



ICS(P)A Cartesian Robot Assembly Procedures Fifth 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□ <u>K,L,P,Q</u> □□-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
15	Instruction for Cable Track Type Wiring								GMM12-001

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

(Model)
ICS(P)A2-B□□□-SC
H: High speed
M: Medium speed
Configuration direction
X-axis Y-axis
A: SXM+SYM
B: MXM+SYM
C: MXM+MYM
D: MXM+MYM
E: LXM+MYM
F: LXM+MYM

[Assembled parts]
[1] X-Y bracket [2] Box cover [3] Connector box (small)
[4] Connector box (large) [5] Bracket cover [6] Grommet with film
[7] Cable fix cap [8] Joint cover [9] Self-supporting cable assembly

[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.: GMM08-003

2 ICS(P)A2-B□□□-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
A: SXM+SYM
B: MXM+SYM
C: MXM+MYM
D: MXM+MYM
E: LXM+MYM
F: LXM+MYM

[Assembled parts]
[1] X-Y bracket [2] Box cover [3] Connector box
[4] Box spacer, BA type only [5] Joint cover [6] Bracket cover
[7] Grommet with film (∅30, ∅34) [8] Cable fix cap [9] Guide rail
[10] 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)

[2], [3], [5] and [9] are assembled before the shipment.

[Assembly Procedure] Drawing No.: GMM08-004

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

(Model)
ICS(P)A2-G□□□-CT
H: High speed
X-axis Y-axis
1J: LXUWX+MXM
2J: LXUWX+MXMX

[Assembled parts]
[1] X-Y bracket [2] X-Y bracket [3] Pin bracket
[4] Spacer [5] Mounting bracket [6] Guide rail
[7] Connector box (small) [8] Box cover [9] Joint cover
[10] Connector box (large) [11] Cable track [12] Grommet with film
[13] Cable fix cap [14] Packing frame

[Configuration directions]
Cable track assembly
[5], [6] and [11] are assembled before the shipment.

[Assembly Procedure] Drawing No.: GMM08-005

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

(Model)
ICS(P)A2-S□□□-SC
H: High speed
M: Medium speed
Configuration direction
X-axis Y-axis
A: SXN+SZM
1C: MXM(100W)+MYM(100W)
2C: MXM(200W)+MYM(200W)
G: LXM+LYM

[Assembled parts]
[1] X-Y bracket [2] Box cover [3] Connector box (small)
[4] Connector box (large) [5] Bracket cover [6] Grommet with film
[7] Cable fix cap [8] Joint cover [8] Mounting bracket
[10] Self-supporting cable assembly

[Configuration directions]
Combination direction 1 (Operation range)
Combination direction 2 (Reverse of 1) (Operation range)
Combination direction 3 (Operation range)
Combination direction 4 (Reverse of 3) (Operation range)

[Assembly Procedure] Drawing No.: GMM08-006

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

(Model)
ICS(P)A2-Y□□□-SC
H: High speed
M: Medium speed
Y-axis Z-axis
A: SYM+SZM
C: MYM+MZM
G: LYM+LZM

[Assembled parts]
[1] X-Y bracket [2] Box cover [3] Connector box (small)
[4] Connector box (large) [5] Grommet with film [6] Cable fix cap
[7] Joint cover [8] Box spacer [9] Self-supporting cable assembly

[Configuration directions]

[Assembly Procedure] Drawing No.: GMM08-007

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

(Model)
ICS(P)A2-Z□□□-CT
H: High speed
M: Medium speed
X-axis Y-axis
A: SXM+SZM
1C: MXM(100W)+MZM(100W)
2C: MXM(200W)+MZM(200W)
D: MXMX+MZM
G: LXM+LZM
H: LXM+LZM

[Assembled parts]
[1] X-Y bracket [2] Box cover [3] Connector box (large) [3] Connector box (small)
[4] Joint cover [5] Mounting bracket [6] Grommet with film (∅30, ∅34)
[7] Cable fix cap [8] Guide rail [9] Cable track

[Configuration directions]
[6], [9] and [10] are assembled before the shipment.

[Assembly Procedure] Drawing No.: GMM08-008

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

(Model)
ICS(B)□□-CTP)A2-B□□□-CT

H: High speed
M: Medium speed

Z-axis
1:SXM(60W)
2:MXM(100W)
3:MXM(200W)

Configuration direction

X-axis Y-axis
A:SXM+SYM
B:MXM+SYM
C:MXM+MYM
D:MXM+MYM
E:LXM+MYM
F:LXM+MYM

[Assembled parts]
[1] X-Y bracket [2] Y-Z bracket [3] Connector box (large) [4] Connector box (medium)
[5] Connector box (small) [6] Joint cover (large) [7] Joint cover (medium) [8] Joint cover (small)
[9] Box cover [10] Bracket cover [11] Grommet with film [12] Cable fix cap
[13] Box support [14] Cable track assembly

[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.: GMM08-009

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

(Model)
ICS(P)A3-B□□□B□□-CT-SC

H: High speed
M: Medium speed

Z-axis
1:SXM(60W)
2:MXM(100W)
3:MXM(200W)

Configuration direction

X-axis Y-axis
A:SXM+SYM
B:MXM+SYM
C:MXM+MYM
D:MXM+MYM
E:LXM+MYM
F:LXM+MYM

[Assembled parts]
[1] X-Y bracket [2] Y-Z bracket [3] Connector box (large) [4] Connector box (medium)
[5] Connector box (small) [6] Joint cover (large) [7] Joint cover (medium) [8] Joint cover (small)
[9] Box cover [10] Bracket cover [11] Grommet with film [12] Cable fix cap
[13] Box support [14] Cable track assembly [15] Self-supporting cable assembly (2)

[Configuration directions]
Type 1 Type 2 (Reverse of type 1)
Type 3 (Y-axis installed on opposite side) Type 3 (Reverse of type 3)

[Assembly Procedure] Drawing No.: GMM08-010

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

(Model)
ICS(P)A3-B□□□B□□-SC-SC

H: High speed
M: Medium speed

Z-axis
1:SXM(60W)
2:MXM(100W)
3:MXM(200W)

Configuration direction

X-axis Y-axis
A:SXM+SYM
B:MXM+SYM
C:MXM+MYM
D:MXM+MYM
E:LXM+MYM
F:LXM+MYM

[Assembled parts]
[1] X-Y bracket [2] Y-Z bracket [3] Connector box (large) [4] Connector box (medium)
[5] Connector box (small) [6] Box cover [7] Joint cover (large) [8] Joint cover (medium)
[9] Joint cover (small) [10] Bracket cover [11] Grommet with film [12] Cable fix cap
[13] Box support [14] Self-supporting cable assembly (1) [15] Self-supporting cable assembly (2)

[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.: GMM08-011

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

(Model)
ICS(P)A3-B□□□S□□-SC-SC

H: High speed
M: Medium speed

Z-axis
1:SXM(60W)
3:MXM(200W)

Configuration direction

X-axis Y-axis
A:SXM+SYM
B:MXM+SYM
C:MXM+MYM
D:MXM+MYM
E:LXM+MYM
F:LXM+MYM

[Assembled parts]
[1] X-Y bracket [2] Y-Z bracket [3] Connector box (large) [4] Connector box (medium)
[5] Connector box (small) [6] Box cover [7] Joint cover (large) [8] Joint cover (medium)
[9] Joint cover (small) [10] Bracket cover [11] Grommet with film [12] Cable fix cap
[13] Box support [14] Self-supporting cable assembly (1) [15] Self-supporting cable assembly (2)

[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.: GMM08-012

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

(Model)
ICS(P)A3-G□□□B□□-CT-CT

Z-axis
H: High speed
M: Medium speed
L: Low speed

Z-axis
1:SXM(60W)
2:MXM(100W)
3:MXM(200W)

H: High speed

X-axis Y-axis
1J:LXUWX+MXM
2J:LXUWX+MXMX

[Assembled parts]
[1] X-Y bracket (1) [2] X-Y bracket (2) [3] Pin bracket [4] Spacer
[5] Y-Z bracket [6] Y-Z plate [7] Mounting bracket (1) [8] Mounting bracket (2)
[9] Guide rail (1) [10] Guide rail (2) [11] Connector box (large) [12] Connector box (medium)
[13] Connector box (small) [14] Box cover [15] Joint cover (large) [16] Joint cover (medium)
[17] Joint cover (small) [18] Cable track [19] Grommet with film [20] Packing frame

[Configuration directions]
Cable track assembly
The cable track assembly is configured with the mounting bracket and guide rail.

[Assembly Procedure] Drawing No.: GMM08-013

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

(Model)
ICS(P)A3-G□□□S□□-CT-SC

Z-axis
H: High speed
M: Medium speed
L: Low speed

Z-axis
1:SXM(60W)
2:MZM(100W)
3:MZM(200W)

H: High speed

X-axis Y-axis
1J:LXUWX+MXM
2J:LXUWX+MXMX

[Assembled parts]
[1] X-Y bracket (1) [2] X-Y bracket (2) [3] Pin bracket [4] Spacer
[5] Y-Z bracket [6] Mounting bracket (1) [7] Mounting bracket (2)
[8] Guide rail (1) [9] Guide rail (2) [10] Connector box (large) [11] Joint cover
[12] Box cover [13] Cable track [14] Packing frame [15] Self-supporting cable assembly

[Configuration directions]
Cable track assembly
The cable track assembly is configured with the mounting bracket and guide rail.

[Assembly Procedure] Drawing No.: GMM08-014

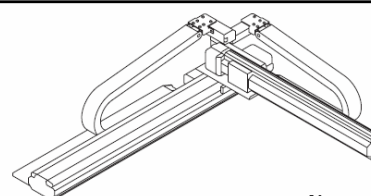
13 ICS(P)A-B|K,L,P,Q|□-CT XYB (Y-axis Base Mount)
Cable Track Specification

(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)

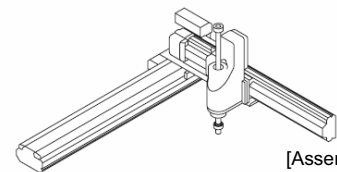
[Assembly Procedure] Drawing No.: GMM09-002

14 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

ICS(P)A Cartesian Robot – Completed Drawings

Drawing No. GMM09-001

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• 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

ICS(P)A Cartesian Robot – Completed Drawings		
Drawing No.	GMM09-001	5/9

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

	Thin-head TP		Flange-head hexagonal socket head bolt M4 x 8	Parallel pin		M8 flat washer Ø8.5 x Ø18 x t1.6	High-tension washer		Hexagonal nut			Grommet with film (Takigen) C-30-SG-34A-EP-UL (ivory)	M8 dedicated flat washer	Flange-head hexagonal socket head bolt M4 x 6	Hexagonal nut M4
	M3 x 6	M4 x 6		Ø6h7 x 15	Ø8h7 x 18		M6	M8	M4	M5	M6				
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.

ICS(P)A Cartesian Robot – Completed Drawings

Drawing No. GMM09-001

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• 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

ICS(P)A Cartesian Robot – Completed Drawings

Drawing No. GMM09-001

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• 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

ICS(P)A Cartesian Robot – Completed Drawings		
Drawing No.	GMM09-001	8/9

• 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.

ICS(P)A Cartesian Robot – Completed Drawings

Drawing No. GMM09-001

9/9

• 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.

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

[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

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

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

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

* 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:

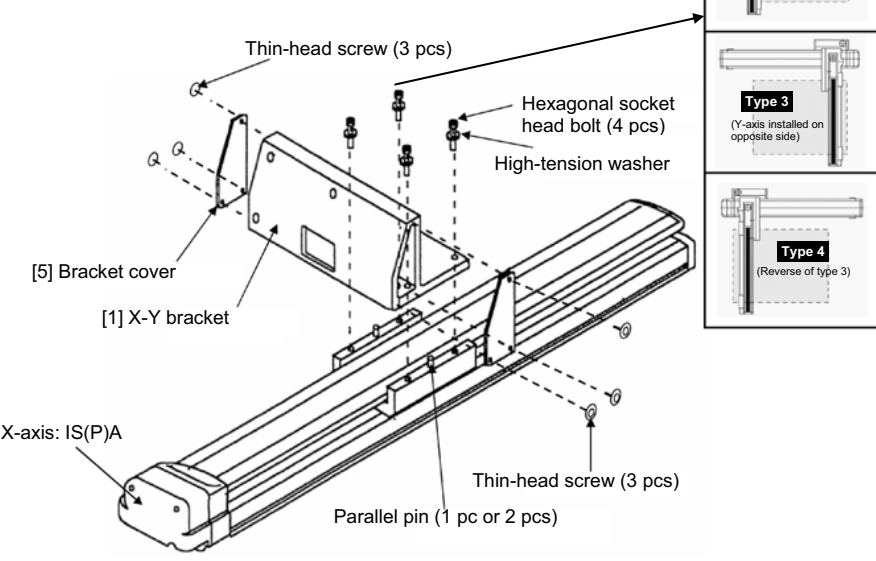
- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
- Exercise due caution during the assembly to prevent pinching of hands and fingers.

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]

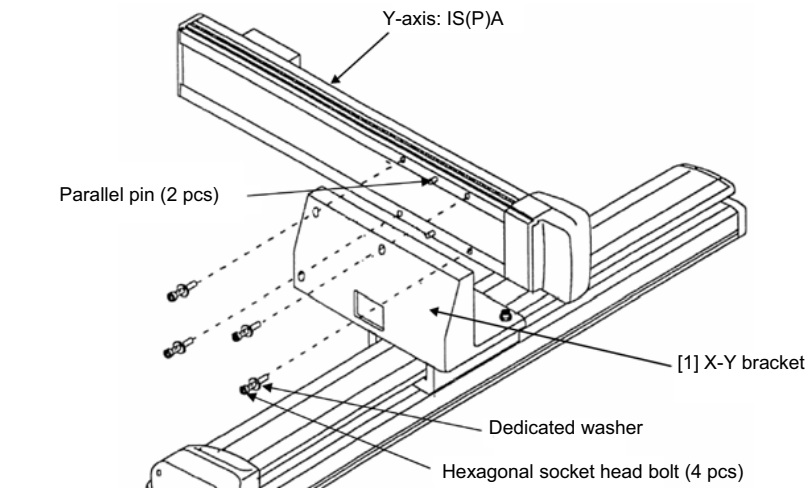
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm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

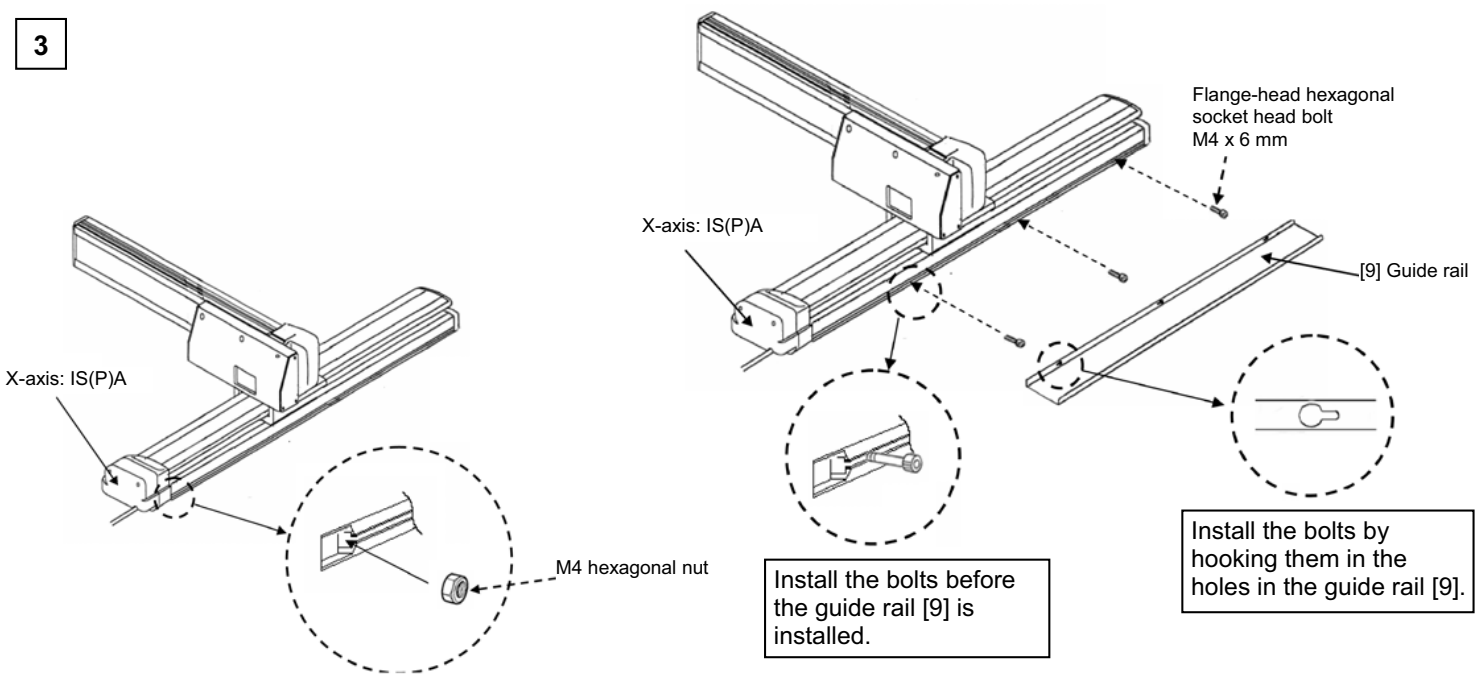
2



[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

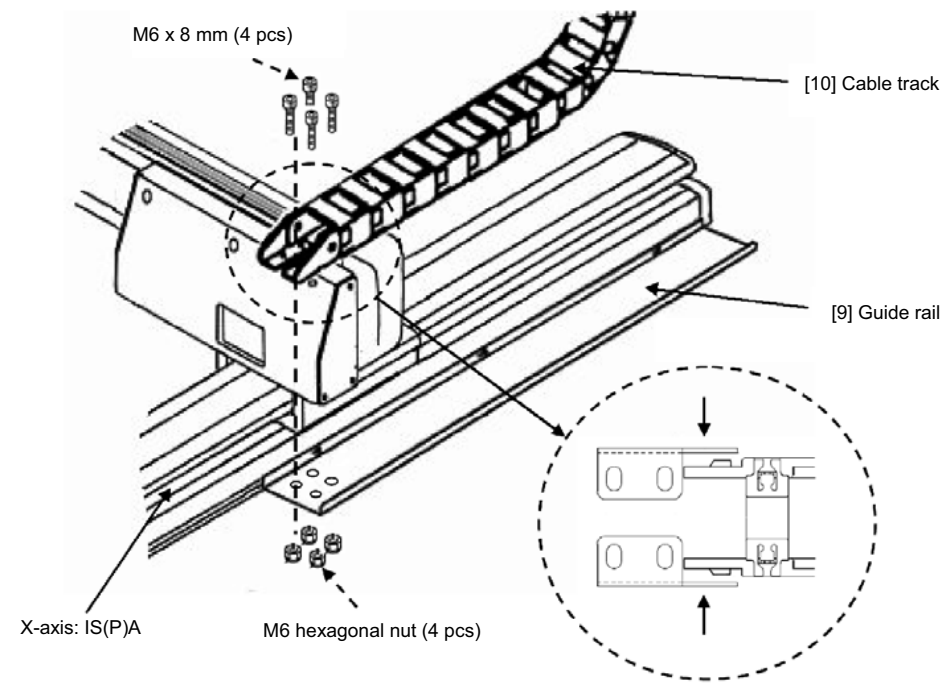


[Installation of guide rail [9] on X-axis: IS(P)A]

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

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.

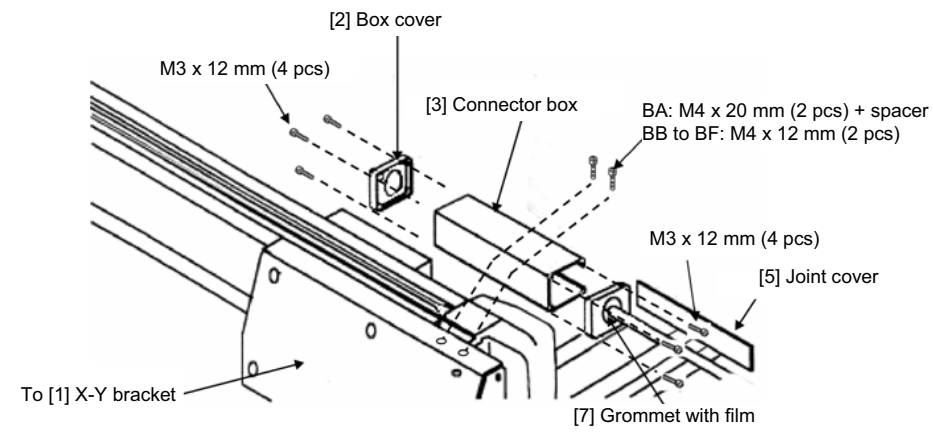
4



Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

* 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



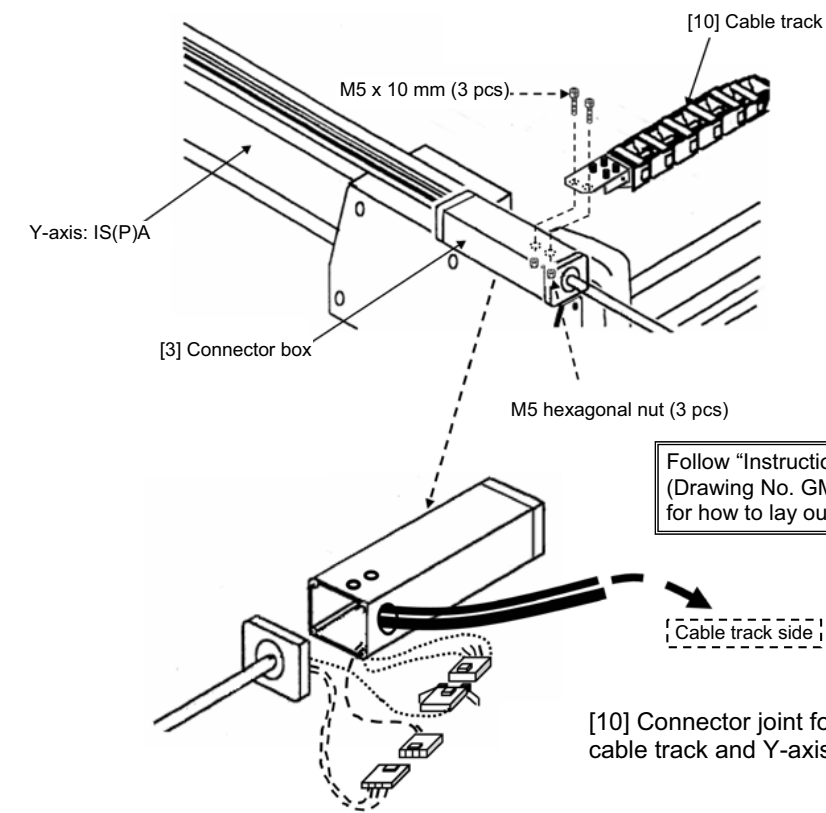
[Installation of connector box [3] on X-Y bracket [1]]

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

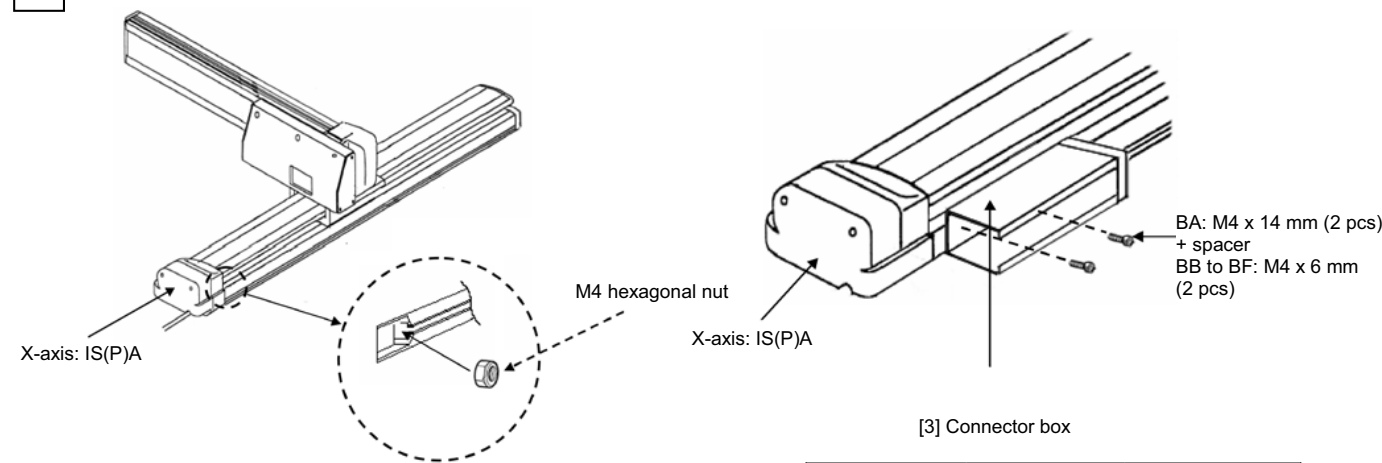
[Installation of box cover [2] on connector box [3]]

