



# Maintenance Manual

Product Name

## Electric Gripper

Model / Series / Product Number

# LEH

LEHZ (J) / LEHF / LEHS Series

### Type Z (2 fingers)

- Standard: LEHZ Series



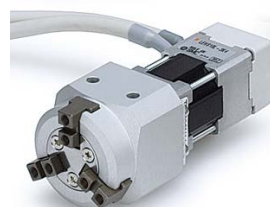
### Type F (2 fingers)

- Standard: LEHF Series



### Type S (3 fingers)

- Standard: LEHS Series



Products after parts replacement by the user are  
outside of warranty.

## SMC Corporation

## Revision History

[illegible]

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# 1. Maintenance Precautions

## ⚠ Warning

1. Remove the workpiece and disconnect the power supply during maintenance and replacement of the product.
2. The motor can be replaced only as a motor assembly.
3. If no locking adhesive is applied to the bolts or screws, take a precaution when loosening.
4. Refer to the spare parts list in the separate sheet for the part numbers and details of the spare parts.

Japanese: LEHZ-MM00201 English: LEHZ-MM00301

## 2. Replacement of Motor Assembly (LEHZ(J), LEHS)

### 2-1. Removal of motor assembly (Common for the LEHZ(J) and LEHS)

- (1) Remove the hexagon socket head cap screws.

