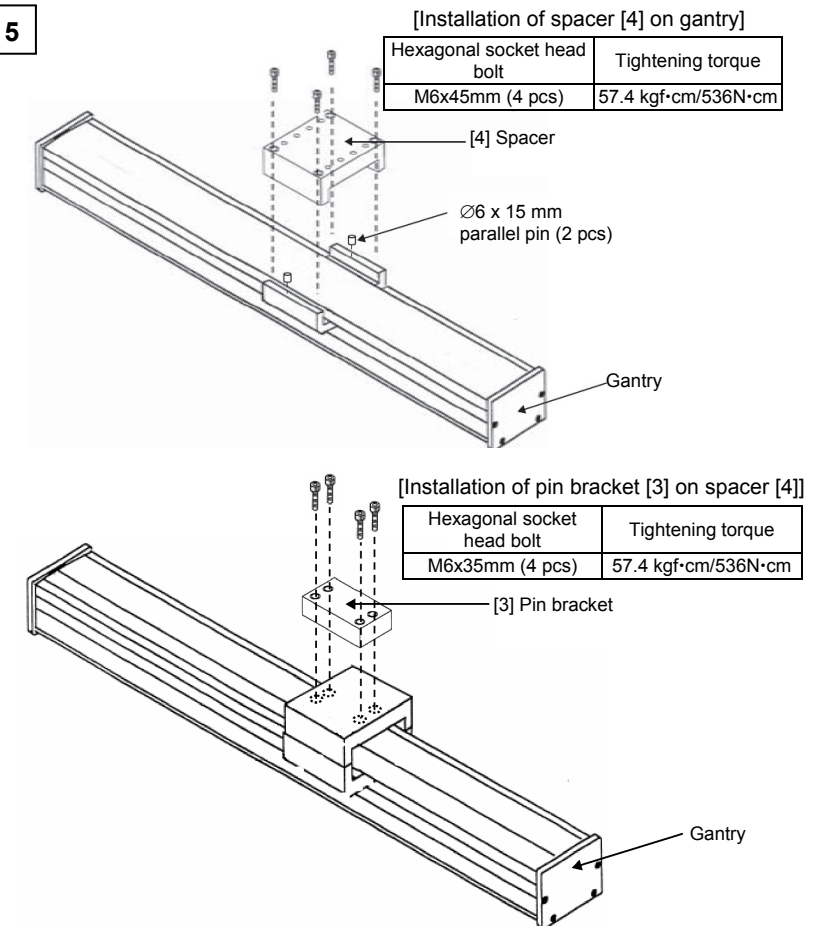
3



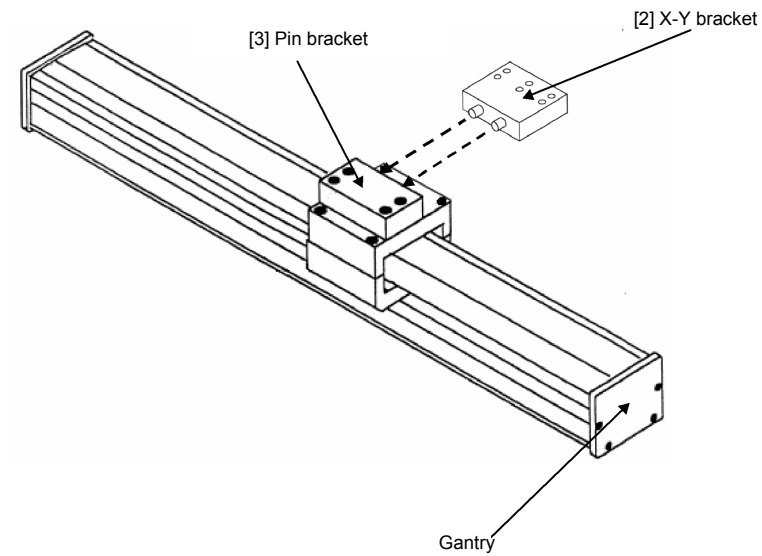
4



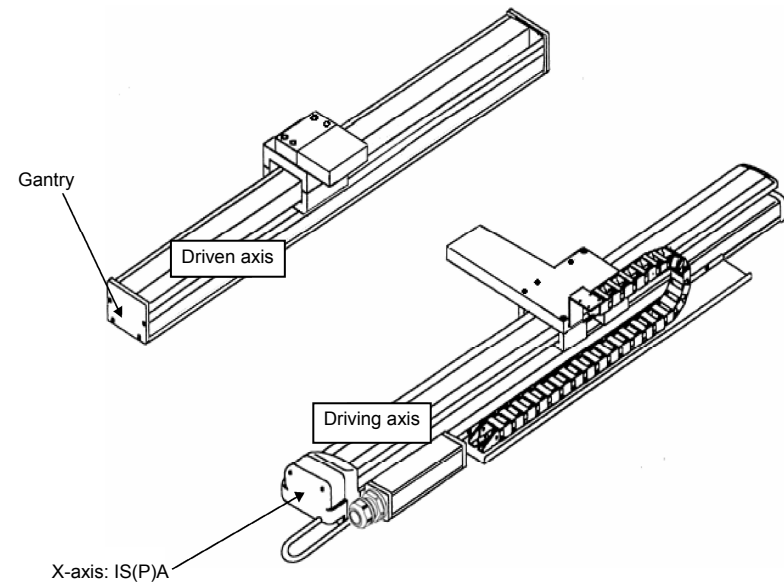
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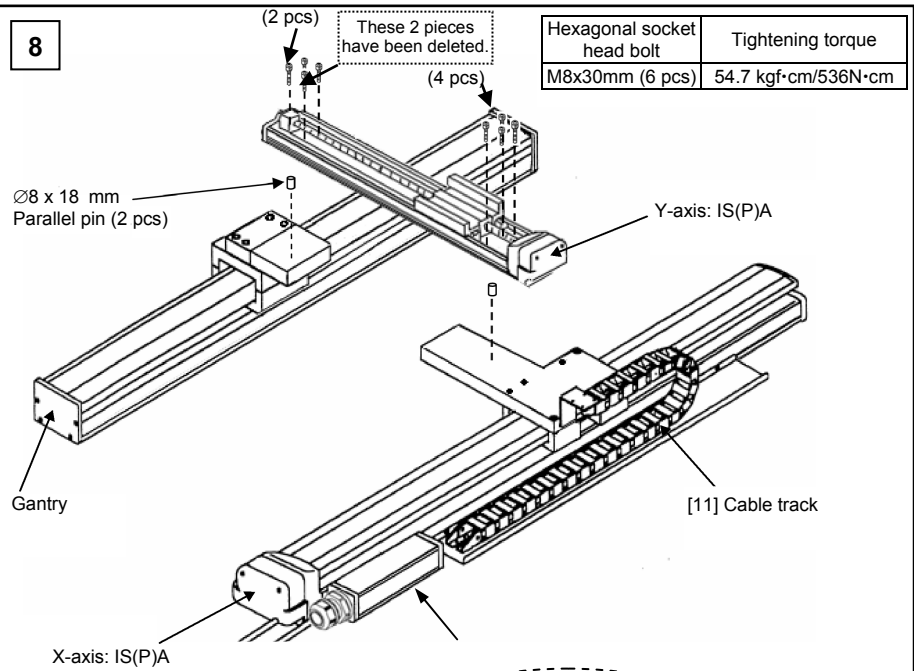
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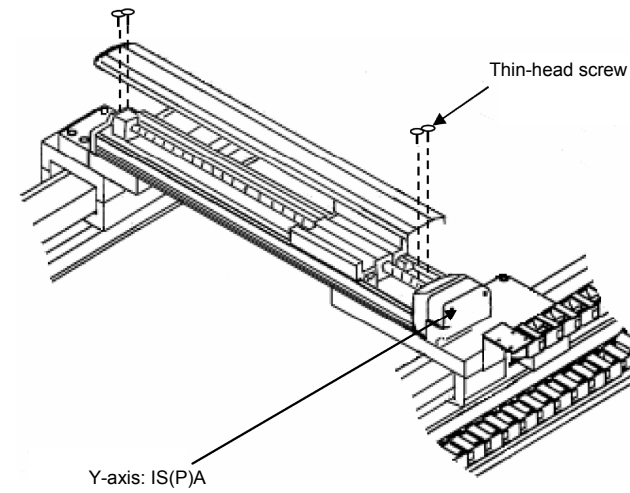
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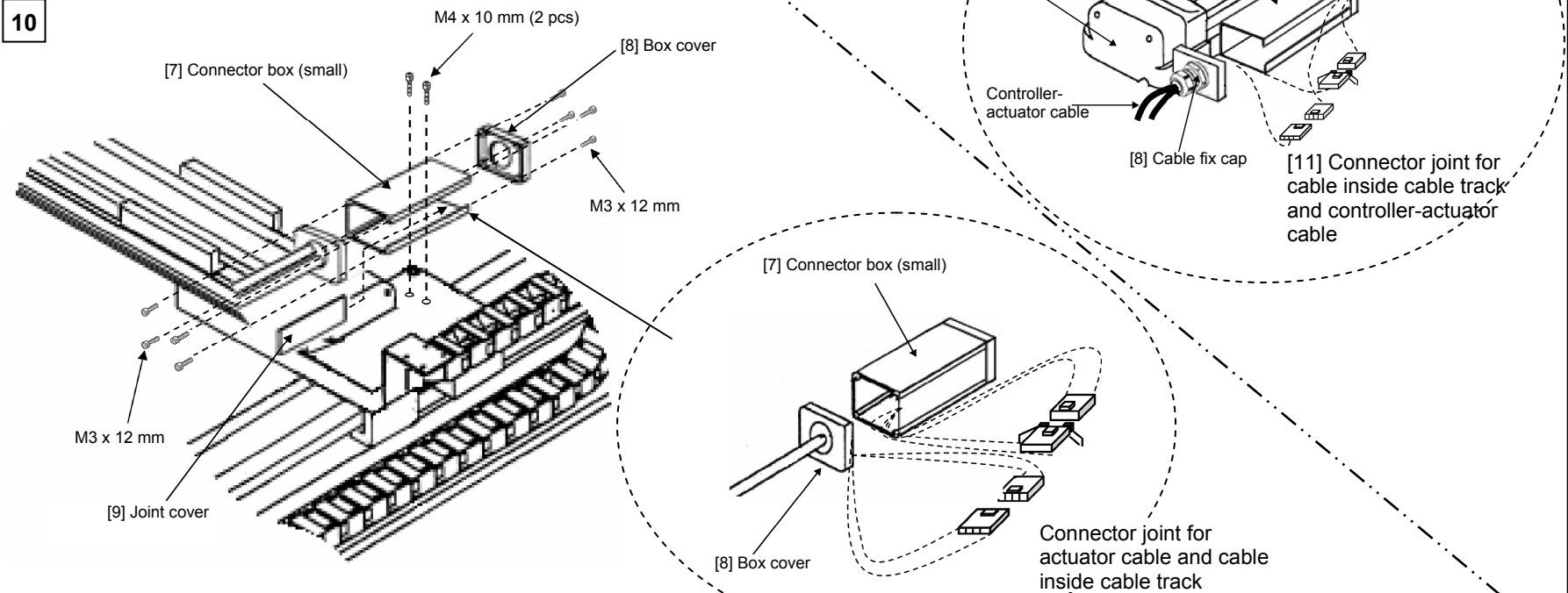
8



9



10



⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

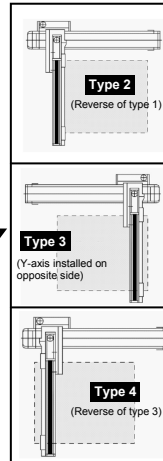
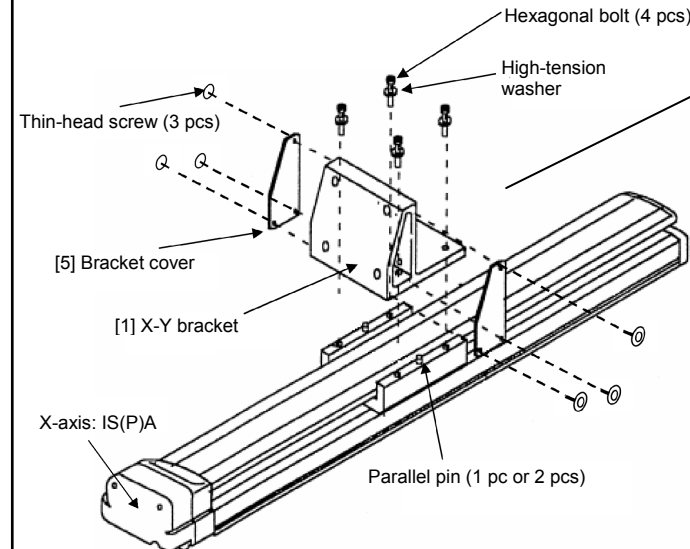
ICS(P)A Cartesian Robot, 2-axis Configuration XYs (Y-axis Slider Mount) Type
ICS(P)A2-S□□□-SC Self-supporting Cable

Drawing No. GMM08-006

1/1

1 [Tools] Allen wrench

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



[Installation of X-Y bracket [1] on X-axis: IS(P)A]

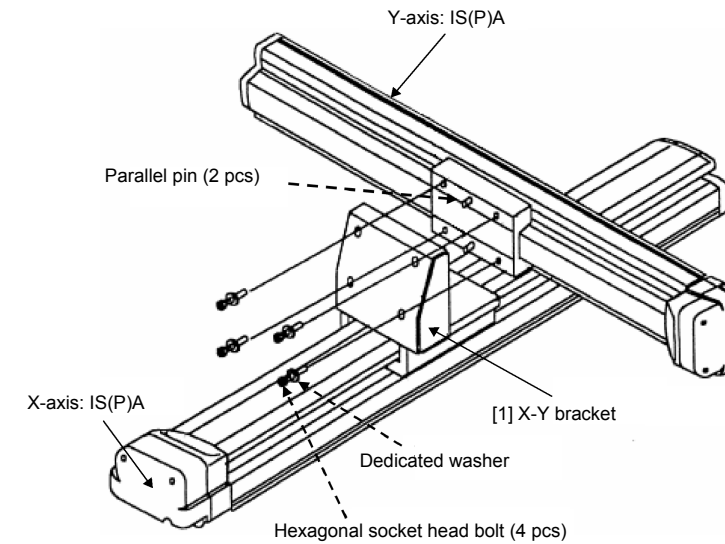
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-SA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-S1C	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-S2C	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-SG	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-SA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-S1C	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-S2C	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-SG	M4x6mm	20.8kgf·cm/204N·cm

Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.

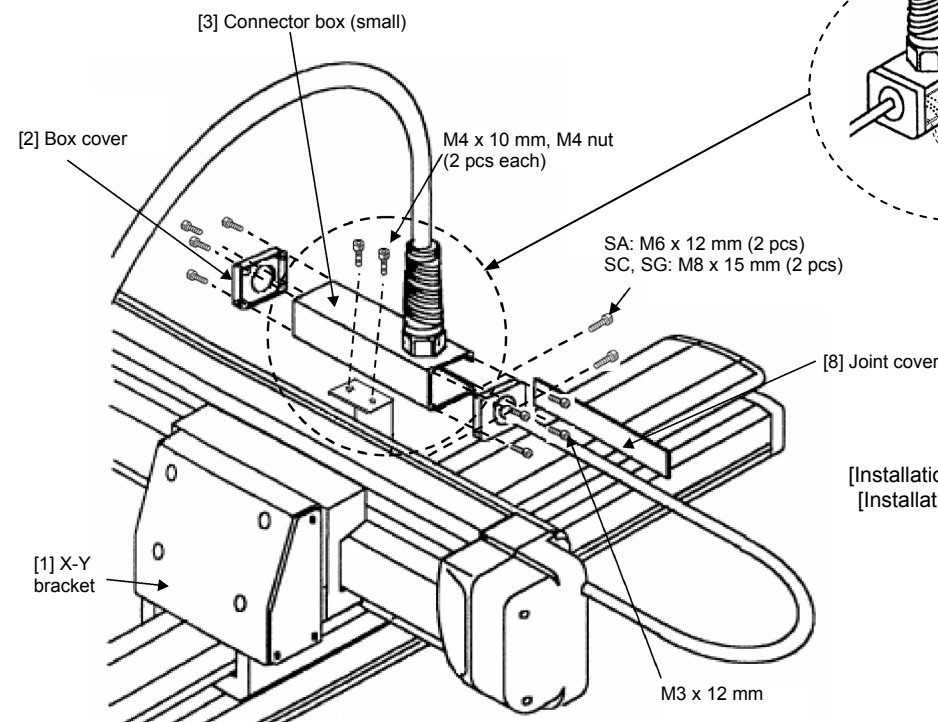
2



[Installation of Y-axis: IS(P)A on X-Y bracket [1]]

Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-SA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-S1C	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-S2C	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-SG	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

3



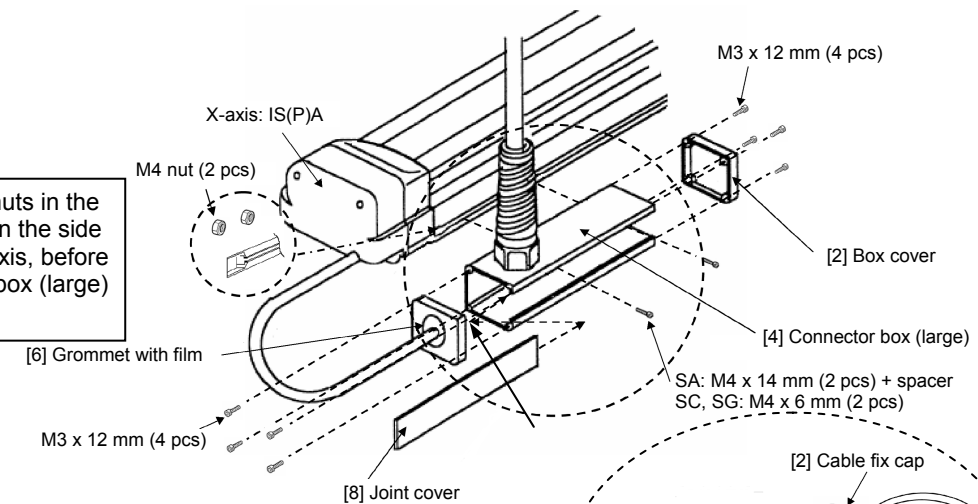
[9] Connector joint for cable inside self-supporting cable assembly and Y-axis cable

[Installation of connector box (small) [3] on X-Y bracket [1]]
[Installation of box cover [2] on connector box (small) [3]]

Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x12mm	18kgf·cm/176N·cm
M6x6mm	54.7kgf·cm/536N·cm
M8x6mm	117kgf·cm/1148N·cm

4

Place the M4 nuts in the slot provided on the side face of the X-axis, before the connector box (large) [4] is installed.

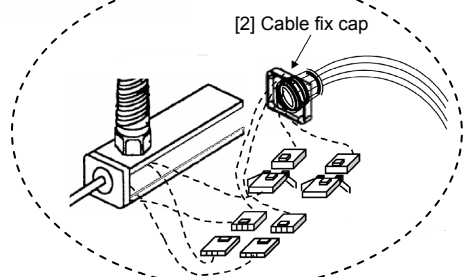


[Installation of connector box (large) [4] on X-Y bracket [1]]

Hexagonal socket head bolt	Tightening torque
M4x12mm	18kgf·cm/176N·cm

[Installation of box cover [2] on connector box (large) [4]]

Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm



[9] Connector joint for cable inside self-supporting cable assembly, X-axis cable and controller-actuator cable

* This assembly procedure applies to combination direction 1. If other combination direction such as 2, 3 or 4 is used, the actuator and bracket directions vary. However, you can still use this assembly drawing as a reference.

⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

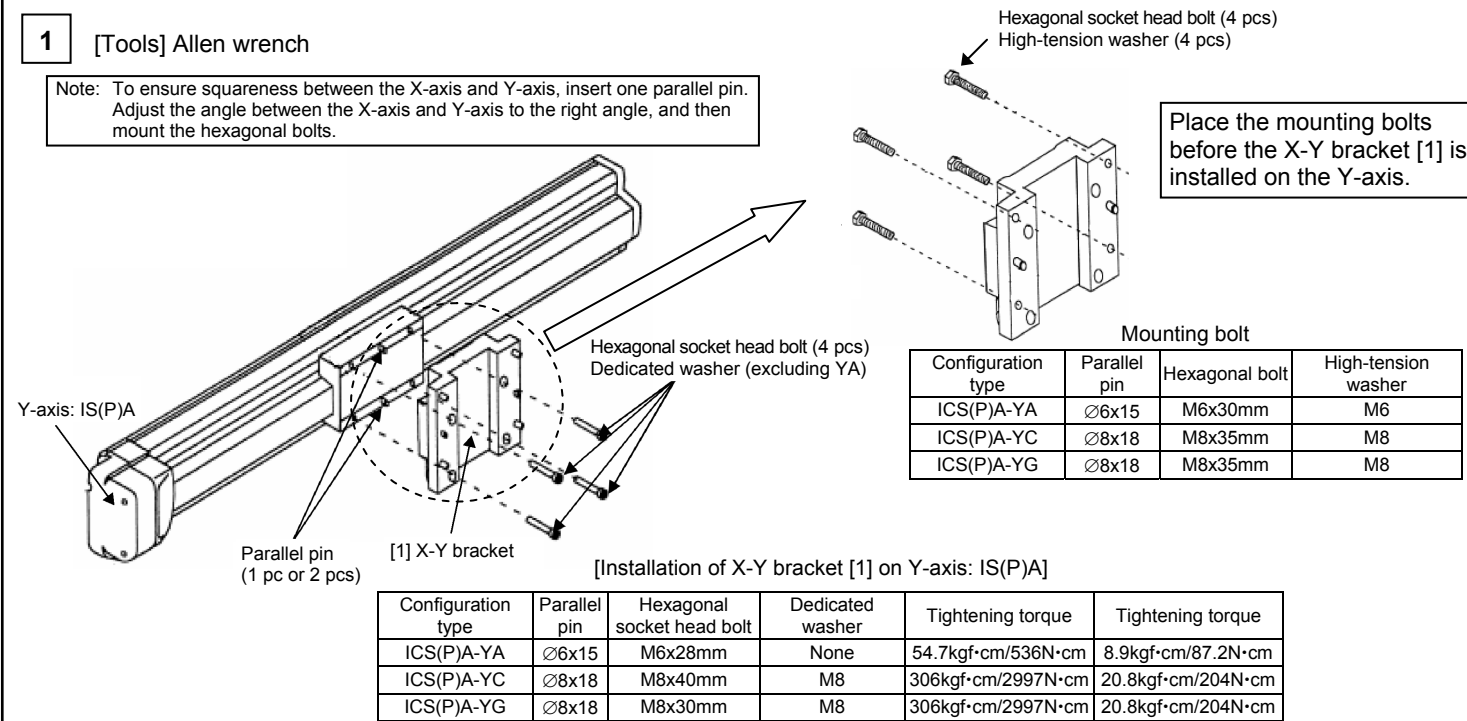
ICS(P)A Cartesian Robot, 2-axis Configuration YZ (Z-axis Slider Mount) Type
ICS(P)A2-Y□□□-SC Self-supporting Cable

Drawing No. GMM08-007

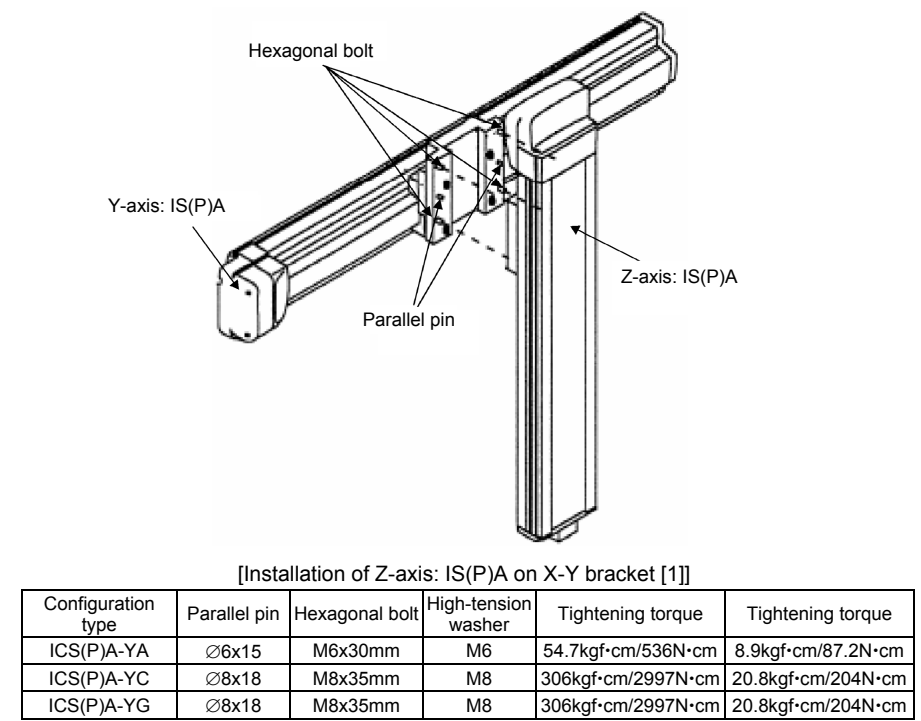
1/1

1 [Tools] Allen wrench

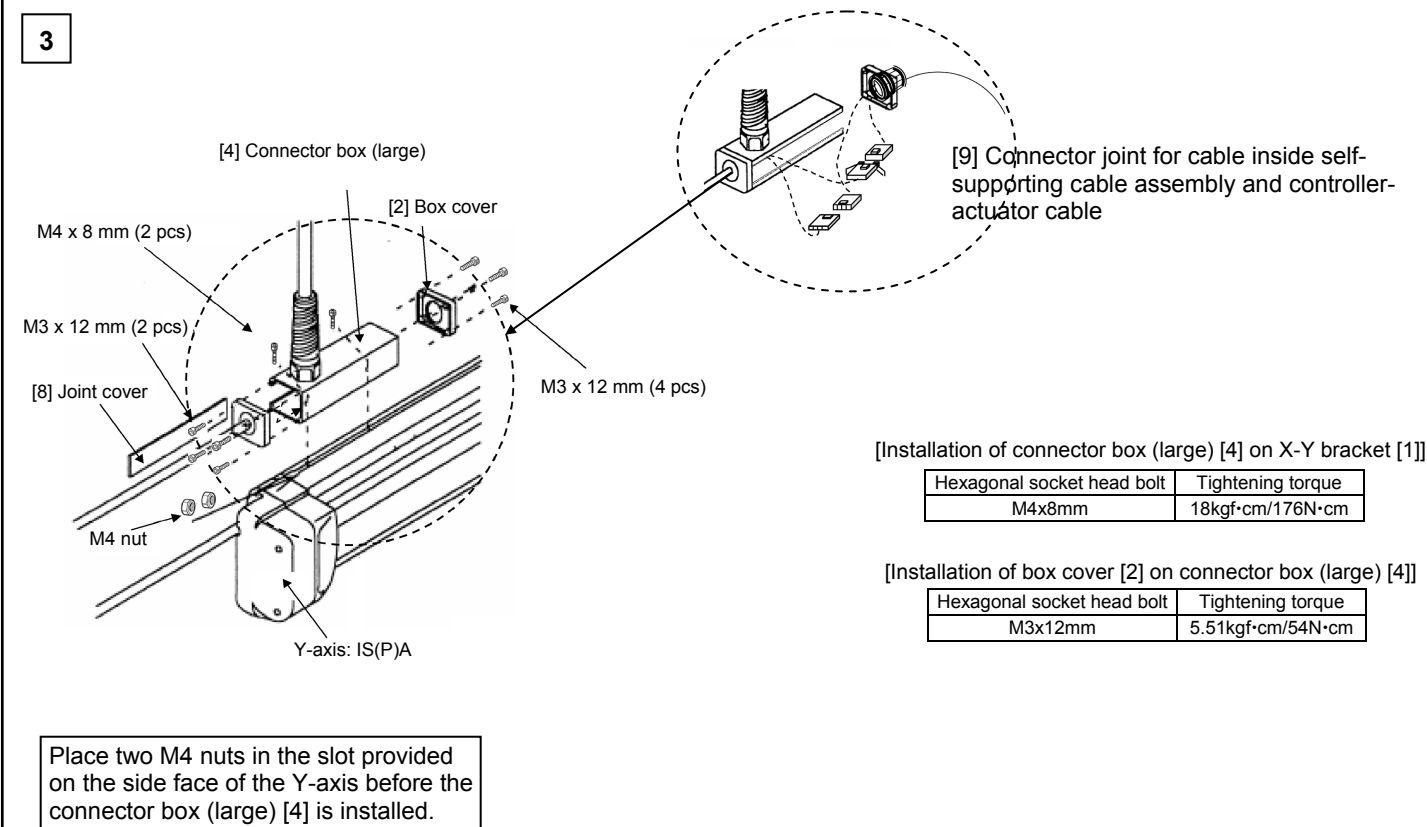
Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.



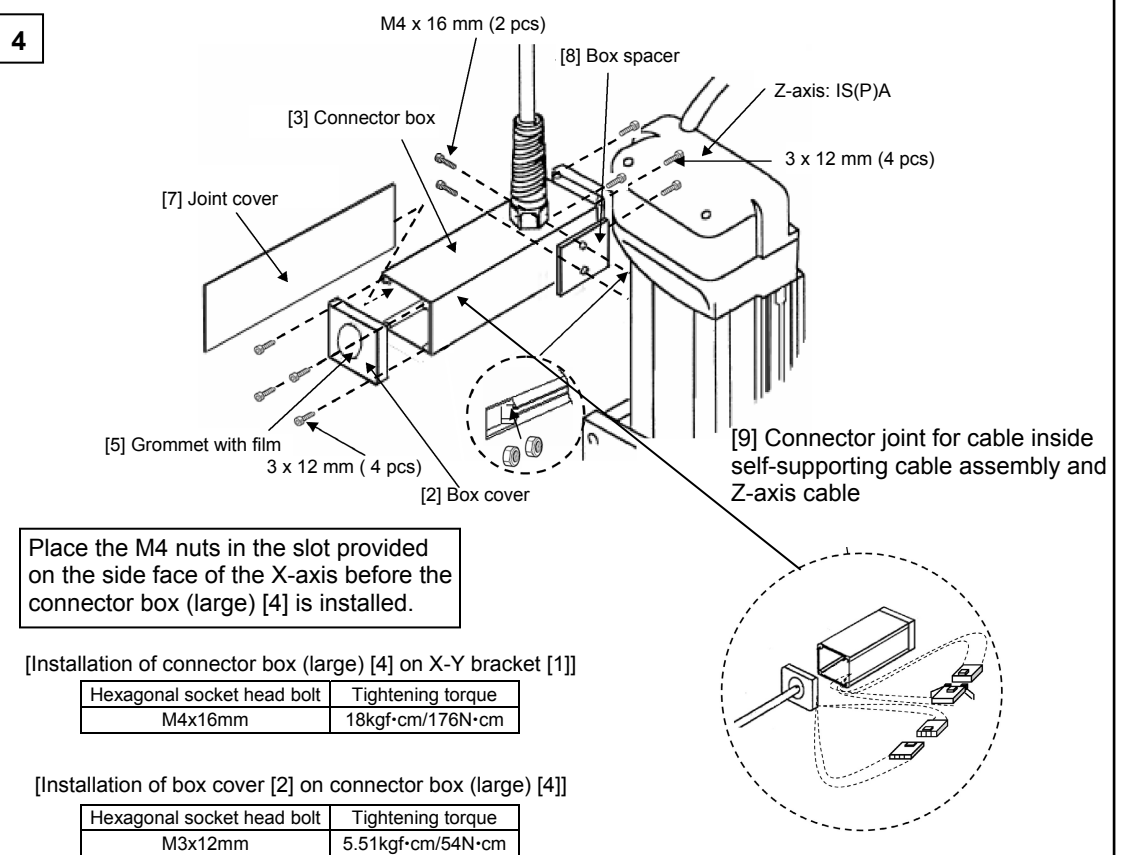
2



3



4



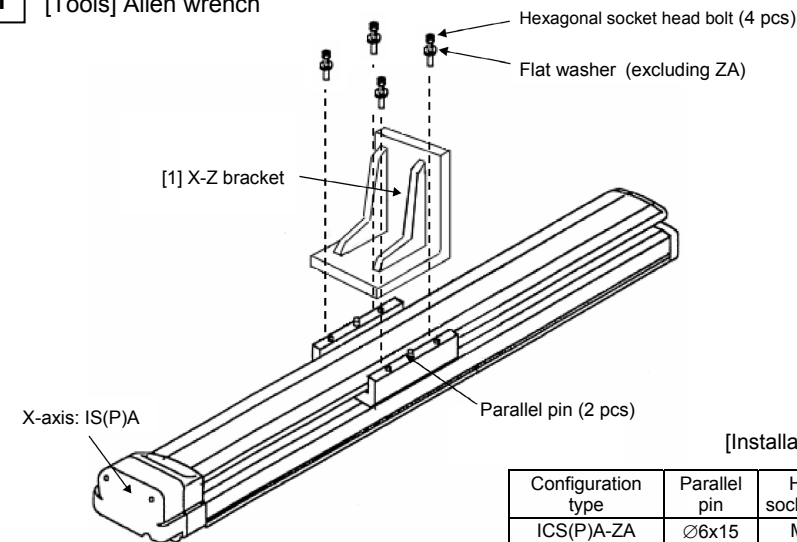
⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

ICS(P)A Cartesian Robot, 2-axis Configuration XZ (Z-axis Base Mount) Type
ICS(P)A2-Z□□□-CT Cable Track

Drawing No. GMM08-008

1/2

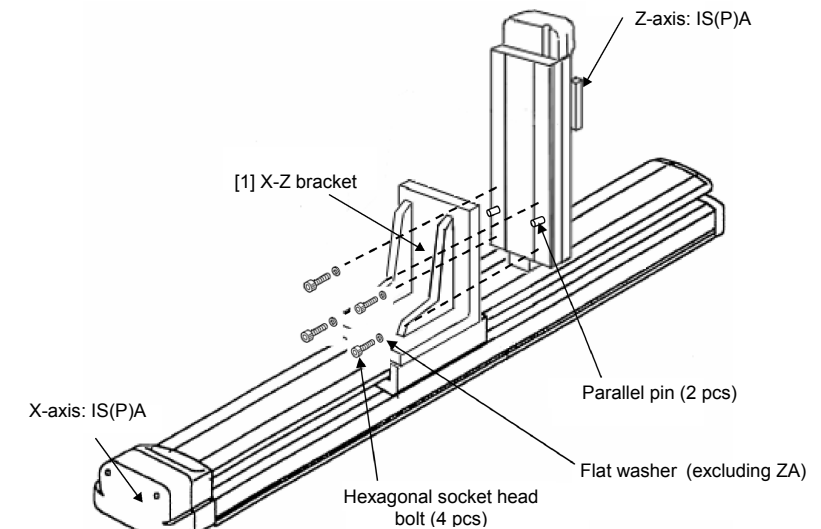
1 [Tools] Allen wrench



[Installation of X-Y bracket [1] on X-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal socket head bolt	Flat washer	Tightening torque	Tightening torque
ICS(P)A-ZA	∅6x15	M6x20mm	None	54.7kgf·cm/536N·cm	8.9kgf·cm/87.2N·cm
ICS(P)A-Z1C	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-Z2C	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-ZD	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-ZG	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm

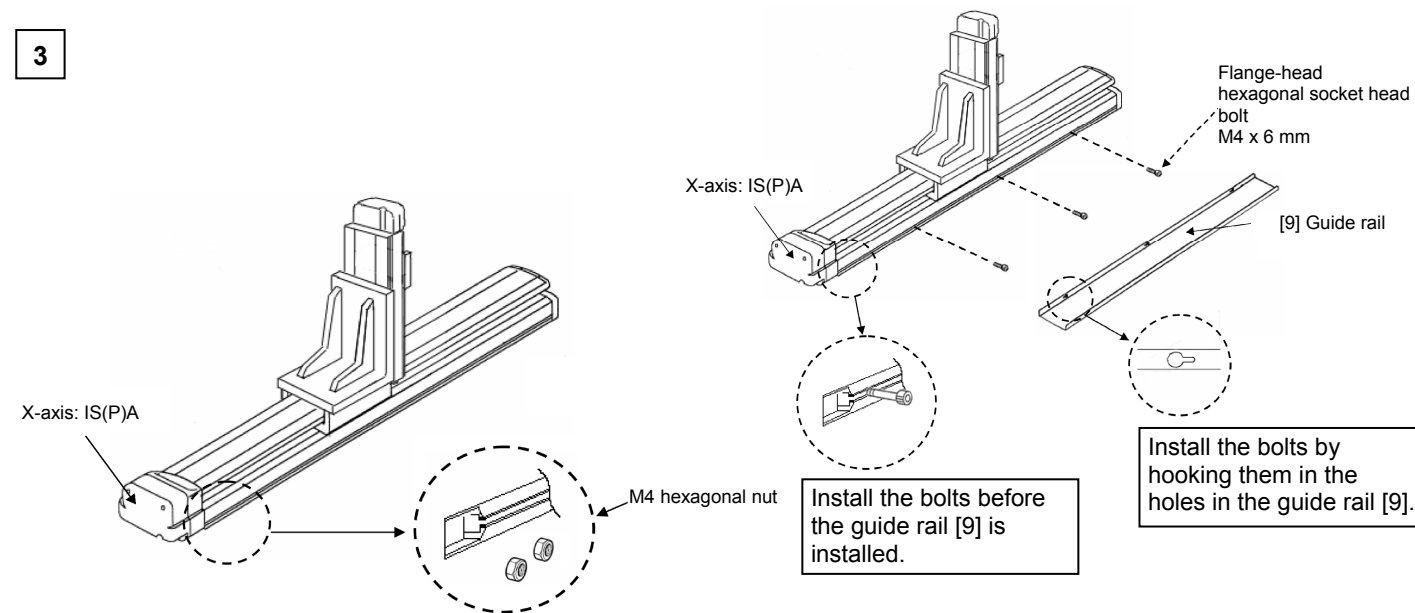
2



[Installation of X-Y bracket [1] on Y-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal socket head bolt	Flat washer	Tightening torque	Tightening torque
ICS(P)A-ZA	∅6x15	M6x20mm	None	54.7kgf·cm/536N·cm	8.9kgf·cm/87.2N·cm
ICS(P)A-Z1C	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-Z2C	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-ZD	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-ZG	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm

3

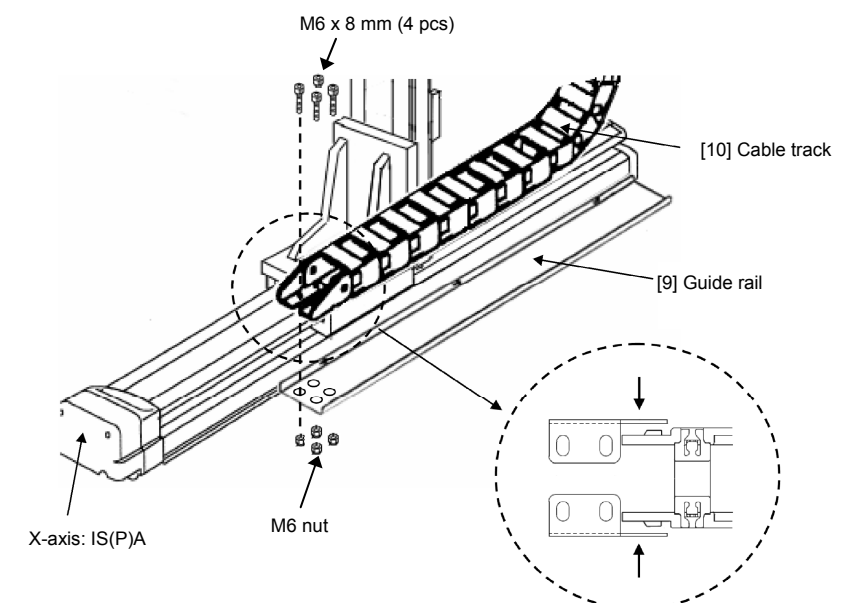


The M4 hexagonal nut in the slot provided on the side face of the X-axis, before the guide rail [9] is installed. The number of hexagonal nuts to be placed in the slot varies according to the stroke.

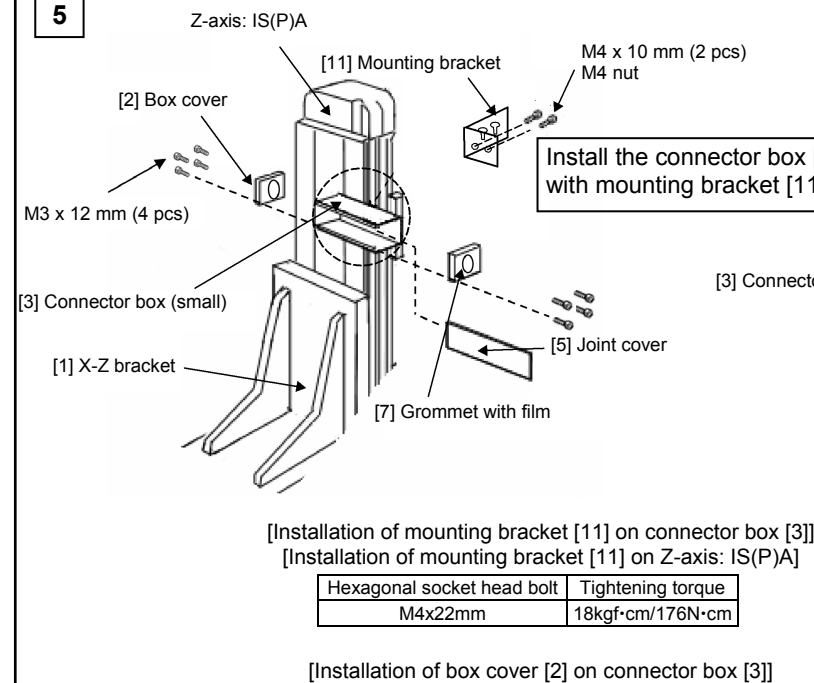
[Installation of guide rail [9] on X-axis: IS(P)A]

Flange-head hexagonal socket head bolt	Tightening torque
M4x6mm	18kgf·cm/176N·cm

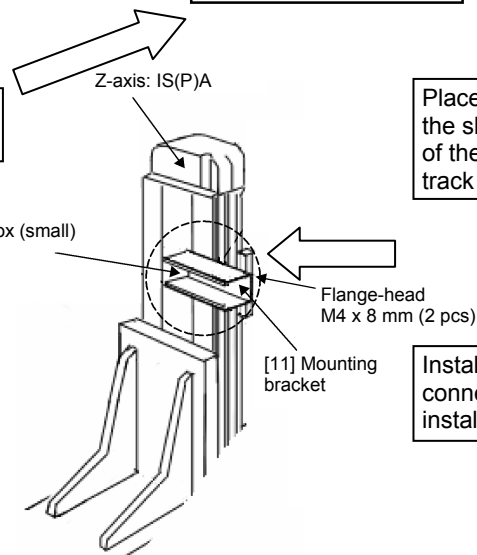
4



5



Installation of mounting bracket [11] on Y-axis

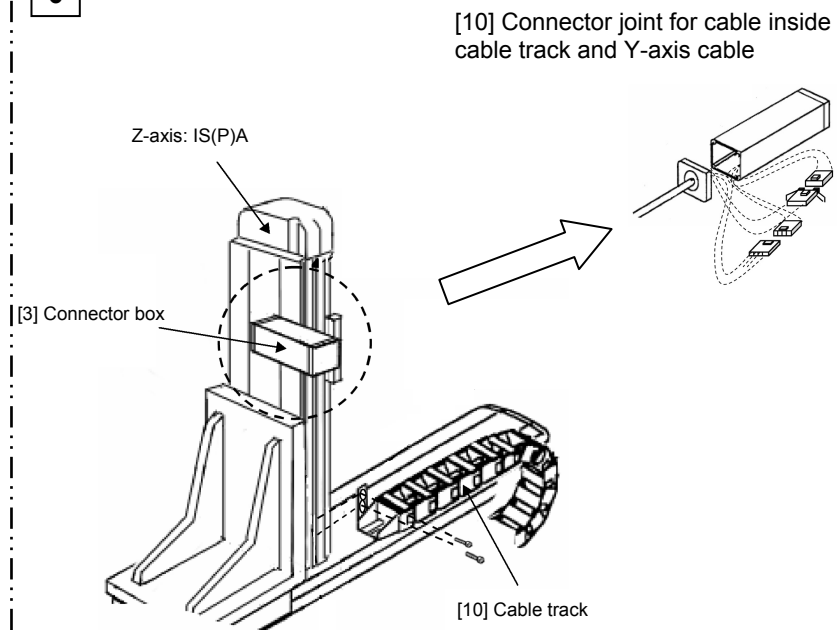


Place two M4 hexagonal nuts in the slot provided on the side face of the Z-axis before the cable track [10] is installed.