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

6



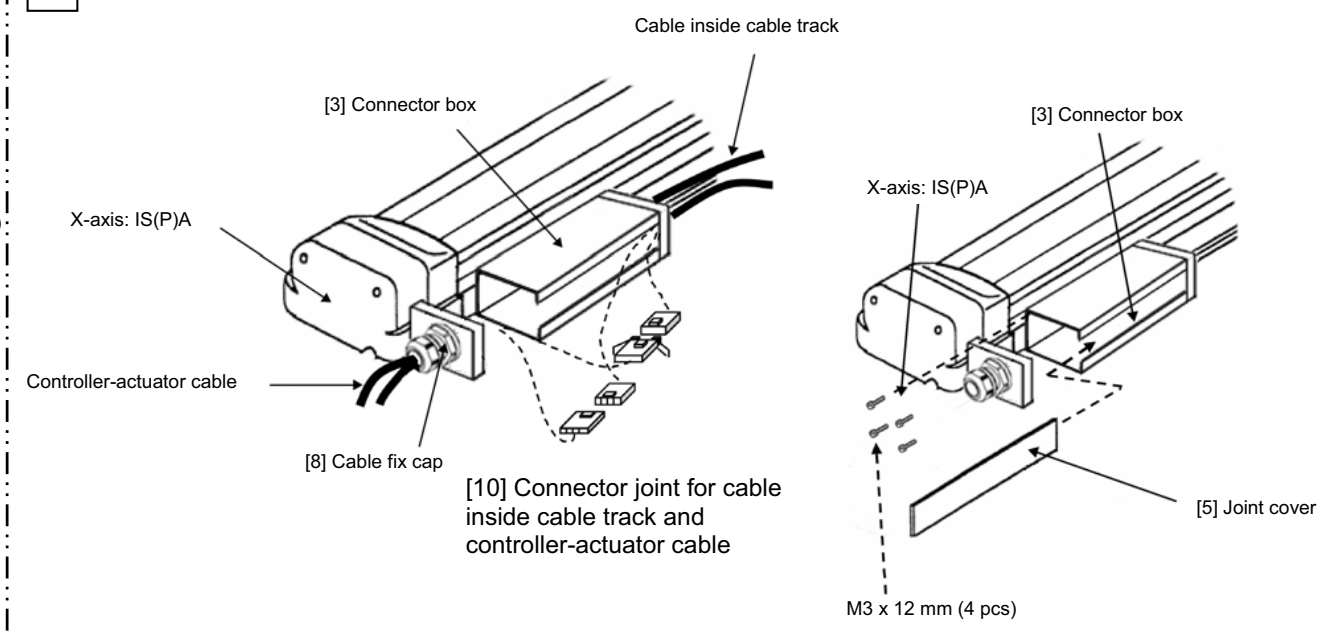
7



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

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

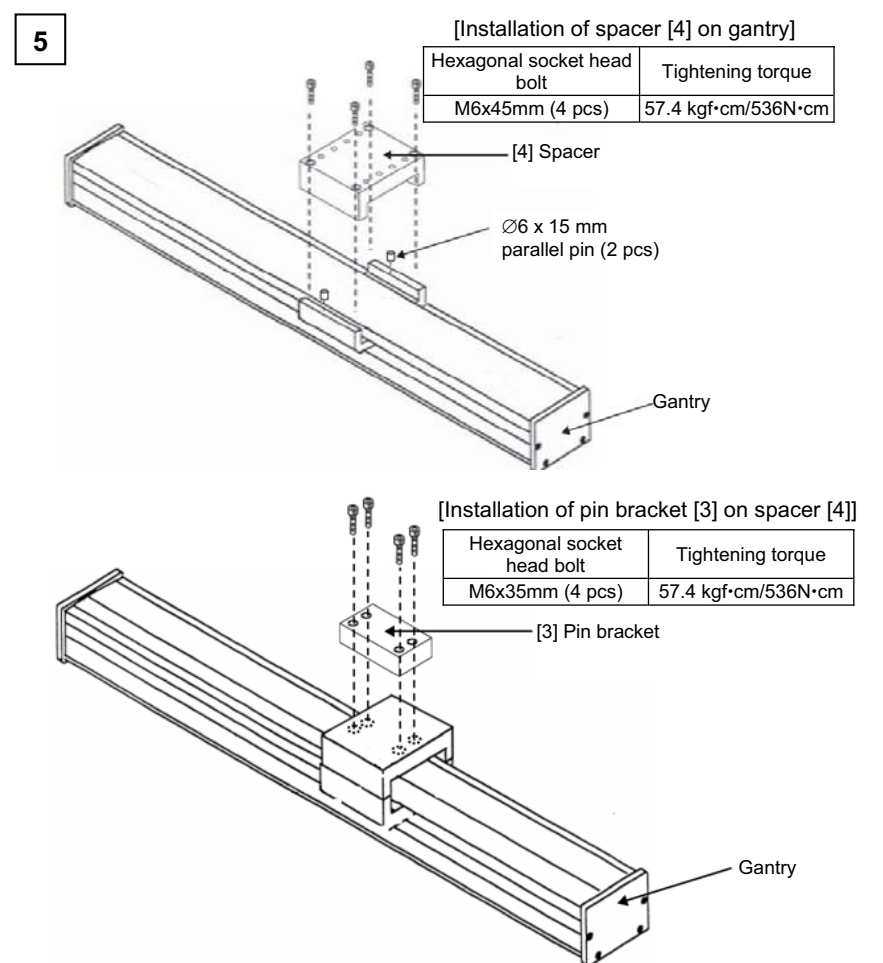
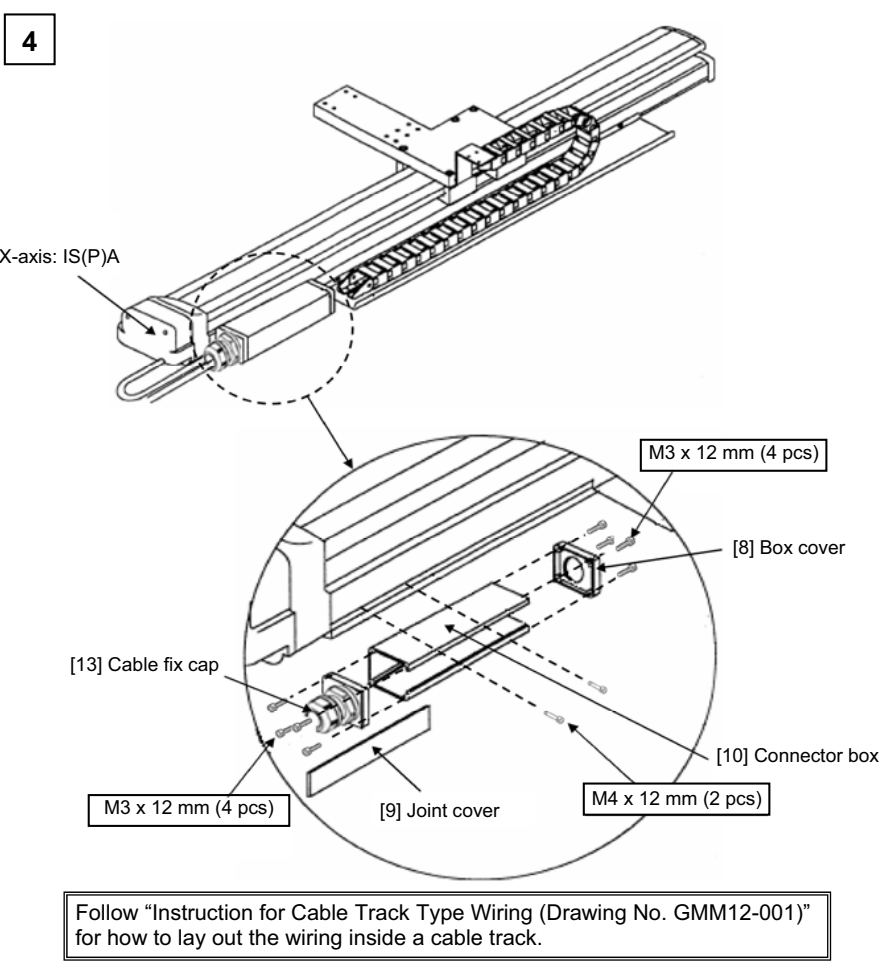
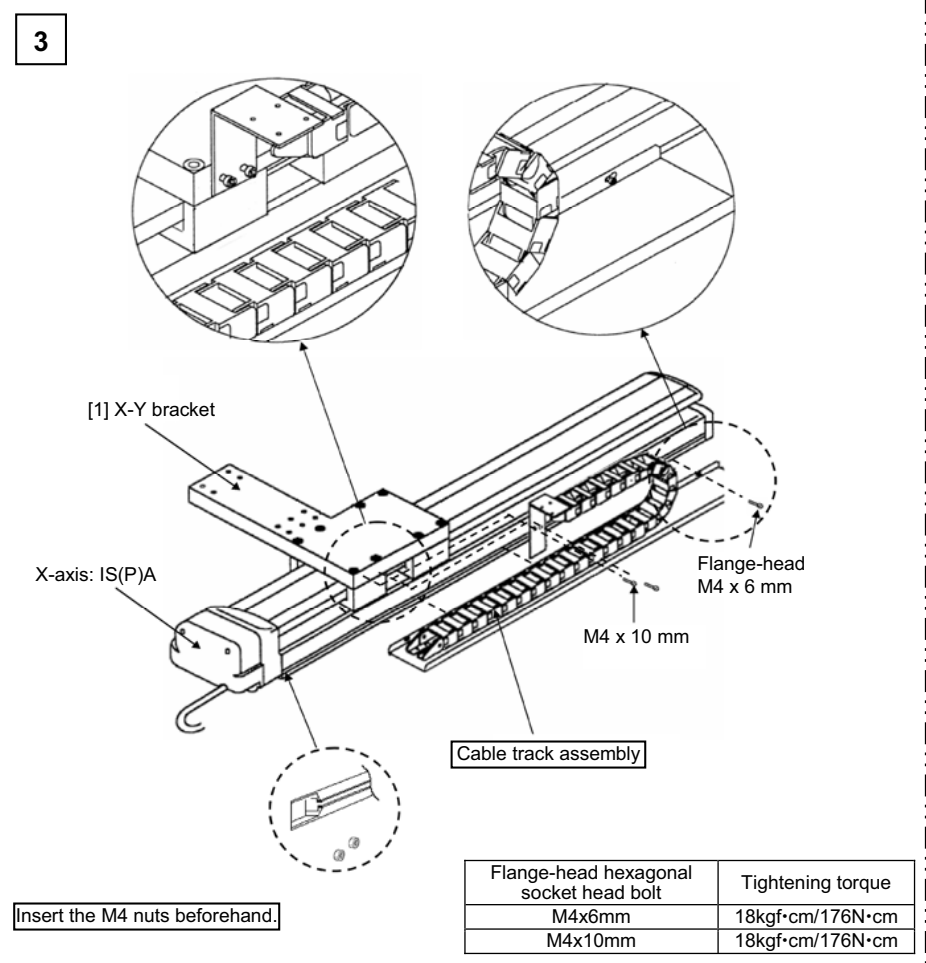
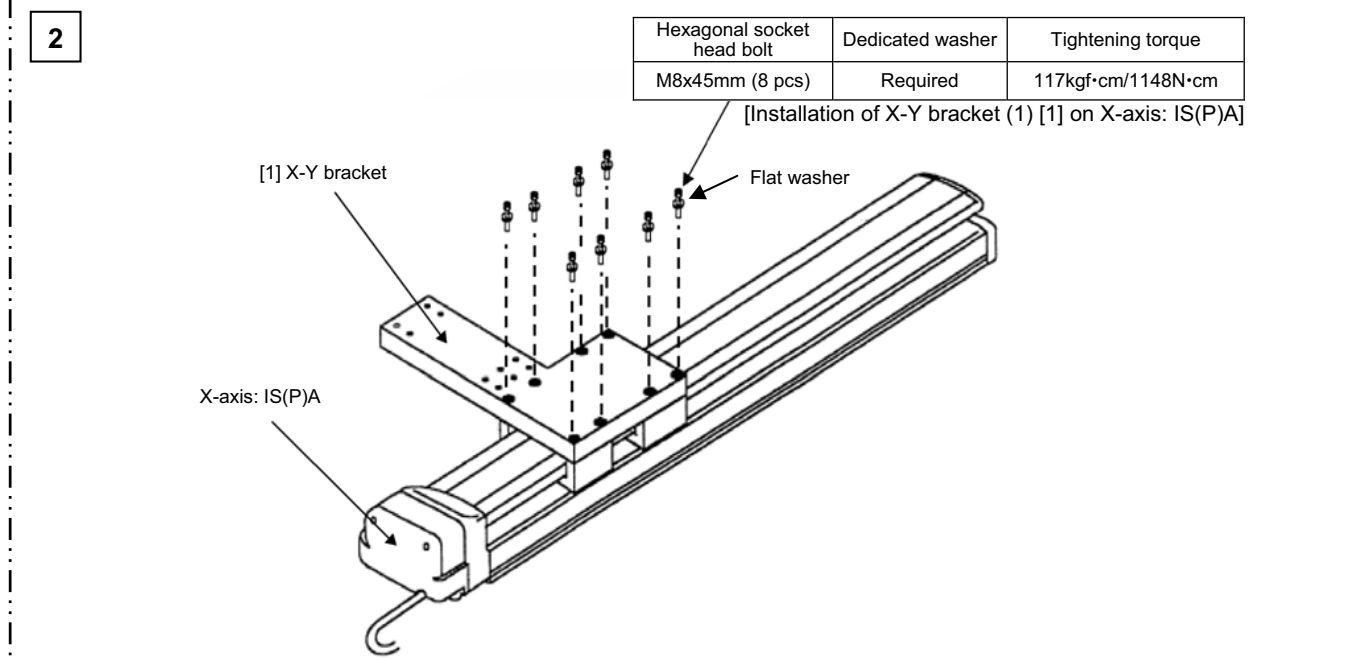
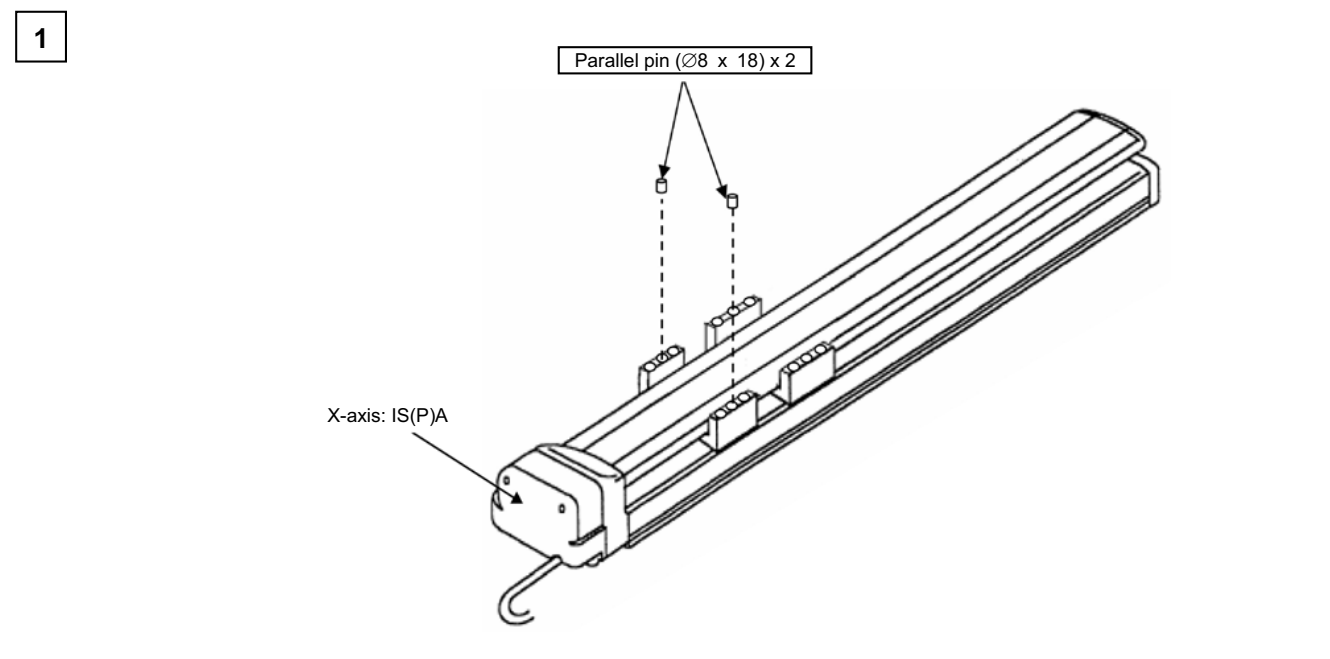
8



Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

⚠ 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.

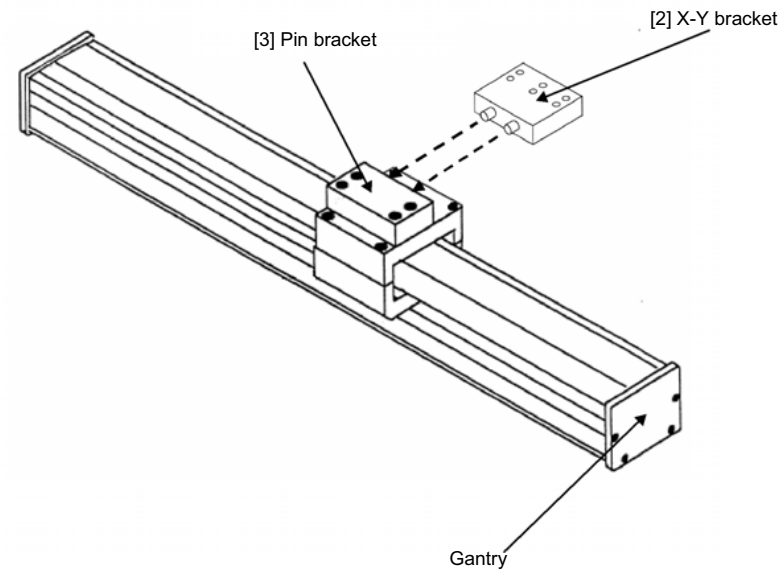


ICS(P)A Cartesian Robot, 2-axis Configuration XYG (Gantry) Type
 ICS(P)A2-G□□□-CT Cable Track

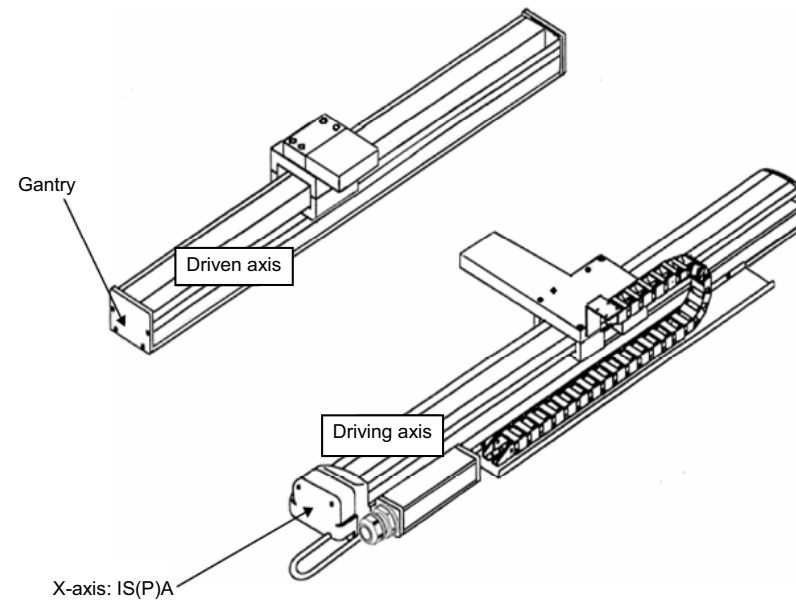
Drawing No. GMM08-005

2/2

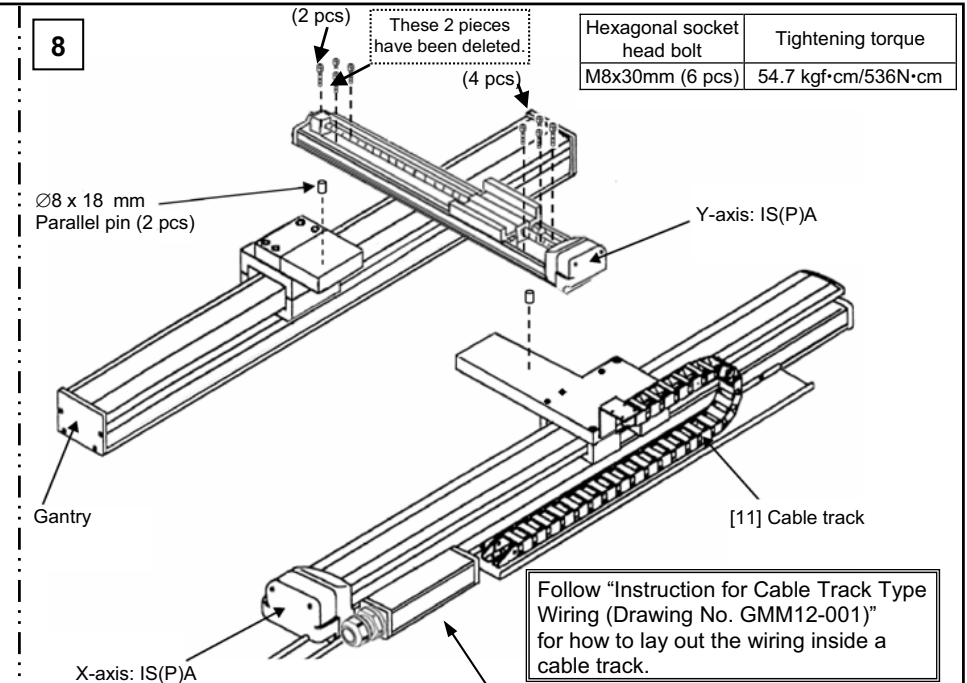
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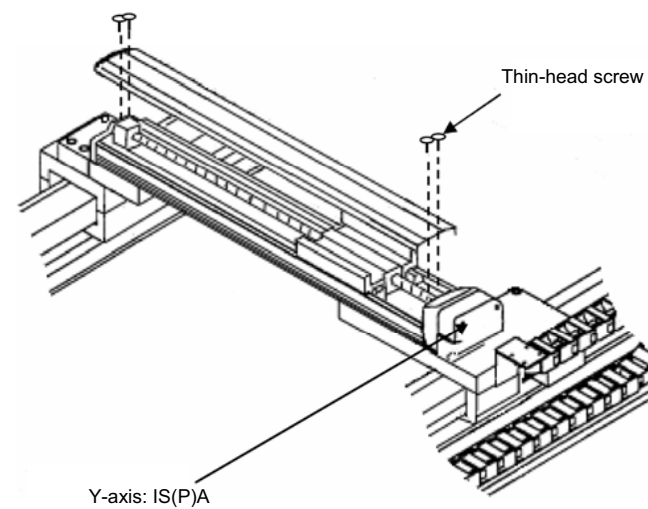
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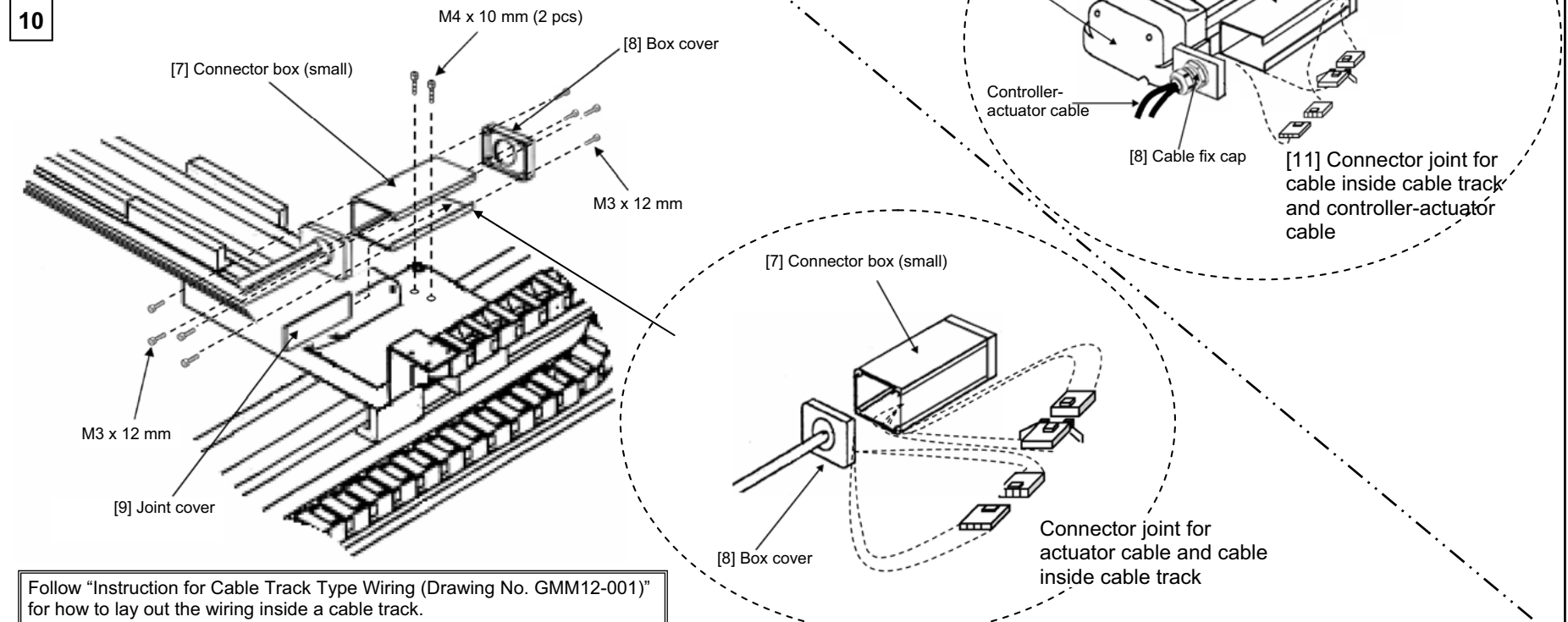
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9



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.

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

[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.

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.

Place the mounting bolts before the X-Y bracket [1] is installed on the Y-axis.

Configuration type	Parallel pin	Hexagonal bolt	High-tension washer
ICS(P)A-YA	∅6x15	M6x30mm	M6
ICS(P)A-YC	∅8x18	M8x35mm	M8
ICS(P)A-YG	∅8x18	M8x35mm	M8

Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque	Tightening torque
ICS(P)A-YA	∅6x15	M6x28mm	None	54.7kgf·cm/536N·cm	8.9kgf·cm/87.2N·cm
ICS(P)A-YC	∅8x18	M8x40mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-YG	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm

2

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

Configuration type	Parallel pin	Hexagonal bolt	High-tension washer	Tightening torque	Tightening torque
ICS(P)A-YA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm	8.9kgf·cm/87.2N·cm
ICS(P)A-YC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm
ICS(P)A-YG	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm	20.8kgf·cm/204N·cm

3

Place two M4 nuts in the slot provided on the side face of the Y-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
M4x8mm	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

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
M4x16mm	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

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.

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

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

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

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.

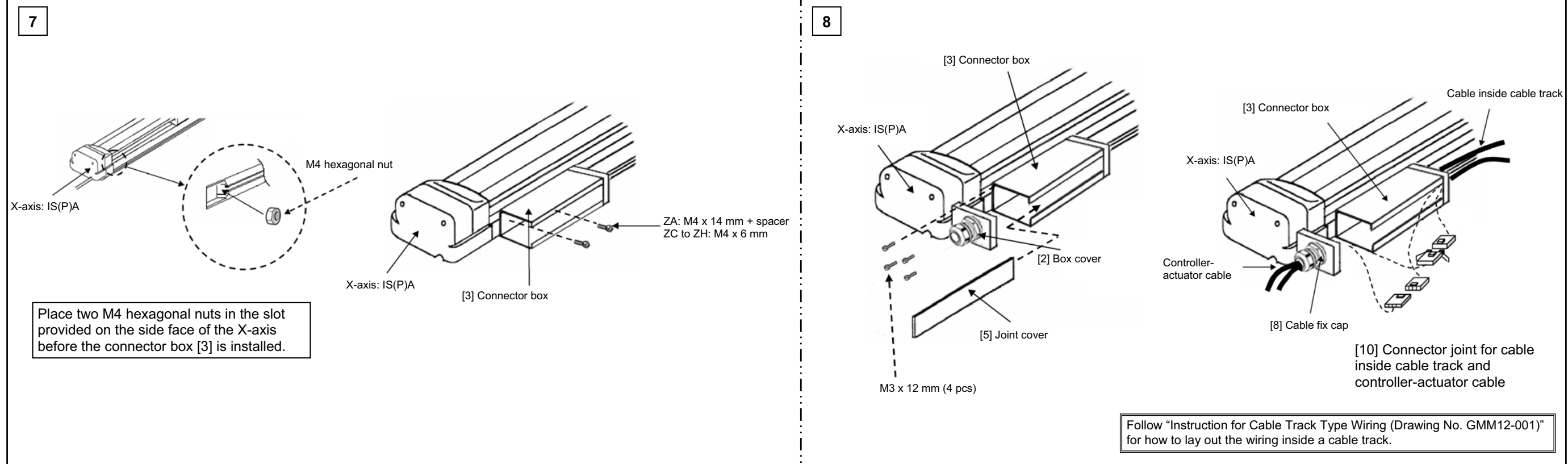
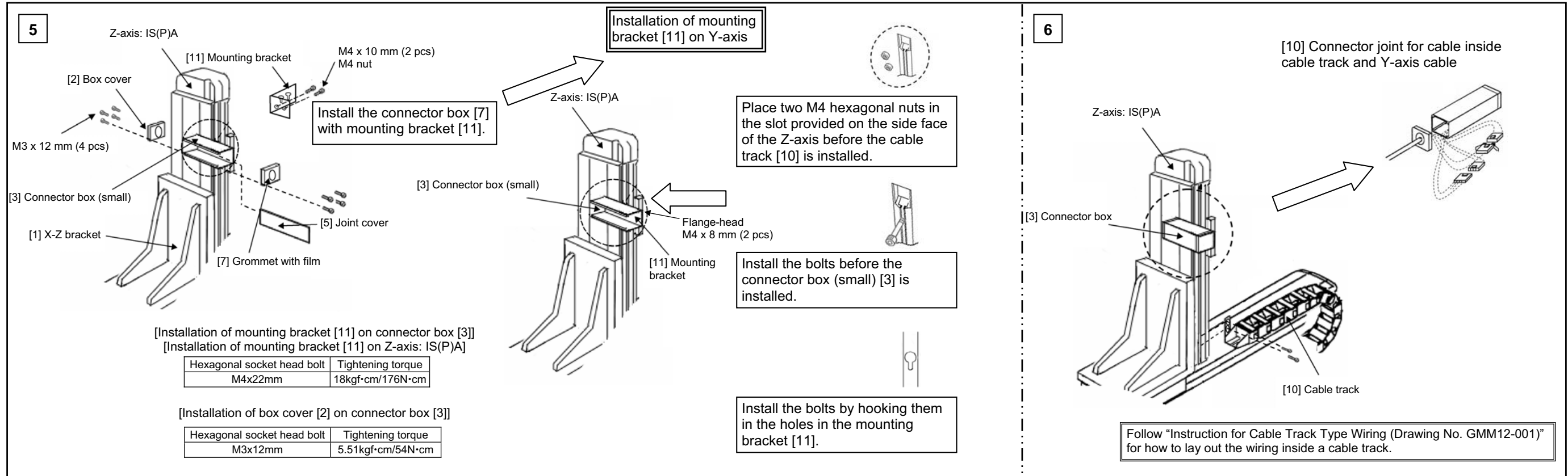
Install the bolts by hooking them in the holes in the guide rail [9].