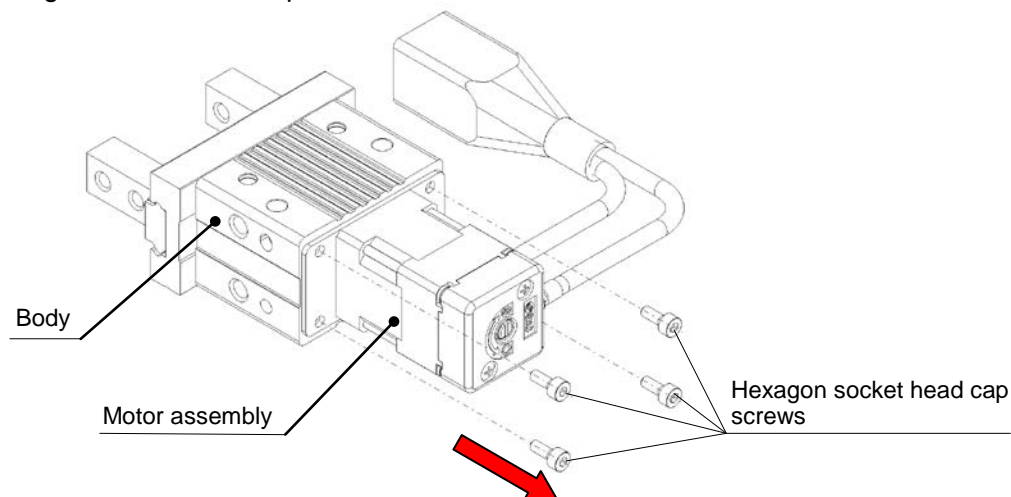


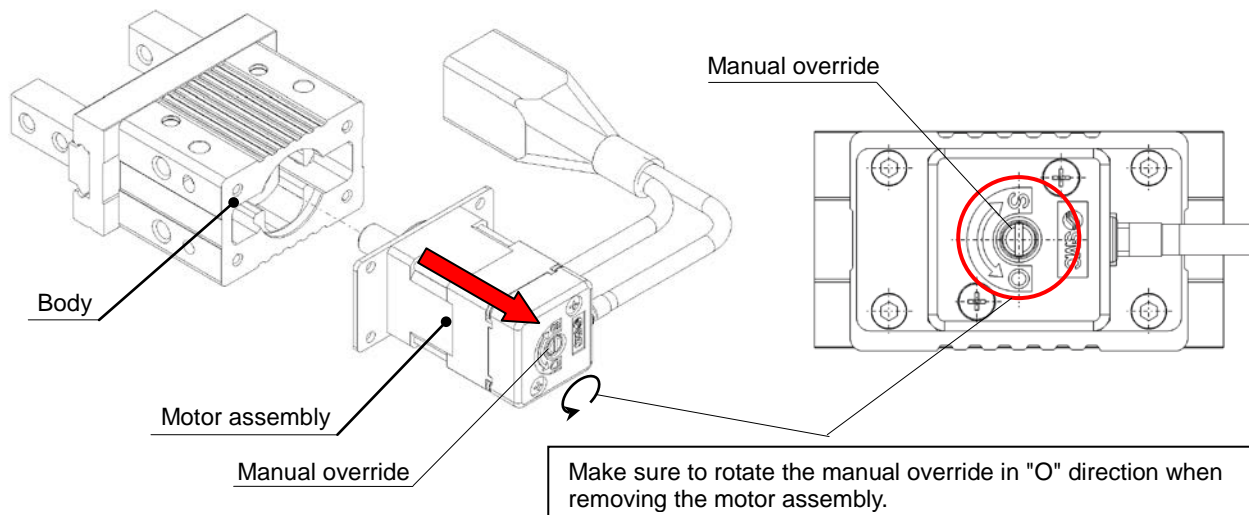
Table 2-1 Motor assembly fixing screws

Size	Screw type	Thread size	Qty.	Model(s)
10	Hexagon socket head cap screw	M2 x 5	4	LEHZ (J), LEHS
16	Hexagon socket head cap screw	M2 x 5	4	LEHZ(J)
20	Hexagon socket head cap screw	M3 x 8	4	LEHZ(J), LEHS
25	Hexagon socket head cap screw	M3 x 8	4	LEHZ(J)
32	Hexagon socket head cap screw	M4 x 10	4	LEHZ, LEHS
40	Hexagon socket head cap screw	M4 x 10	4	LEHZ, LEHS

- (2) Remove the motor assembly from the body.

Make sure to rotate the manual override in "O" direction when removing the motor assembly.

\* If the motor assembly is pulled forcibly, it may damage the product.

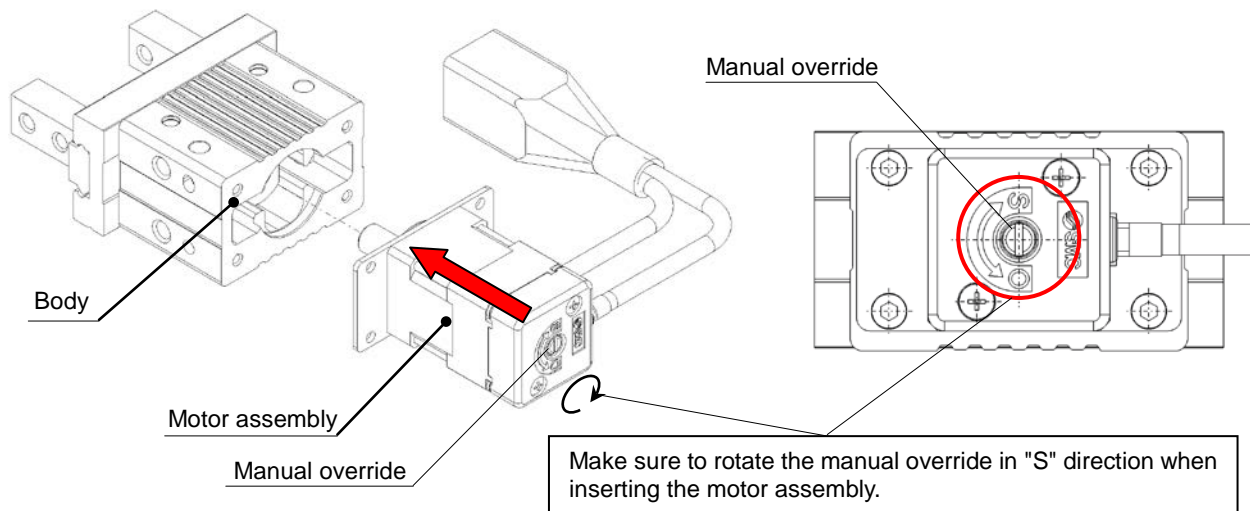


## 2-2. Re-mounting of motor assembly (Common for the LEHZ(J) and LEHS)

(1) Insert the motor assembly into the body.

Make sure to rotate the manual override in "S" direction when inserting the motor assembly.

\* If the motor assembly is inserted forcibly, it may damage the product.



(2) Tighten the hexagon socket head cap screws to secure the body and motor assembly.