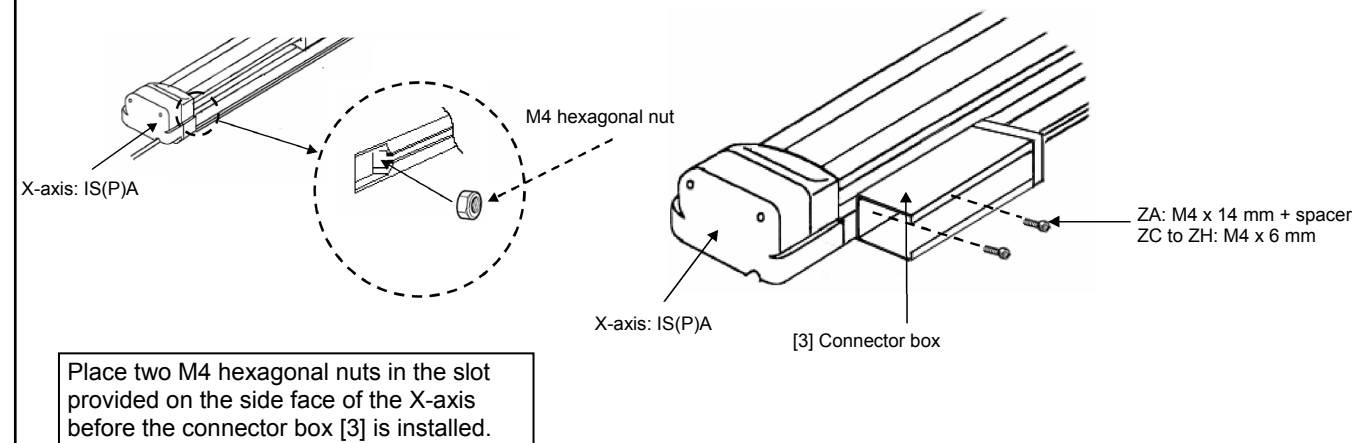
Install the bolts before the connector box (small) [3] is installed.

Install the bolts by hooking them in the holes in the mounting bracket [11].

6



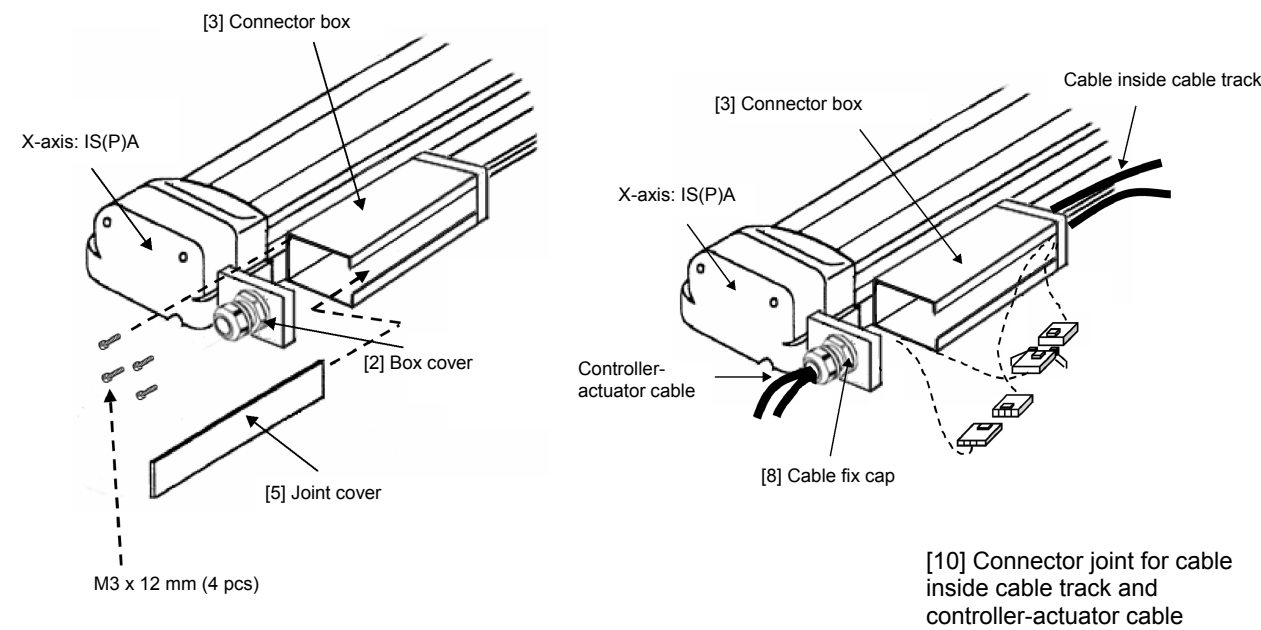
7



Place two M4 hexagonal nuts in the slot provided on the side face of the X-axis before the connector box [3] is installed.

ZA: M4 x 14 mm + spacer
ZC to ZH: M4 x 6 mm

8



[10] Connector joint for cable inside cable track and controller-actuator cable

⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

ICS(P)A Cartesian Robot, 3-axis Configuration XYB + Z-axis (Z-axis Base Mount) Type
ICS(P)A3-B□□B□□-CT-CT X-axis/Y-axis: Cable Track, Y-axis/Z-axis: Self-supporting Cable Track

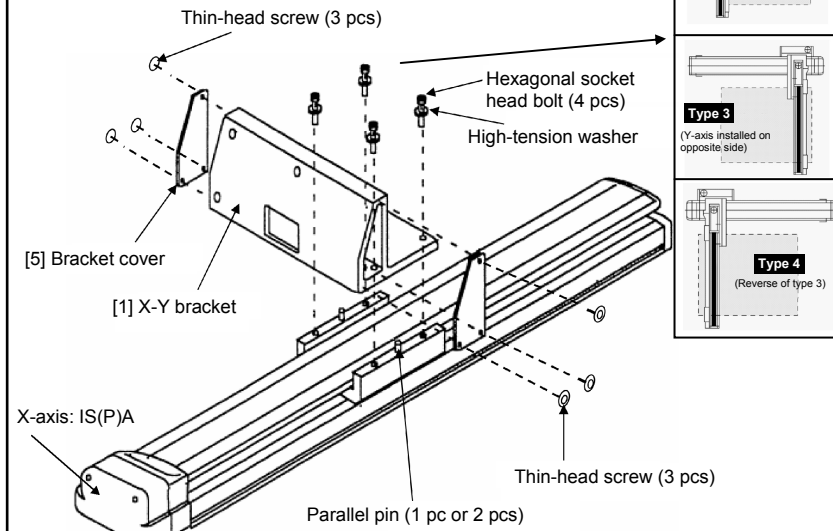
Drawing No. GMM08-009

1/3

1

[Tools] Allen wrench

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.

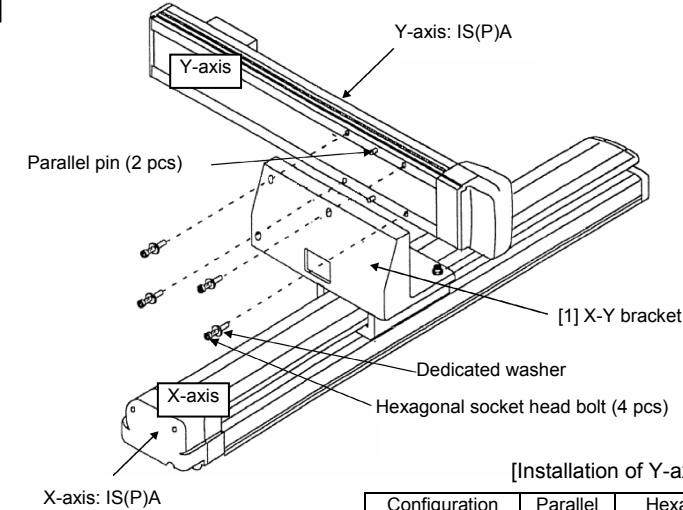
[Installation of X-Y bracket [1] on X-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-BA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BB	M3x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BC	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BD	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BE	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BF	M4x6mm	20.8kgf·cm/204N·cm

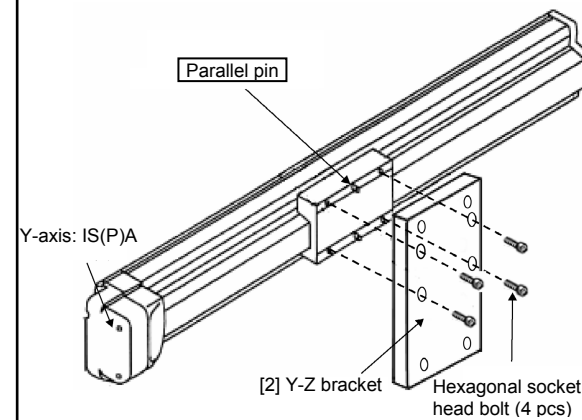
2



[Installation of Y-axis: IS(P)A on X-Y bracket [1]]

Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

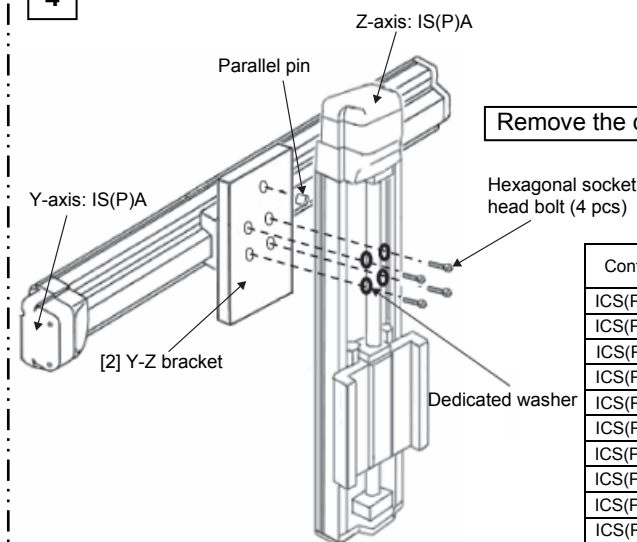
3



[Installation of Y-Z bracket [2] on Y-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

4

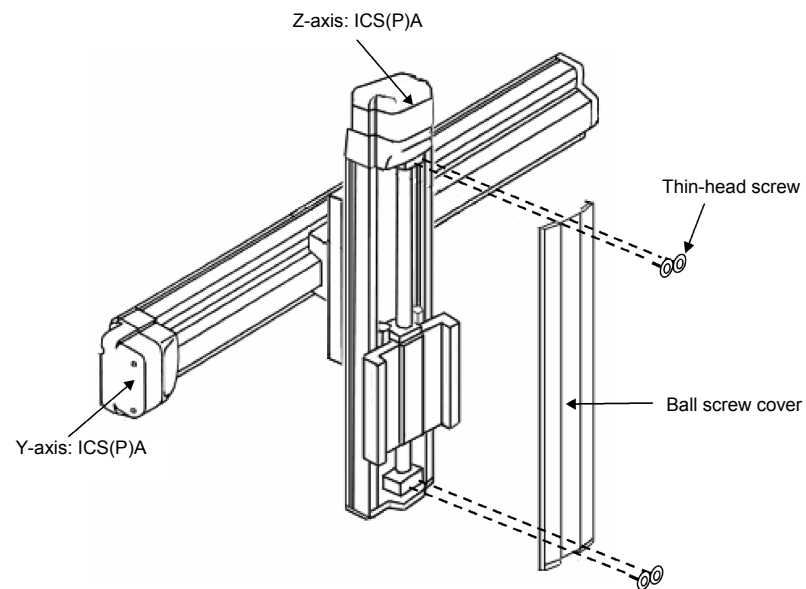


[Installation of Z-axis: IS(P)A on Y-Z bracket [2]]

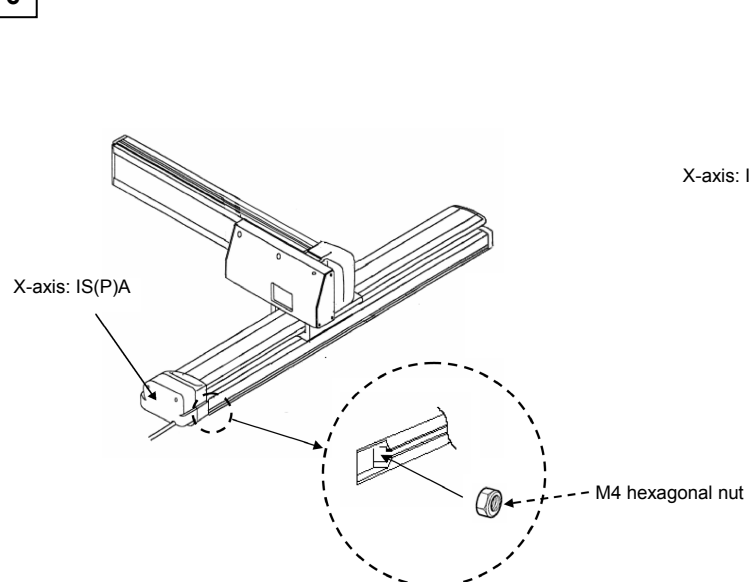
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

* This assembly procedure applies to combination direction 1. If other combination direction such as 2, 3 or 4 is used, the actuator and bracket directions vary. However, you can still use this assembly drawing as a reference.

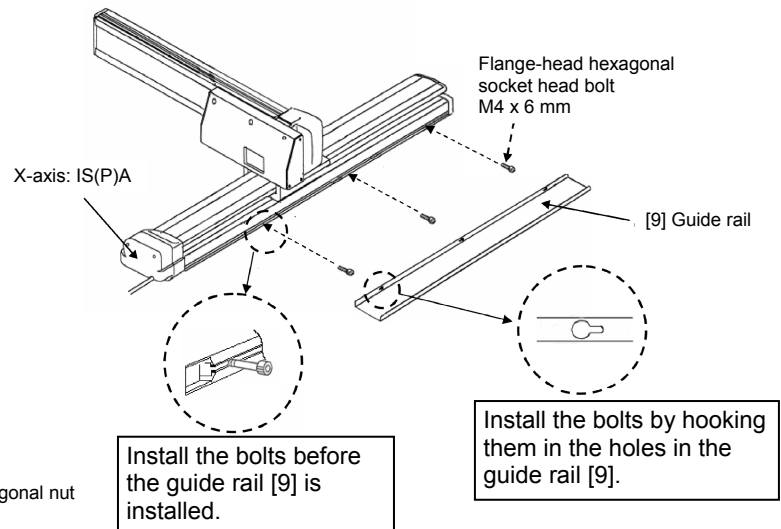
5



6



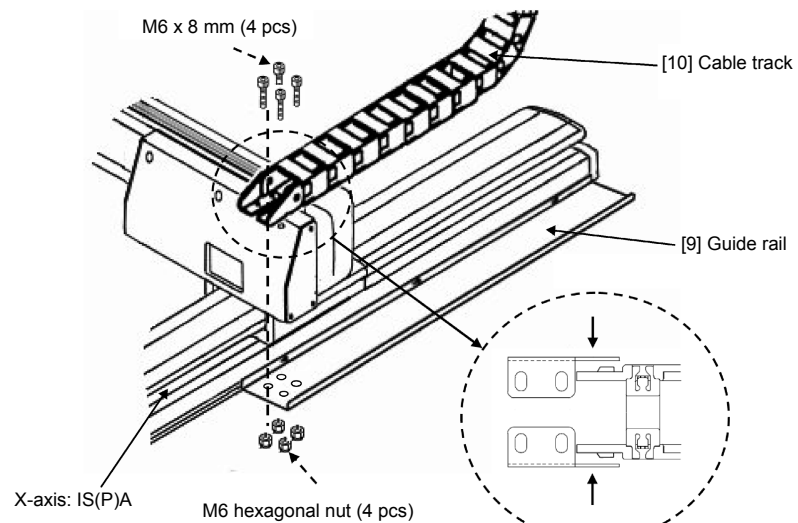
The M4 hexagonal nut in the slot provided on the side face of the X-axis, before the guide rail [9] is installed. The number of hexagonal nuts to be placed in the slot varies according to the stroke.



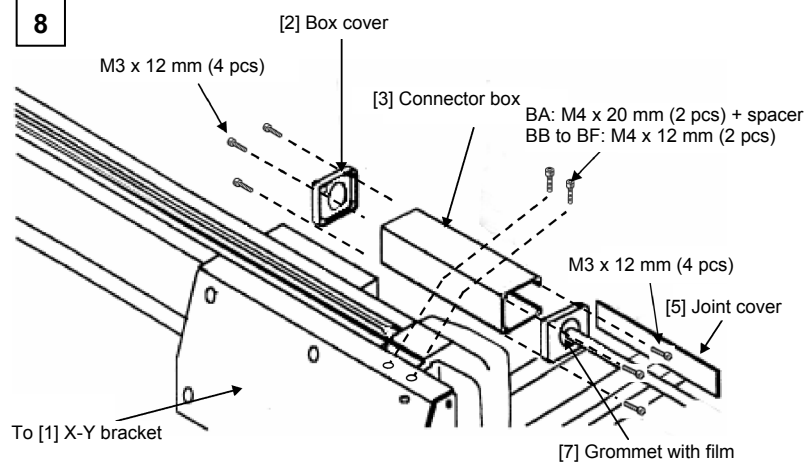
[Installation of guide rail [9] on X-axis: IS(P)A]

Flange-head hexagonal socket head bolt	Tightening torque
M4x6mm	18kgf·cm/176N·cm

7



8



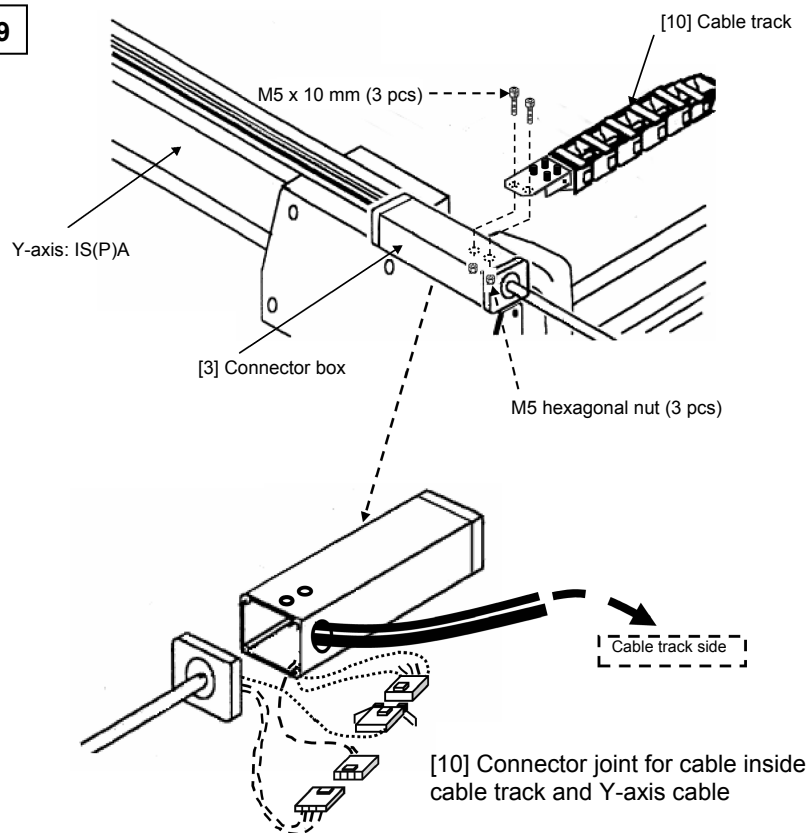
[Installation of connector box [3] on X-Y bracket [1]]

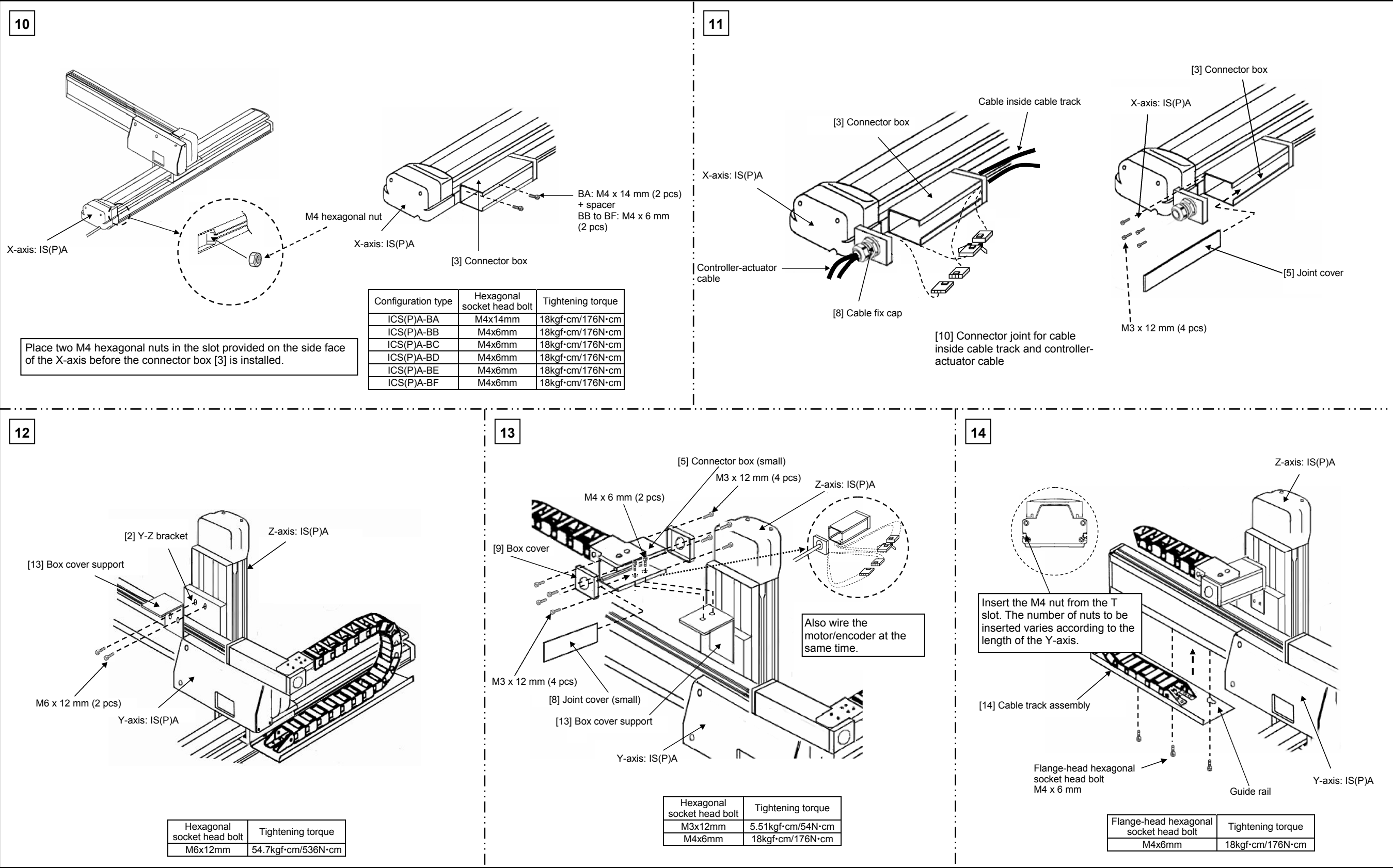
Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x20mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x12mm	18kgf·cm/176N·cm

[Installation of box cover [2] on connector box [3]]

Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm

9





⚠ Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

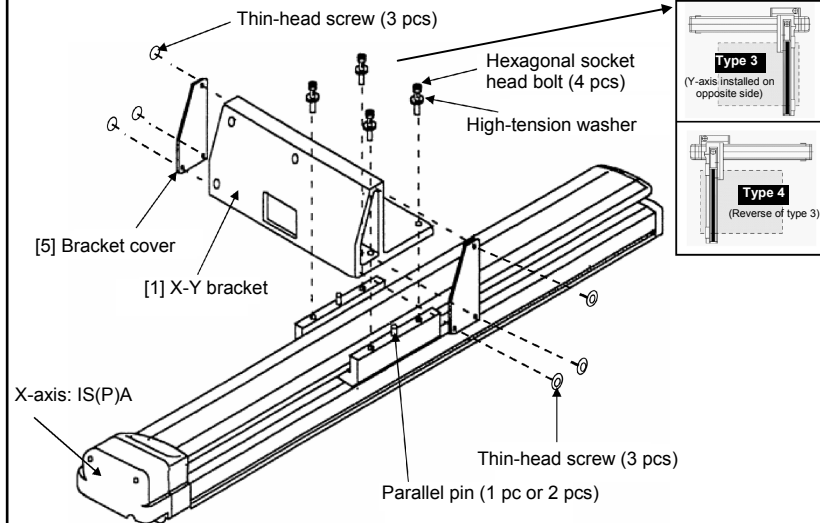
ICS(P)A Cartesian Robot, 3-axis Configuration X-Y Base Mount (XYB) + Z-axis (Z-axis Base Mount) Type
ICS(P)A3-B□□□B□□-CT-SC X-axis/Y-axis: Cable Track, Y-axis/Z-axis: Self-supporting Cable

Drawing No. GMM08-0010

1/3

1 [Tools] Allen wrench

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



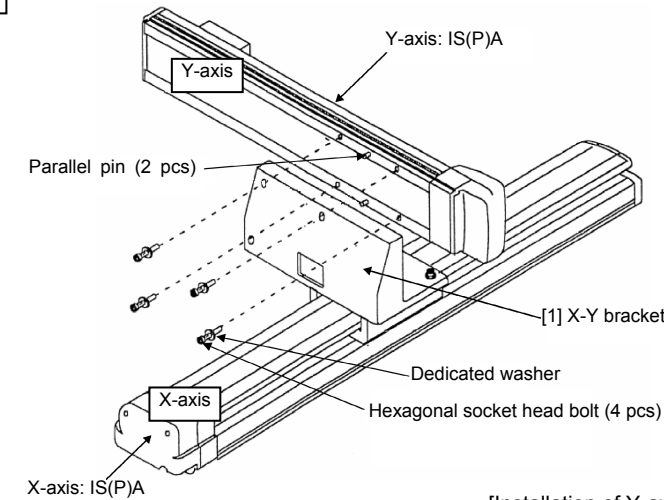
[Installation of X-Y bracket [1] on X-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-BA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BB	M3x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BC	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BD	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BE	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BF	M4x6mm	20.8kgf·cm/204N·cm

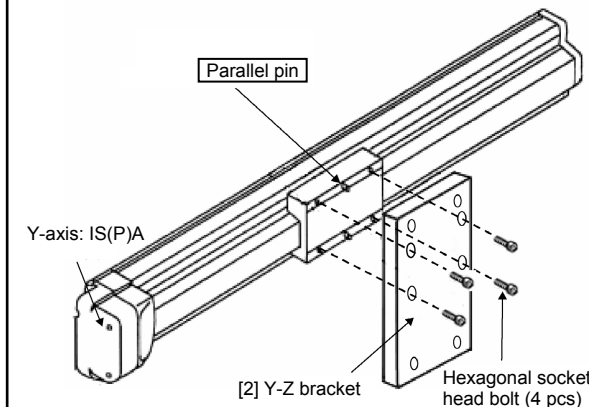
2



[Installation of Y-axis: IS(P)A on X-Y bracket [1]]

Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

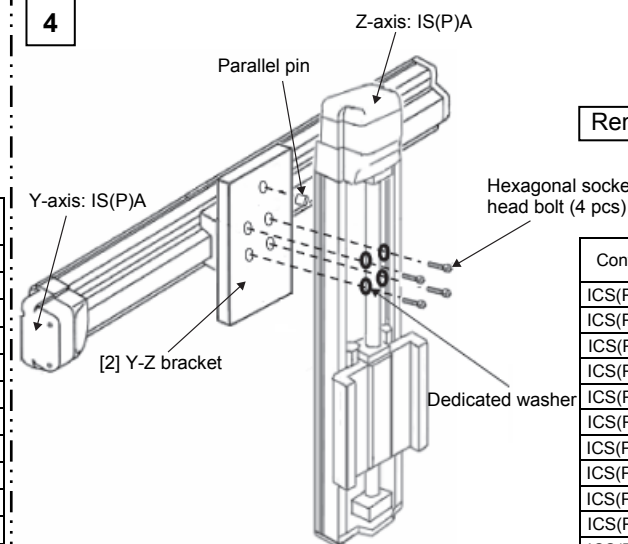
3



[Installation of Y-Z bracket [2] on Y-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

4



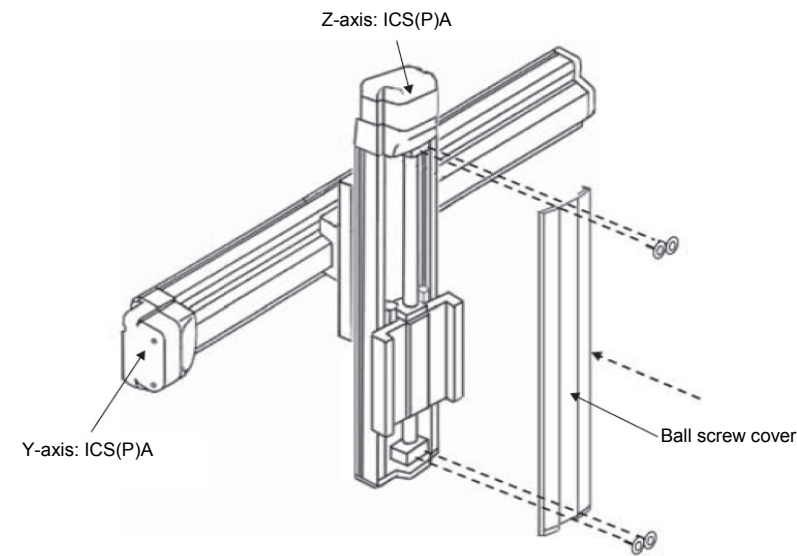
Remove the cover when installing the Z-axis.

[Installation of Z-axis: IS(P)A on Y-Z bracket [2]]

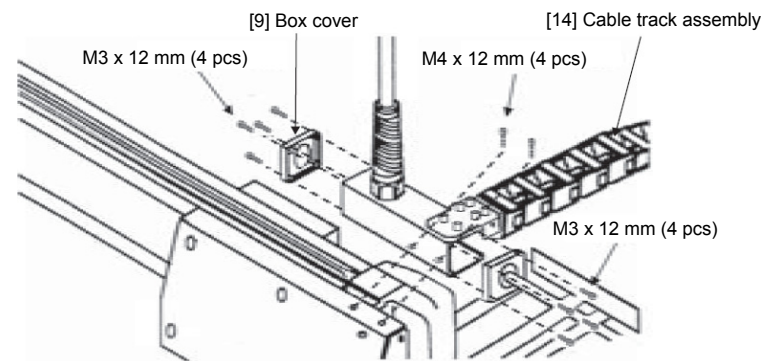
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

* This assembly procedure applies to combination direction 1. If other combination direction such as 2, 3 or 4 is used, the actuator and bracket directions vary. However, you can still use this assembly drawing as a reference.

5

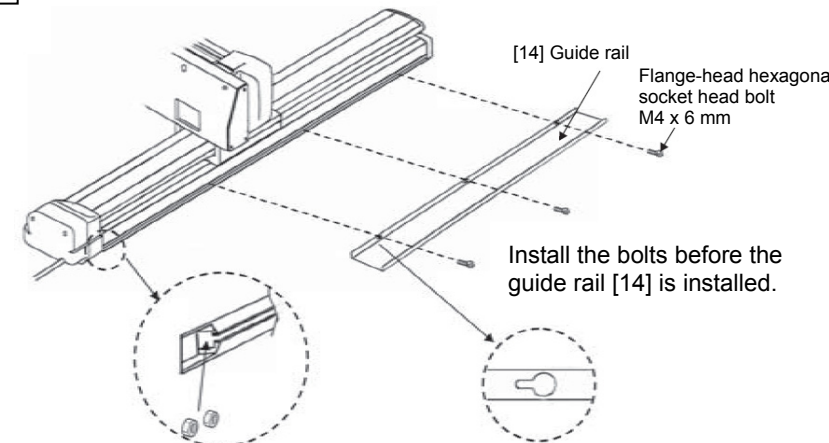


6



Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x12mm	18kgf·cm/176N·cm

7

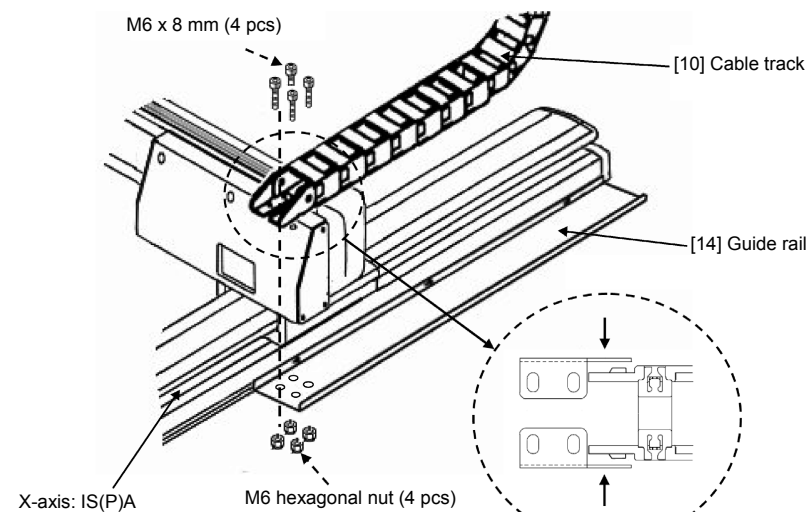


The M4 hexagonal nut in the slot provided on the side face of the X-axis, before the guide rail [14] is installed. The number of hexagonal nuts to be placed in the slot varies according to the stroke.

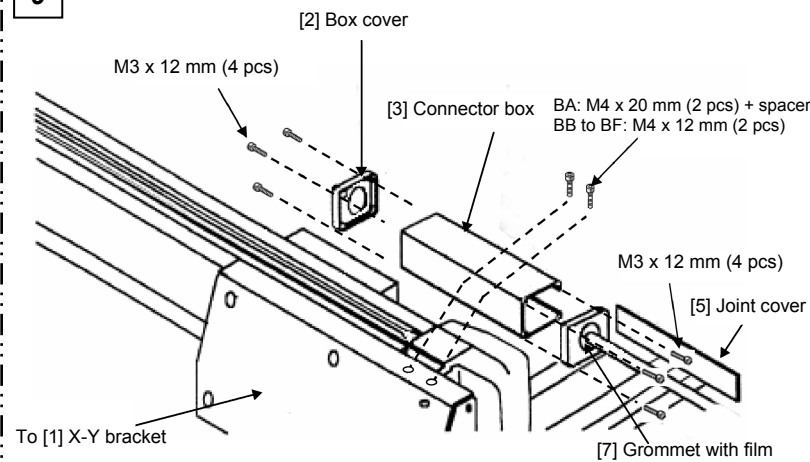
[Installation of guide rail [14] on X-axis: IS(P)A]

Flange-head hexagonal socket head bolt	Tightening torque
M4x6mm	18kgf·cm/176N·cm

8



9



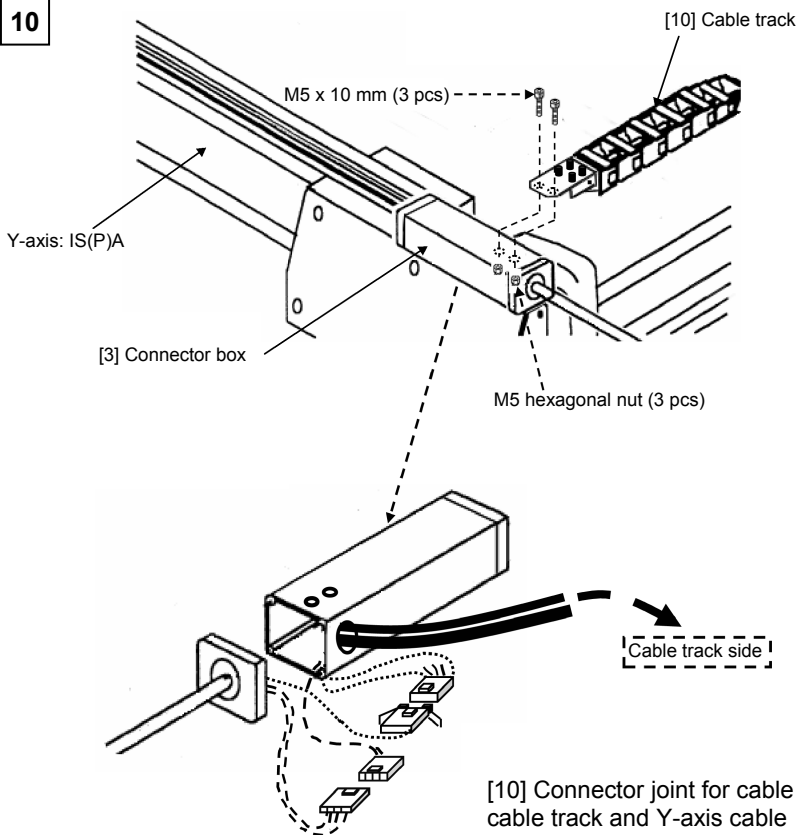
[Installation of connector box [3] on X-Y bracket [1]]

Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x20mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x12mm	18kgf·cm/176N·cm

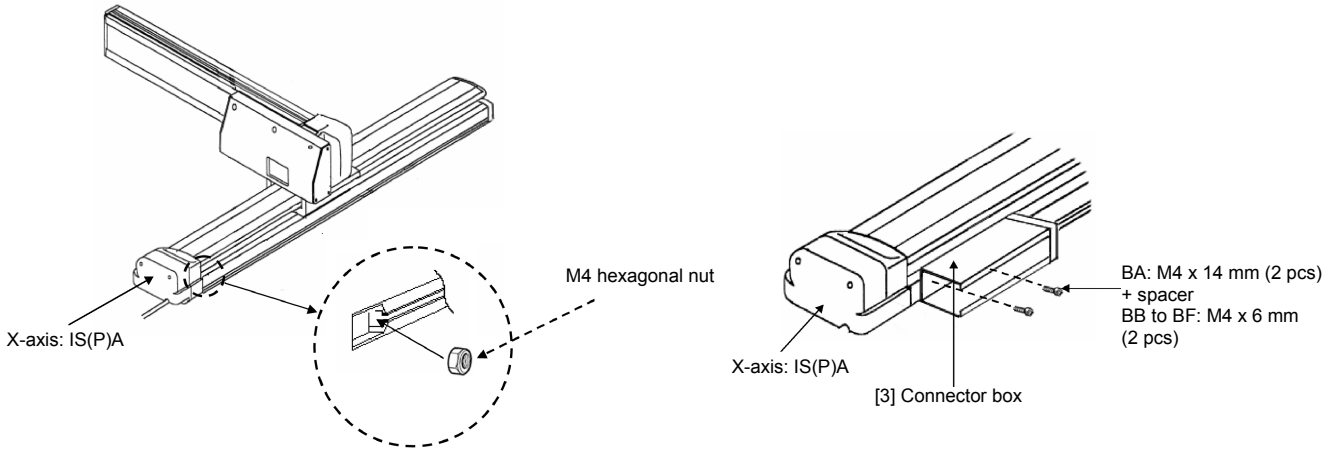
[Installation of box cover [2] on connector box [3]]

Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm

10



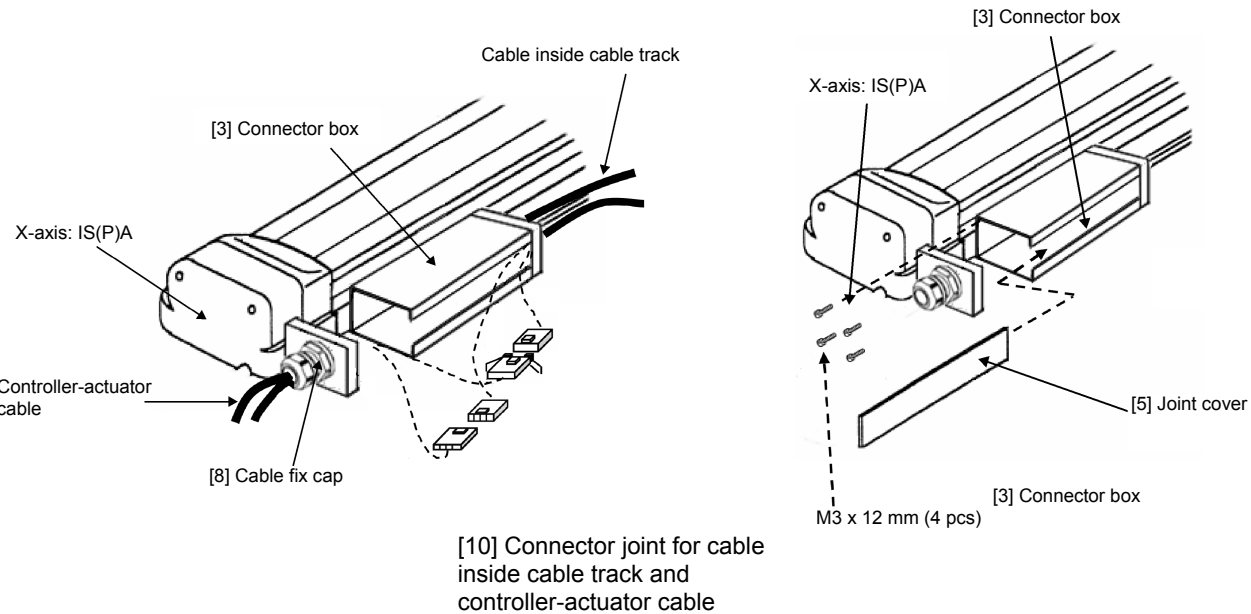
11



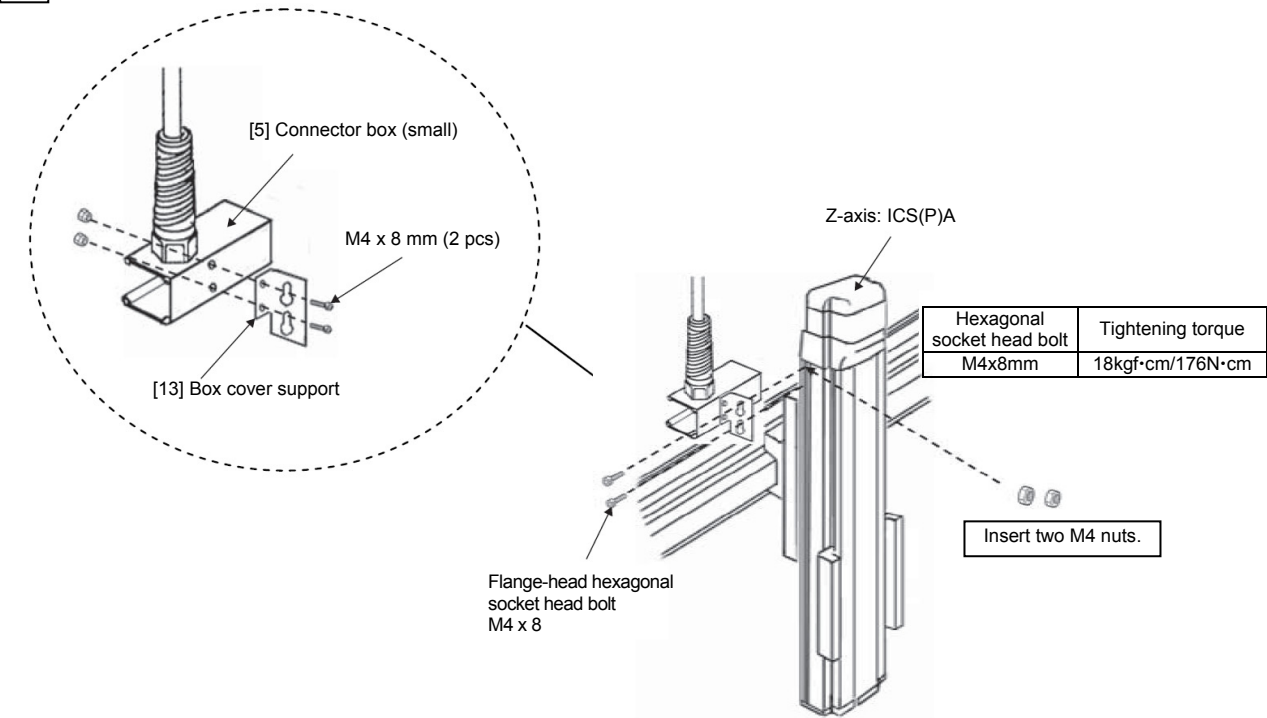
Place two M4 hexagonal nuts in the slot provided on the side face of the X-axis before the connector box [3] is installed.

Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x14mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x6mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x6mm	18kgf·cm/176N·cm

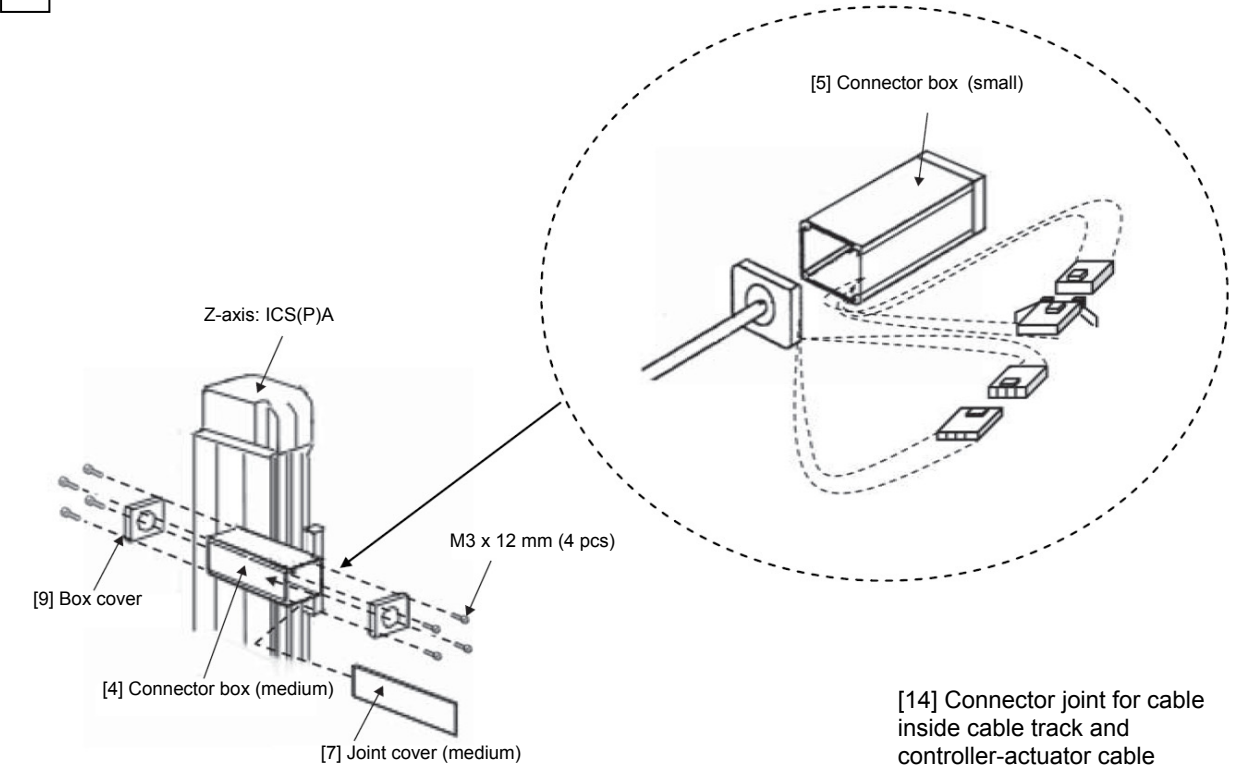
12



13



14



Caution: • Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
• Exercise due caution during the assembly to prevent pinching of hands and fingers.

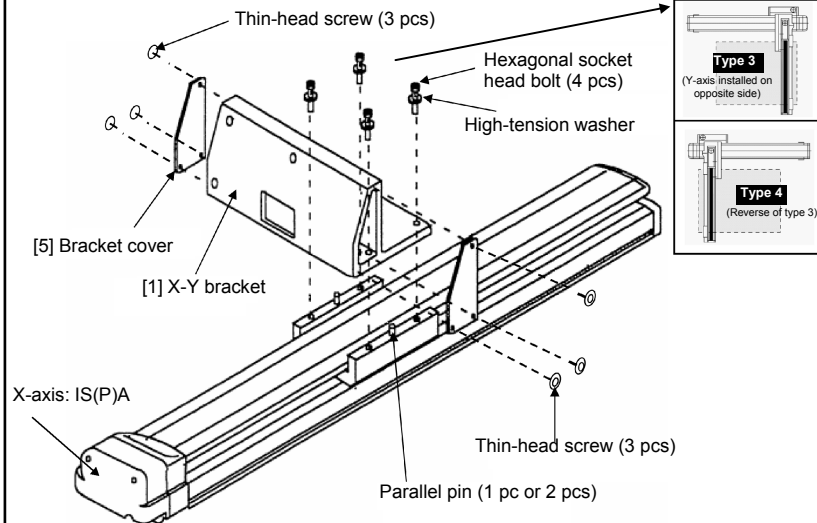
ICS(P)A Cartesian Robot, 3-axis Configuration X-Y Base Mount (XYB) + Z-axis (Z-axis Base Mount) Type
ICS(P)A3-B□□□B□□□-SC-SC X-axis/Y-axis: Self-supporting Cable, Y-axis/Z-axis: Self-supporting Cable

Drawing No. GMM08-0011

1/2

1 [Tools] Allen wrench

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.

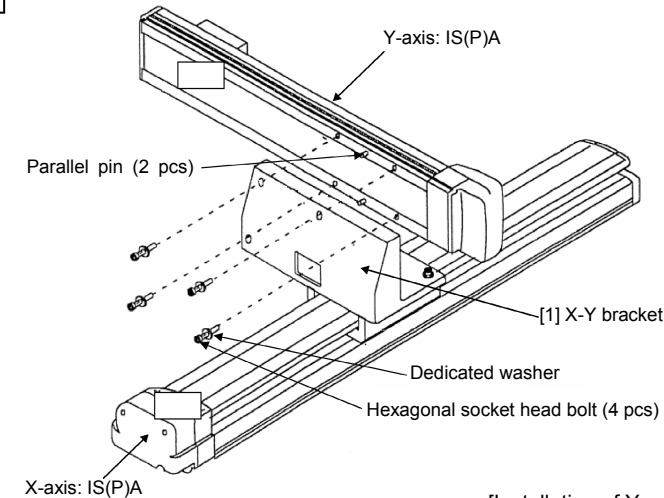
[Installation of X-Y bracket [1] on X-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-BA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BB	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BC	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BD	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BE	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BF	M4x6mm	20.8kgf·cm/204N·cm

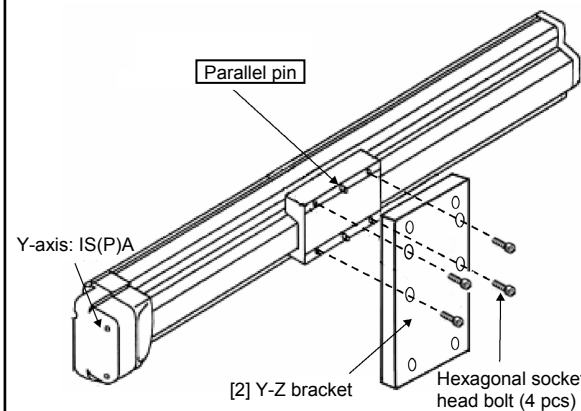
2



[Installation of Y-axis: IS(P)A on X-Y bracket [1]]

Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

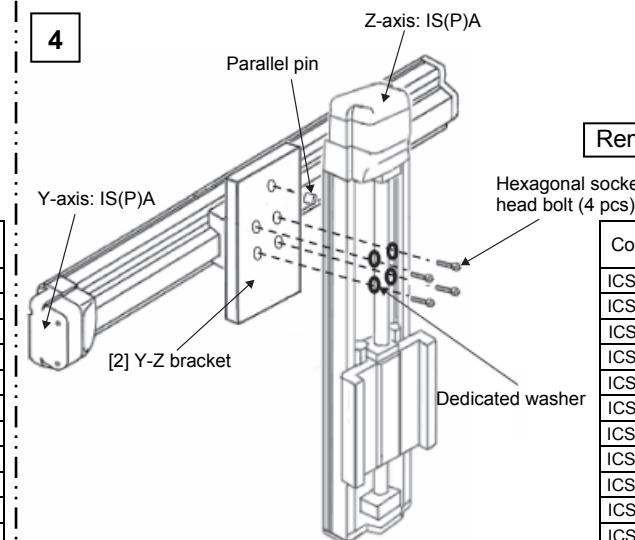
3



[Installation of Y-Z bracket [2] on Y-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

4



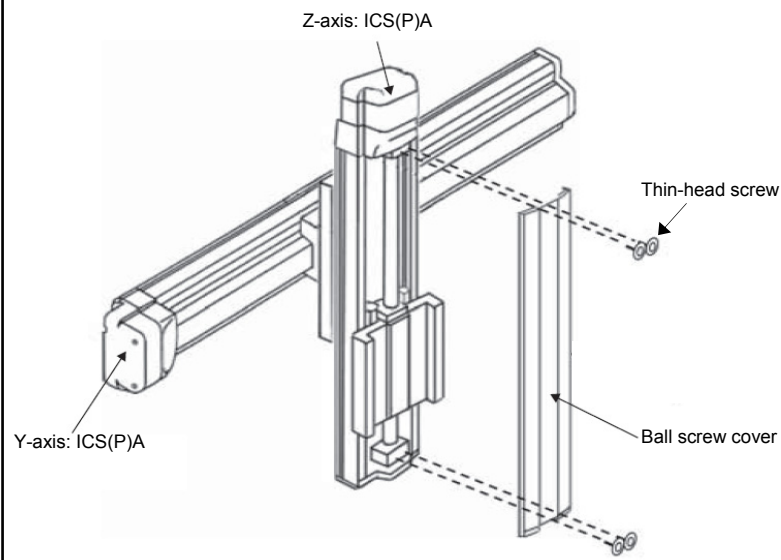
Remove the cover when installing the Z-axis.

[Installation of Z-axis: IS(P)A on Y-Z bracket [2]]

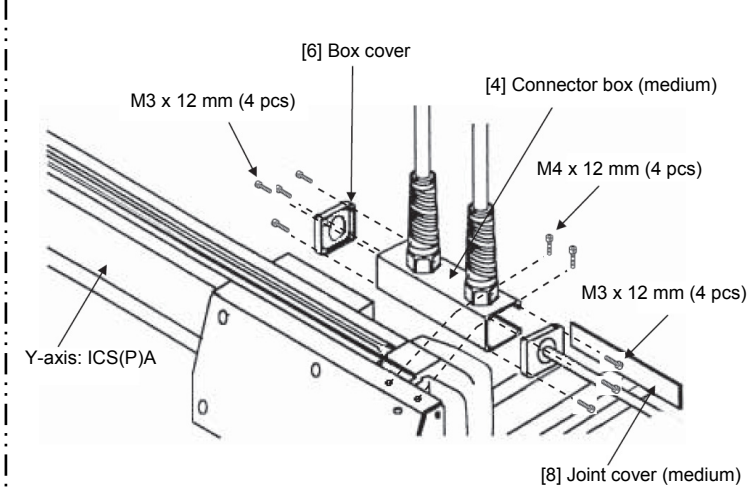
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□MB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HB2□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HB3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

* This assembly procedure applies to combination direction 1. If other combination direction such as 2, 3 or 4 is used, the actuator and bracket directions vary. However, you can still use this assembly drawing as a reference.

5

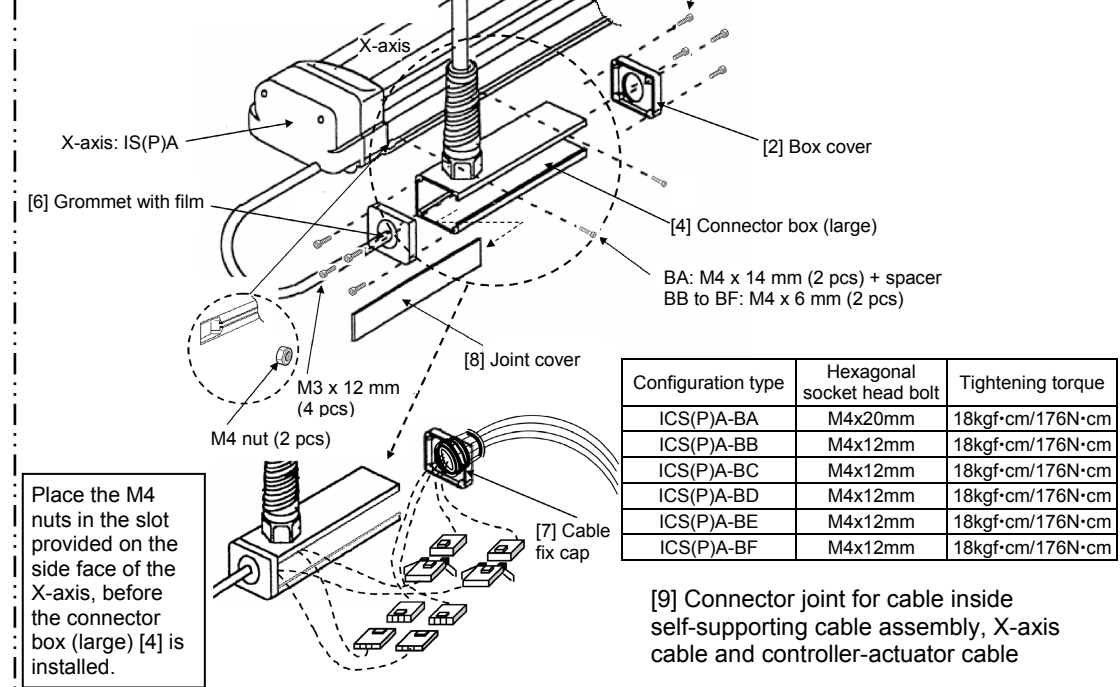


6

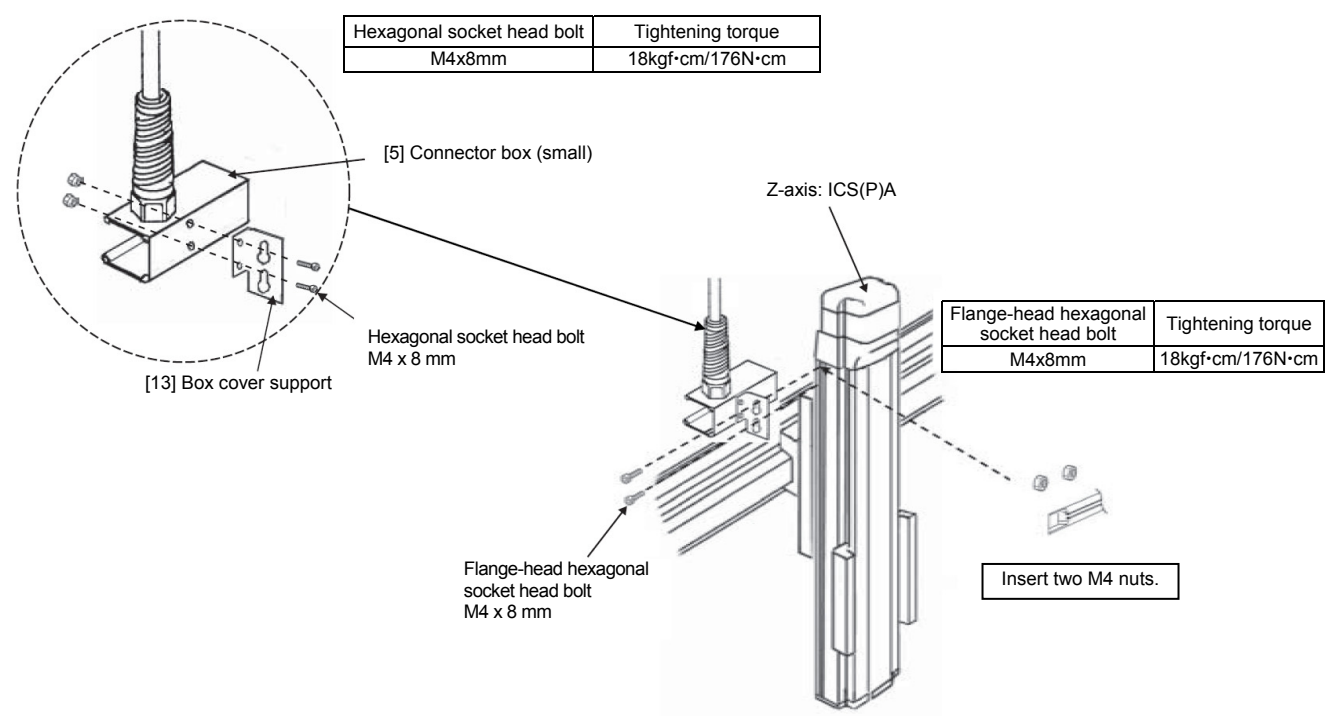


Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x12mm	18kgf·cm/176N·cm

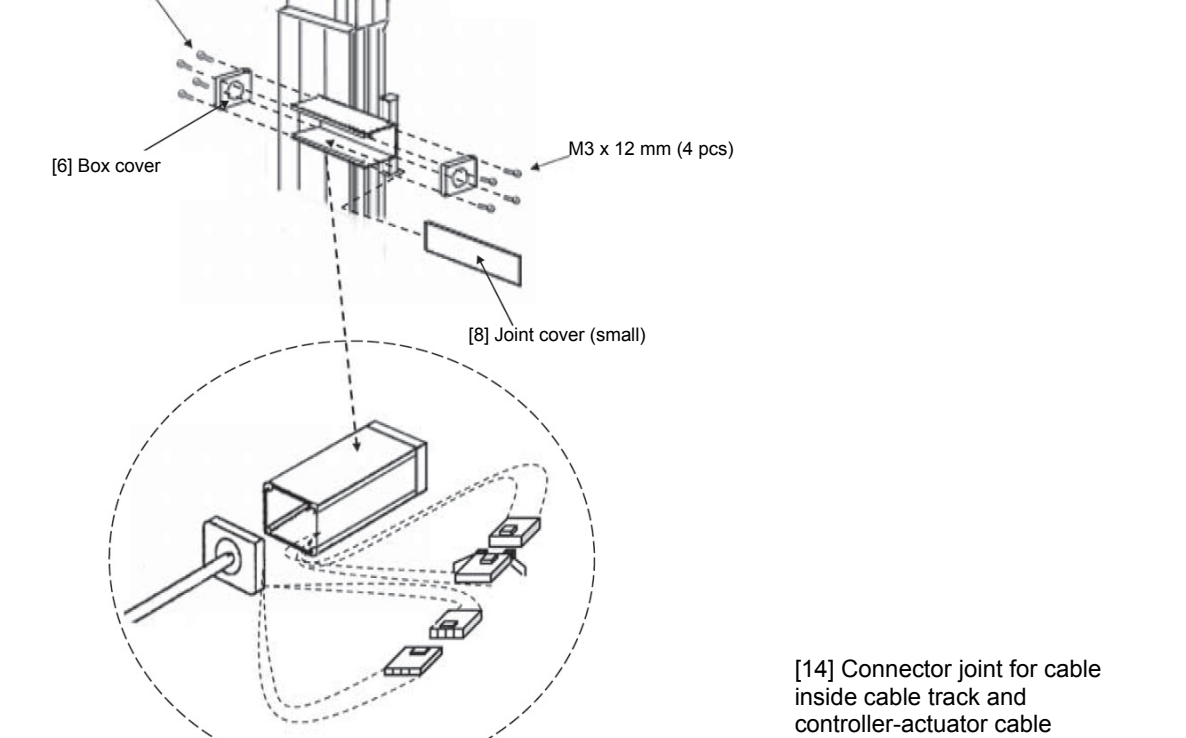
7



8



9



Caution:

- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
- Exercise due caution during the assembly to prevent pinching of hands and fingers.

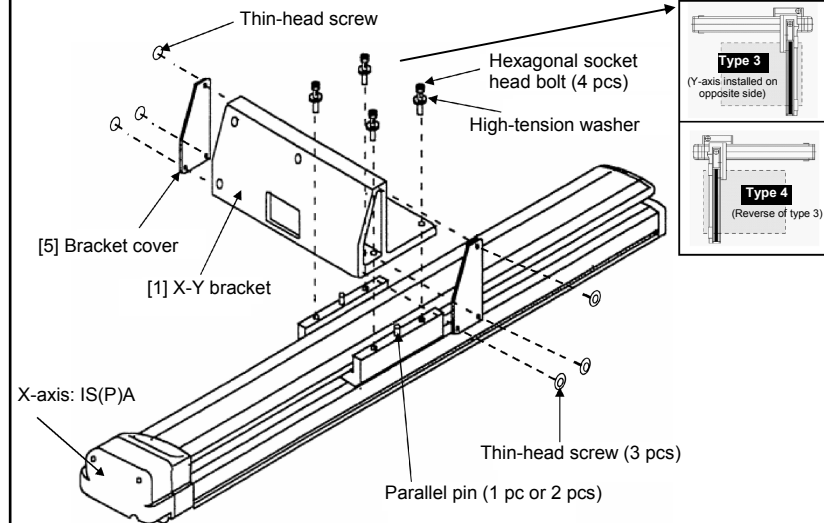
ICS(P)A Cartesian Robot, 3-axis Configuration X-Y Base Mount (XYB) + Z-axis (Z-axis Slider Mount) Type
ICS(P)A3-B□□□□□-SC-SC X-axis/Y-axis: Self-supporting Cable, Y-axis/Z-axis: Self-supporting Cable

Drawing No. GMM08-012

1/2

1 [Tools] Allen wrench (3 pcs)

In the case of configuration direction types 2 to 4, the actuator and bracket directions are different.



[Installation of X-Y bracket [1] on X-axis: IS(P)A]

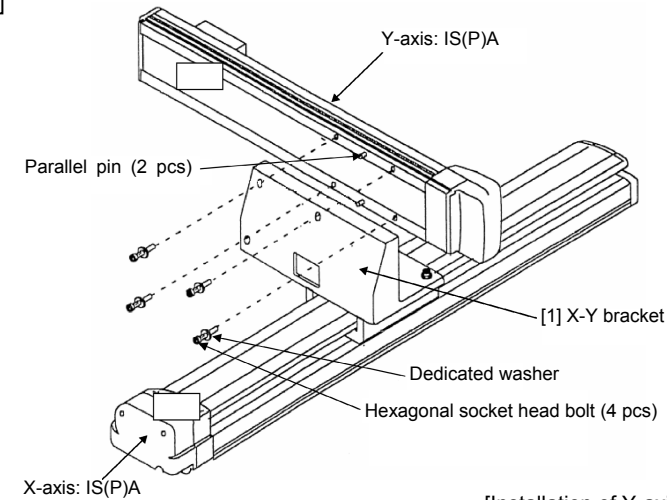
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm

[Installation of bracket cover [5] on X-Y bracket [1]]

Configuration type	Thin-head screw	Tightening torque
ICS(P)A-BA	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BB	M3x6mm	8.9kgf·cm/87.2N·cm
ICS(P)A-BC	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BD	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BE	M4x6mm	20.8kgf·cm/204N·cm
ICS(P)A-BF	M4x6mm	20.8kgf·cm/204N·cm

Note: To ensure squareness between the X-axis and Y-axis, insert one parallel pin. Adjust the angle between the X-axis and Y-axis to the right angle, and then mount the hexagonal bolts.