Install the bolts before the guide rail [9] is installed.

4

[Installation of cable track [10] on X-axis: IS(P)A]

Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.



⚠ Caution:

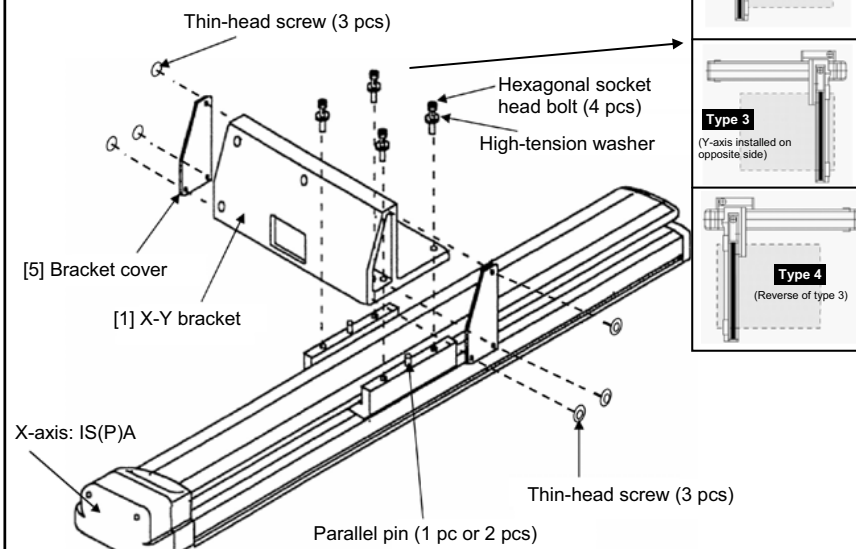
- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
- Exercise due caution during the assembly to prevent pinching of hands and fingers.

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.



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

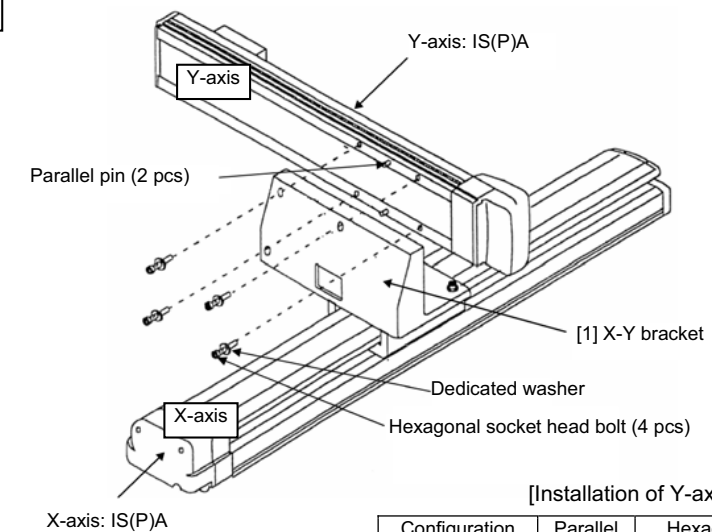
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm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

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.

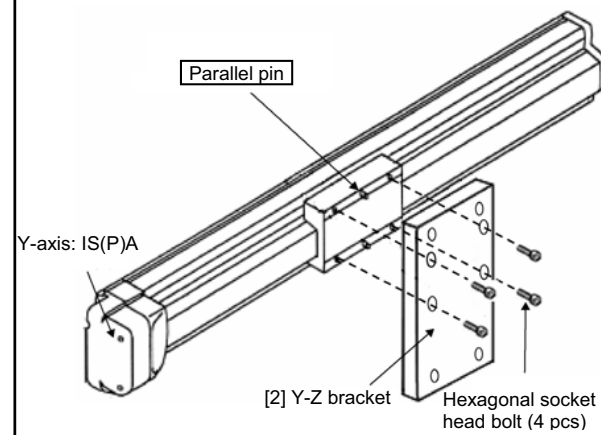
2



[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

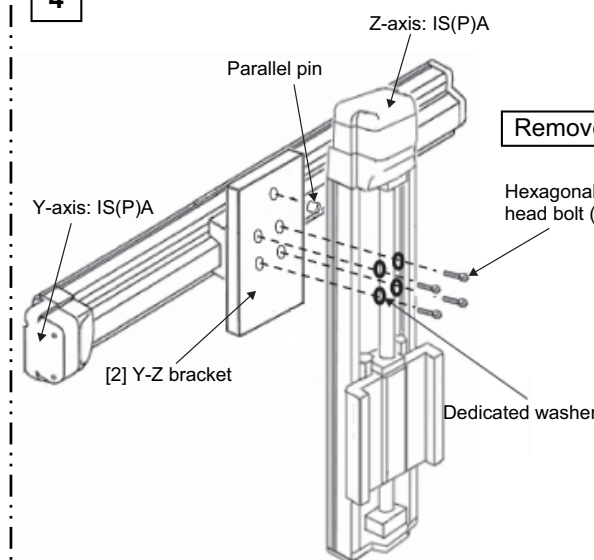
3



[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

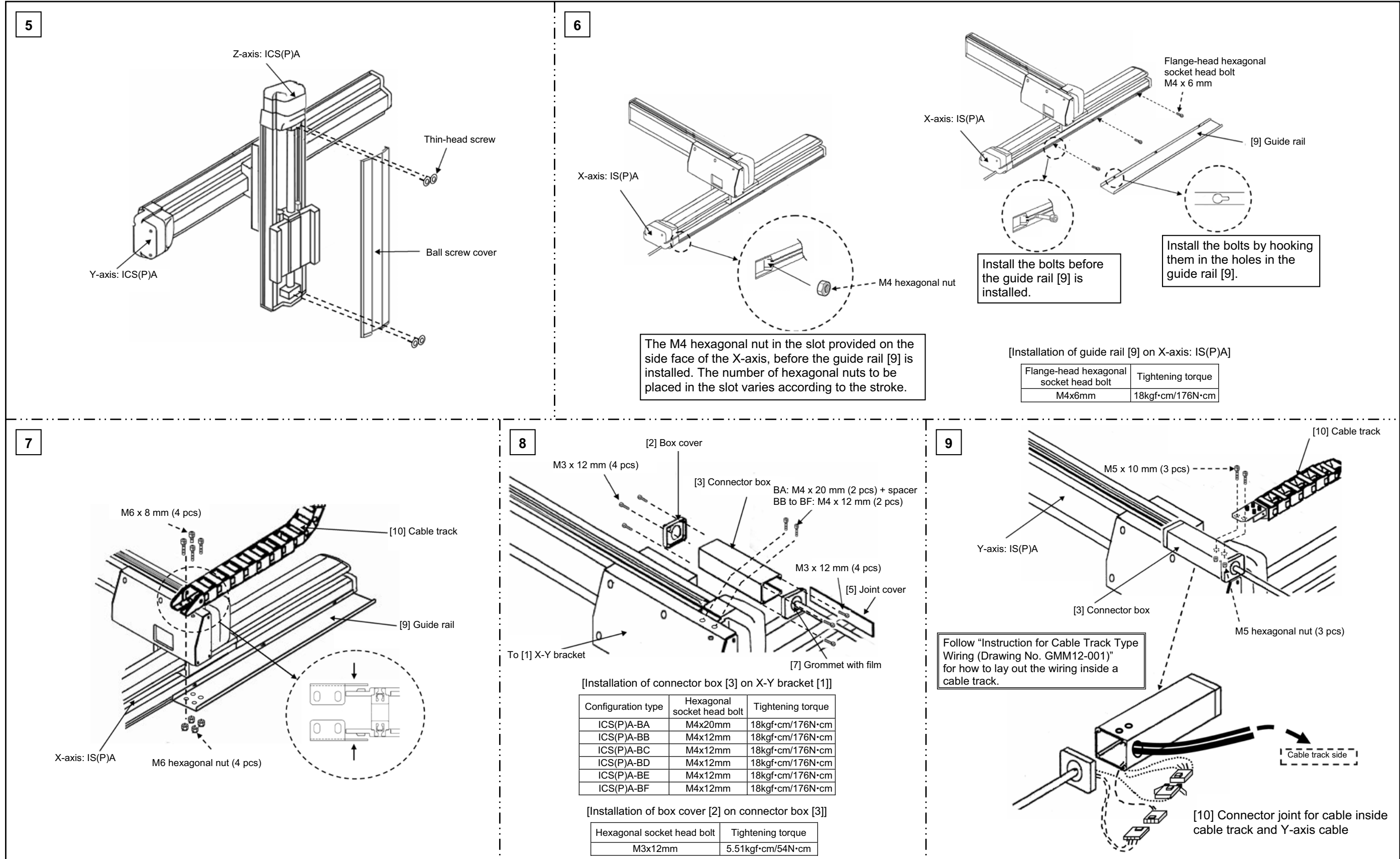
4



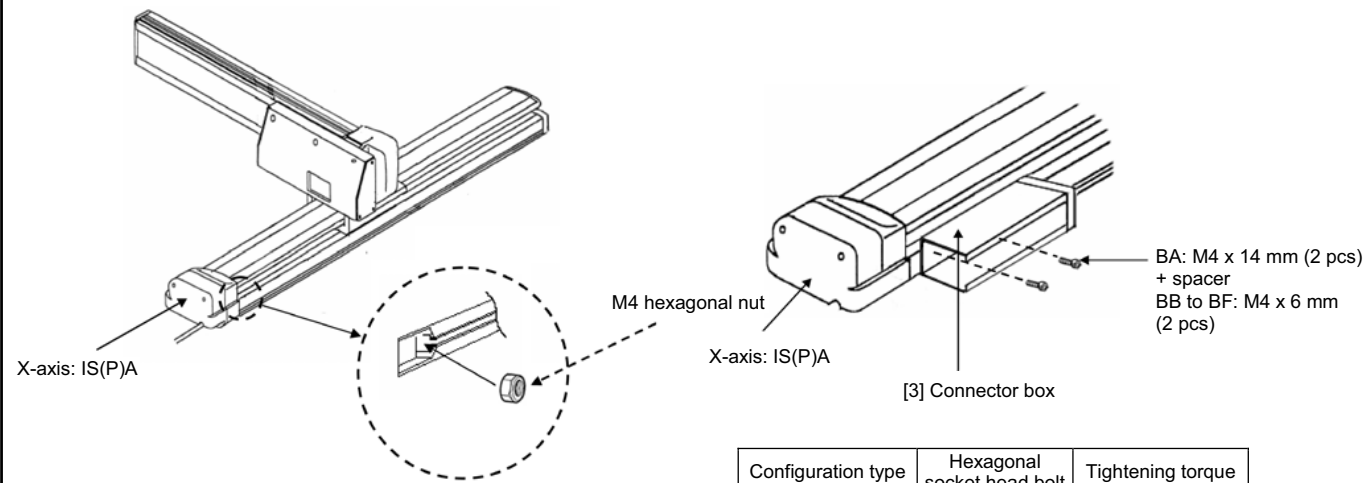
[Installation of Z-axis: IS(P)A on Y-Z bracket [2]]

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.



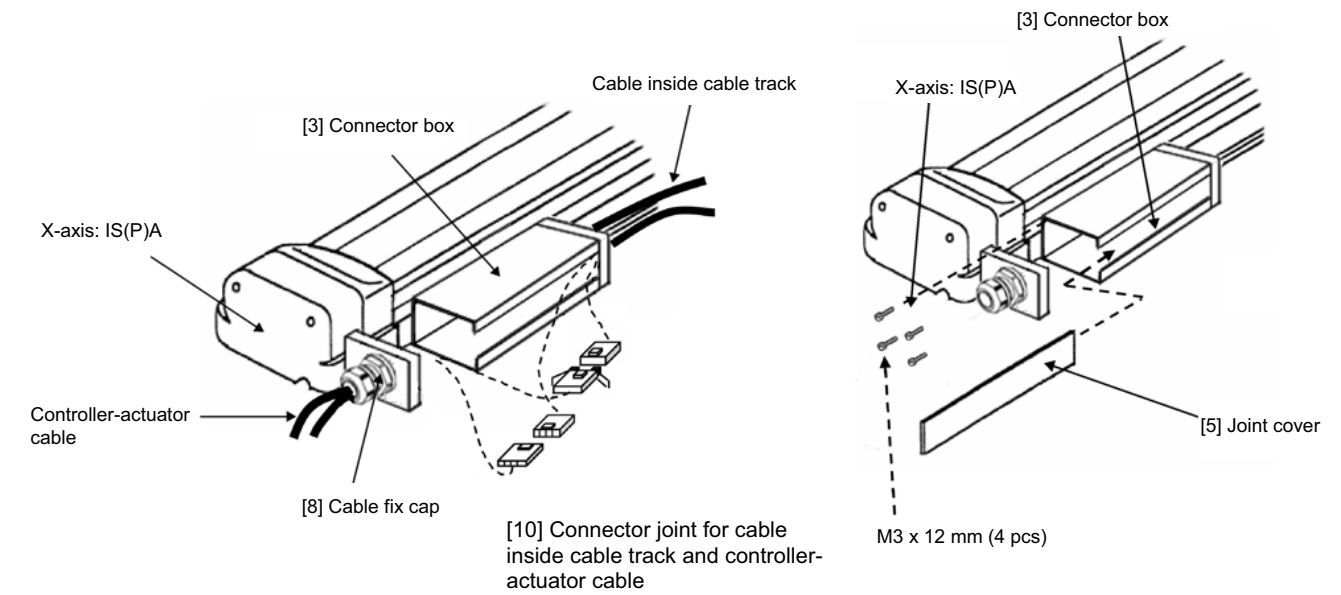
10



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

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

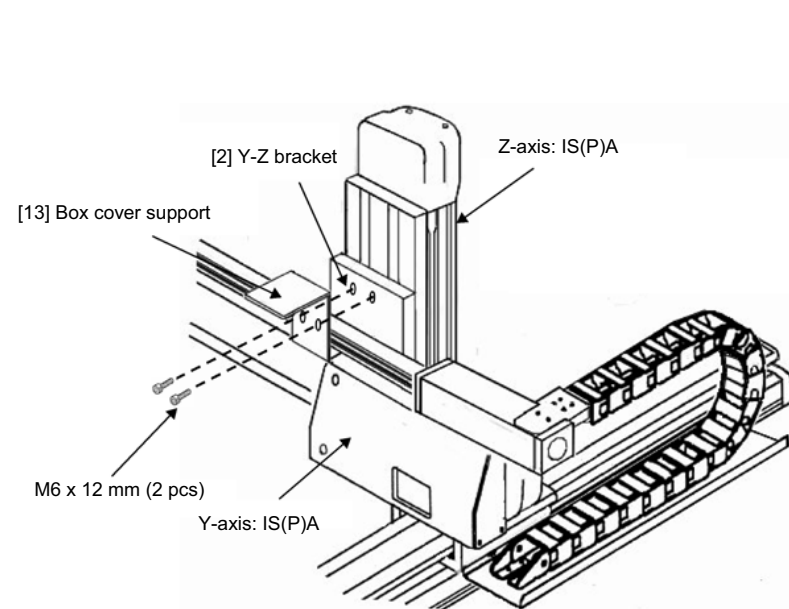
11



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

Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

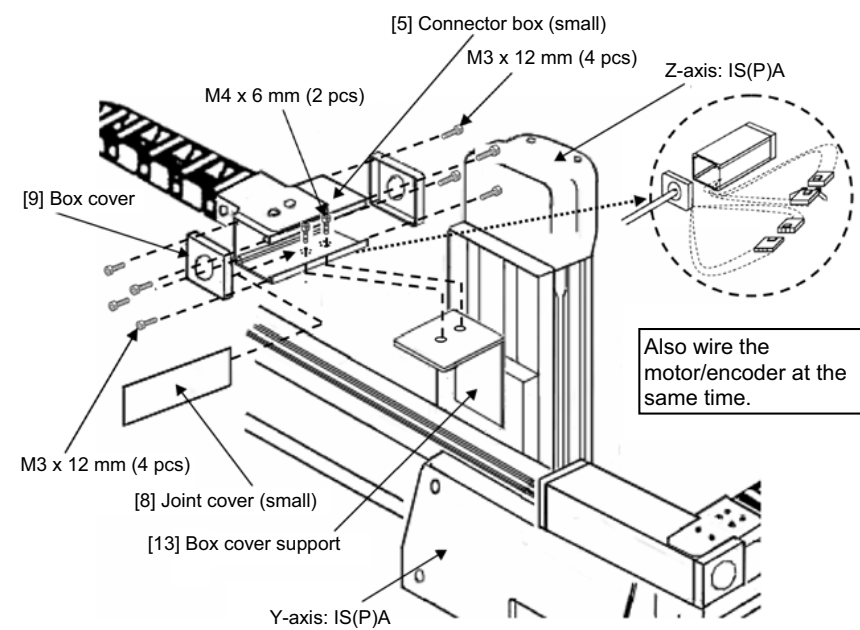
12



Hexagonal socket head bolt	Tightening torque
M6x12mm	54.7kgf·cm/536N·cm

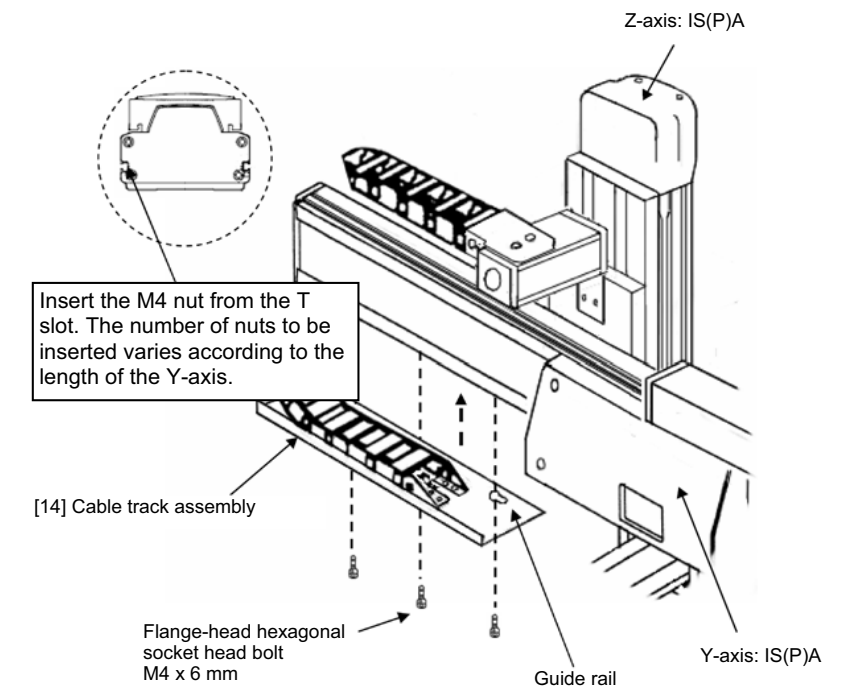
13

Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.



Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x6mm	18kgf·cm/176N·cm

14



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

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.

1 [Tools] Allen wrench

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

Thin-head screw (3 pcs)
 Hexagonal socket head bolt (4 pcs)
 High-tension washer
 [5] Bracket cover
 [1] X-Y bracket
 X-axis: IS(P)A
 Thin-head screw (3 pcs)
 Parallel pin (1 pc or 2 pcs)

[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

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

Y-axis: IS(P)A
 Parallel pin (2 pcs)
 X-axis: IS(P)A
 Dedicated washer
 Hexagonal socket head bolt (4 pcs)
 [1] X-Y bracket

[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

Parallel pin
 Y-axis: IS(P)A
 [2] Y-Z bracket
 Hexagonal socket head bolt (4 pcs)

[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

Z-axis: IS(P)A
 Parallel pin
 Y-axis: IS(P)A
 [2] Y-Z bracket
 Hexagonal socket head bolt (4 pcs)
 Dedicated washer

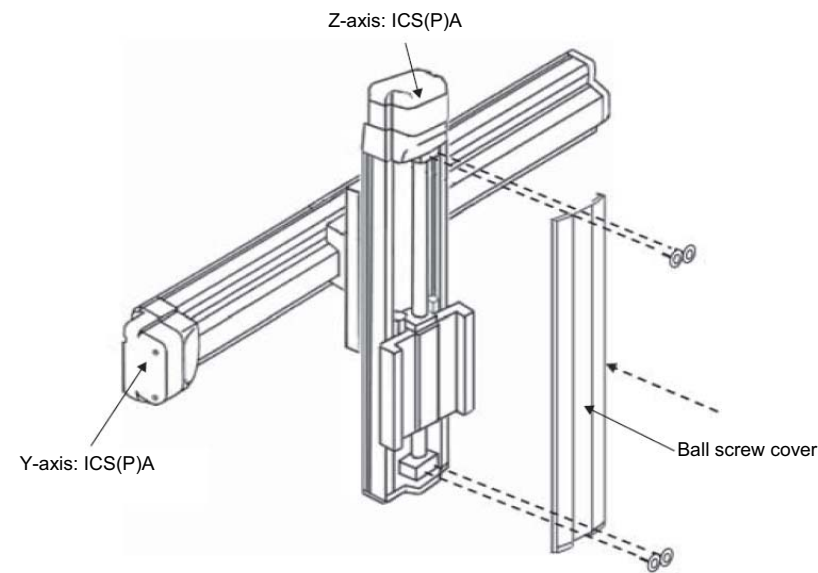
Remove the cover when installing the Z-axis.

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

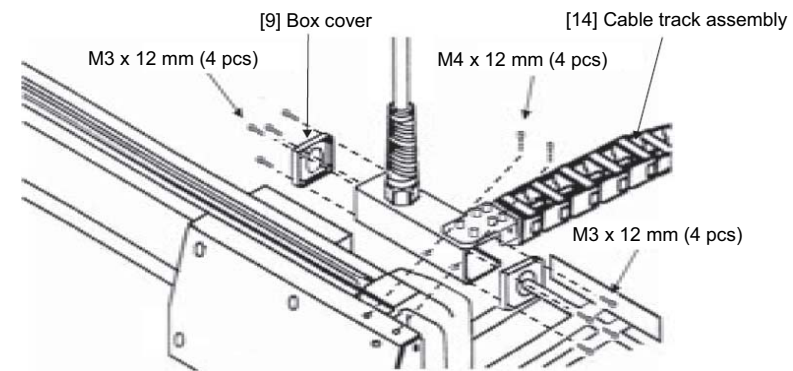
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not 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

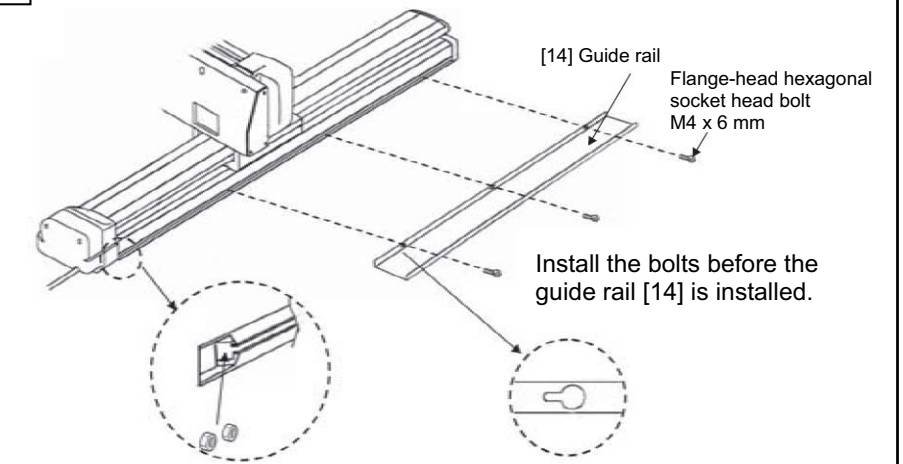


6



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

7



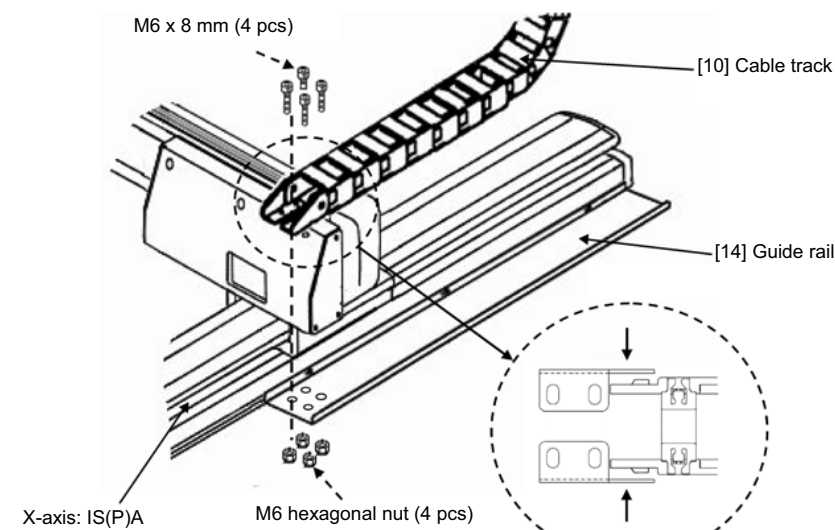
The M4 hexagonal nut in the slot provided on the side face of the X-axis, before the guide rail [14] is installed. The number of hexagonal nuts to be placed in the slot varies according to the stroke.

Install the bolts by hooking them in the holes in the guide rail [14].