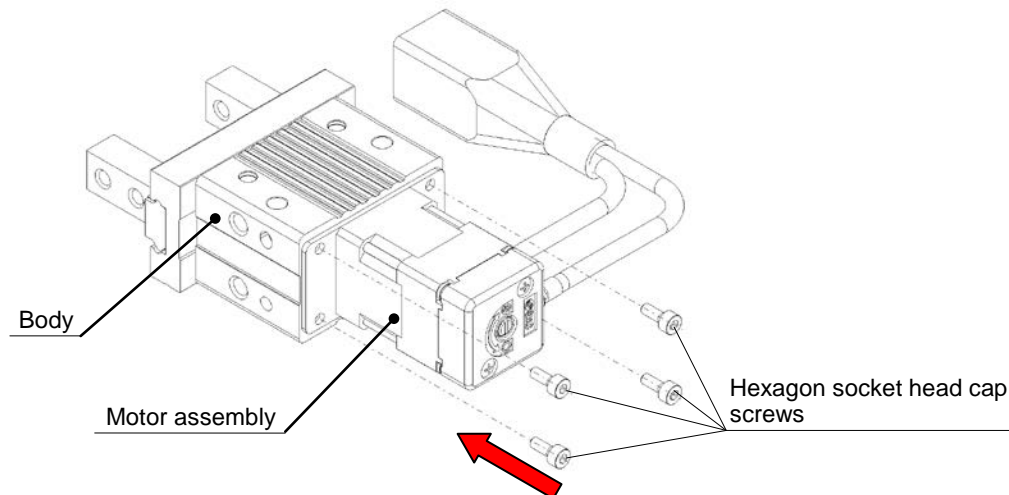


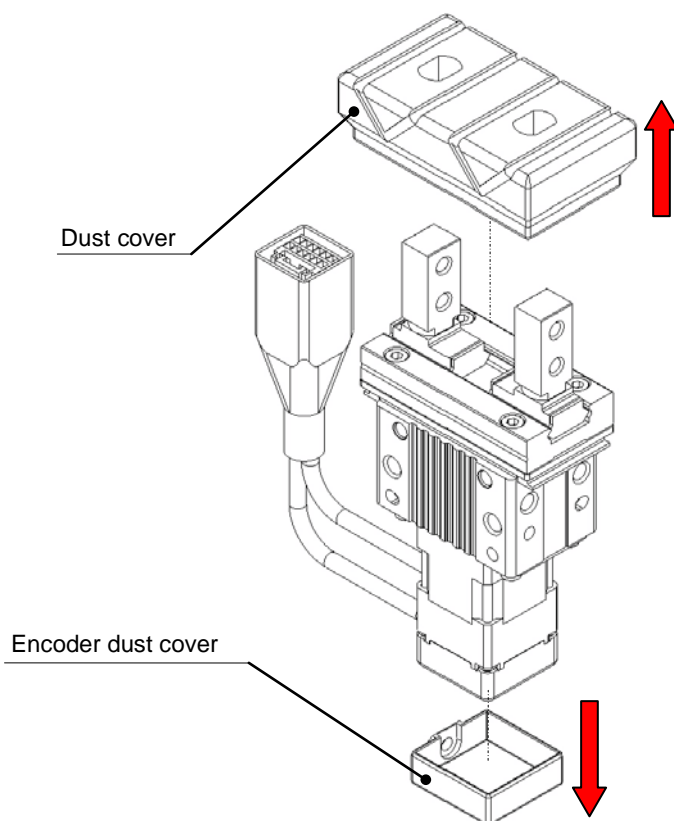
Table.2-2 Tightening torque for motor assembly screws

Size	Screw type	Thread size	Recommended tightening torque [Nm]	Qty.	Model
10	Hexagon socket head cap screw	M2 x 5	0.26 +/-0.03	4	LEHZ(J), LEHS
16	Hexagon socket head cap screw	M2 x 5		4	LEHZ(J)
20	Hexagon socket head cap screw	M3 x 8	0.36 +/-0.05	4	LEHZ(J), LEHS
25	Hexagon socket head cap screw	M3 x 8		4	LEHZ(J)
32	Hexagon socket head cap screw	M4 x 10	0.63 +/-0.10	4	LEHZ, LEHS
40	Hexagon socket head cap screw	M4 x 10		4	LEHZ, LEHS