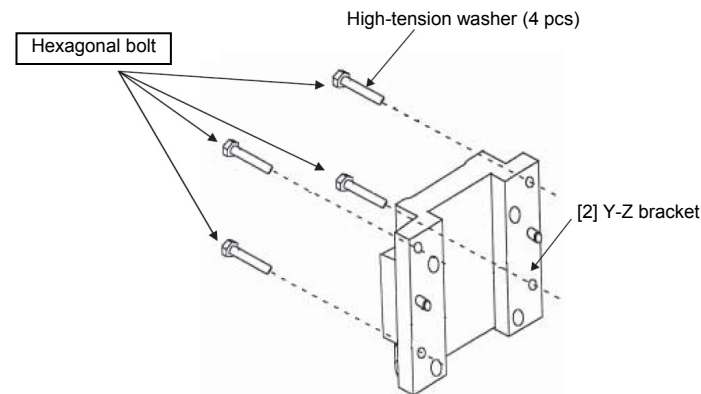
2



[Installation of Y-axis: IS(P)A on X-Y bracket [1]]

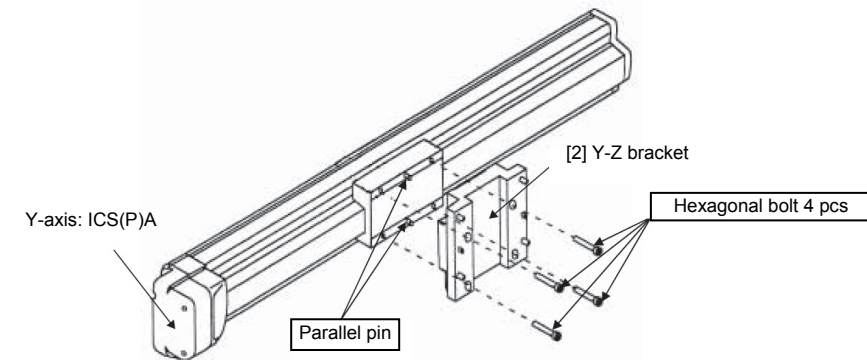
Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

3



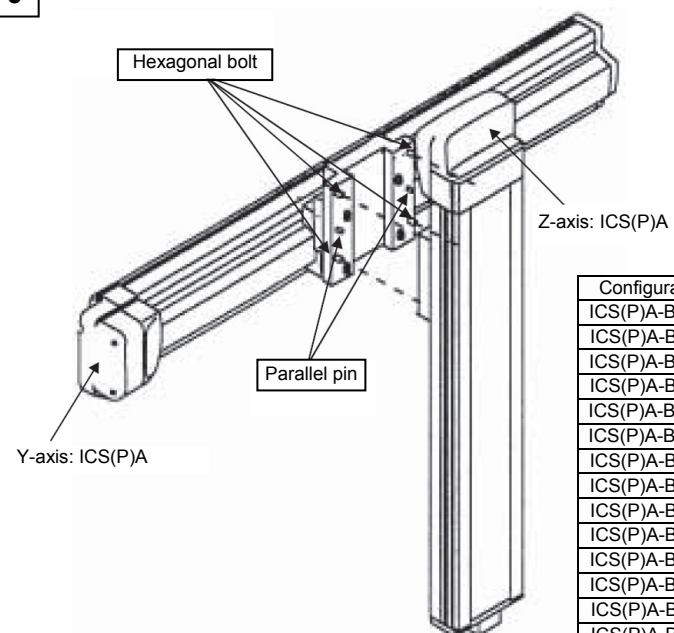
Configuration type	Parallel pin	Hexagonal bolt	Washer	Tightening torque
ICS(P)A-BA□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BF□MS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

4



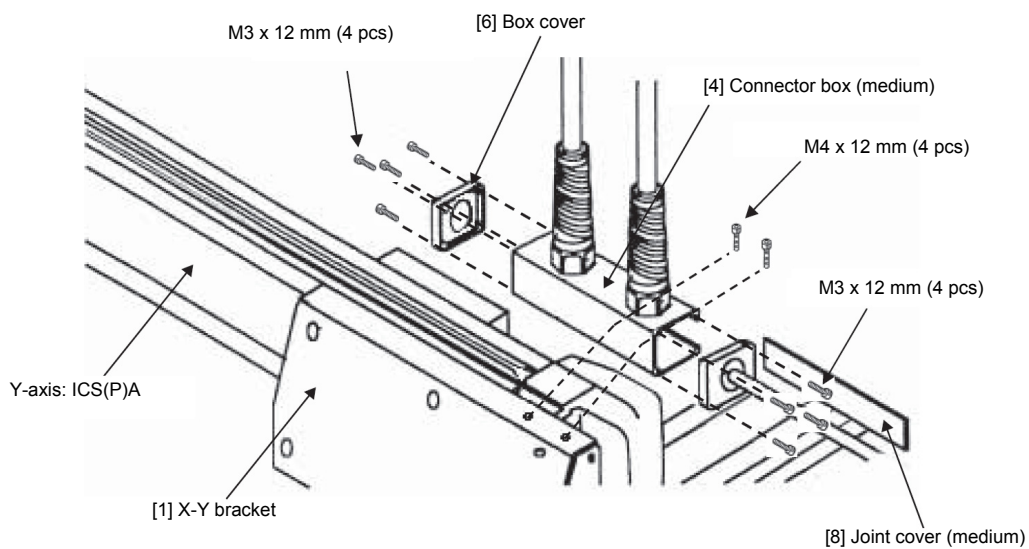
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MS1□	∅6x15	M6x28mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HS1□	∅6x15	M6x28mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MS1□	∅6x15	M6x28mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HS3□	∅8x18	M8x40mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MS1□	∅6x15	M6x28mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MS3□	∅8x18	M8x40mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HS1□	∅6x15	M6x28mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HS3□	∅8x18	M8x40mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HS1□	∅6x15	M6x28mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HS3□	∅8x18	M8x40mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□MS1□	∅6x15	M6x28mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BF□MS3□	∅8x18	M8x40mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HS1□	∅6x15	M6x28mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HS3□	∅8x18	M8x40mm	Required	306kgf·cm/2997N·cm

5



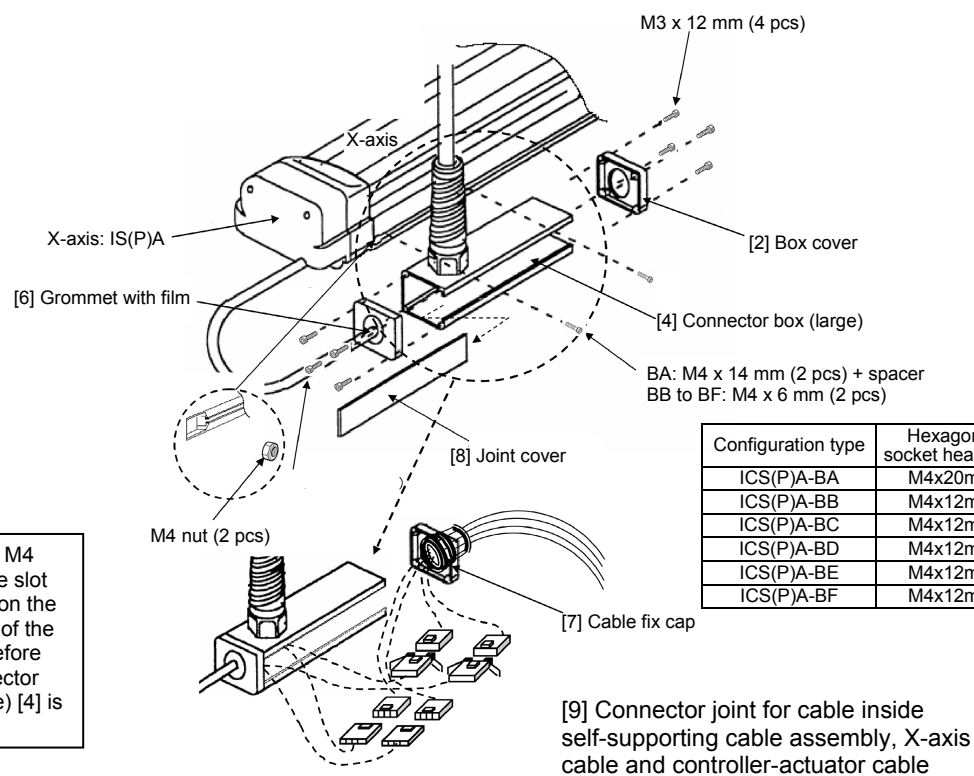
Configuration type	Parallel pin	Hexagonal bolt	Washer	Tightening torque
ICS(P)A-BA□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BC□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□MS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BD□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BE□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BE□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BF□MS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BF□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BF□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm

6



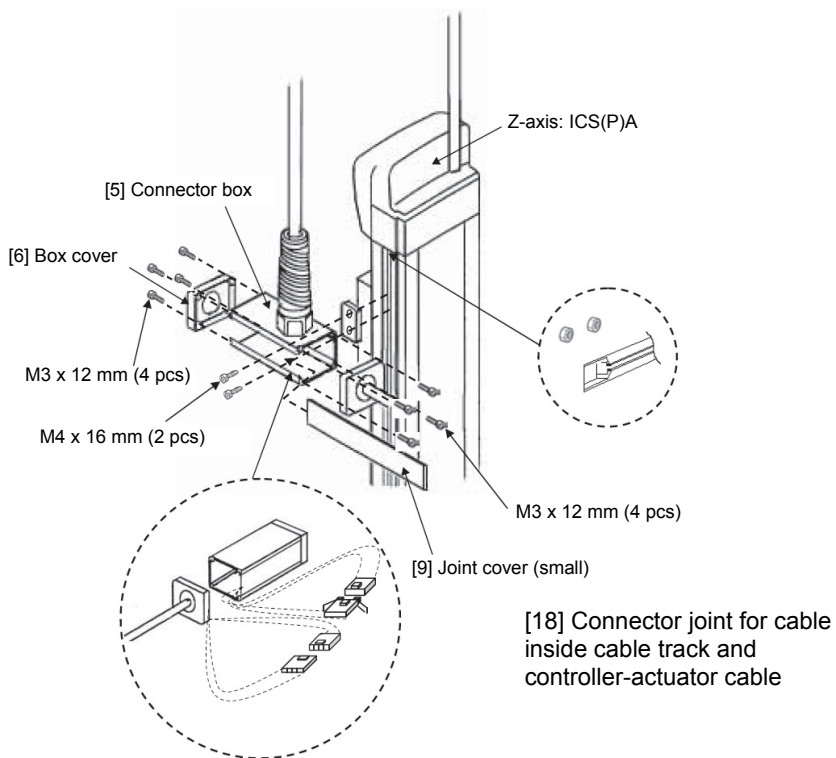
Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x12mm	18kgf·cm/176N·cm

7



Configuration type	Hexagonal socket head bolt	Tightening torque
ICS(P)A-BA	M4x20mm	18kgf·cm/176N·cm
ICS(P)A-BB	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BC	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BD	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BE	M4x12mm	18kgf·cm/176N·cm
ICS(P)A-BF	M4x12mm	18kgf·cm/176N·cm

8



Caution:

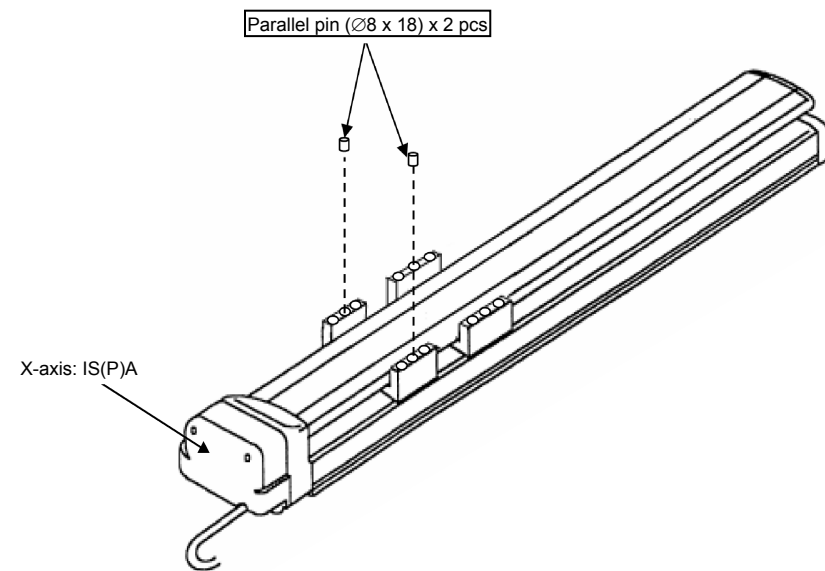
- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
- Exercise due caution during the assembly to prevent pinching of hands and fingers.

ICS(P)A Cartesian Robot, 3-axis Configuration XYG (Gantry) Type
ICS(P)A3-G□□□□□□□-CT-CT X-axis/Y-axis: Cable Track, Y-axis/Z-axis: Cable Track

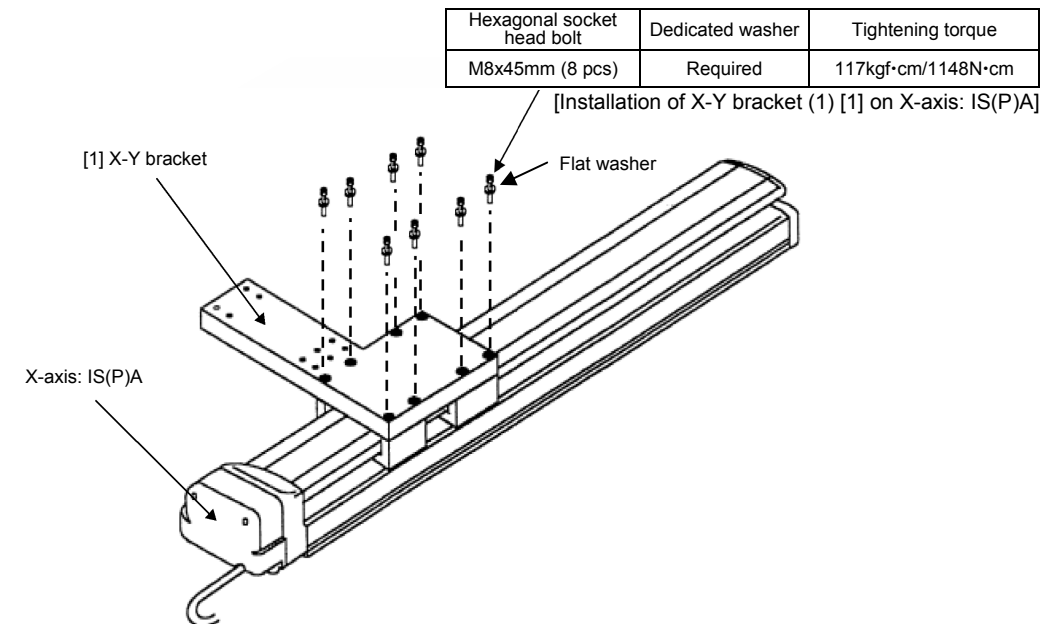
Drawing No. GMM08-013

1/3

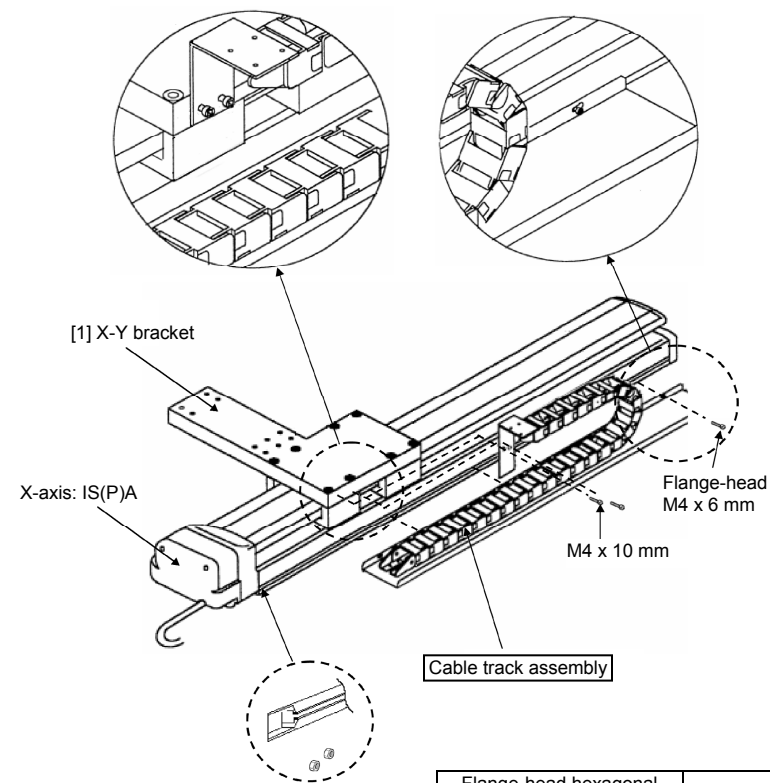
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2



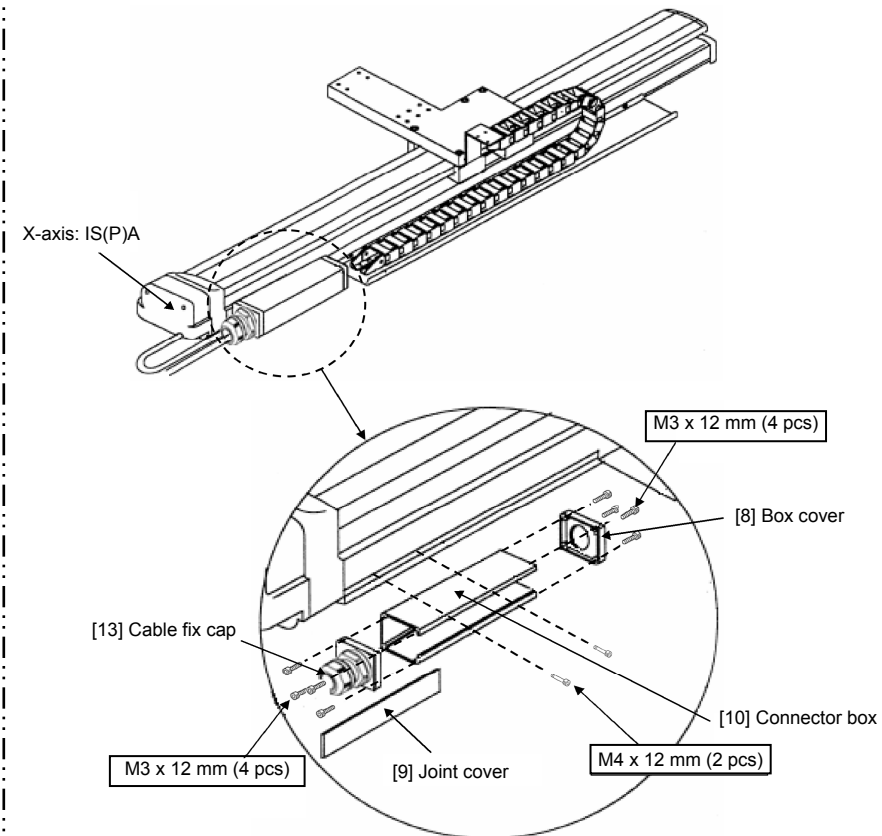
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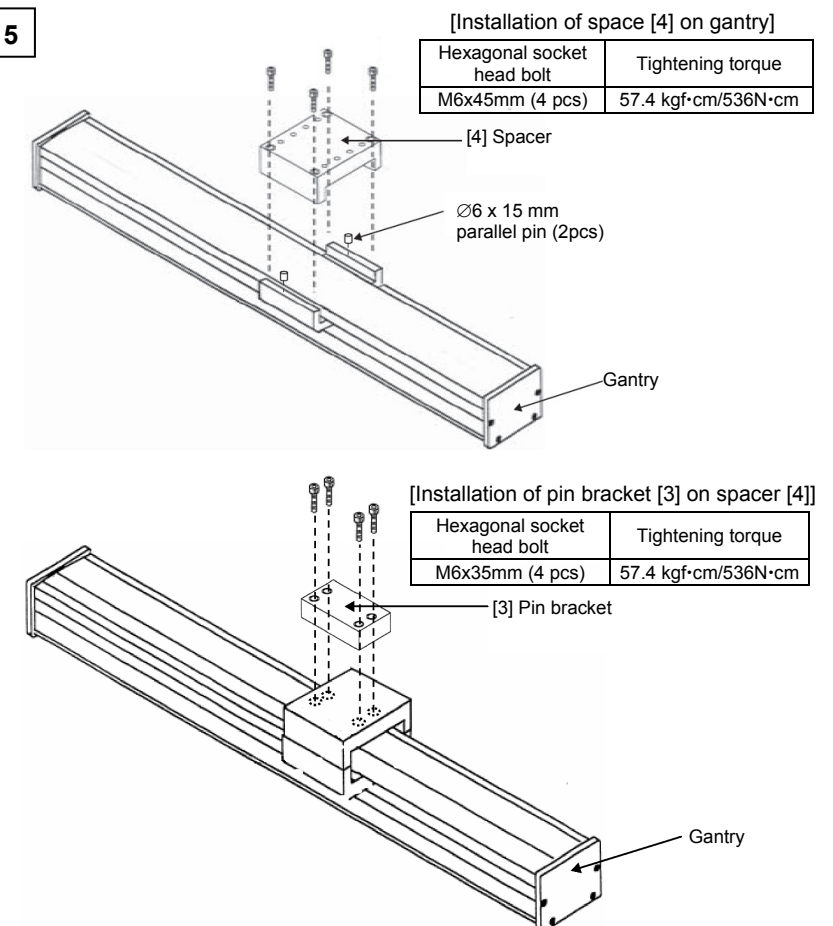
Insert the M4 nuts beforehand.