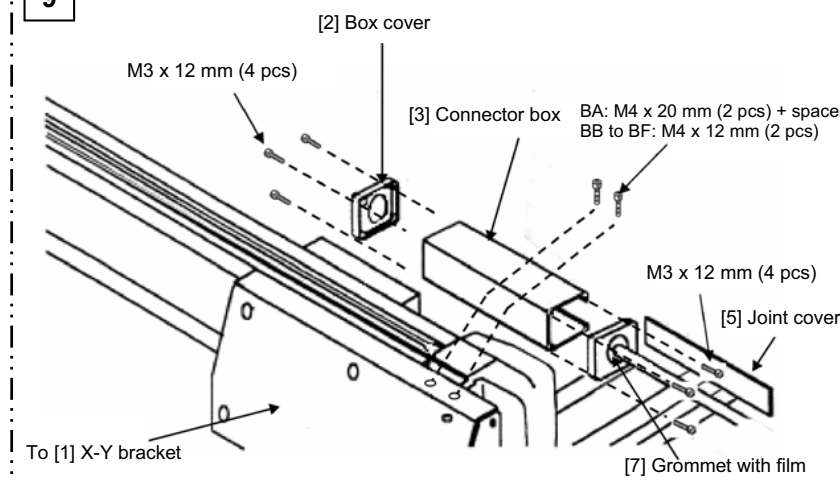
[Installation of guide rail [14] on X-axis: IS(P)A]

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

8



9



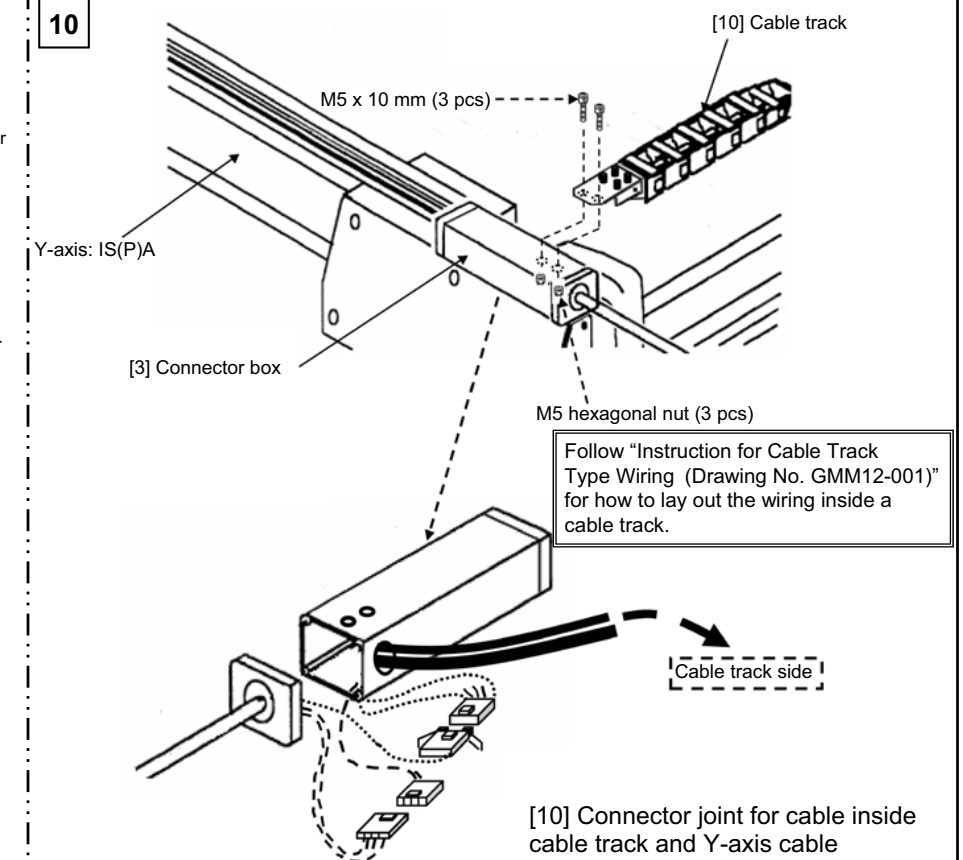
[Installation of connector box [3] on X-Y bracket [1]]

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]]

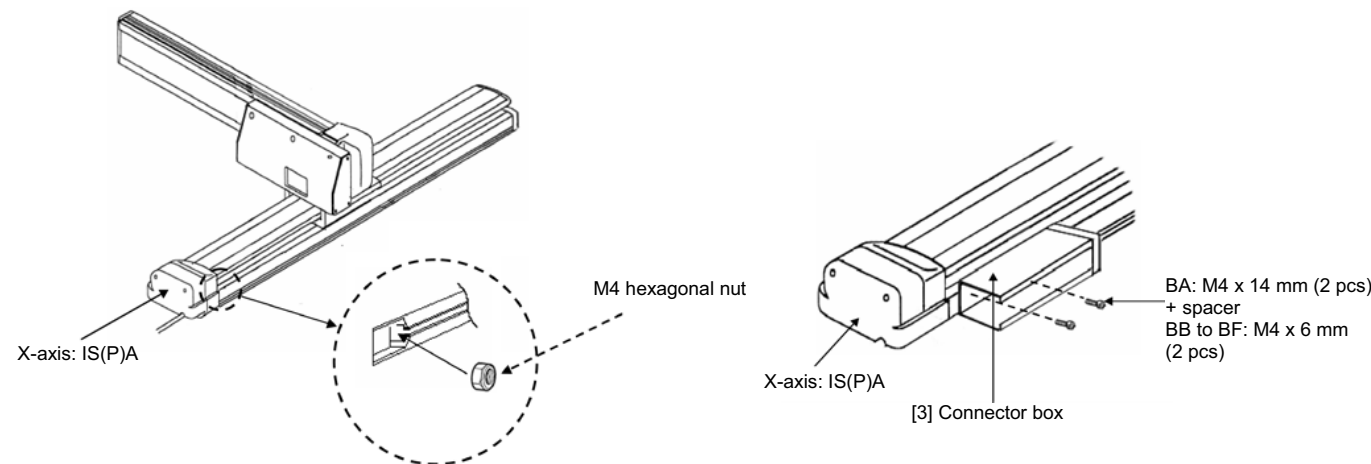
Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm

10



Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

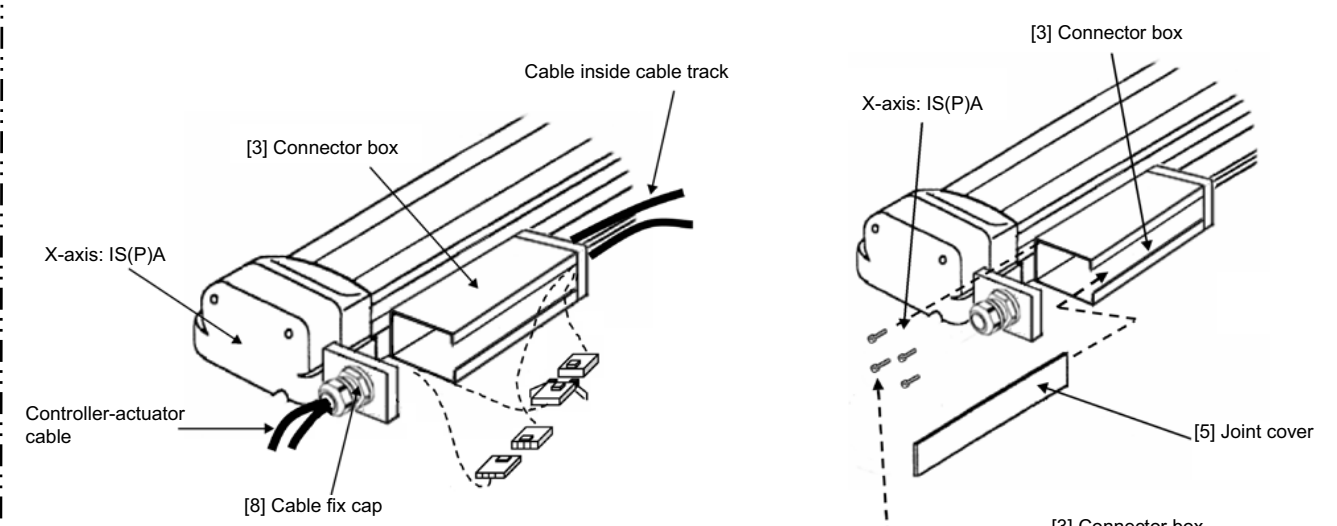
11



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

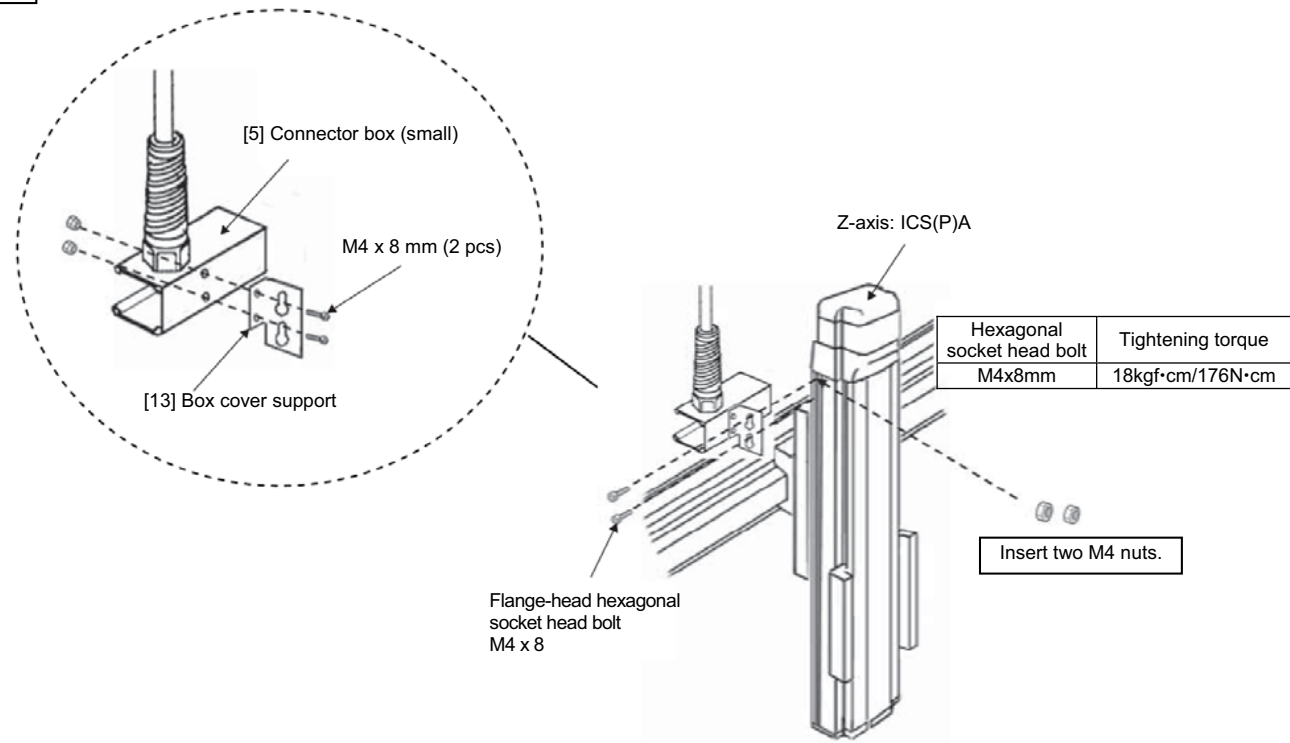
12



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

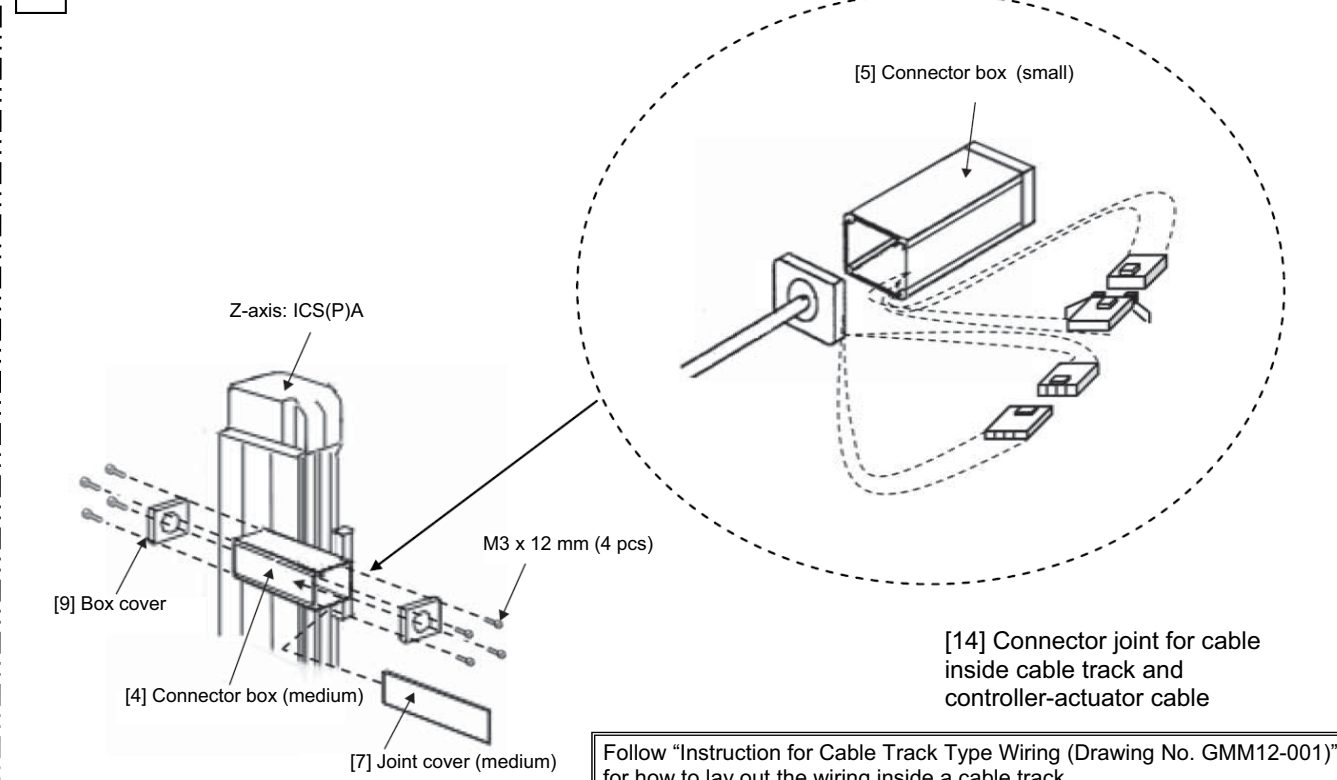
Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

13



Hexagonal socket head bolt	Tightening torque
M4x8mm	18kgf·cm/176N·cm

14



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

Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

⚠ 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.

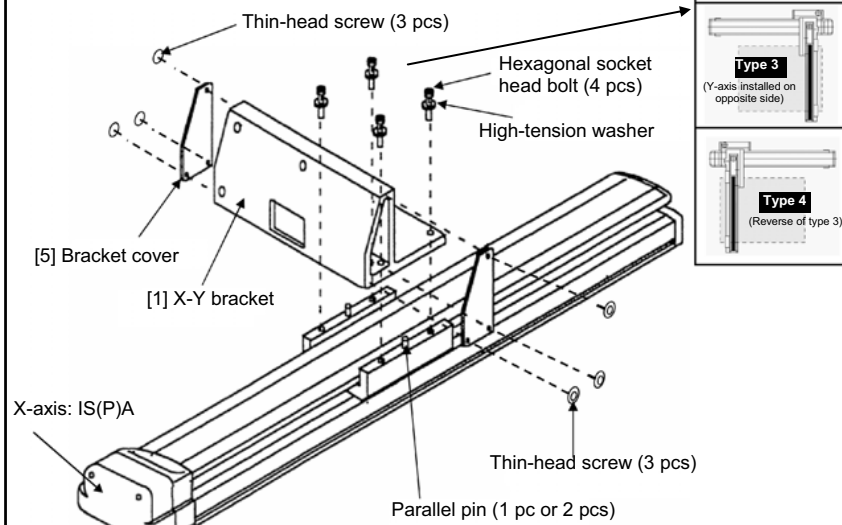
ICS(P)A Cartesian Robot, 3-axis Configuration X-Y Base Mount (XYB) + Z-axis (Z-axis Base Mount) Type
 ICS(P)A3-B□□□B□□□-SC-SC X-axis/Y-axis: Self-supporting Cable, Y-axis/Z-axis: Self-supporting Cable

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.



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

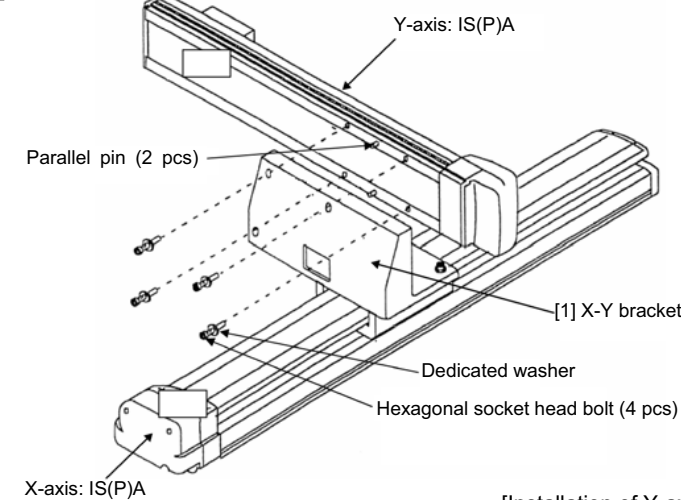
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm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

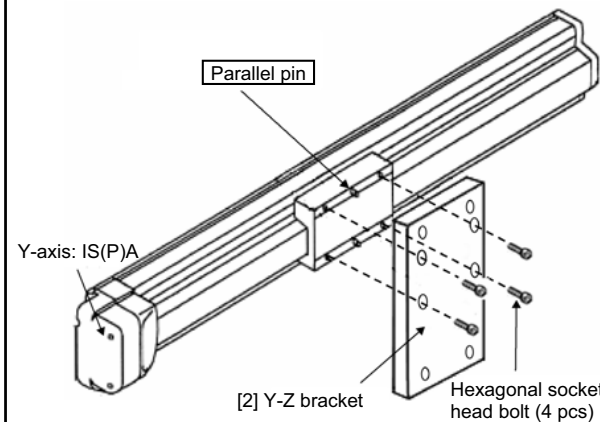
2



[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

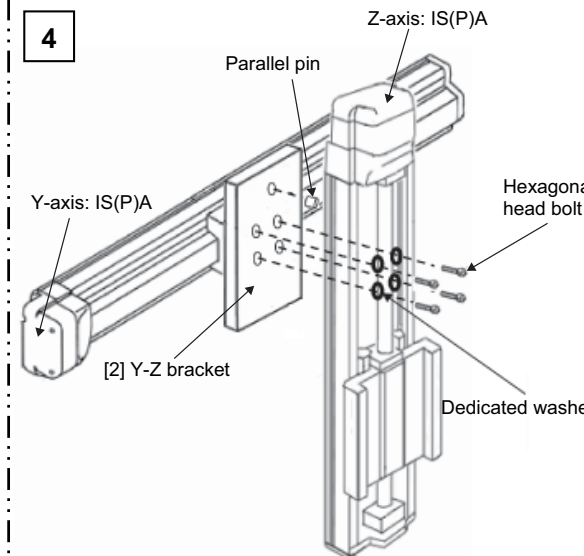
3



[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



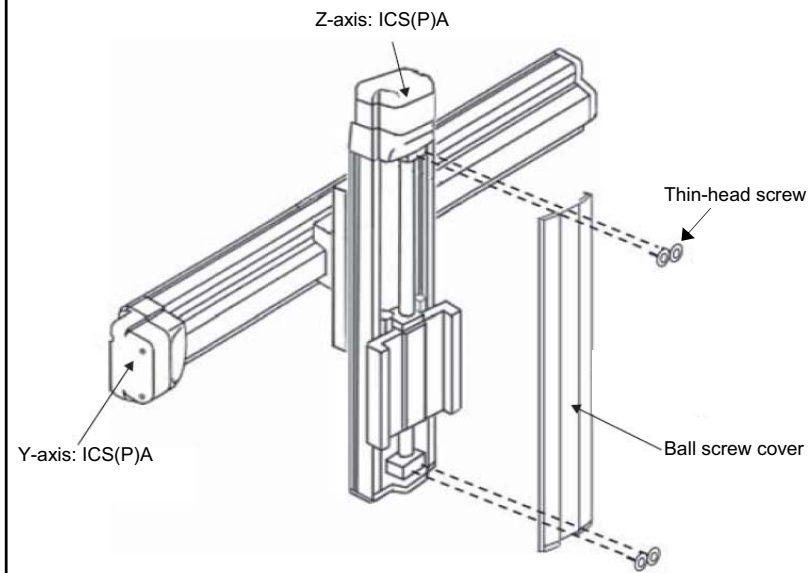
Remove the cover when installing the Z-axis.

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

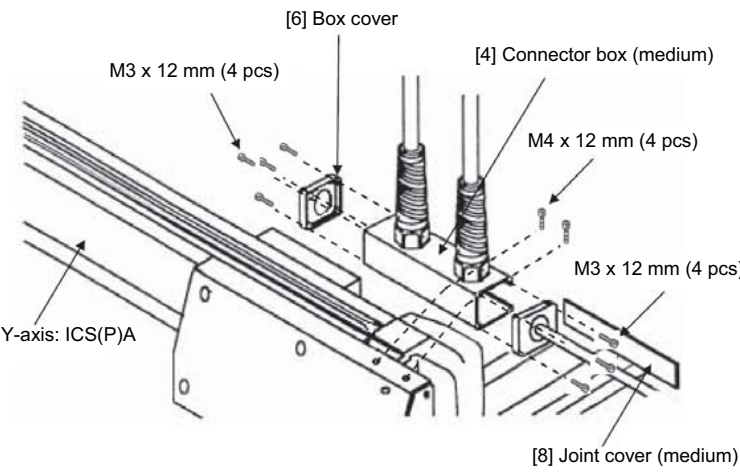
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HB1□	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HB1□	∅6x15	M6x20mm	Not 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

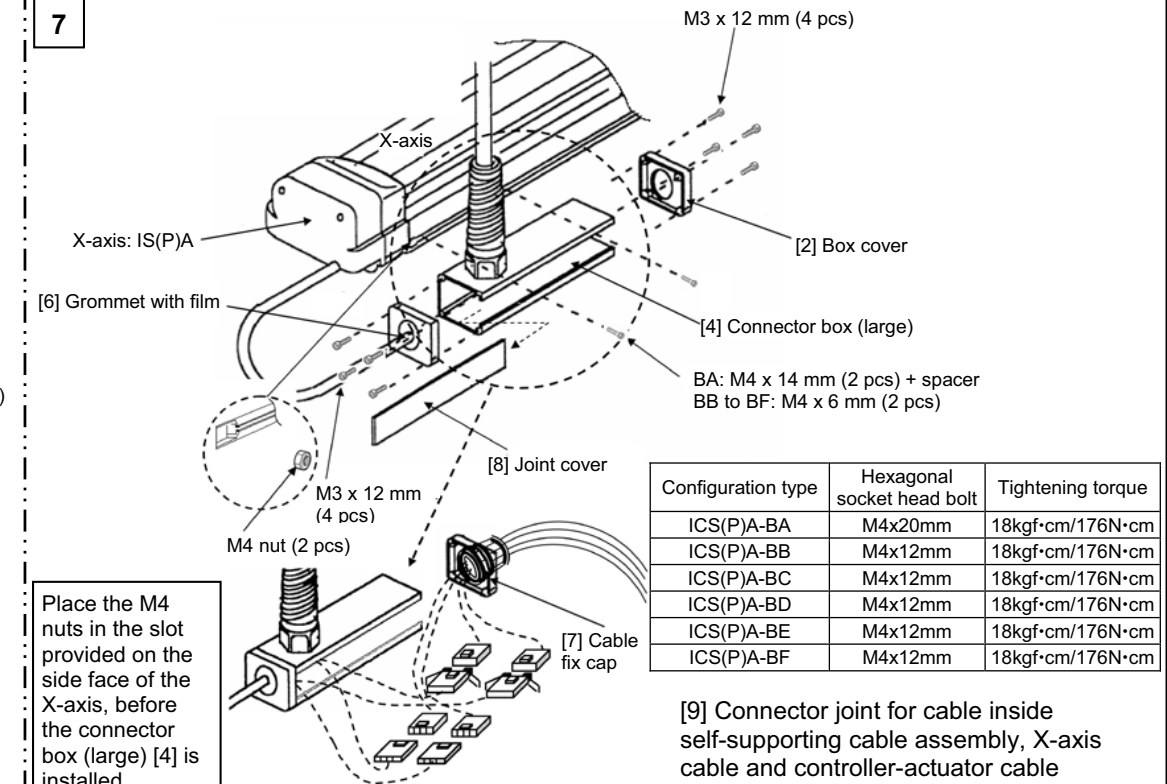


6

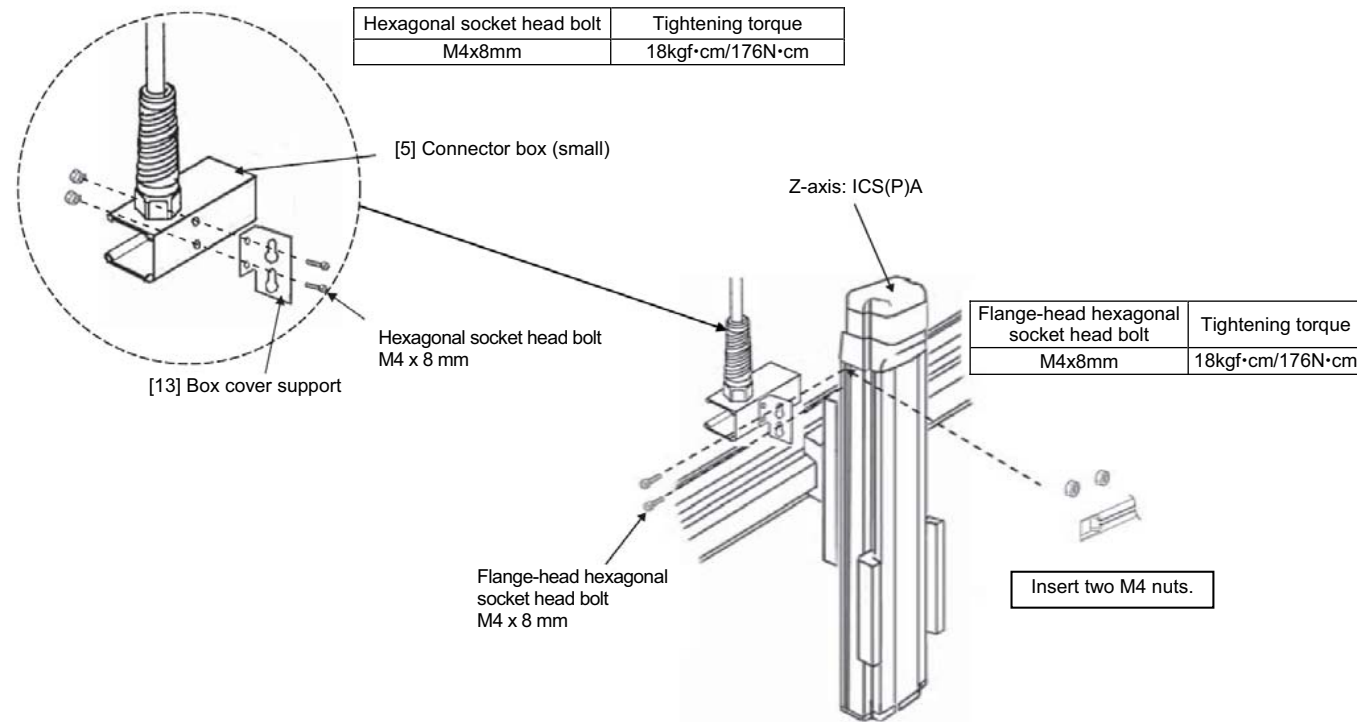


Hexagonal socket head bolt	Tightening torque
M3x12mm	5.51kgf·cm/54N·cm
M4x12mm	18kgf·cm/176N·cm

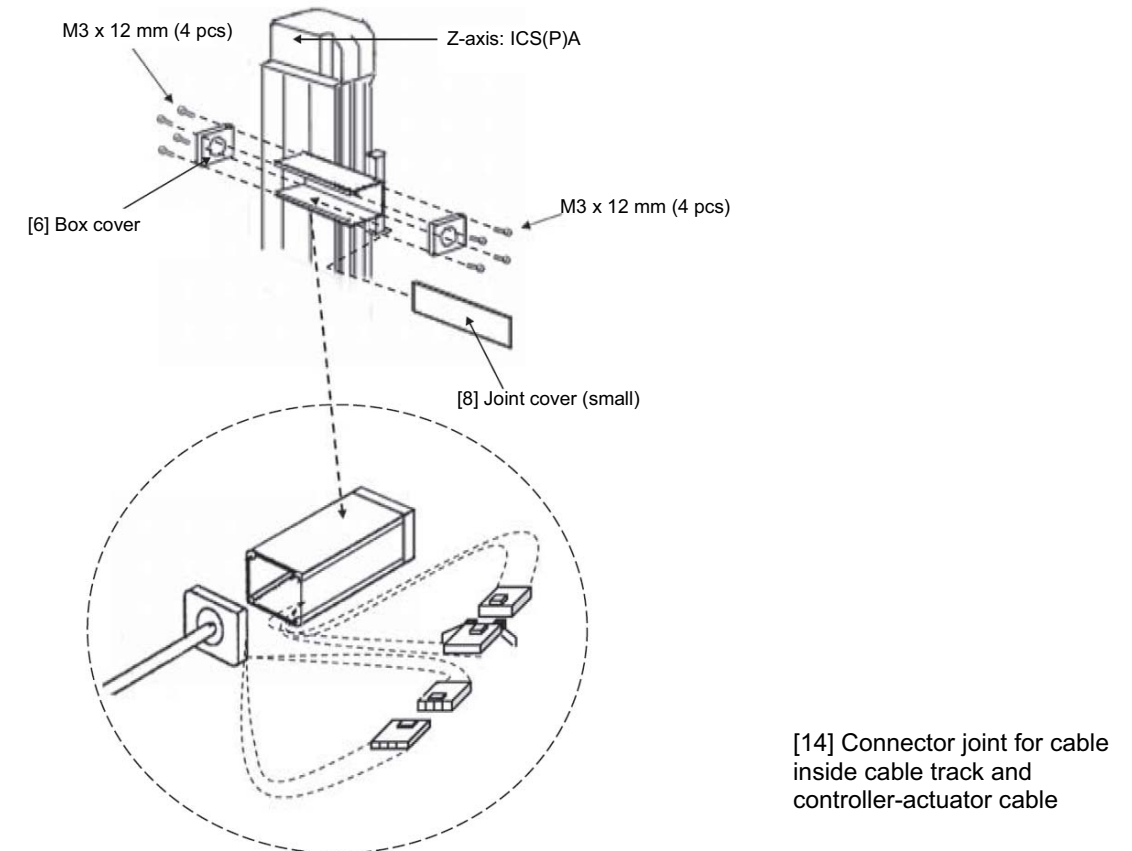
7



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.