### 3. Replacement of Dust Cover and Encoder Dust Cover (LEHZJ)

#### 3-1. Removal of dust cover and encoder dust cover

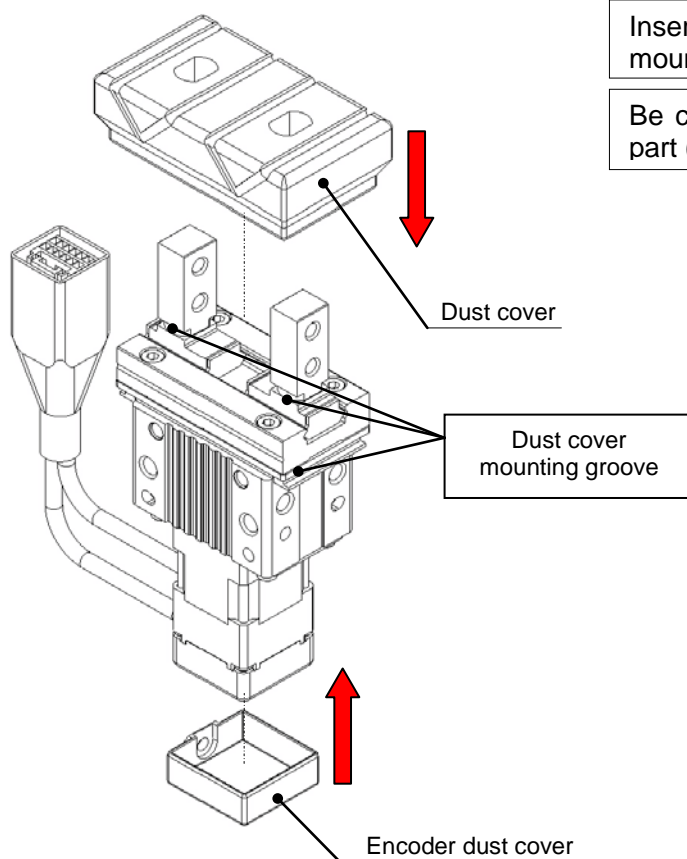
(1) Remove the dust cover and encoder dust cover.



#### 3-2. Re-mounting of dust cover and encoder dust cover

(1) Mount the dust cover and encoder dust cover.

Refer to Figures 3-1 and 3-2 for mounting the dust cover and encoder dust cover.



Insert the whole shaded parts of the dust cover into the mounting groove.

Be careful not to protrude the dust cover from the lined part (Upper part of the finger step) or to tear it off.

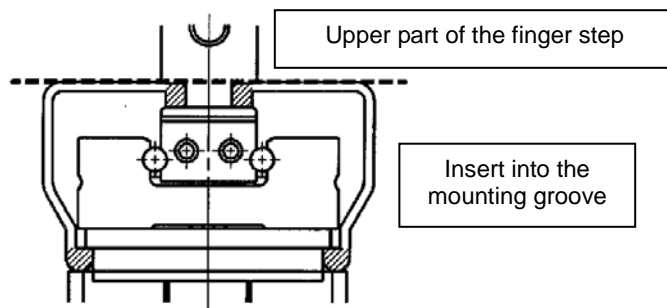


Fig. 3-1 dust cover mounting condition

Be careful not to protrude or tear them off.

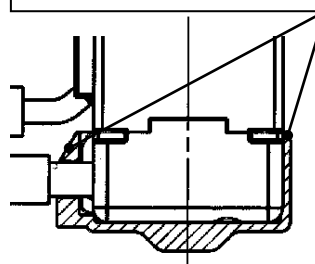


Fig. 3-2 Encoder dust cover mounting condition

## 4. Replacement of Finger Assembly (LEHZ)

### 4-1. Removal of finger assembly (LEHZ)

- (1) Remove the finger assembly mounting screws to remove the finger assembly.  
The parallel pins are mounted onto the product size 32 and 40 only.  
Be careful not to drop the parallel pins when removing the finger assembly.