Flange-head hexagonal socket head bolt	Tightening torque
M4x6mm	18kgf·cm/176N·cm
M4x10mm	18kgf·cm/176N·cm

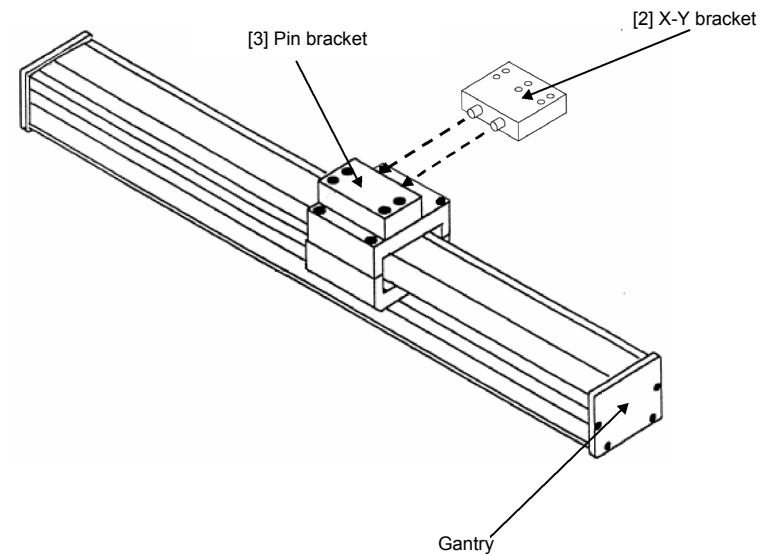
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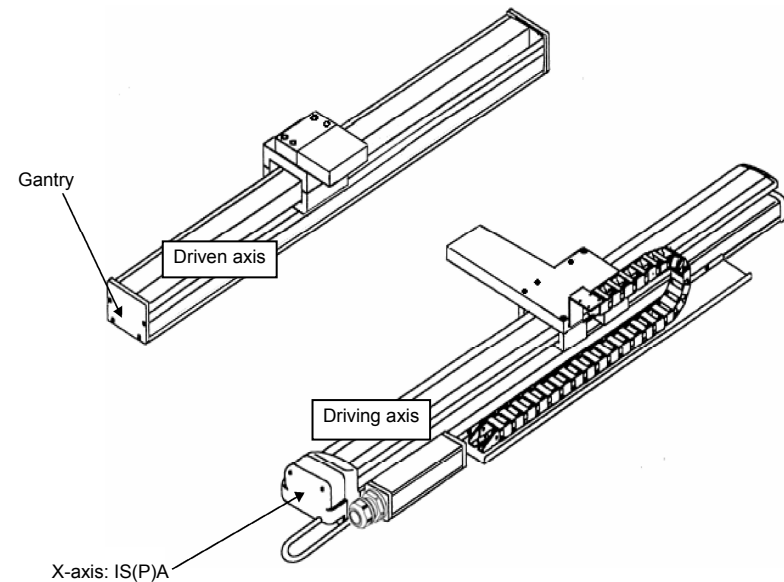
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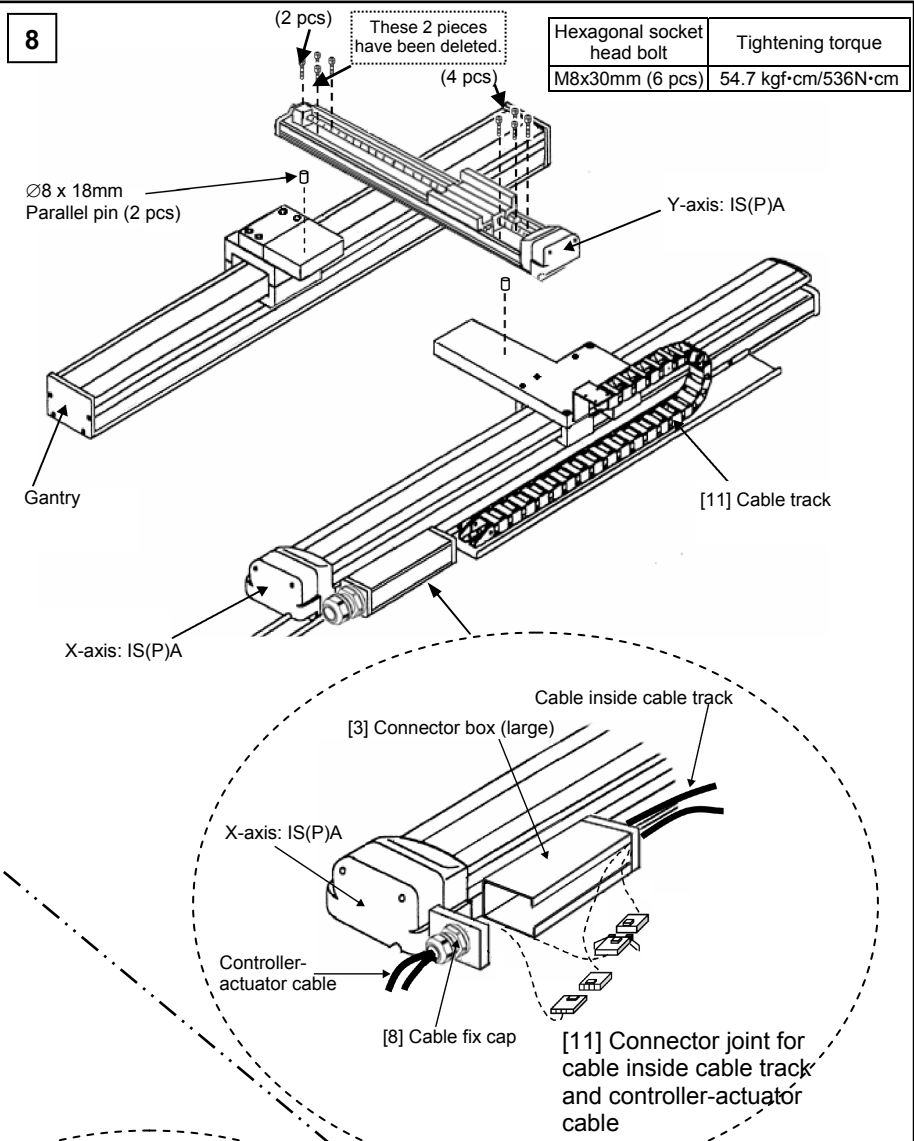
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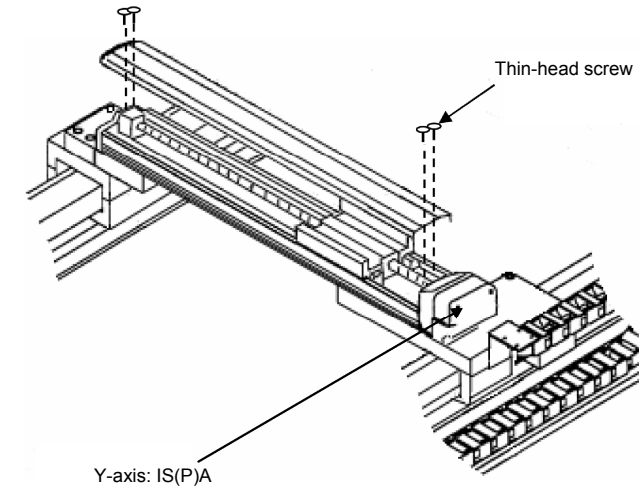
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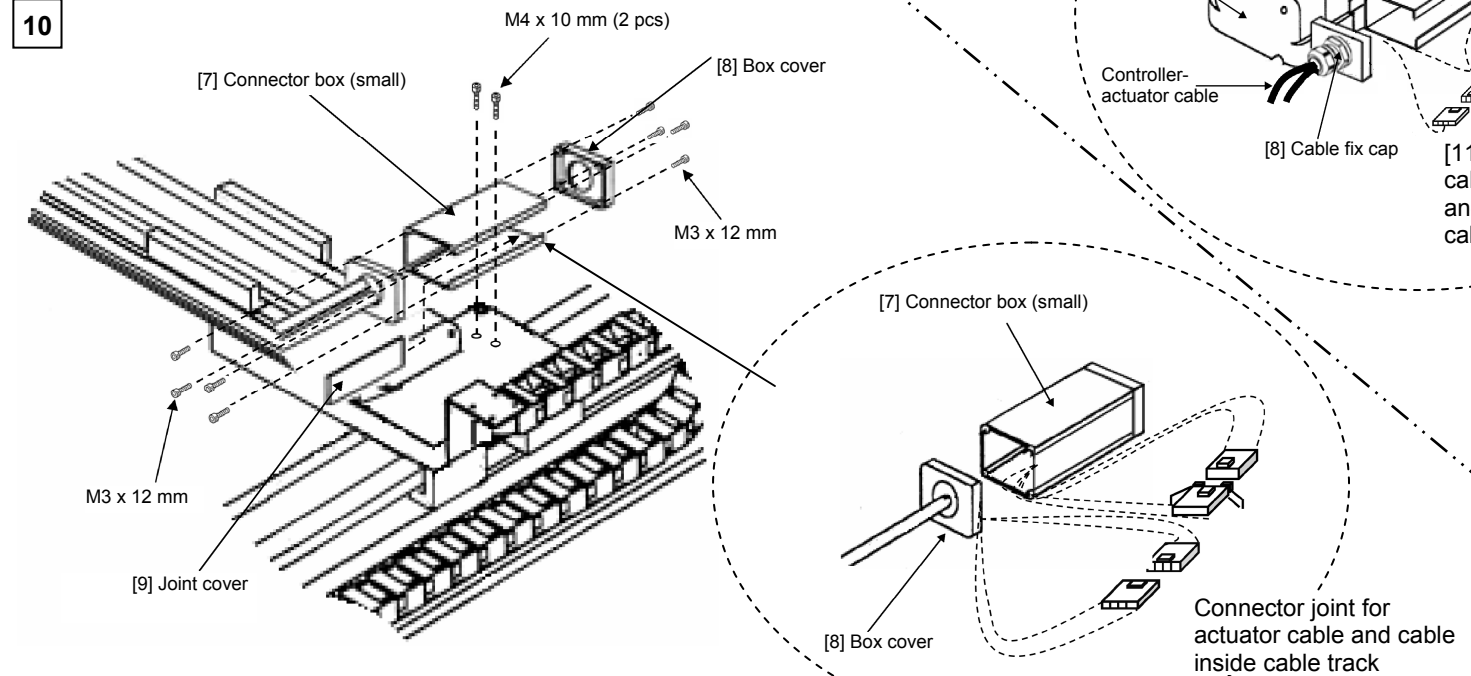
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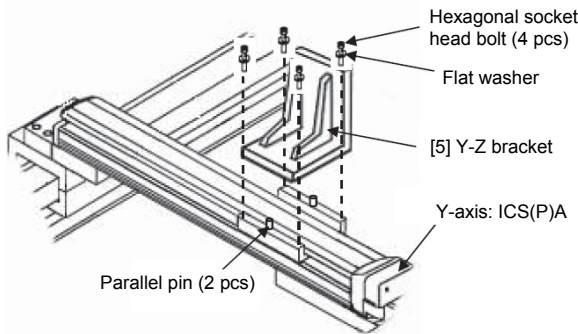
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10

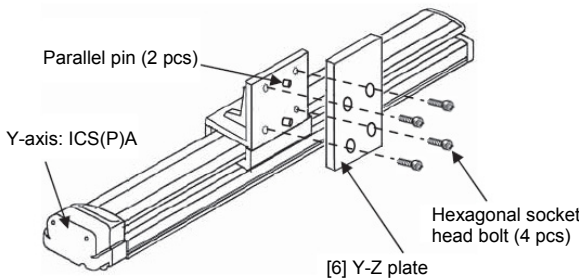


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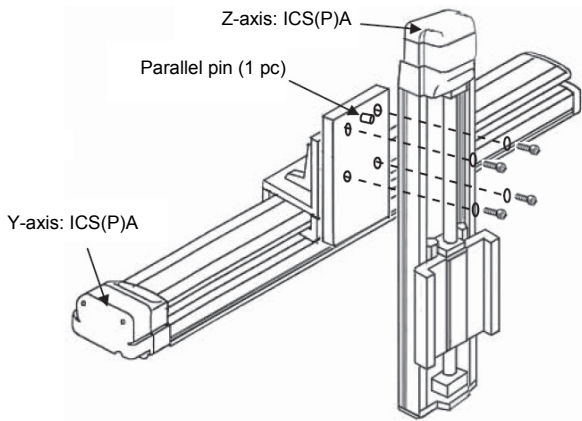
Configuration type	Parallel pin	Hexagonal bolt	Flat washer	Tightening torque
ICS(P)A3-G1(2)JHB1	∅8x18	M8x30mm	M8	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm

12



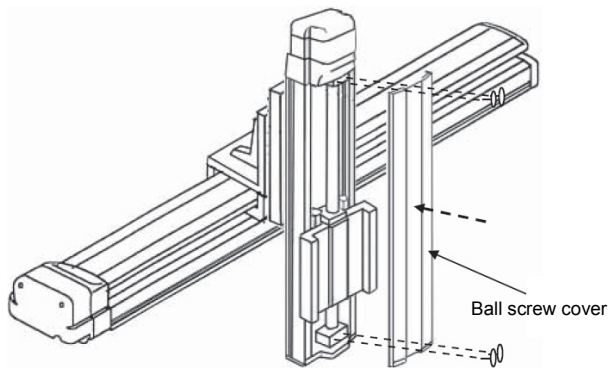
Configuration type	Parallel pin	Hexagonal bolt	Tightening torque
ICS(P)A3-G1(2)JHB1	∅6x15	M6x20mm	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x20mm	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x20mm	306kgf·cm/2997N·cm

13

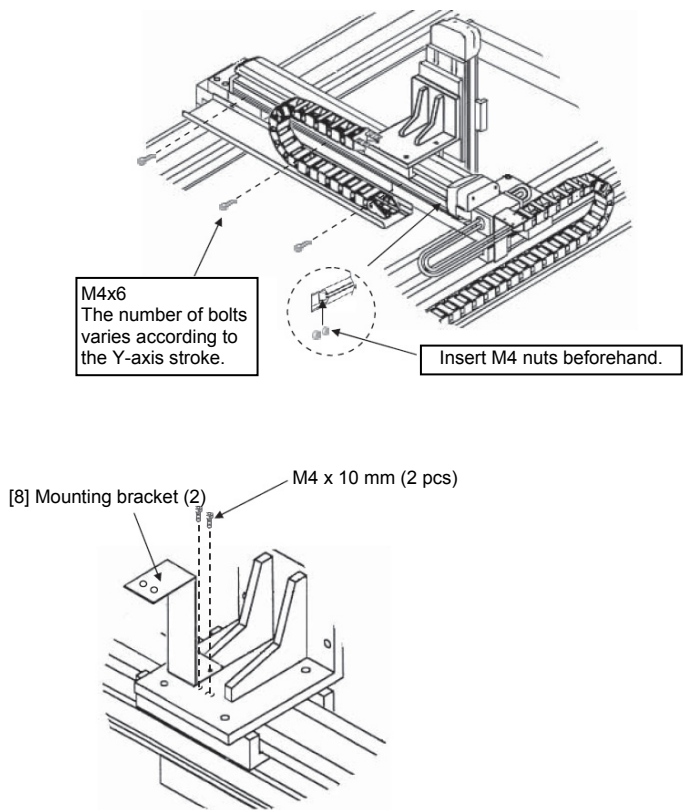


Configuration type	Parallel pin	Hexagonal bolt	Washer	Tightening torque
ICS(P)A3-G1(2)JHB1	∅6x15	M6x18mm	Dedicated	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x28mm	Dedicated	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x28mm	Dedicated	306kgf·cm/2997N·cm

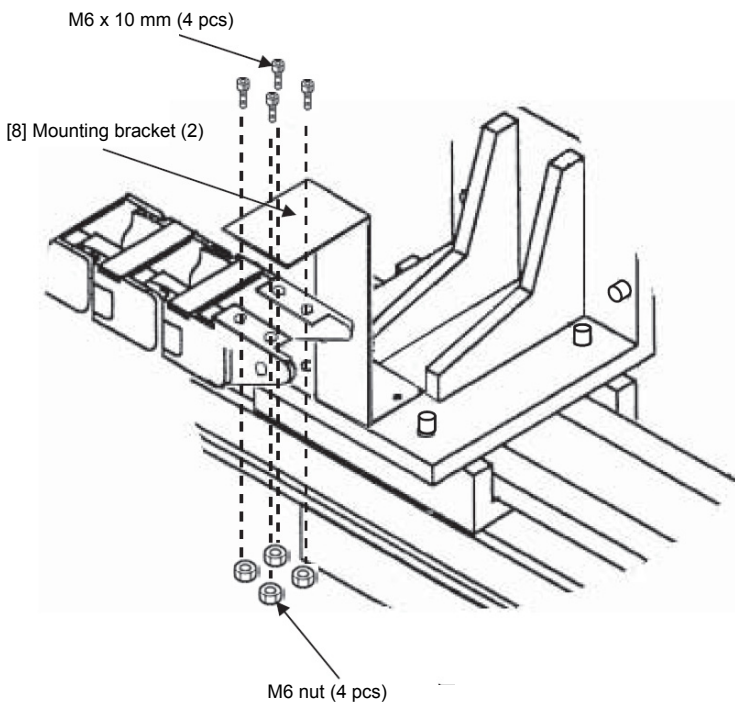
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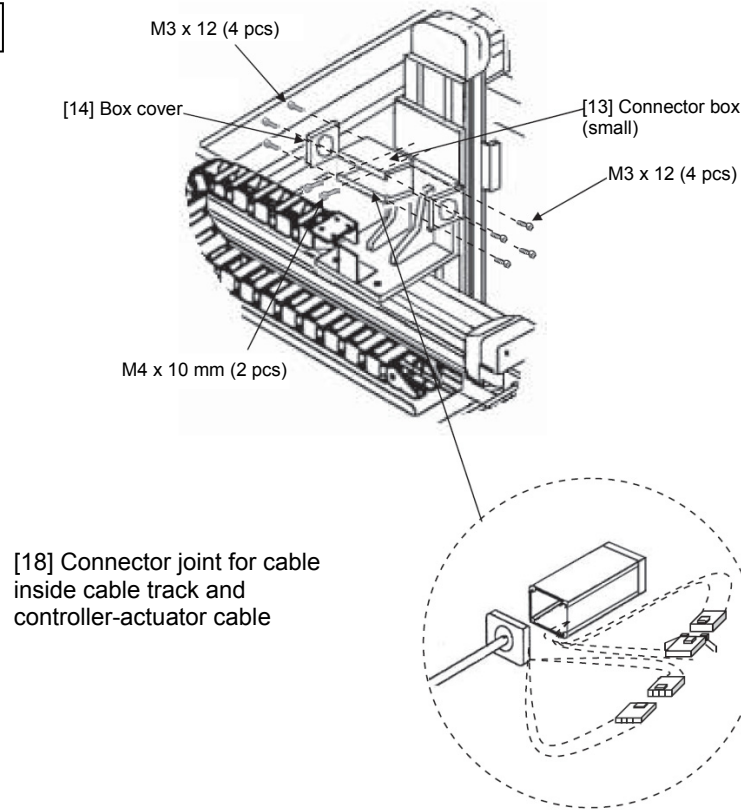
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16



17



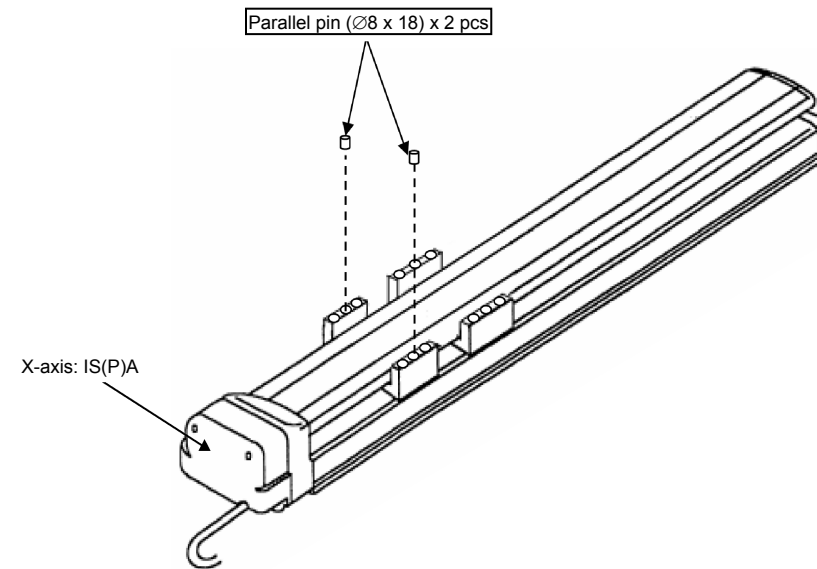
-  **Caution:**
- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
 - Exercise due caution during the assembly to prevent pinching of hands and fingers.

ICS(P)A Cartesian Robot, 3-axis Configuration X-Y (Gantry) + Z Type
ICS(P)A3-G□□□S□□-CT-SC X-axis/Y-axis: Cable Track, Y-axis/Z-axis: Self-supporting Cable