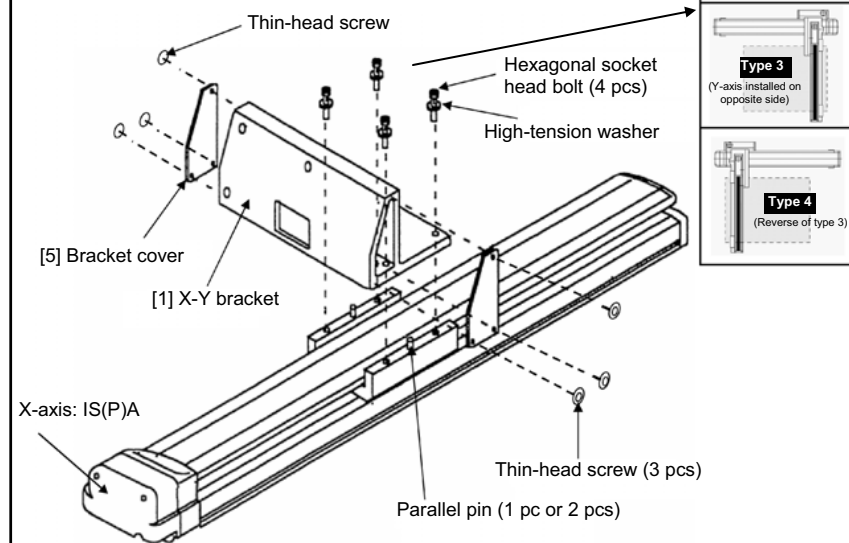
ICS(P)A Cartesian Robot, 3-axis Configuration X-Y Base Mount (XYB) + Z-axis (Z-axis Slider Mount) Type
 ICS(P)A3-B□□□S□□-SC-SC X-axis/Y-axis: Self-supporting Cable, Y-axis/Z-axis: Self-supporting Cable

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]

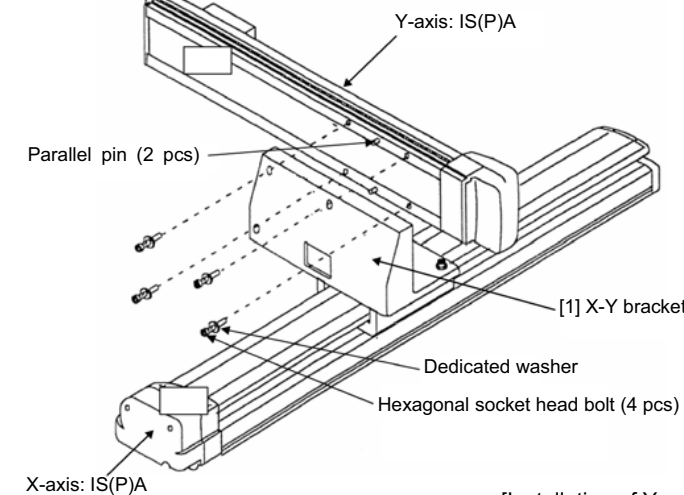
Configuration type	Parallel pin	Hexagonal bolt	High-tension	Tightening torque
ICS(P)A-BA	∅6x15	M6x30mm	M6	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BC	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm
ICS(P)A-BE	∅8x18	M8x35mm	M8	306kgf·cm/2997N·cm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

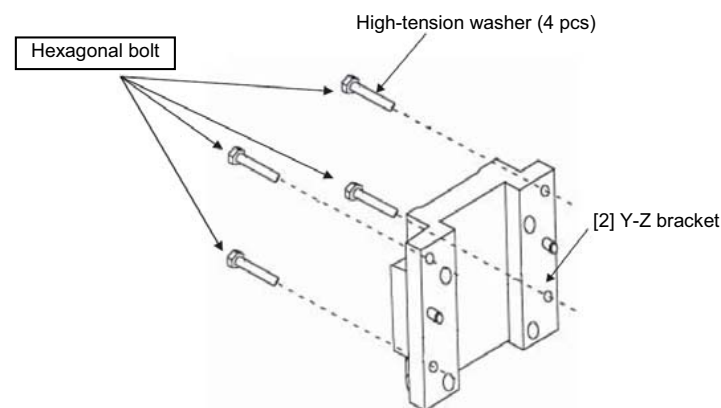
2



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

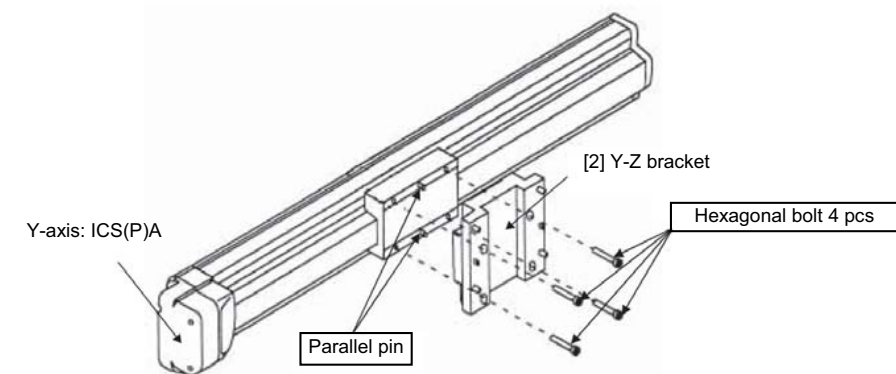
Configuration type	Parallel pin	Hexagonal socket head bolt	Dedicated washer	Tightening torque
ICS(P)A-BA	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB	∅6x15	M6x20mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm
ICS(P)A-BD	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm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

3



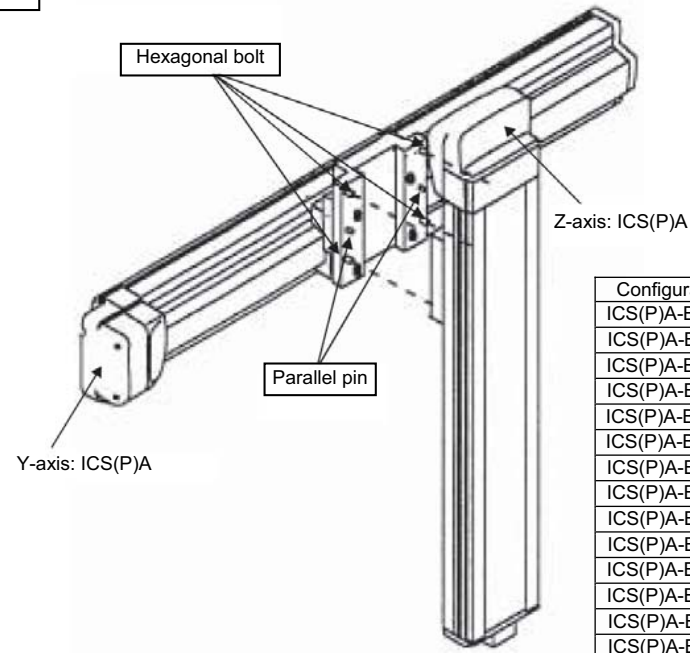
Configuration type	Parallel pin	Hexagonal bolt	Washer	Tightening torque
ICS(P)A-BA□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm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



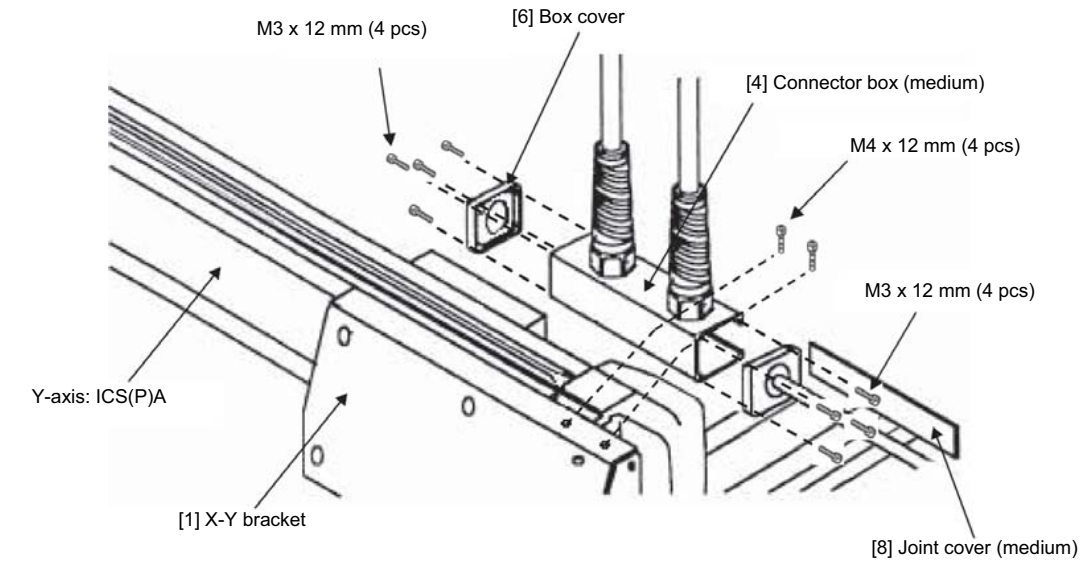
Configuration type	Parallel pin	Hexagonal socket head bolt	Washer	Tightening torque
ICS(P)A-BA□MS1□	∅6x15	M6x28mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HS1□	∅6x15	M6x28mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MS1□	∅6x15	M6x28mm	Not required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HS3□	∅8x18	M8x40mm	Required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



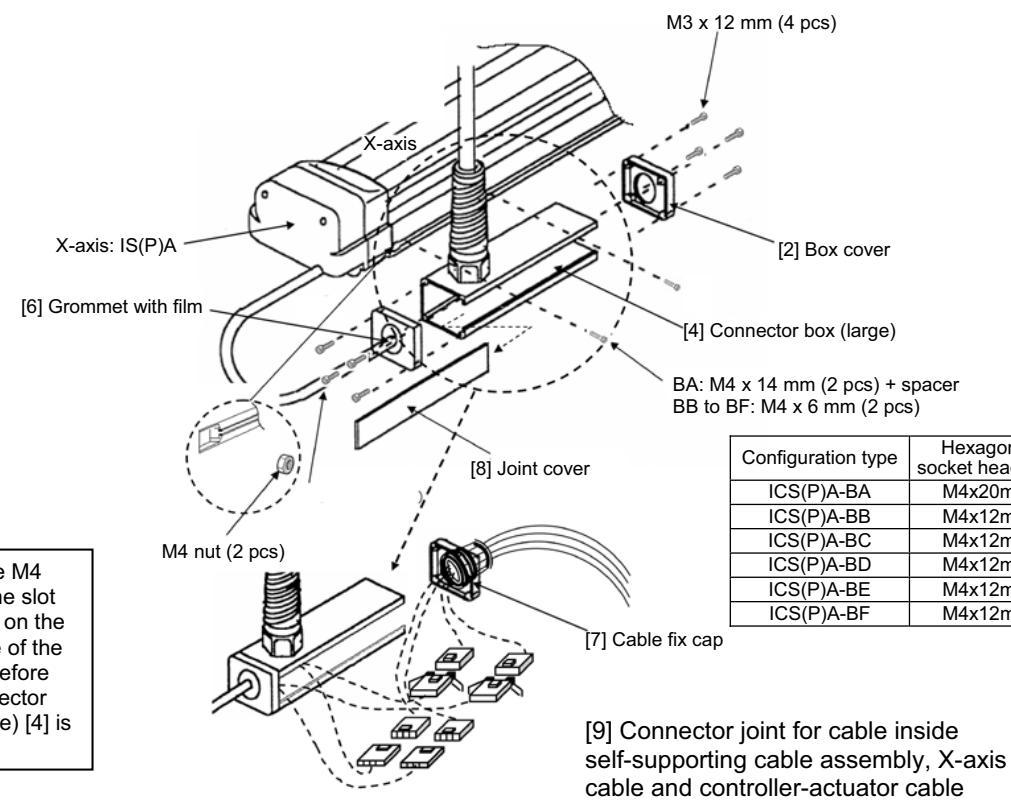
Configuration type	Parallel pin	Hexagonal bolt	Washer	Tightening torque
ICS(P)A-BA□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□HS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BB□MS1□	∅6x15	M6x20mm	Required	54.7kgf·cm/536N·cm
ICS(P)A-BC□HS3□	∅8x18	M8x28mm	Required	306kgf·cm/2997N·cm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

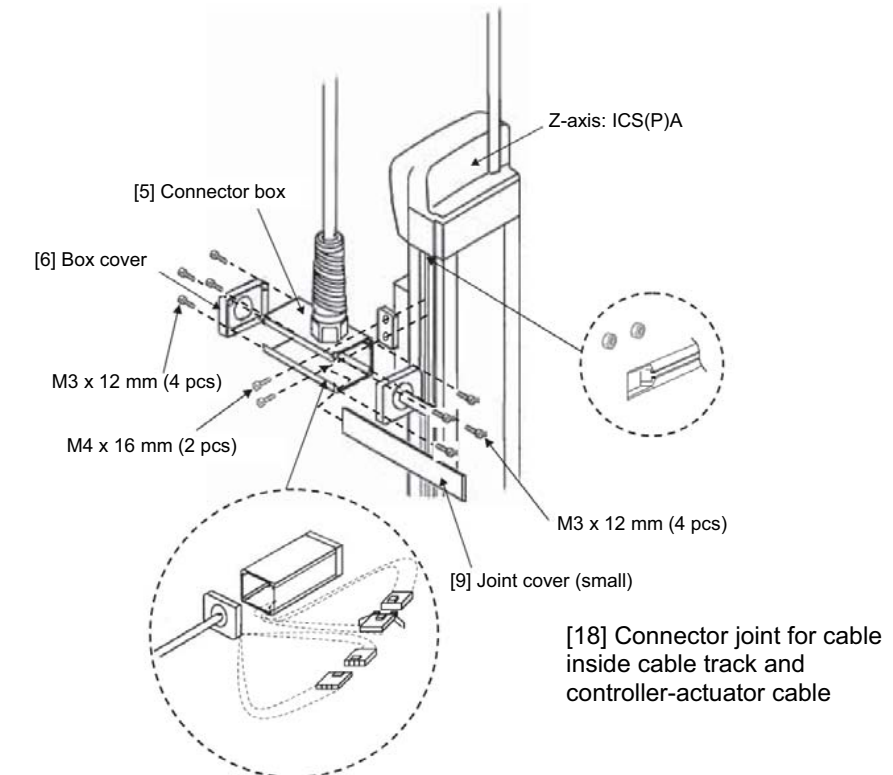
7



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

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:

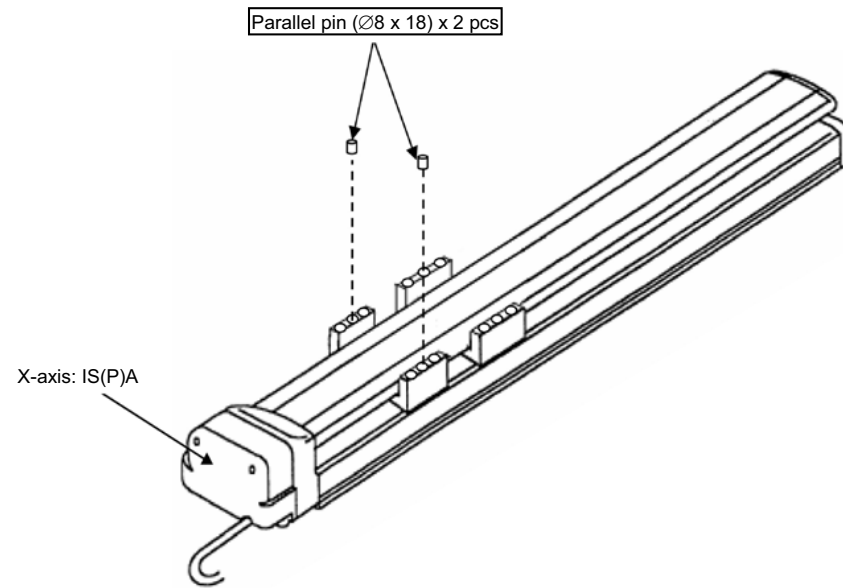
- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
- Exercise due caution during the assembly to prevent pinching of hands and fingers.

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

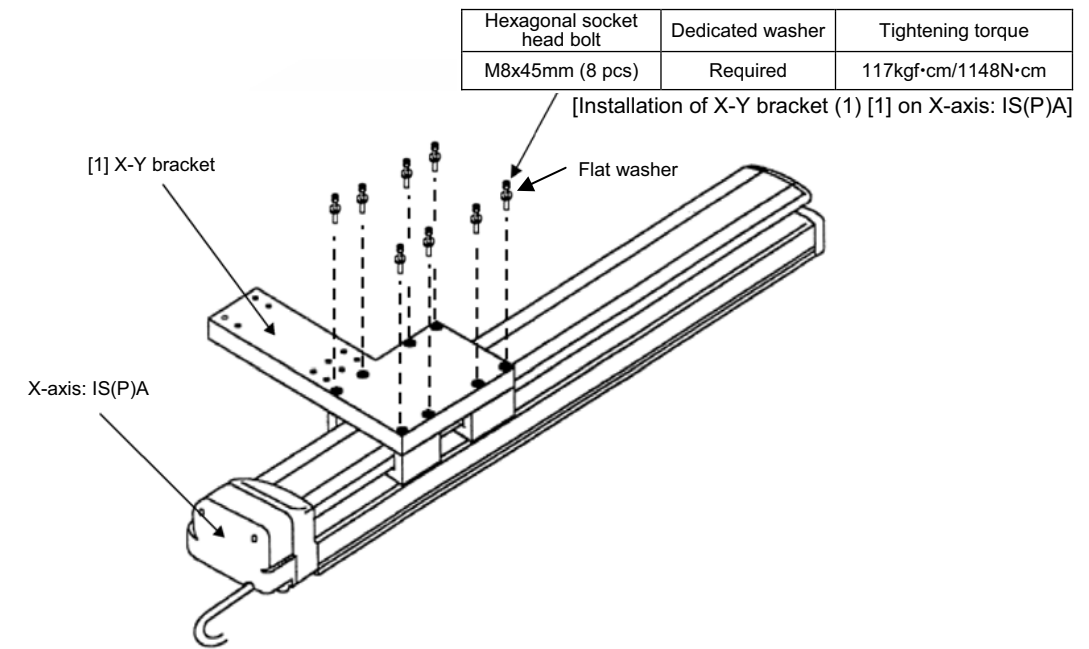
Drawing No. GMM08-013

1/3

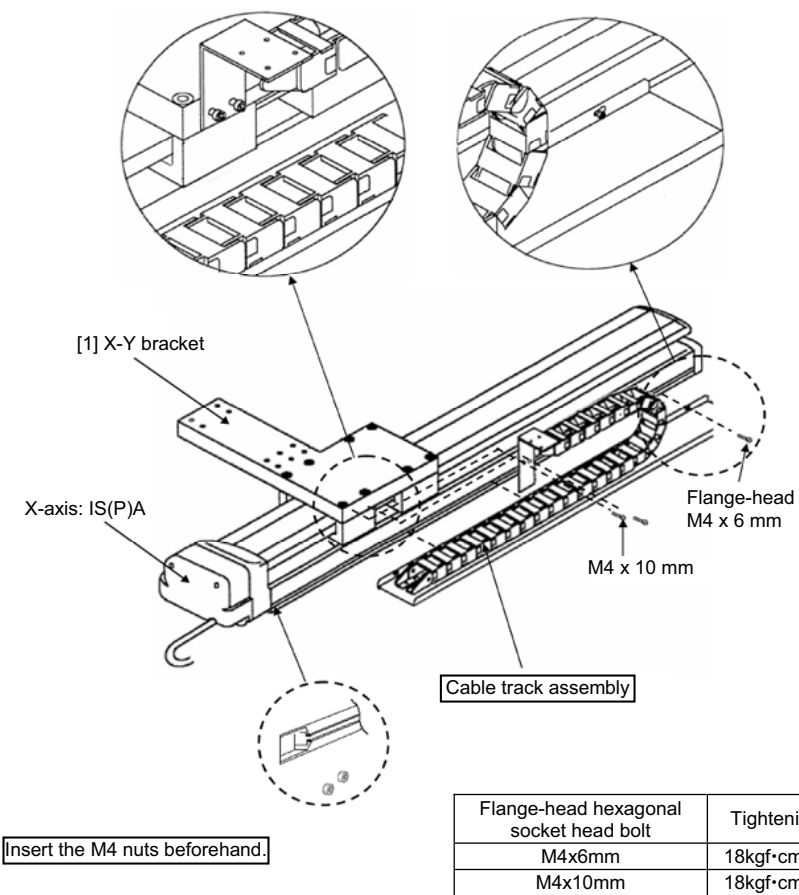
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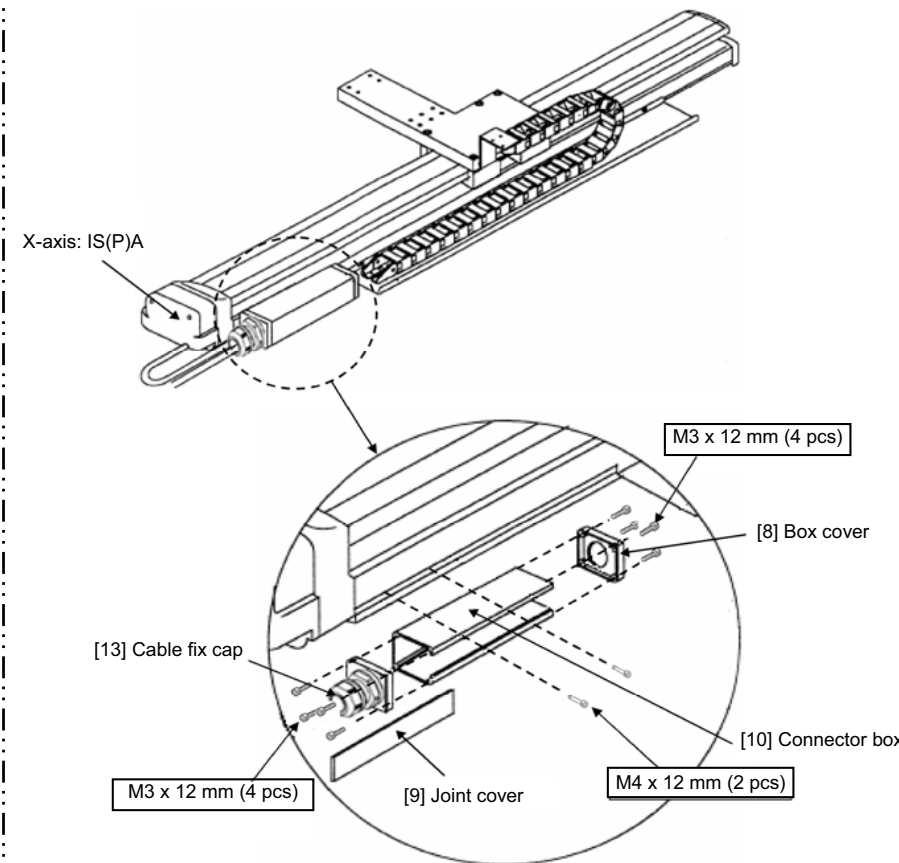
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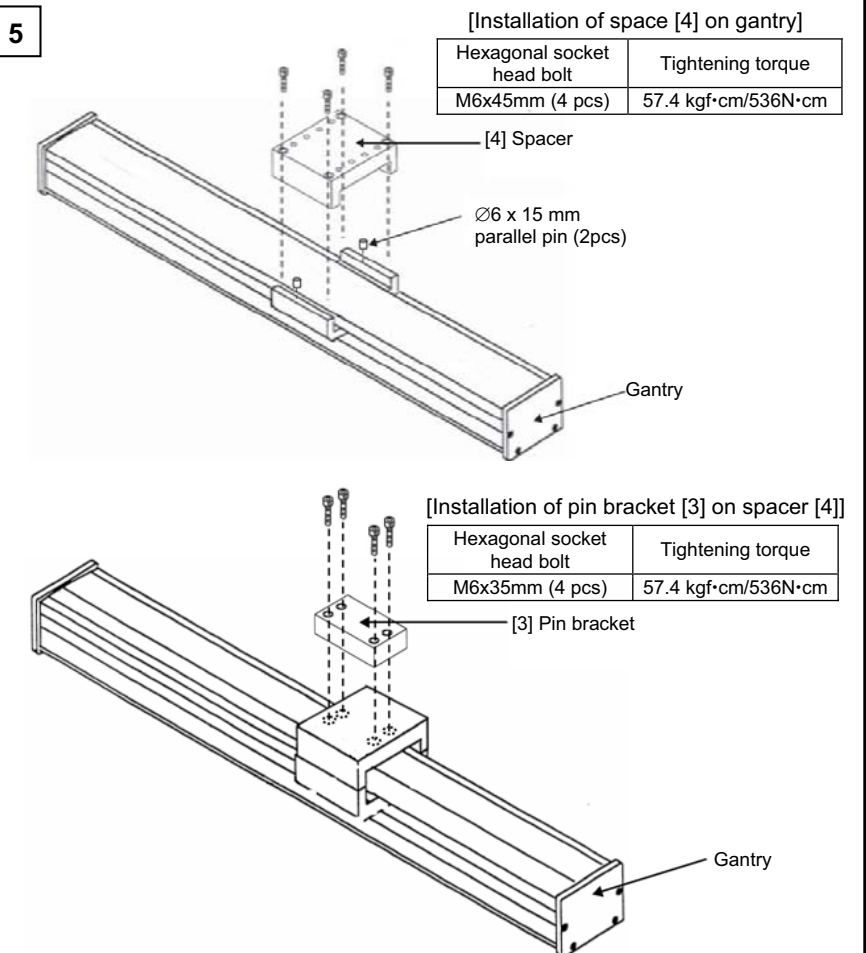
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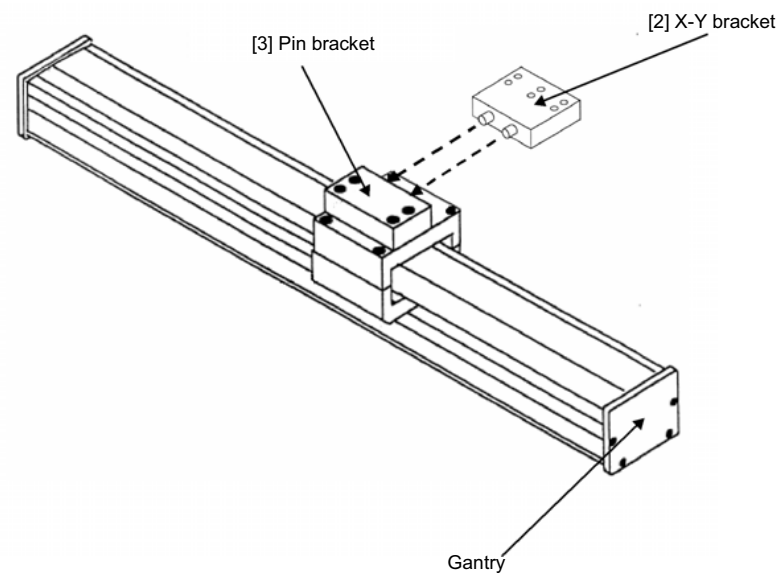


ICS(P)A Cartesian Robot, 3-axis Configuration XYG (Gantry) Type
 ICS(P)A3-G□□□B□□□CT-CT X-axis/Y-axis: Cable Track, Y-axis/Z-axis: Cable Track