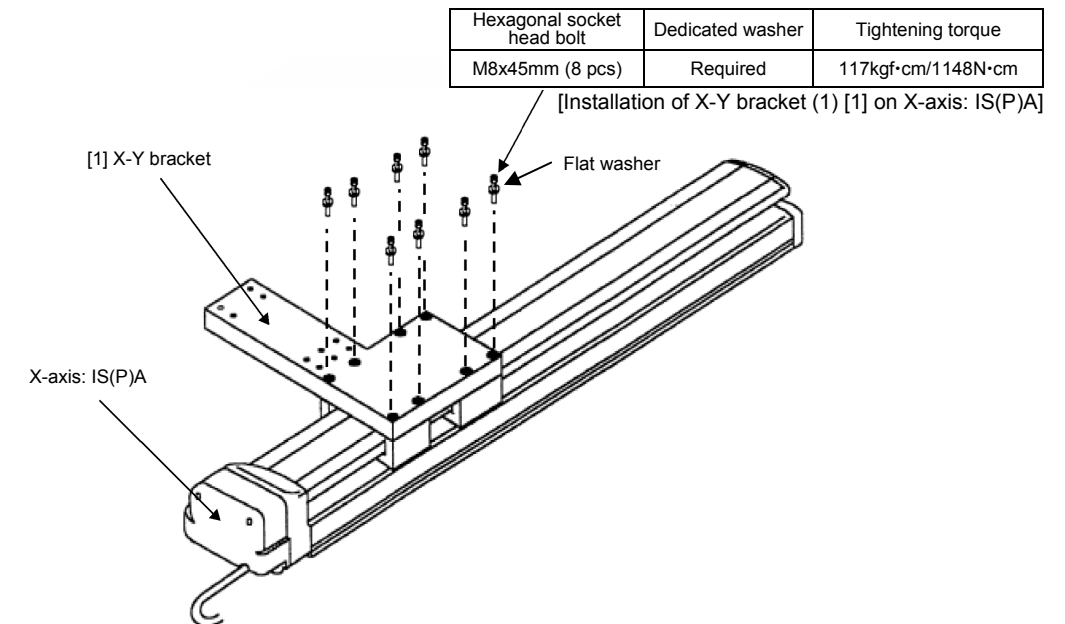
Drawing No. GMM08-014

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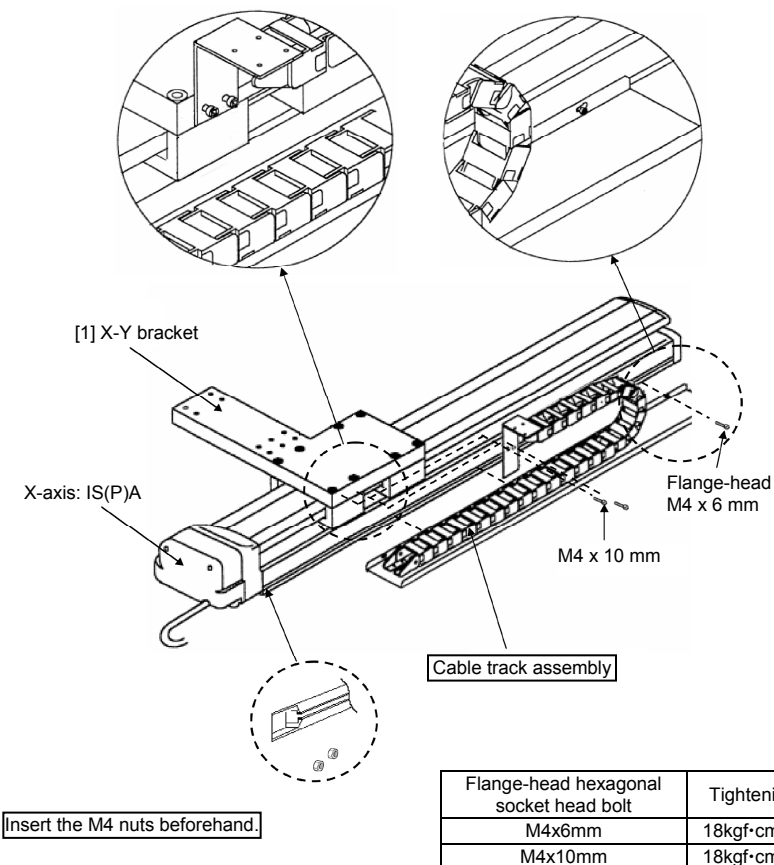
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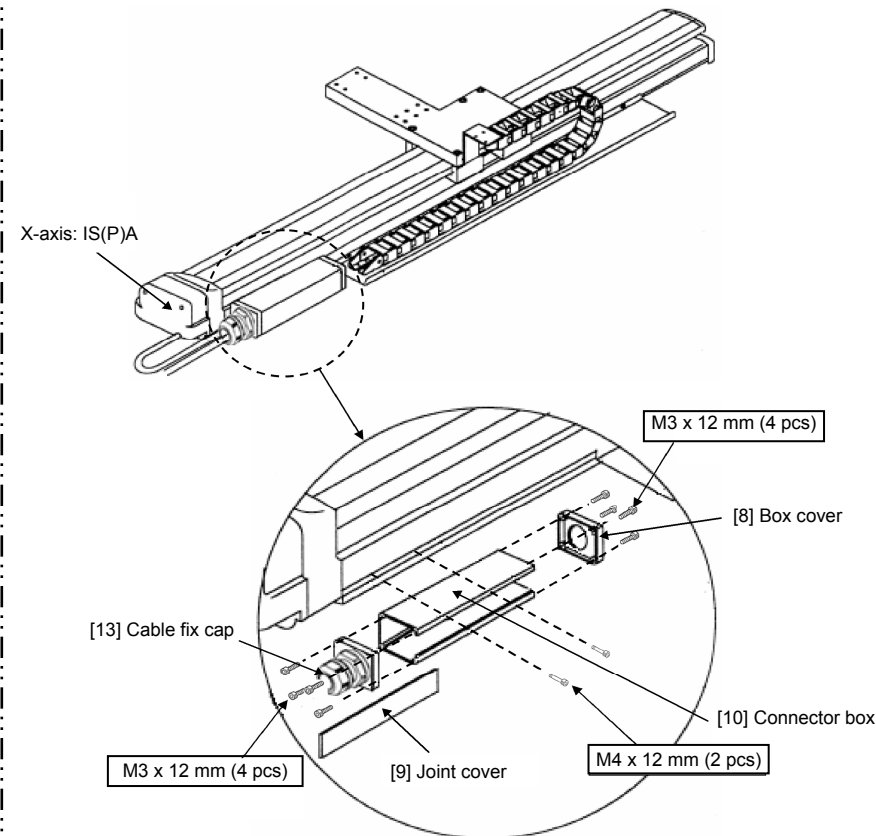
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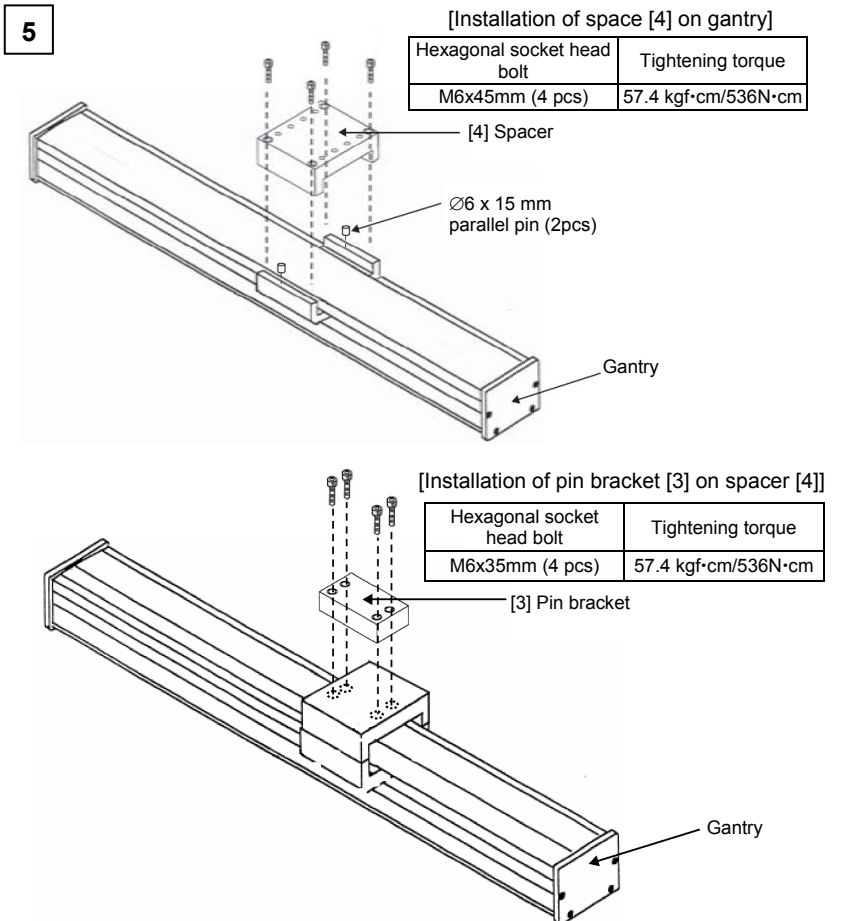
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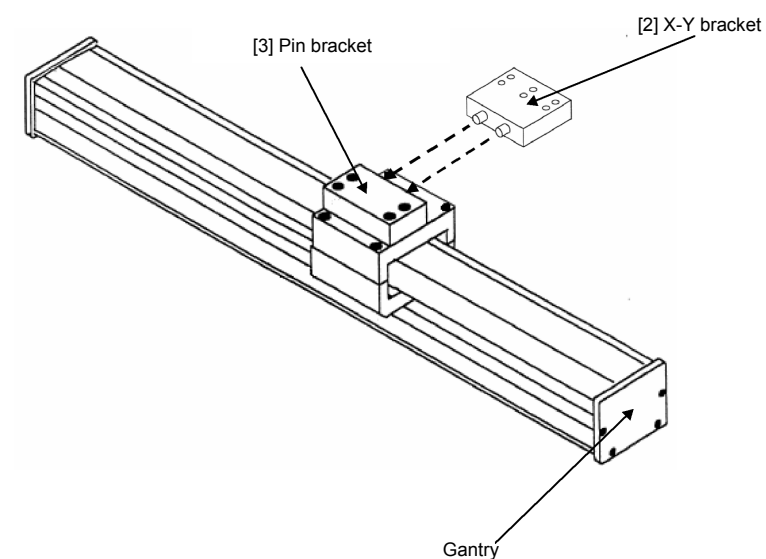
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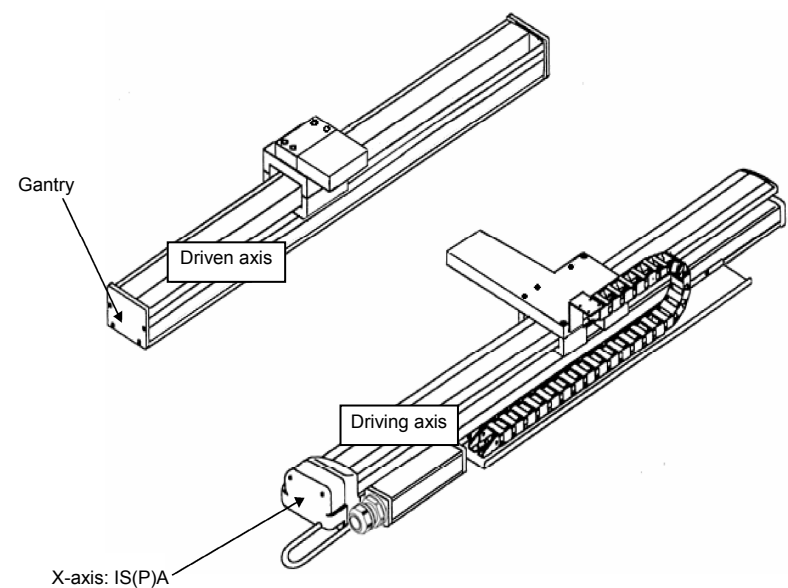
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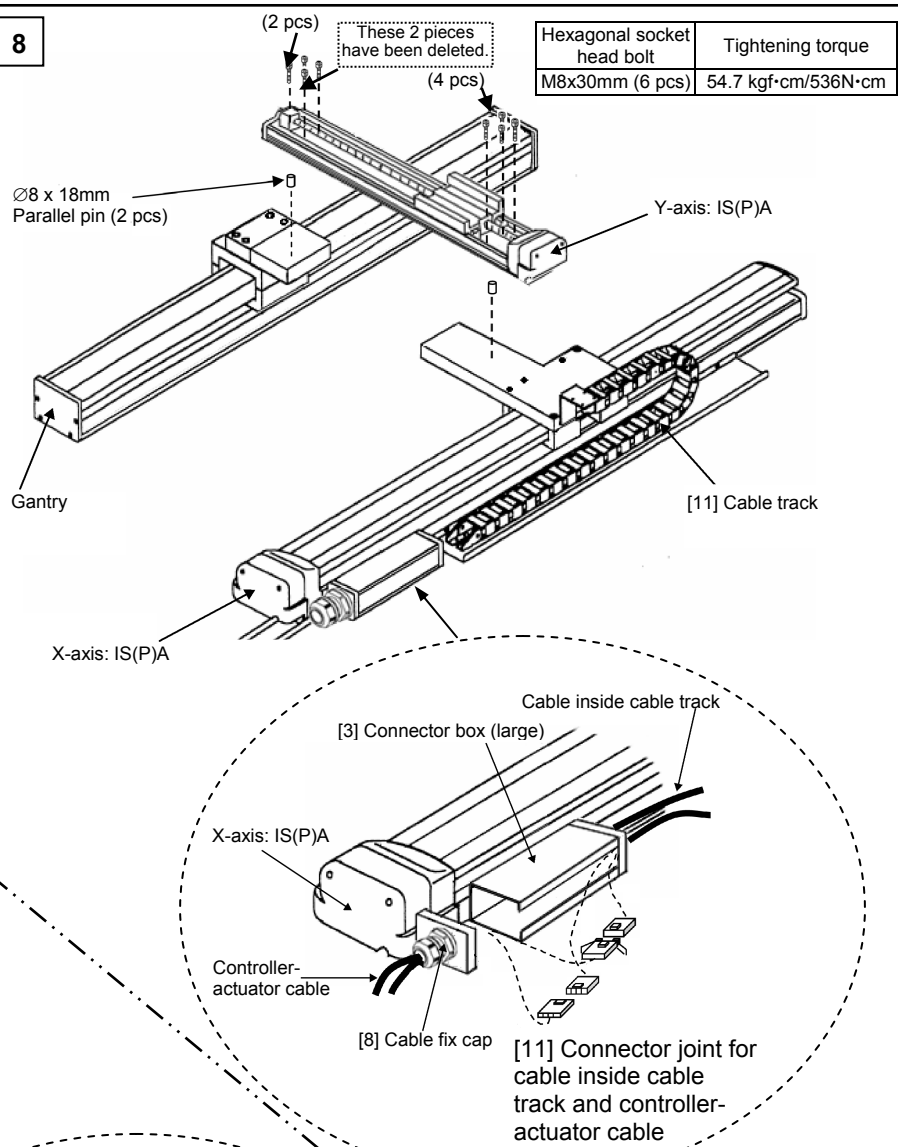
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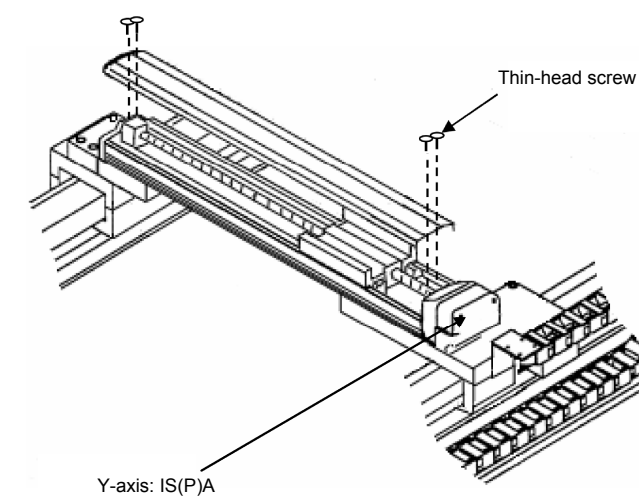
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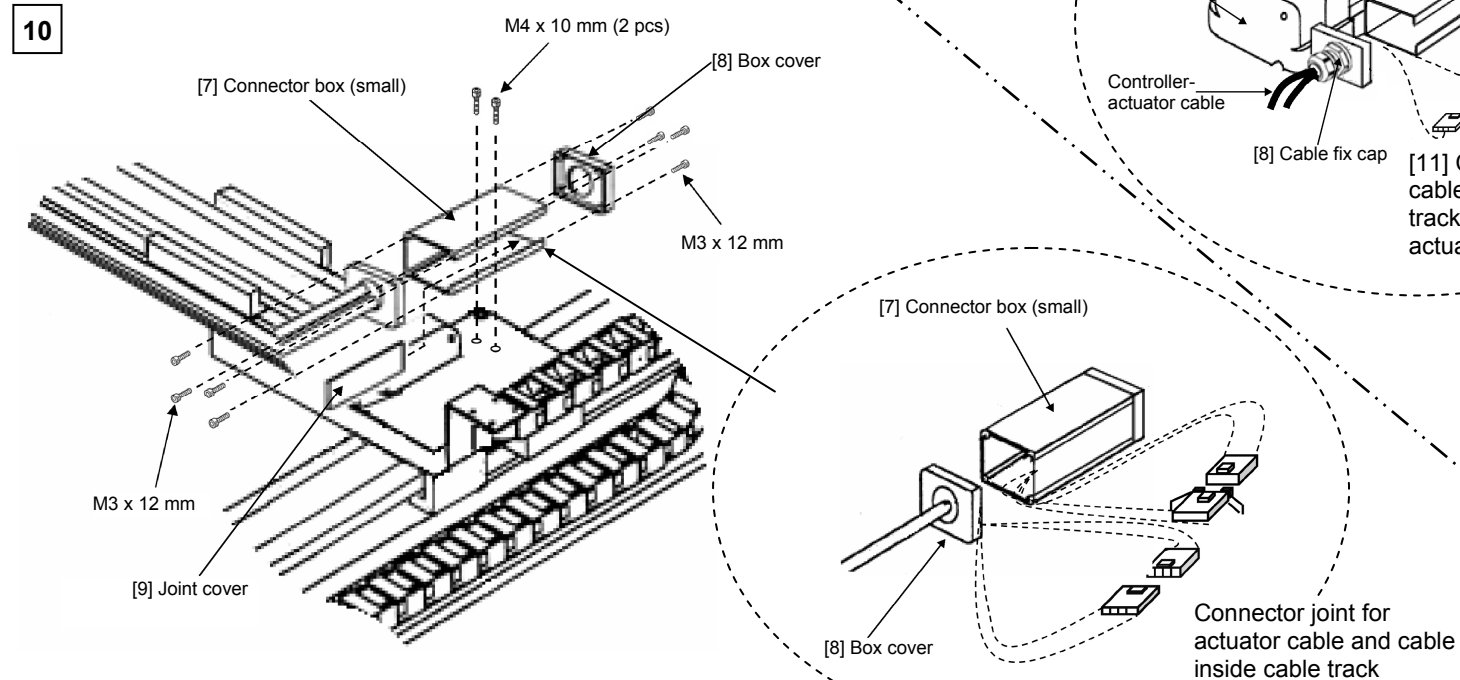
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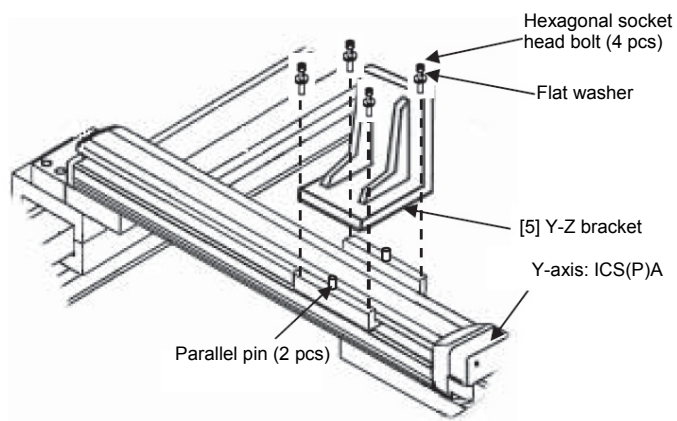
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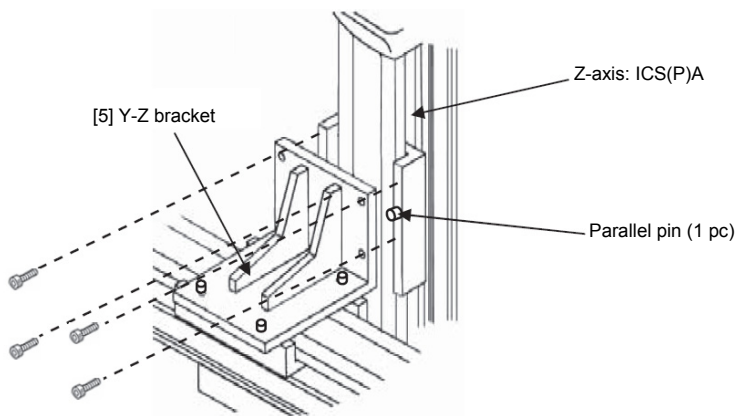


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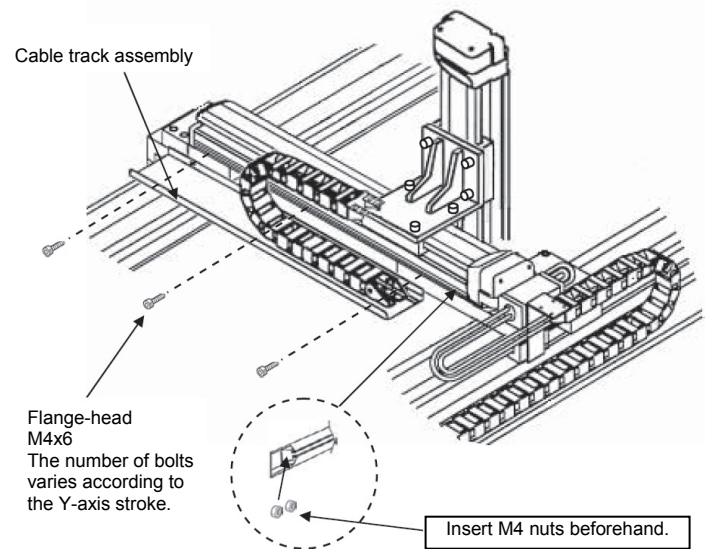
Configuration type	Parallel pin	Hexagonal bolt	Flat washer	Tightening torque
ICS(P)A3-G1(2)JHB1	Ø8x18	M8x30mm	M8	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	Ø8x18	M8x30mm	M8	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	Ø8x18	M8x30mm	M8	306kgf·cm/2997N·cm

12

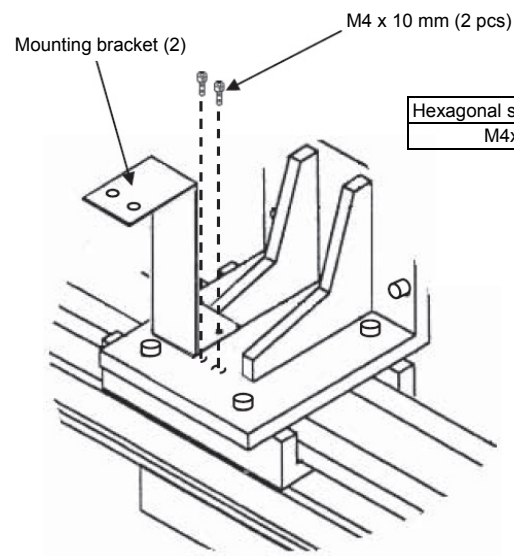


Configuration type	Parallel pin	Hexagonal socket head bolt	Tightening torque
ICS(P)A3-G1(2)JHB1	Ø6x15	M6x25mm	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	Ø8x18	M8x30mm	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	Ø8x18	M8x30mm	306kgf·cm/2997N·cm

13

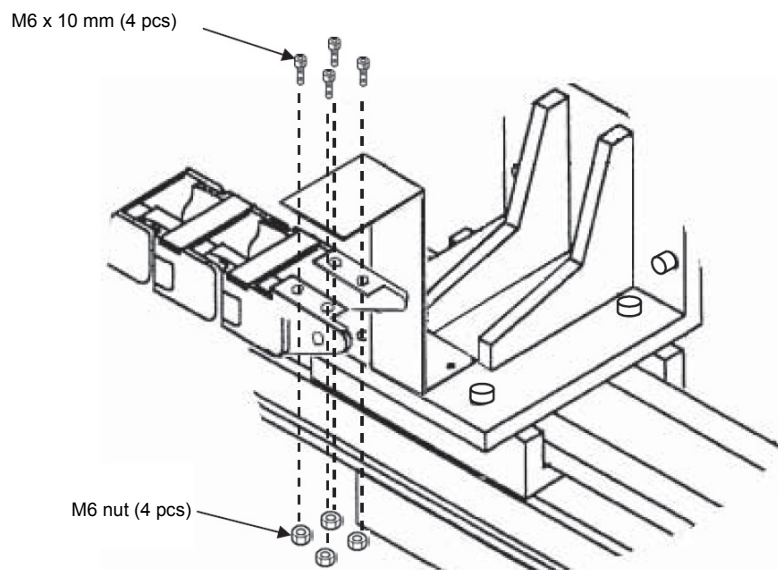


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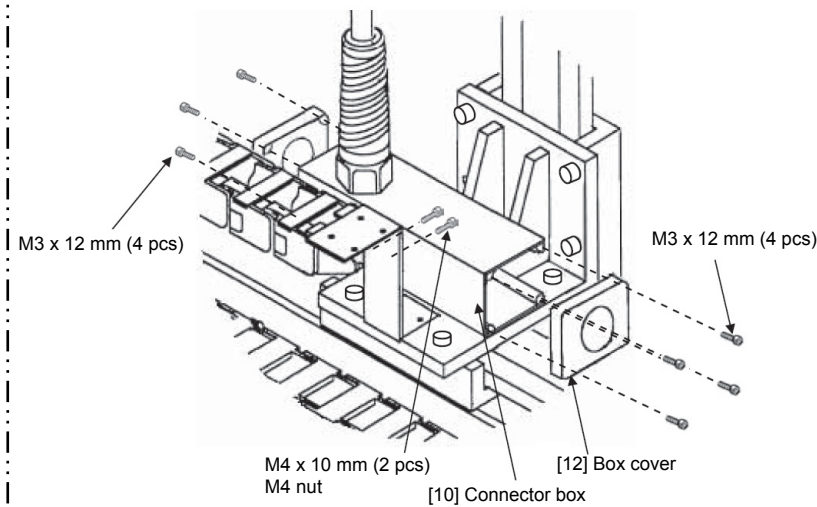


Hexagonal socket head bolt	Tightening torque
M4x10mm	18kgf·cm/176N·cm

16



17



17