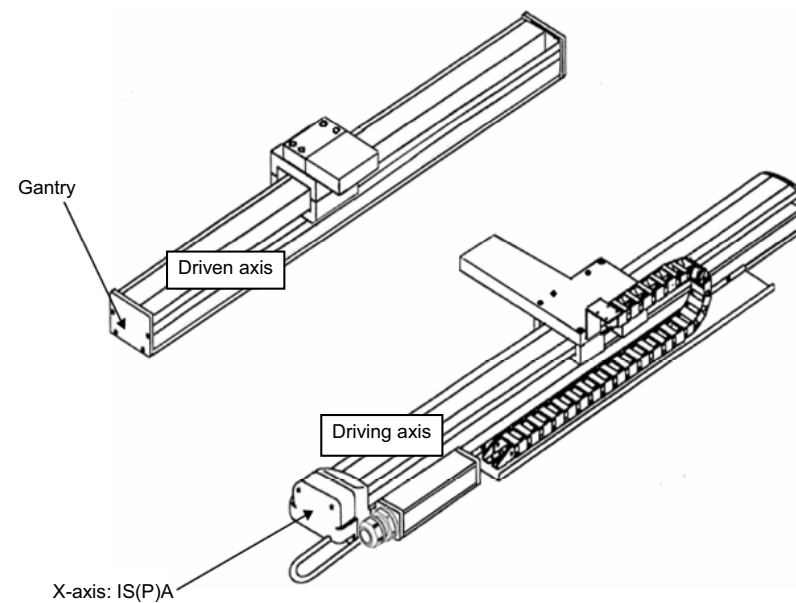
Drawing No. GMM08-013

2/3

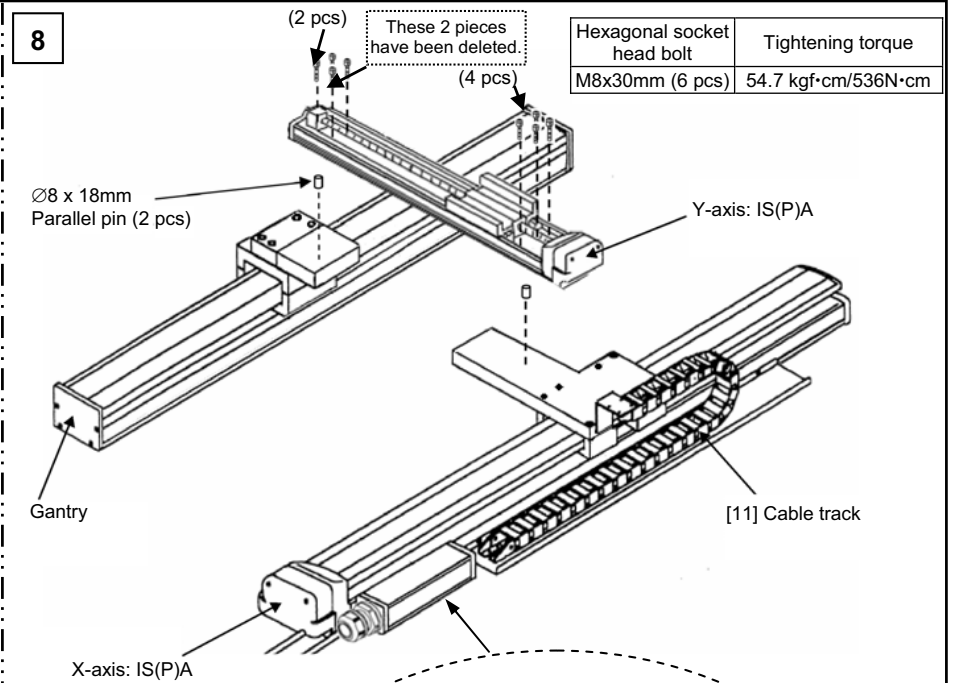
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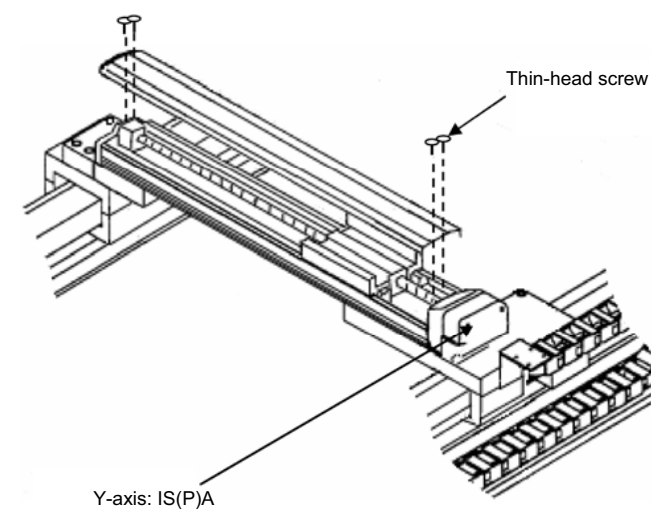
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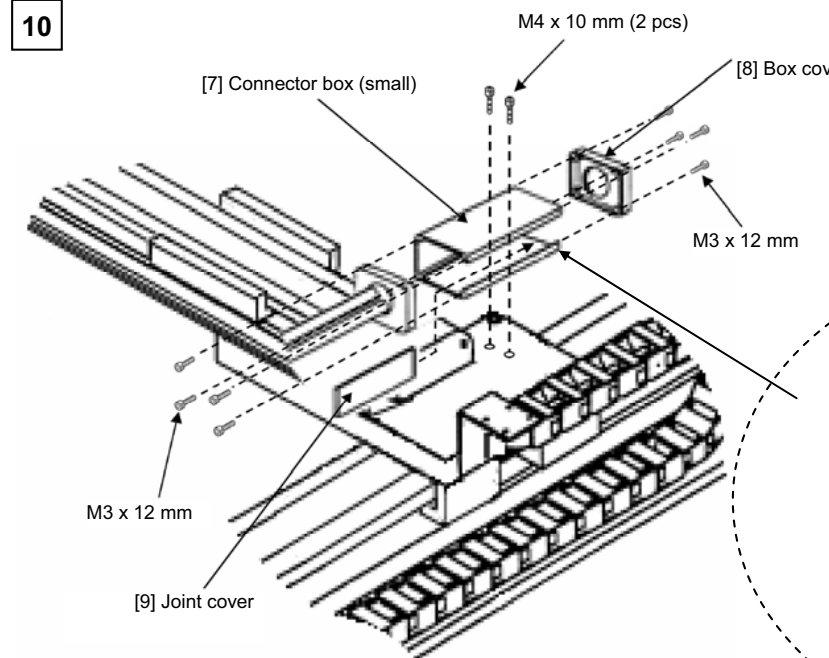
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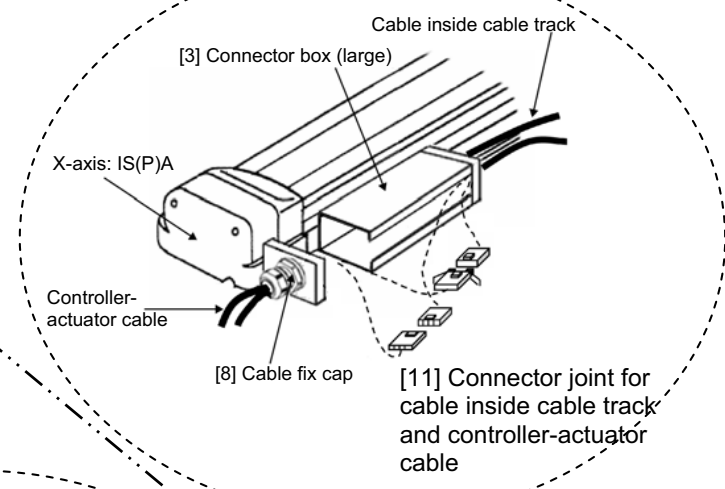
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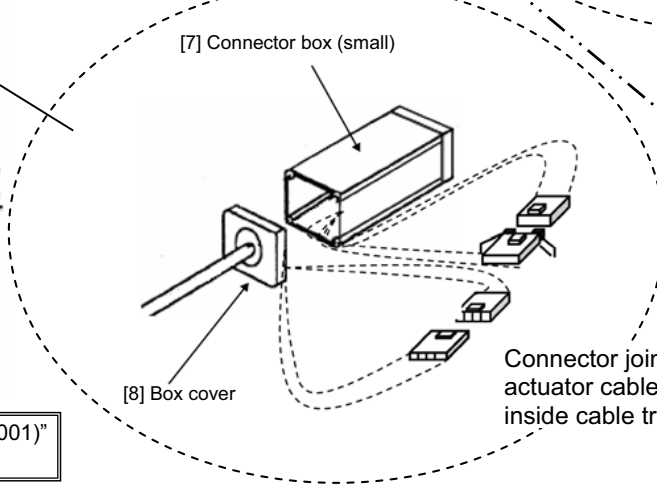
10



Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

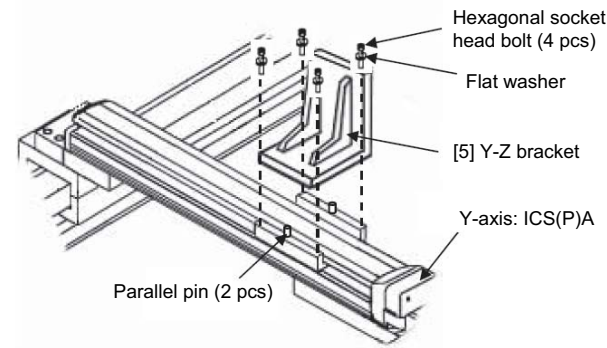


[11] Connector joint for cable inside cable track and controller-actuator cable



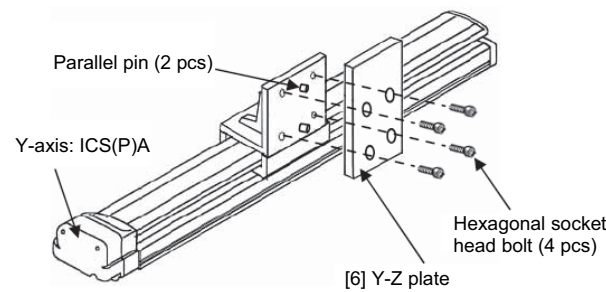
Connector joint for actuator cable and cable inside cable track

11



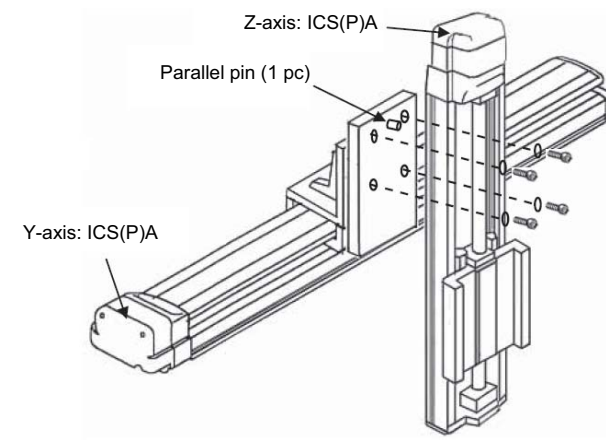
Configuration type	Parallel pin	Hexagonal bolt	Flat washer	Tightening torque
ICS(P)A3-G1(2)JHB1	∅8x18	M8x30mm	M8	54.7kgf-cm/536N-cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x30mm	M8	306kgf-cm/2997N-cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x30mm	M8	306kgf-cm/2997N-cm

12



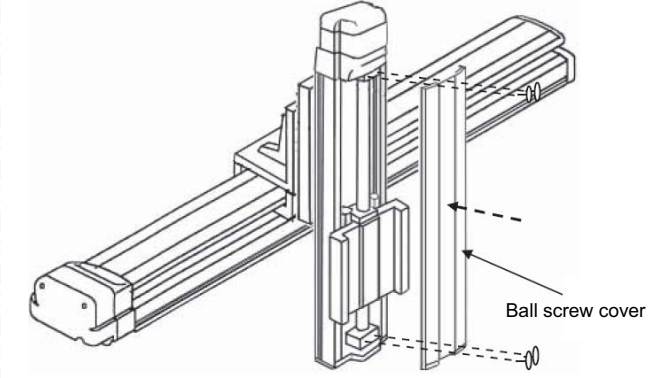
Configuration type	Parallel pin	Hexagonal bolt	Tightening torque
ICS(P)A3-G1(2)JHB1	∅6x15	M6x20mm	54.7kgf-cm/536N-cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x20mm	306kgf-cm/2997N-cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x20mm	306kgf-cm/2997N-cm

13

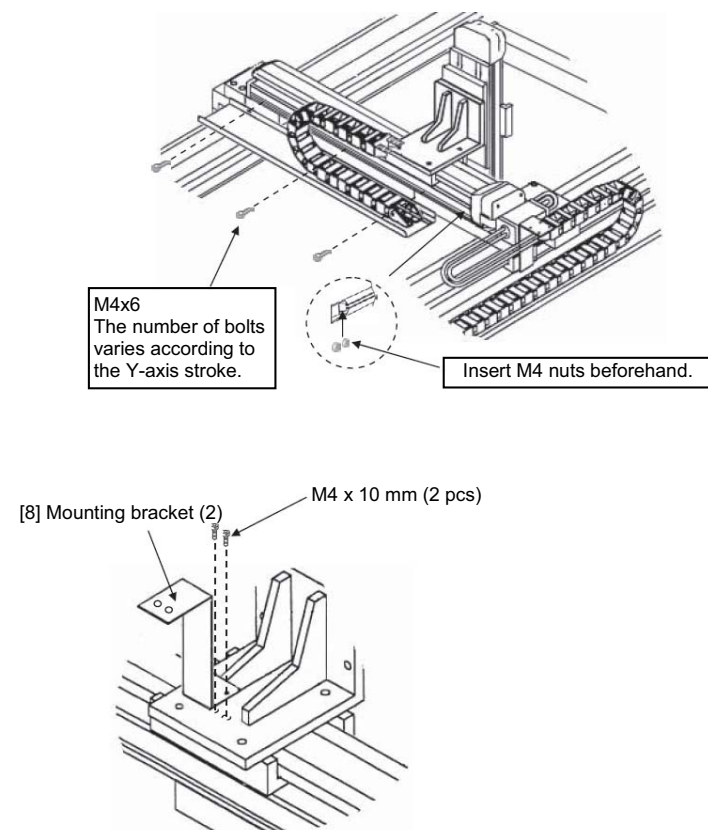


Configuration type	Parallel pin	Hexagonal bolt	Washer	Tightening torque
ICS(P)A3-G1(2)JHB1	∅6x15	M6x18mm	Dedicated	54.7kgf-cm/536N-cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x28mm	Dedicated	306kgf-cm/2997N-cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x28mm	Dedicated	306kgf-cm/2997N-cm

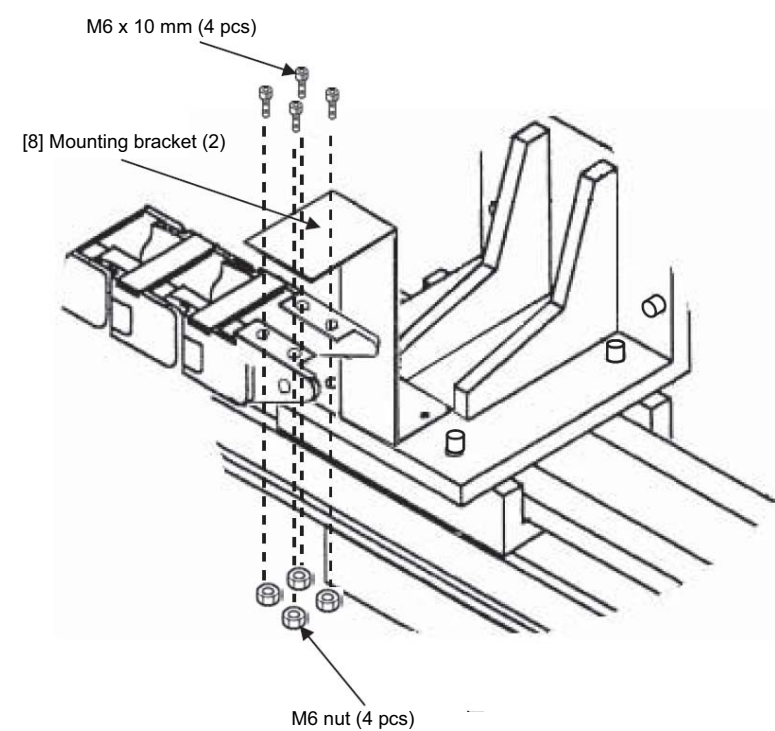
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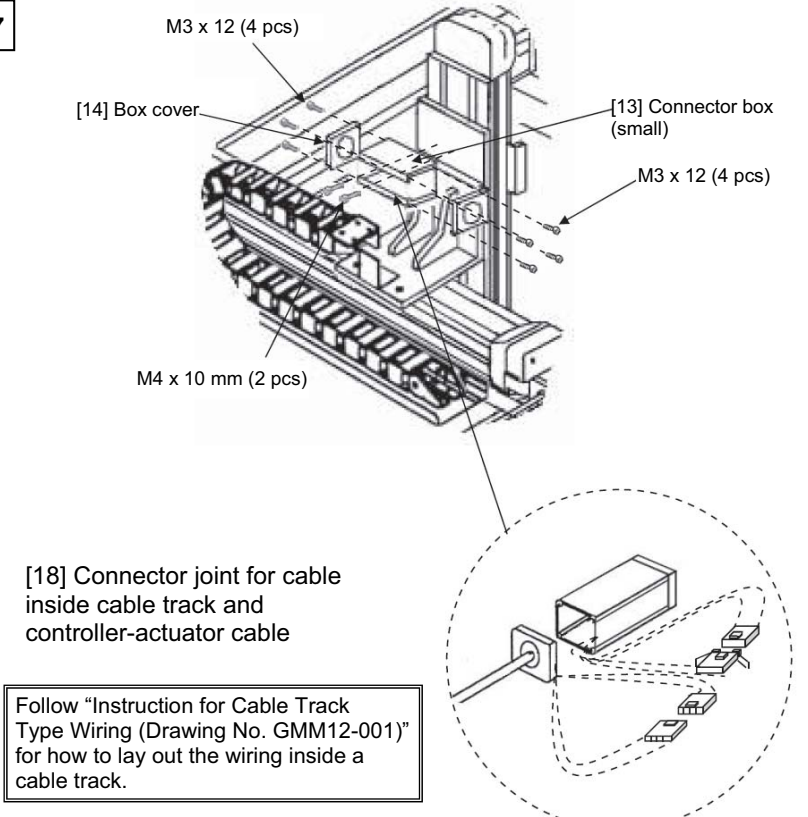
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16



17



Caution:

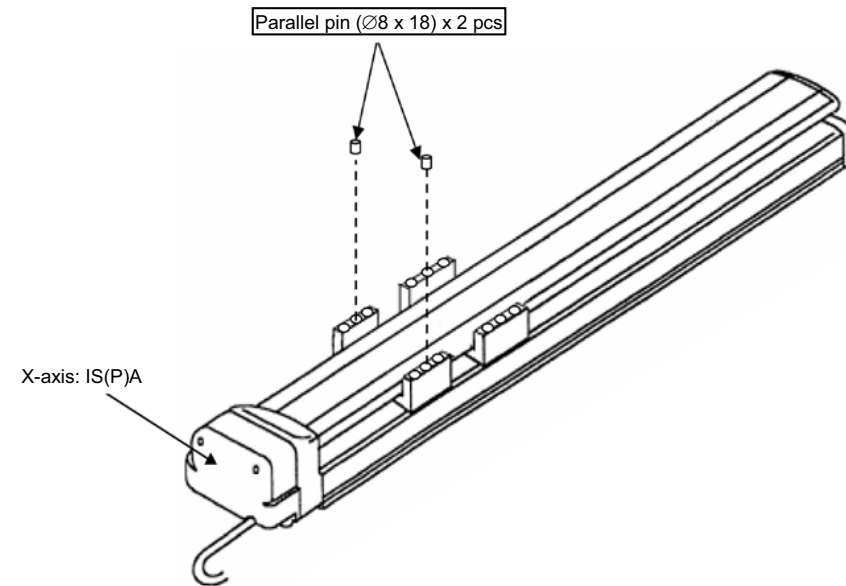
- Although each part has been chamfered to remove sharp edges, exercise due caution during the assembly to prevent injury. If necessary, wear gloves or other protective gears.
- Exercise due caution during the assembly to prevent pinching of hands and fingers.

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

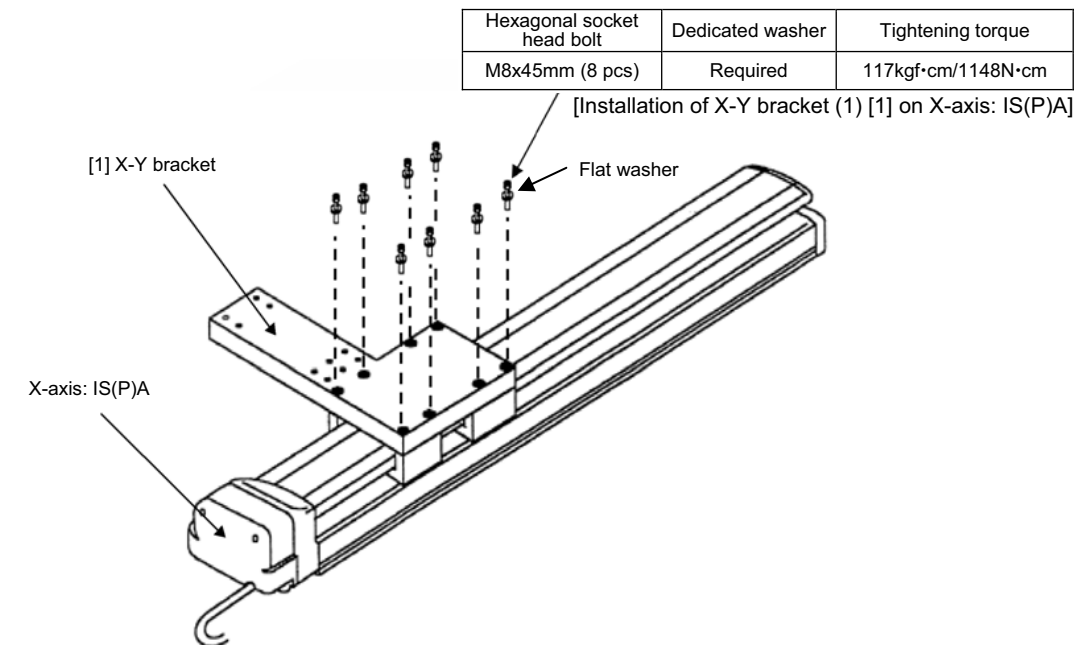
Drawing No. GMM08-014

1/4

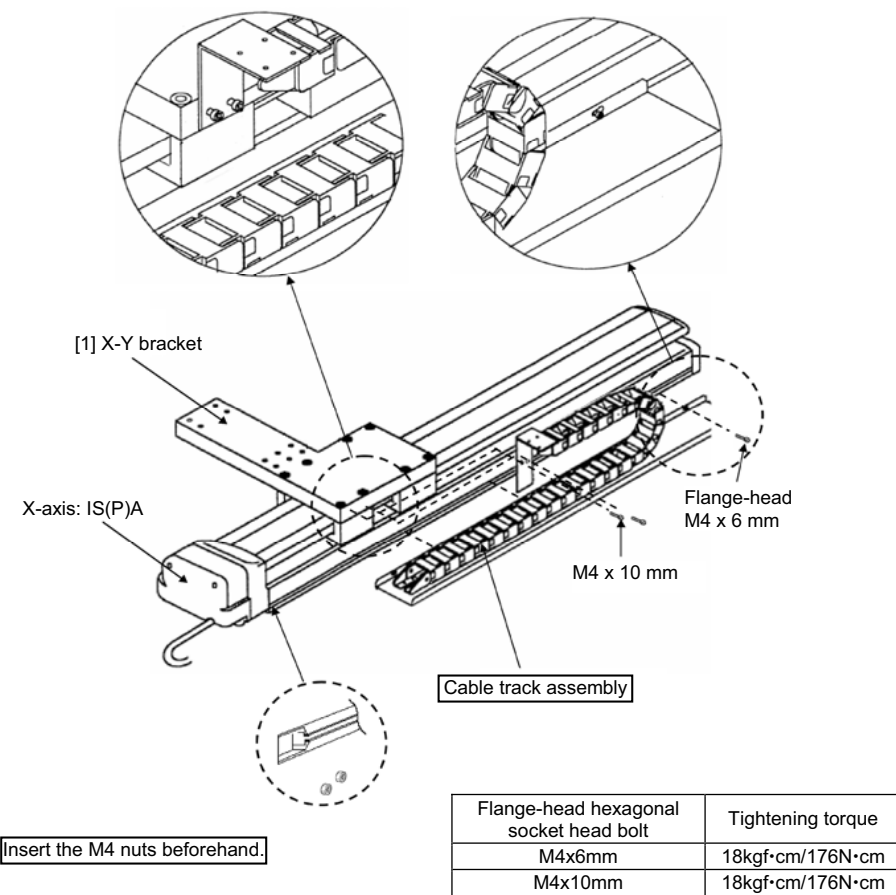
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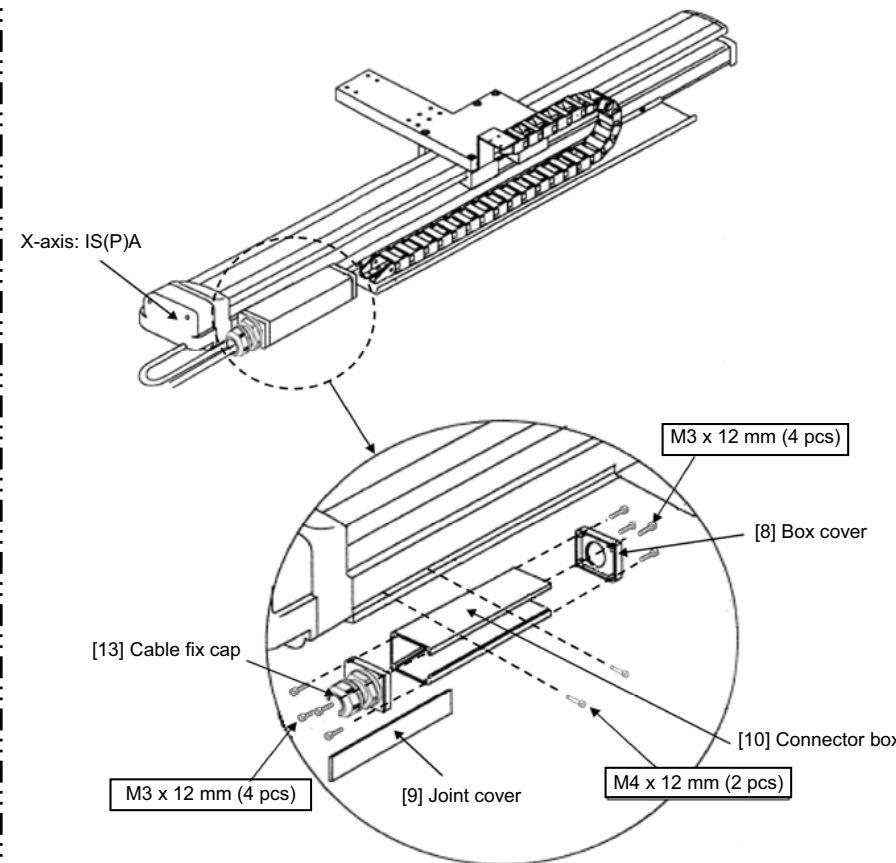
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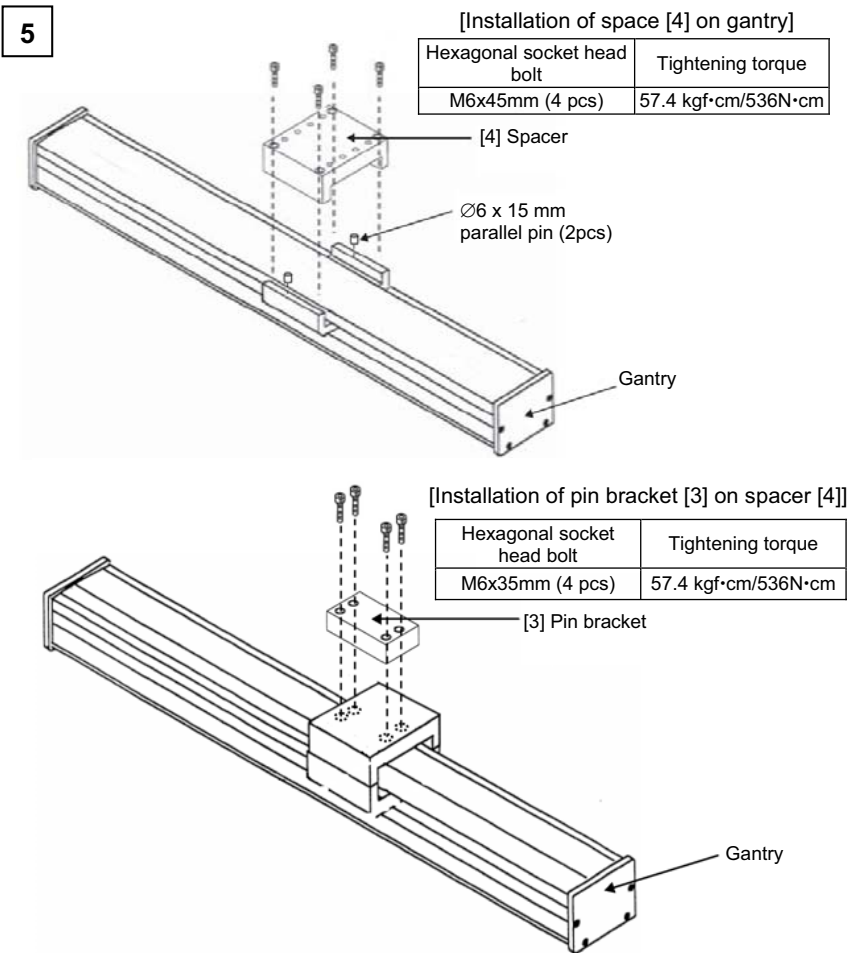
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5

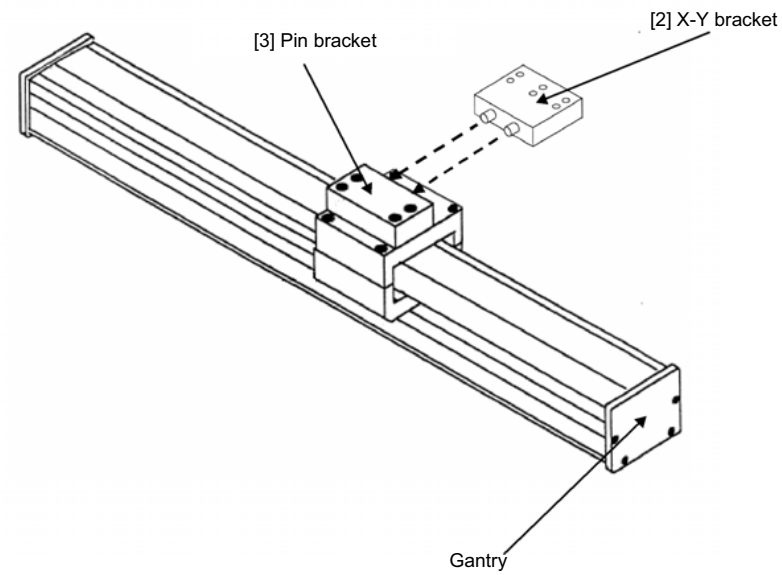


ICS(P)A Cartesian Robot, 3-axis Configuration X-Y (Gantry) + Z Type
 ICS(P)A3-G□□□□□□□□-CT-SC X-axis/Y-axis: Cable Track, Y-axis/Z-axis: Self-supporting Cable

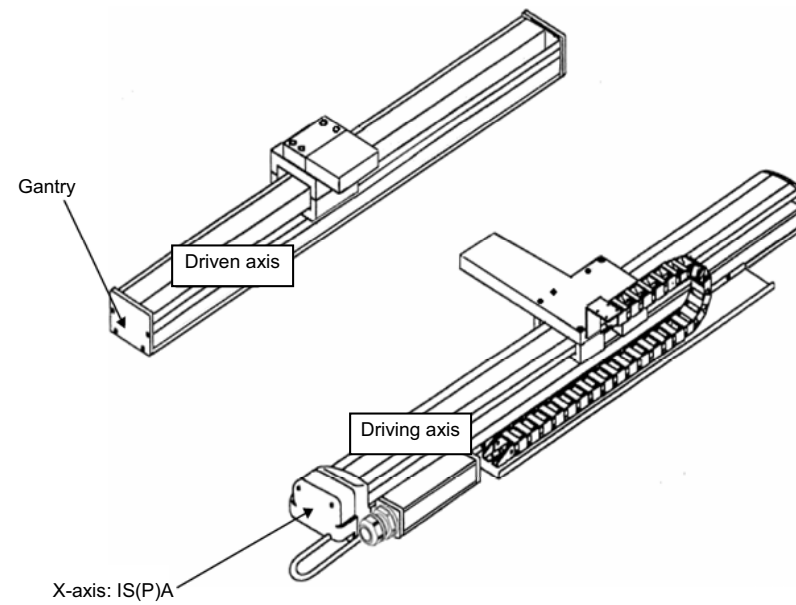
Drawing No. GMM08-014

2/4

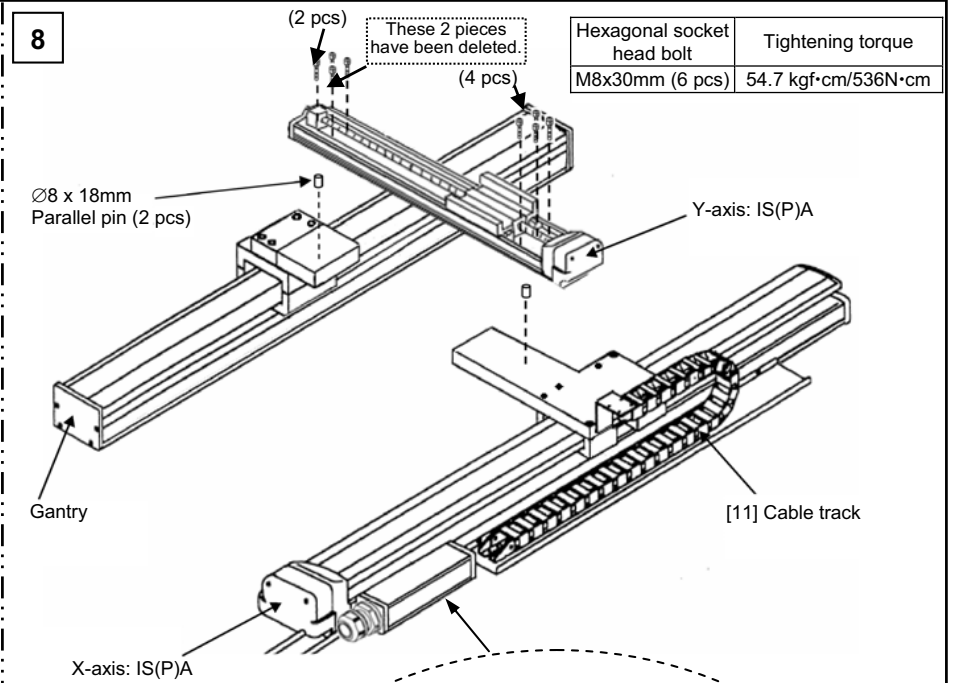
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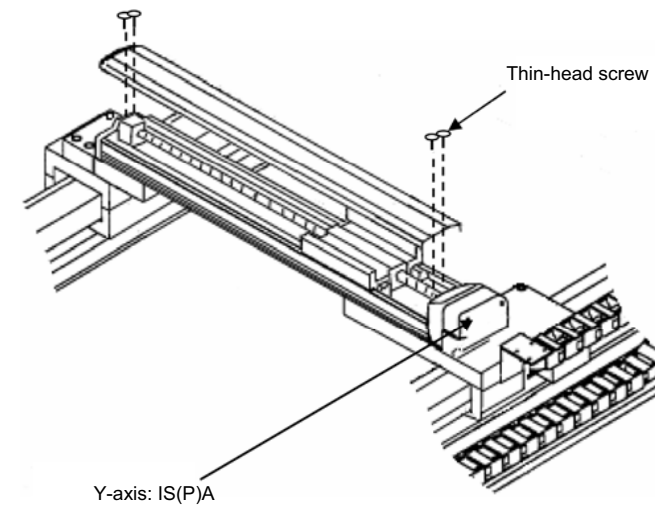
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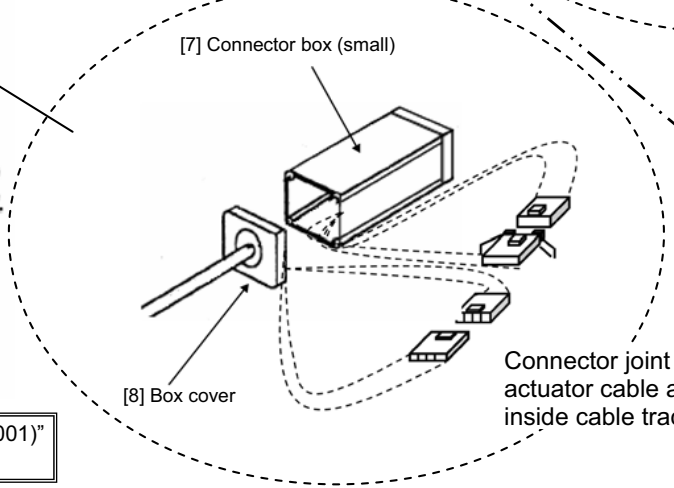
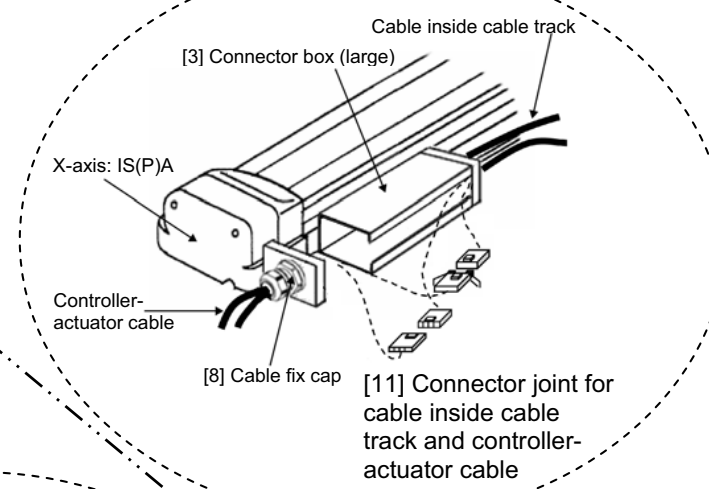
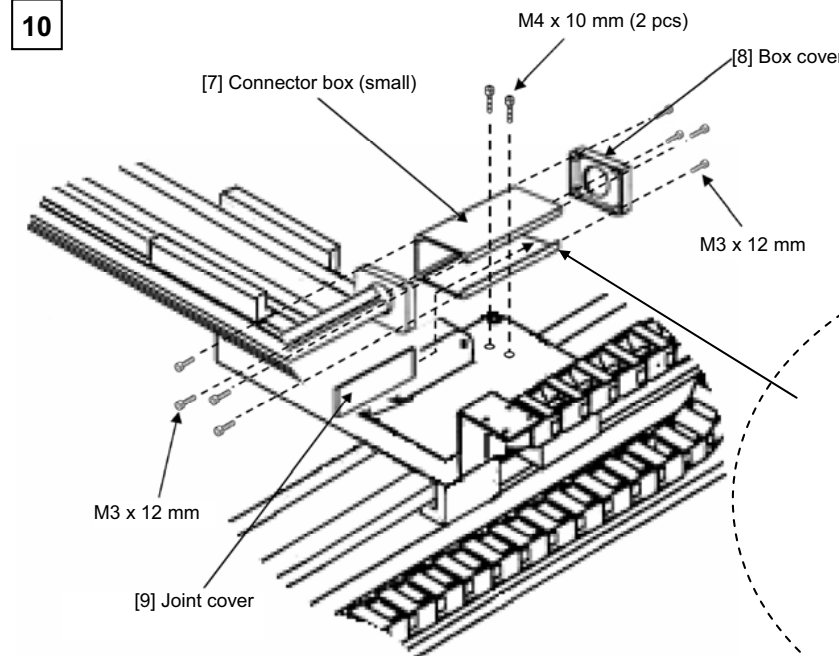
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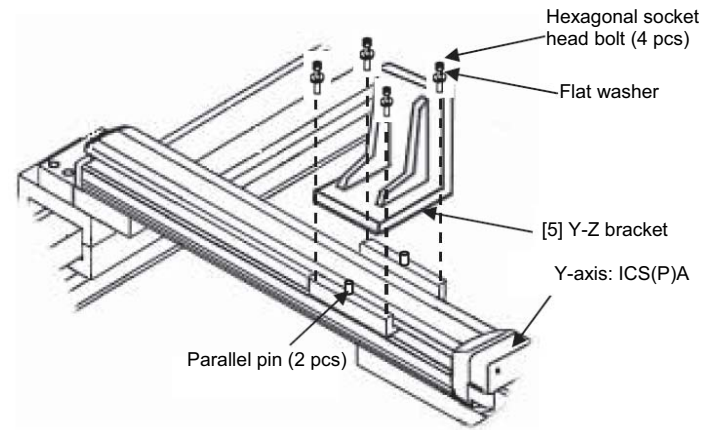


Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

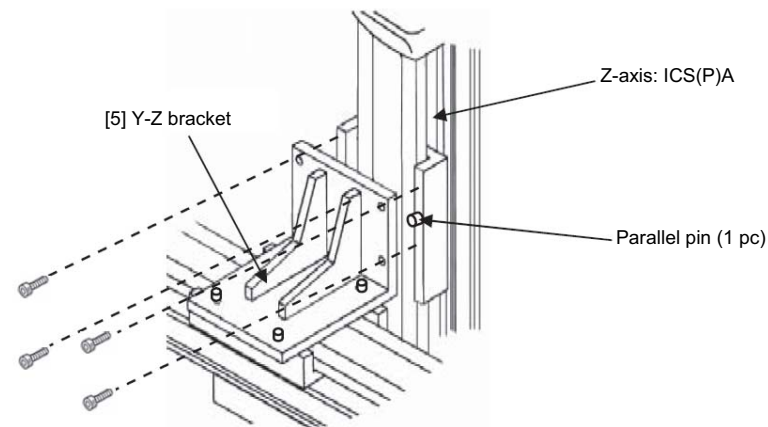
Connector joint for actuator cable and cable inside cable track

11



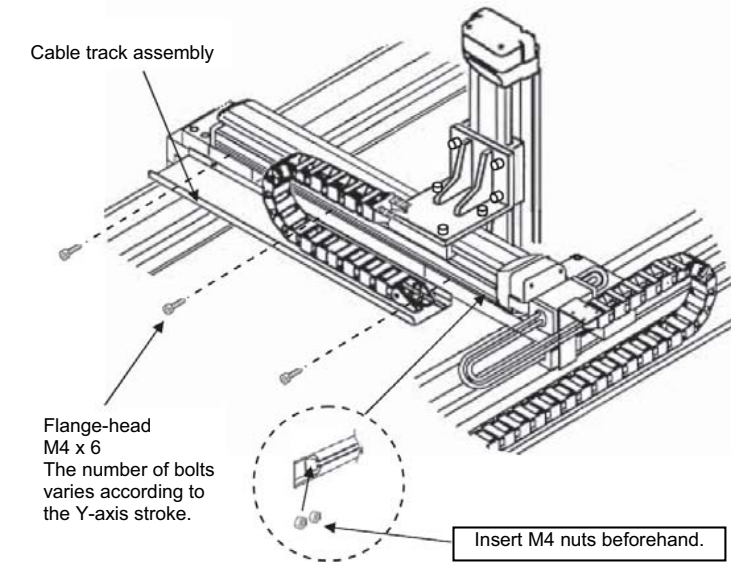
Configuration type	Parallel pin	Hexagonal bolt	Flat washer	Tightening torque
ICS(P)A3-G1(2)JHB1	∅8x18	M8x30mm	M8	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x30mm	M8	306kgf·cm/2997N·cm

12

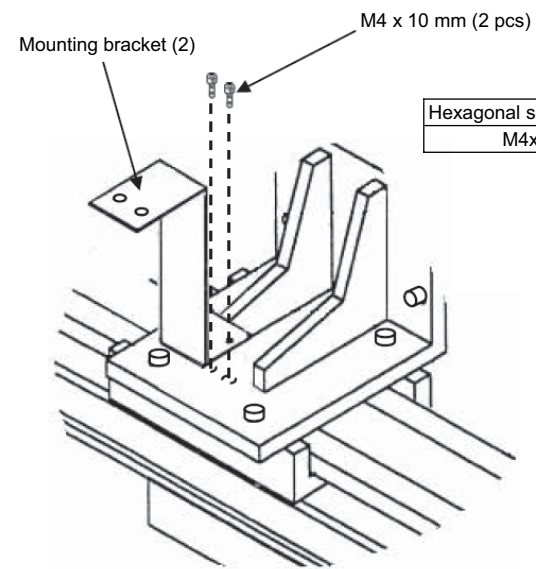


Configuration type	Parallel pin	Hexagonal socket head bolt	Tightening torque
ICS(P)A3-G1(2)JHB1	∅6x15	M6x25mm	54.7kgf·cm/536N·cm
ICS(P)A3-G1(2)JHB2	∅8x18	M8x30mm	306kgf·cm/2997N·cm
ICS(P)A3-G1(2)JHB3	∅8x18	M8x30mm	306kgf·cm/2997N·cm

13

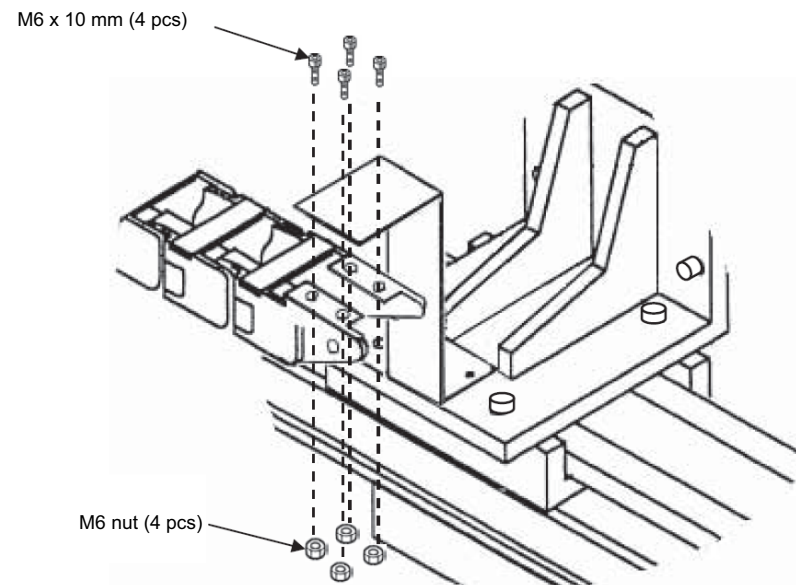


15

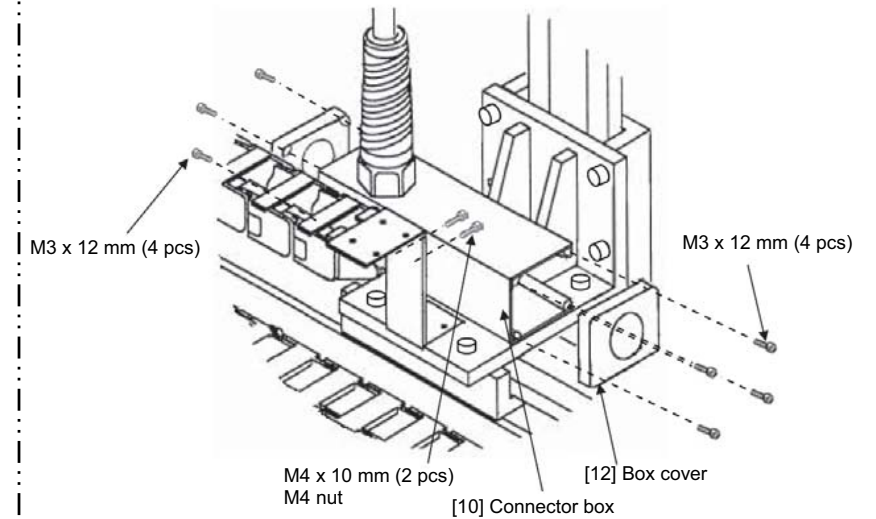


Hexagonal socket head bolt	Tightening torque
M4x10mm	18kgf·cm/176N·cm

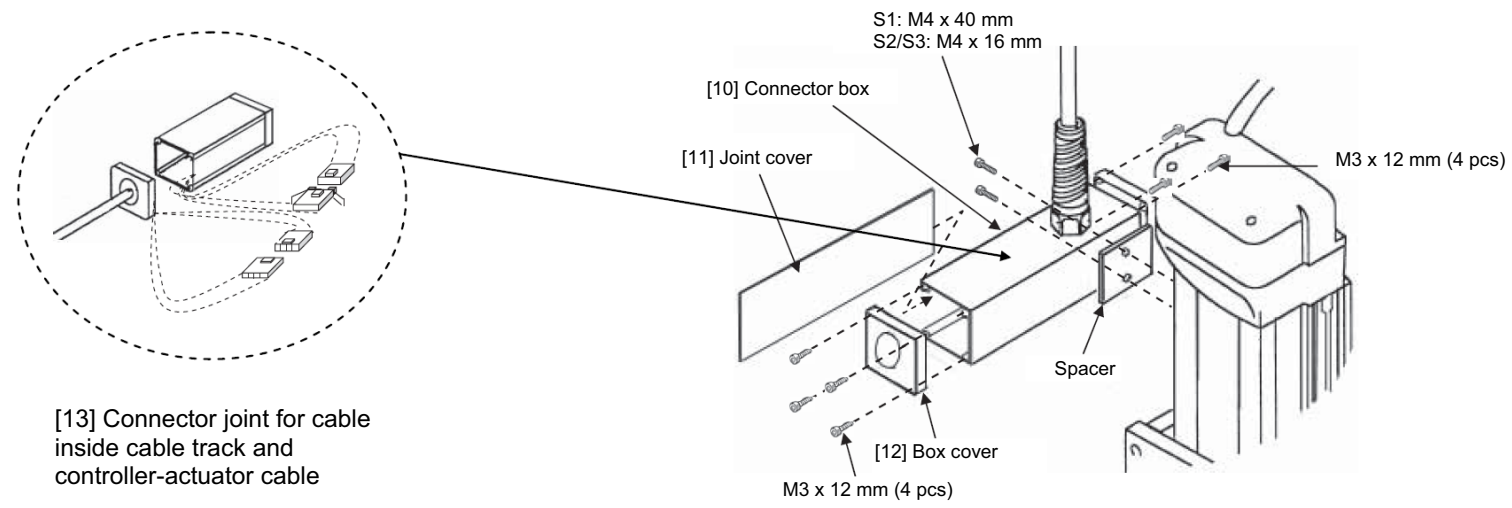
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17



17



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

Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

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.

1 [Tools] Allen wrench

Hexagonal socket head bolt (4 pcs)
 High-tension washer
 [1] X-Y plate
 Parallel pin (2 pcs)
 X-axis: IS(P)A

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

Parallel pin	Hexagonal bolt	High-tension	Tightening torque
φ8×18	M8×40mm	M8	306kgf·cm/2997N·cm

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

Hexagonal full thread bolt (4 pcs)
 High-tension washer
 [2] X-Y bracket
 Parallel pin (1 pc or 2 pcs)
 X-axis: IS(P)A

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 XY bracket [2] on X-axis: IS(P)A]

Parallel pin	Hexagonal bolt	High-tension	Tightening torque
φ8×18	M8×35mm	M8	306kgf·cm/2997N·cm

3

[2] X-Y bracket cover
 Thin-head screw (6 pcs)
 [3] Bracket cover
 X-axis: IS(P)A

[Installation of bracket cover [3] on X-Y bracket [2]]

Thin-head screw	Tightening torque
M4×5mm	20.8kgf·cm/204N·cm

4

Hexagonal socket head bolt (4 pcs)
 [2] X-Y bracket
 Parallel pin (2 pcs)
 X-axis: IS(P)A
 Y-axis: IS(P)A

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

Parallel pin	Hexagonal socket head bolt	Tightening torque
φ8×18	M8×30mm	306kgf·cm/2997N·cm

5 Install the bolts by hooking them in the holes in the guide rail (1) [12].

Y-axis: IS(P)A
 X-axis: IS(P)A
 M4 hexagonal nut
 Hexagonal socket head bolt
 [12] Guide rail (1)
 End face of base (excluding cover)
 Align the edge surface of the guide rail.

Place the M4 hexagonal nuts in the upper slot provided on the side face of the X-axis, before the guide rail (1) [12] is installed. The number of hexagonal nuts to be placed varies according to the stroke.

Install the bolts before the guide rail (1) [12] is installed.

[Installation of guide rail (1) [12] on X-axis: ICS(P)A]

Hexagonal socket head bolt	Tightening torque
M4×10mm	18kgf·cm/176N·cm

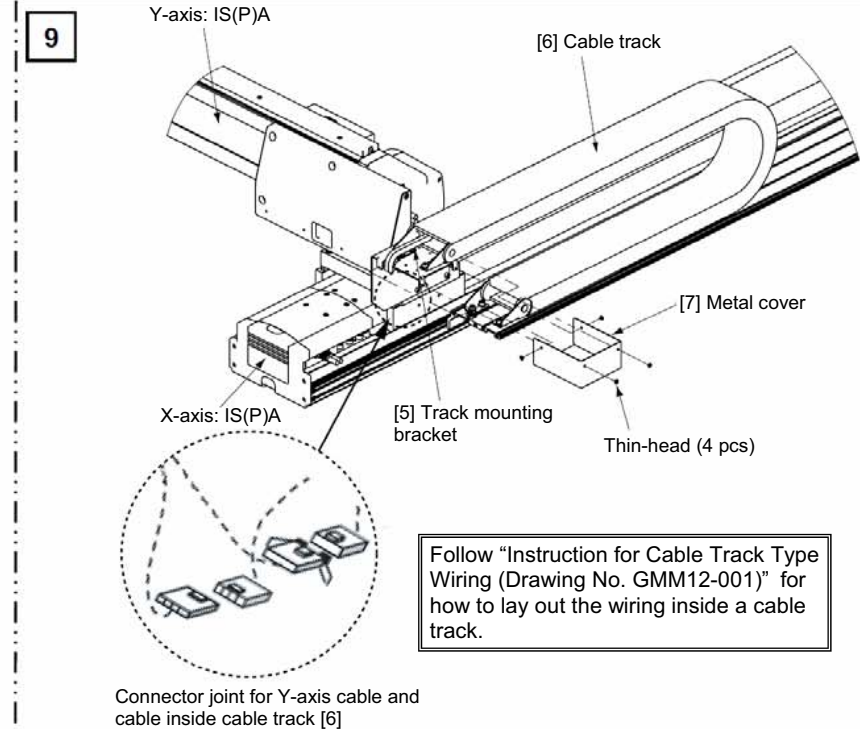
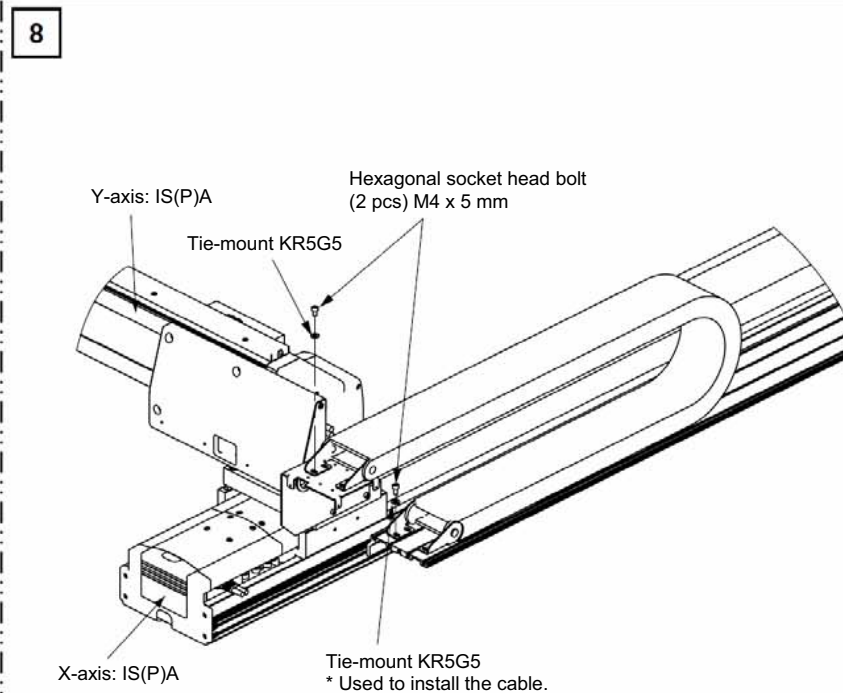
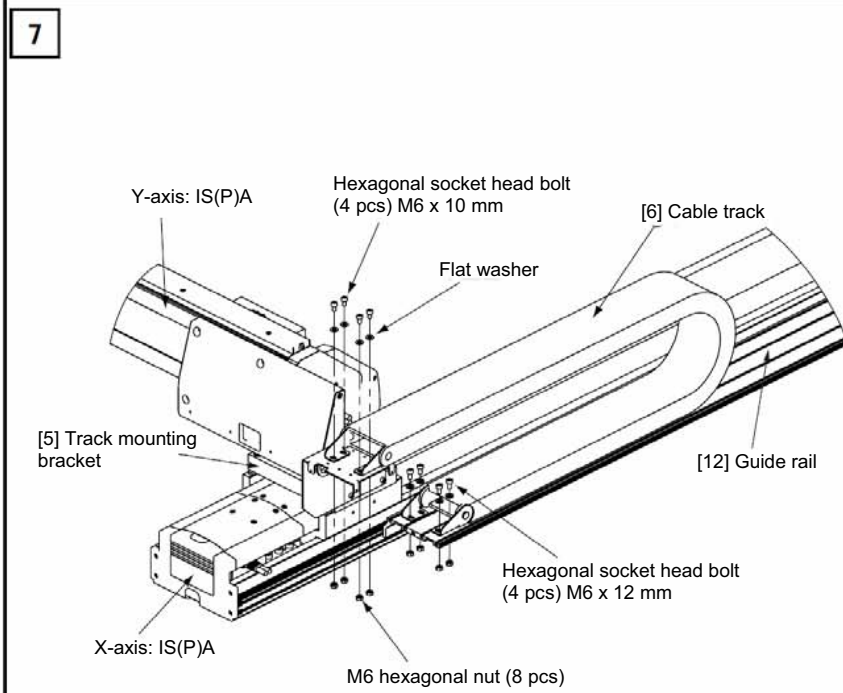
6

Y-axis: IS(P)A
 [1] X-Y plate
 X-axis: IS(P)A
 [4] Grommet
 [5] Track mounting bracket
 Hexagonal socket head bolt (2 pcs)

[Installation of track mounting bracket [5] on X-Y plate [1]]

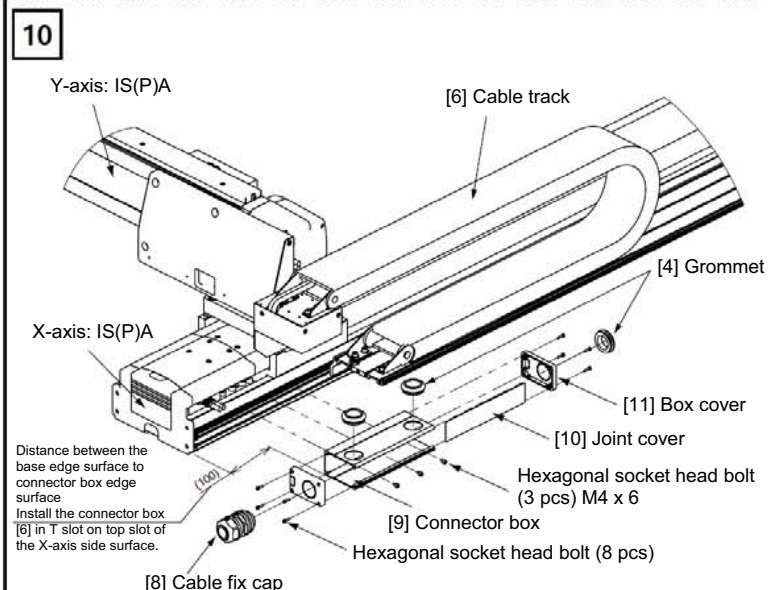
Hexagonal socket head bolt	Tightening torque
M5×12mm	34.9kgf·cm/342N·cm

* 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.



[Installation of metal cover [7] on track mounting bracket [5]]

Thin-head screw	Tightening torque
M3×4mm	8.47kgf·cm/83N·cm

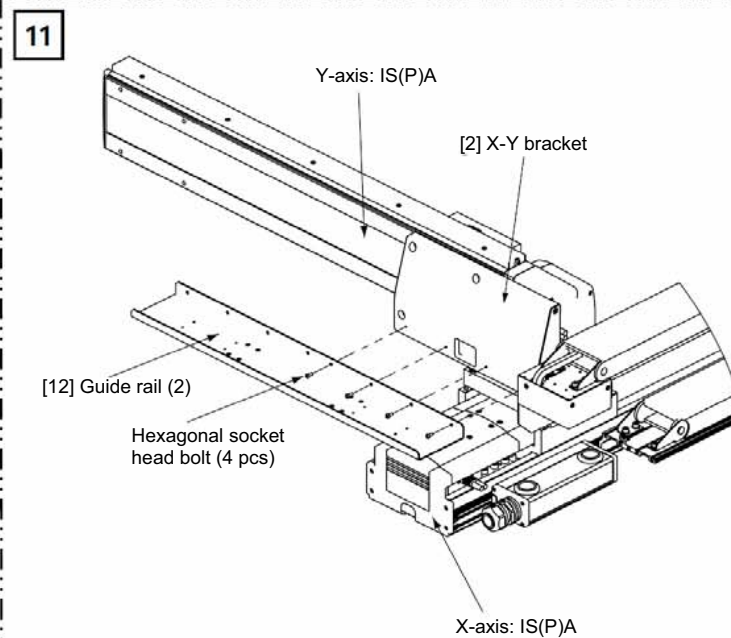


[Installation of connector box [9] on X-axis: IS(P)A]

Hexagonal socket head bolt	Tightening torque
M4×6mm	18kgf·cm/176N·cm

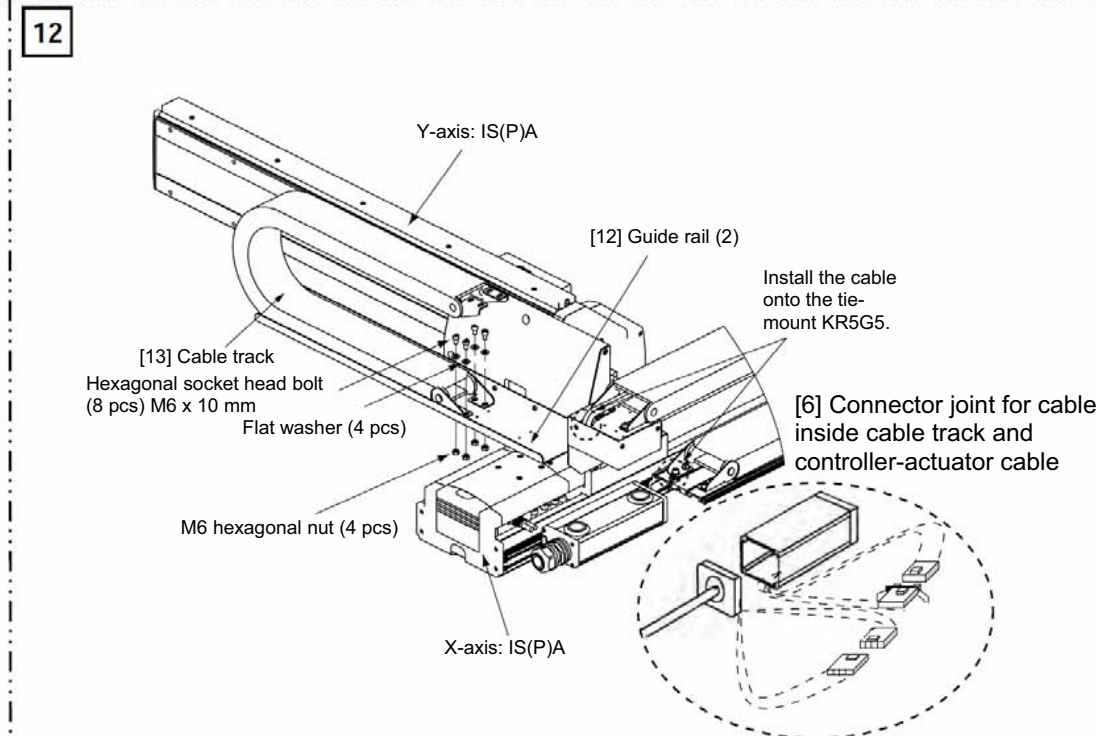
[Installation of connector box [9] on box cover [11]]

Hexagonal socket head bolt	Tightening torque
M3×12mm	8.47kgf·cm/83N·cm



[Installation of guide rail (2) [12] on X-Y bracket [2]]

Hexagonal socket head bolt	Tightening torque
M4×10mm	18kgf·cm/176N·cm

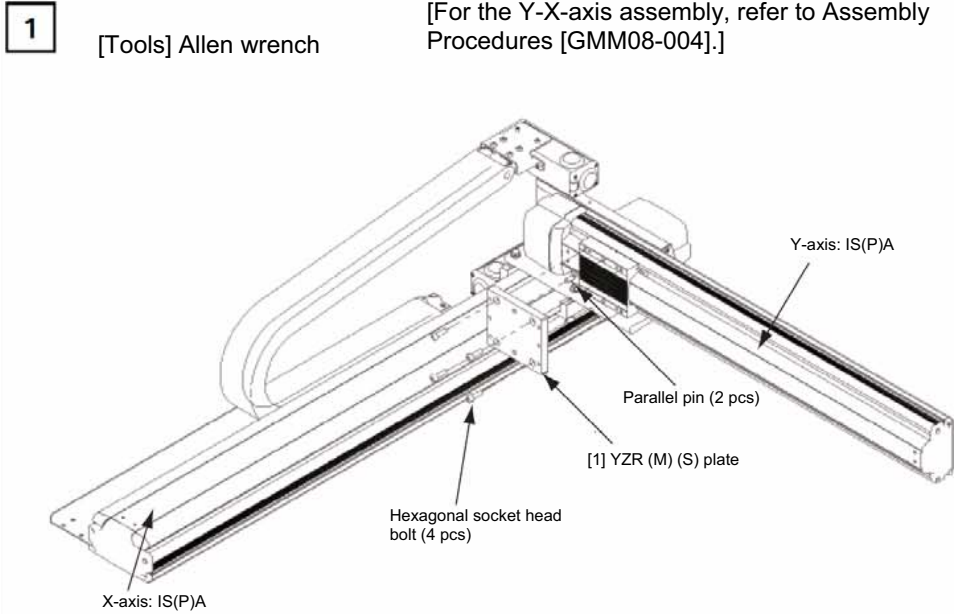


Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

* 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.

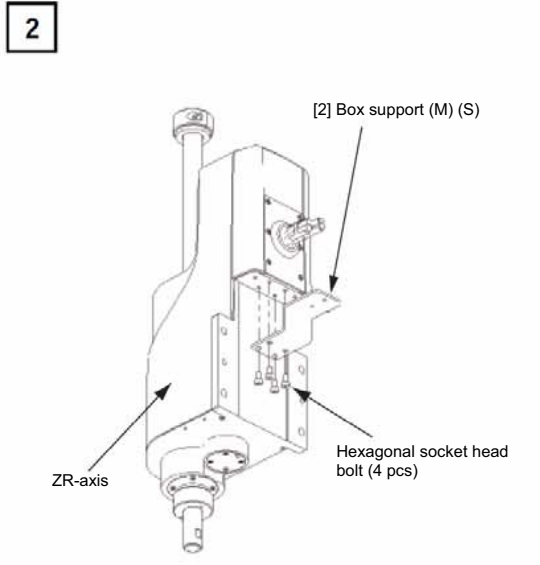
Caution:

- 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.



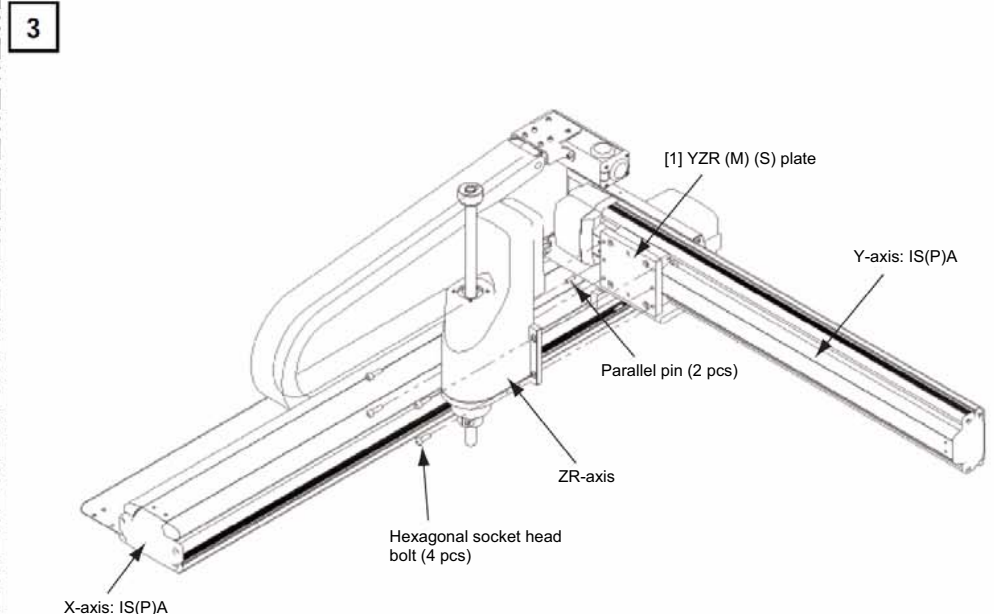
[Installation of YZR (M) (S) plate [1] on Y-axis: IS(P)A]

Configuration type	Parallel pin	Hexagonal socket head bolt	Tightening torque
ZR-S	φ6×15mm	M6×20mm	54.7kgf·cm/536N·cm
ZR-M	φ6×15mm	M8×25mm	117kgf·cm/1148N·cm



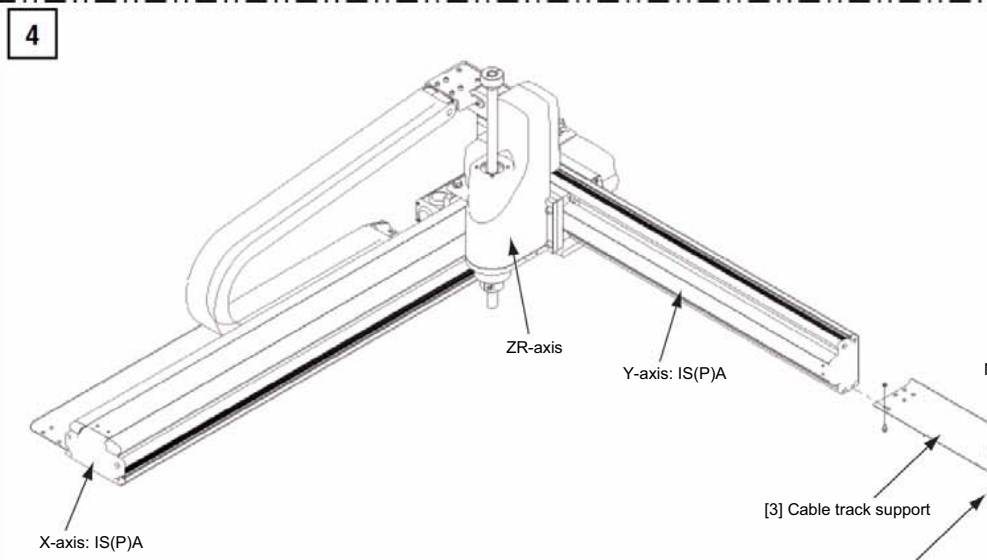
[Installation of box support (M) (S) [2] on ZR-axis]

Hexagonal socket head bolt	Tightening torque
M5×10mm	34.9kgf·cm/342N·cm



[Installation of ZR on YZR (M) (S) plate [1]]

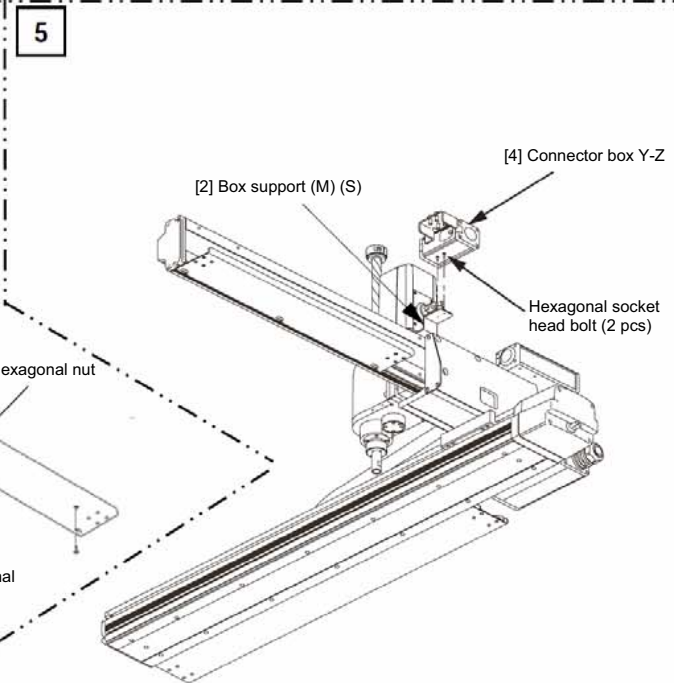
Configuration type	Hexagonal socket head bolt	Tightening torque
ZR-S	M6×20mm	54.7kgf·cm/536N·cm
ZR-M	M8×25mm	117kgf·cm/1148N·cm



Install the hexagonal nut on the hexagonal socket head bolt and then insert the nut in the lower slot of the Y-axis.

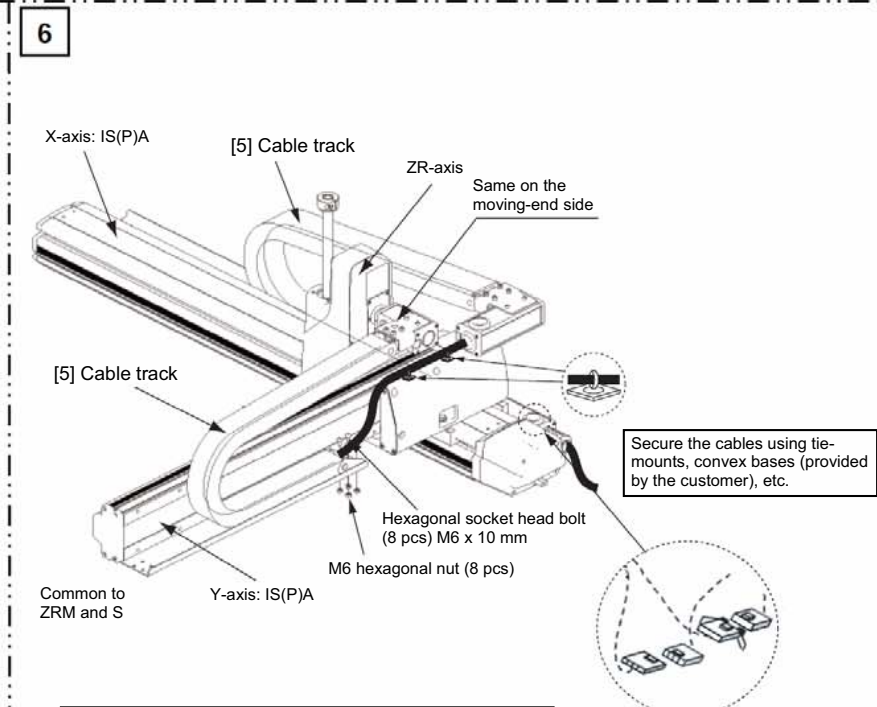
[Installation of cable track support [3] on Y-axis: IS(P)A]

Flange-head hexagonal socket head bolt	Tightening torque
M4×10mm	18.0kgf·cm/176N·cm



[Installation of connector box Y-Z [4] on box support (M) (S) [2]]

Hexagonal socket head bolt	Tightening torque
M4×6mm	18.0kgf·cm/176N·cm



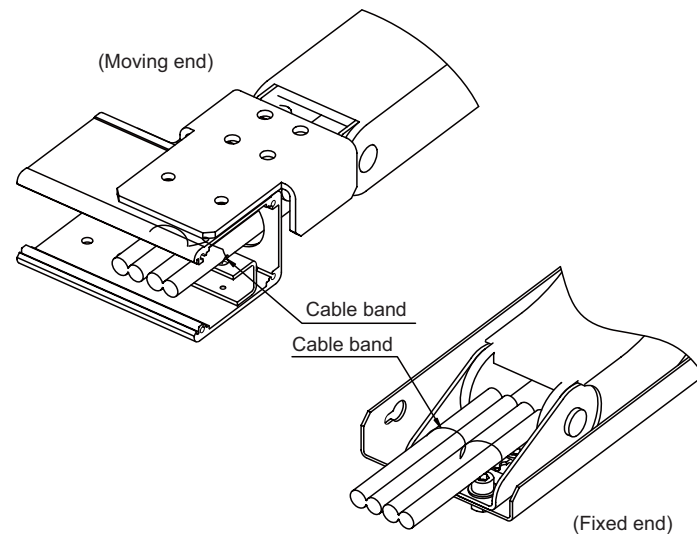
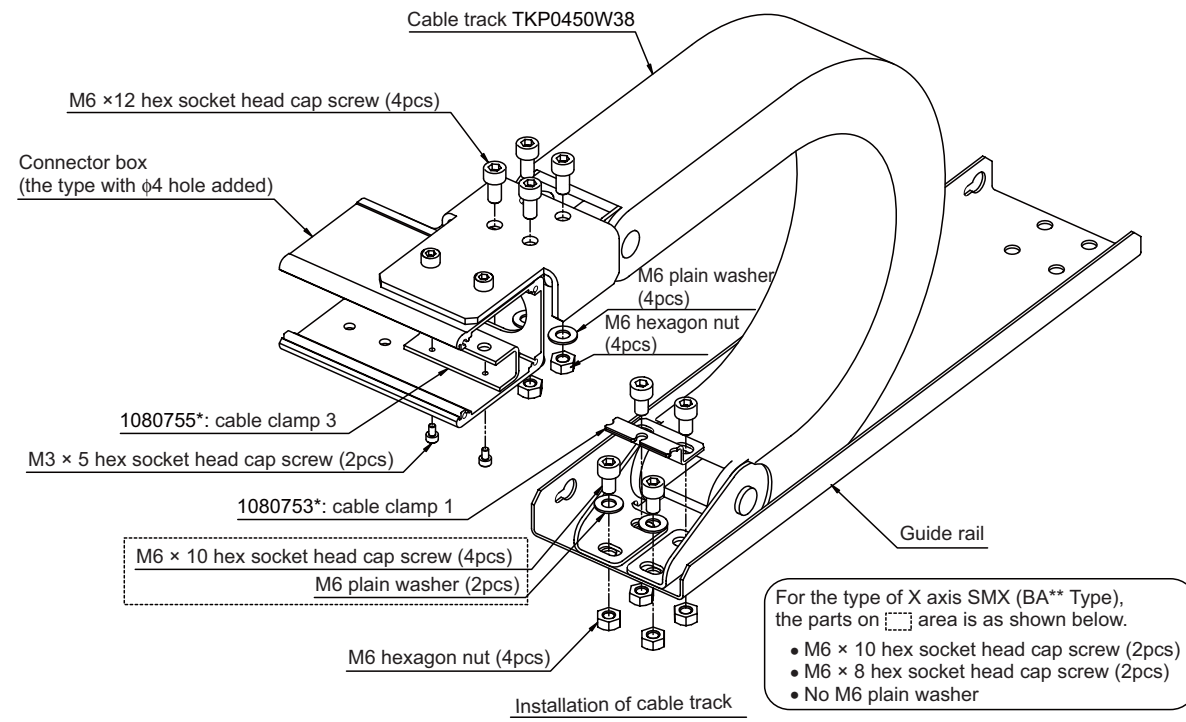
Follow "Instruction for Cable Track Type Wiring (Drawing No. GMM12-001)" for how to lay out the wiring inside a cable track.

Connector joint for cable inside cable track and ZR, X-axis and Y-axis cables

* 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.

Cable track specification Option model code	CT
Cable track model code	TKP0450W38

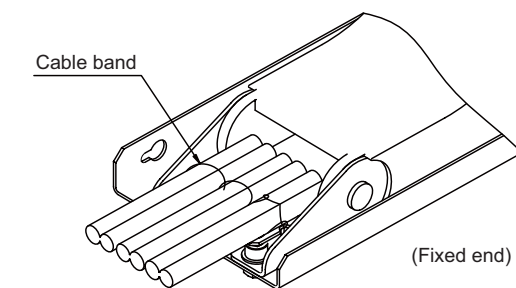
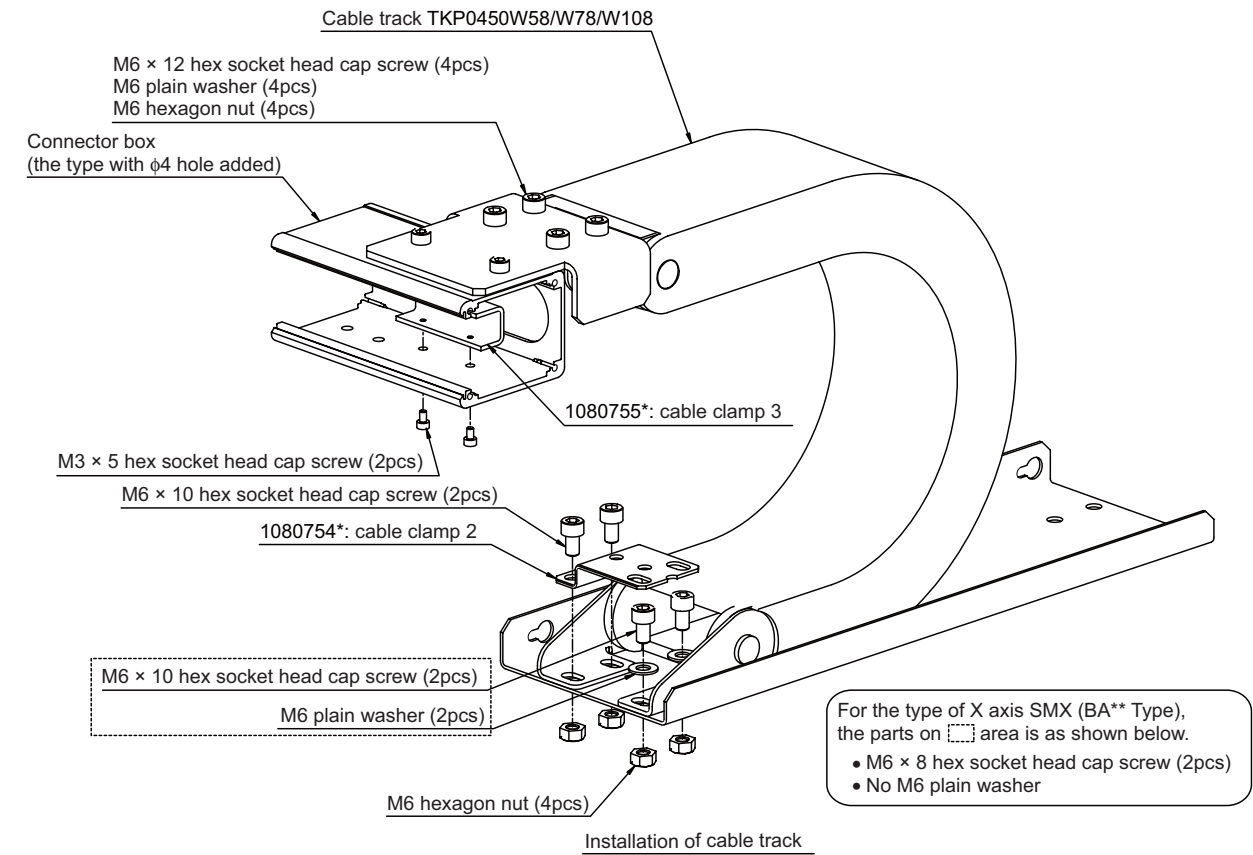
The parts content should be the same for the both cable tracks between X and Y and between Y and Z. However, for the construction with no connector box on the moving end, the same cable clamp as one on the fixed end should also be used on the moving end.



Put a cable band through the comb teeth and the hole, and affix the cables in a pair.

Cable Wiring and Fixation

Cable track specification Option model code	CTM	CTL	CTXL
Cable track model code	TKP0450W58	TKP0450W78	TKP0450W108



Put a cable band through the holes, and affix the cables in a pair. (Same as W38 on the moving end)

Cable Wiring and Fixation

Caution

- Avoid piling up a cable onto another or have cables running across each other, and have the cables laid out straight in parallel.
- Basically, M cables and PG cables should be separated in each bunch.
- When affixing the cables on the moving end and fixed end, gather the cables on the inner side of the cable track, and have enough play on the cables that would not apply tension to them when the cable track is moved for the swing stroke. Also, make sure the cables are not twisted.