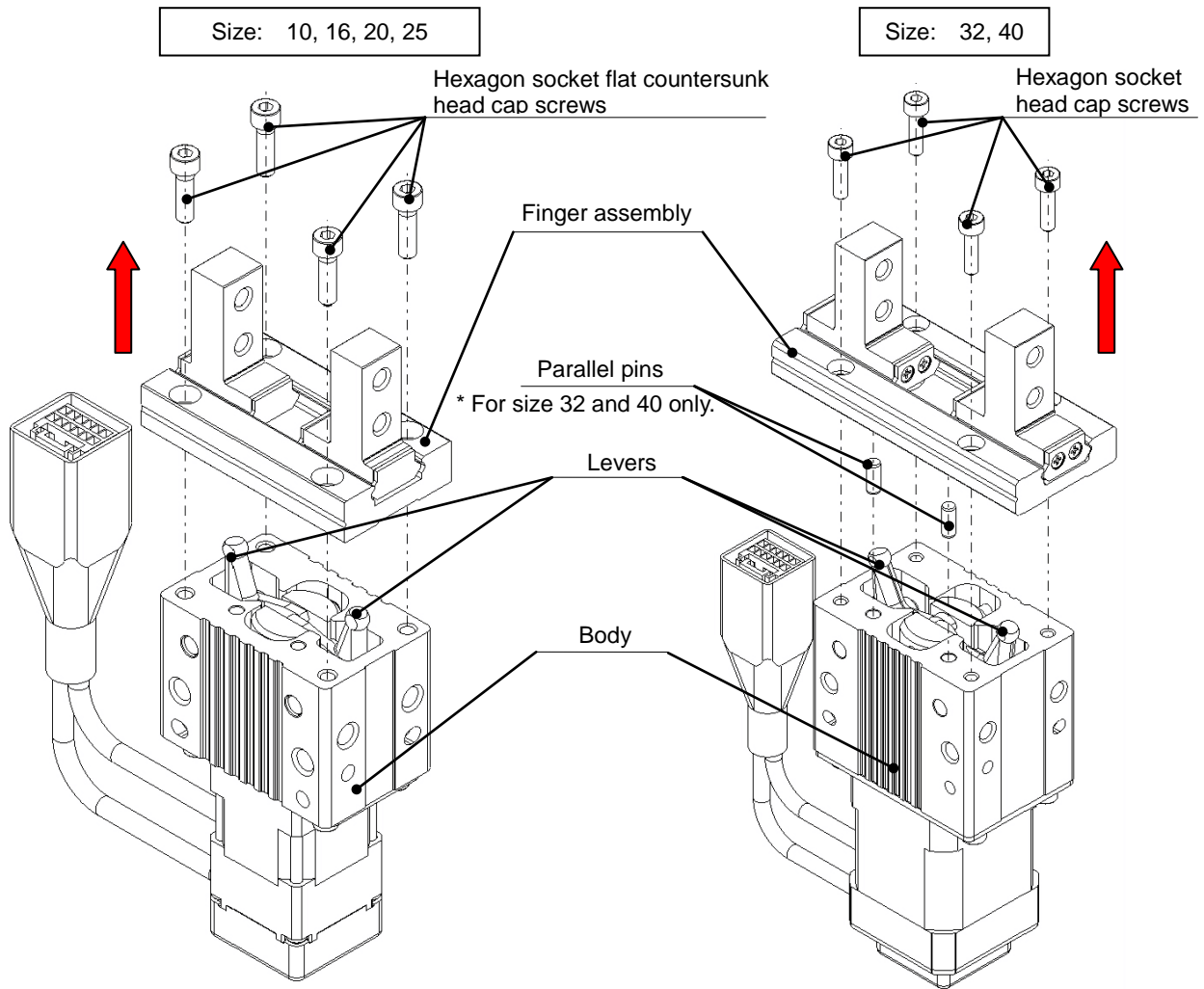


Table.4-1 Finger assembly screws

Size	Screw type	Thread size	Qty.
10	Hexagon socket flat countersunk head cap screw	M2 x 10	4
16	Hexagon socket flat countersunk head cap screws	M2.5 x 12.5	4
20	Hexagon socket flat countersunk head cap screws	M3 x 15	4
25	Hexagon socket flat countersunk head cap screws	M4 x 18	4
32	Hexagon socket head cap screw	M4 x 14	4
40	Hexagon socket head cap screw	M5 x 20	4



## 4-2. Re-mounting of finger assembly (LEHZ)

(1) Mount the finger assembly onto the body.

The datum level of the finger assembly should face the same direction as the body mounting surface. Refer to Figure 4-1 for finger assembly mounting.

For size 32 and 40, mount the finger assembly after inserting the parallel pins into the body.

(2) Tighten the finger assembly mounting screws to secure the body and finger assembly.

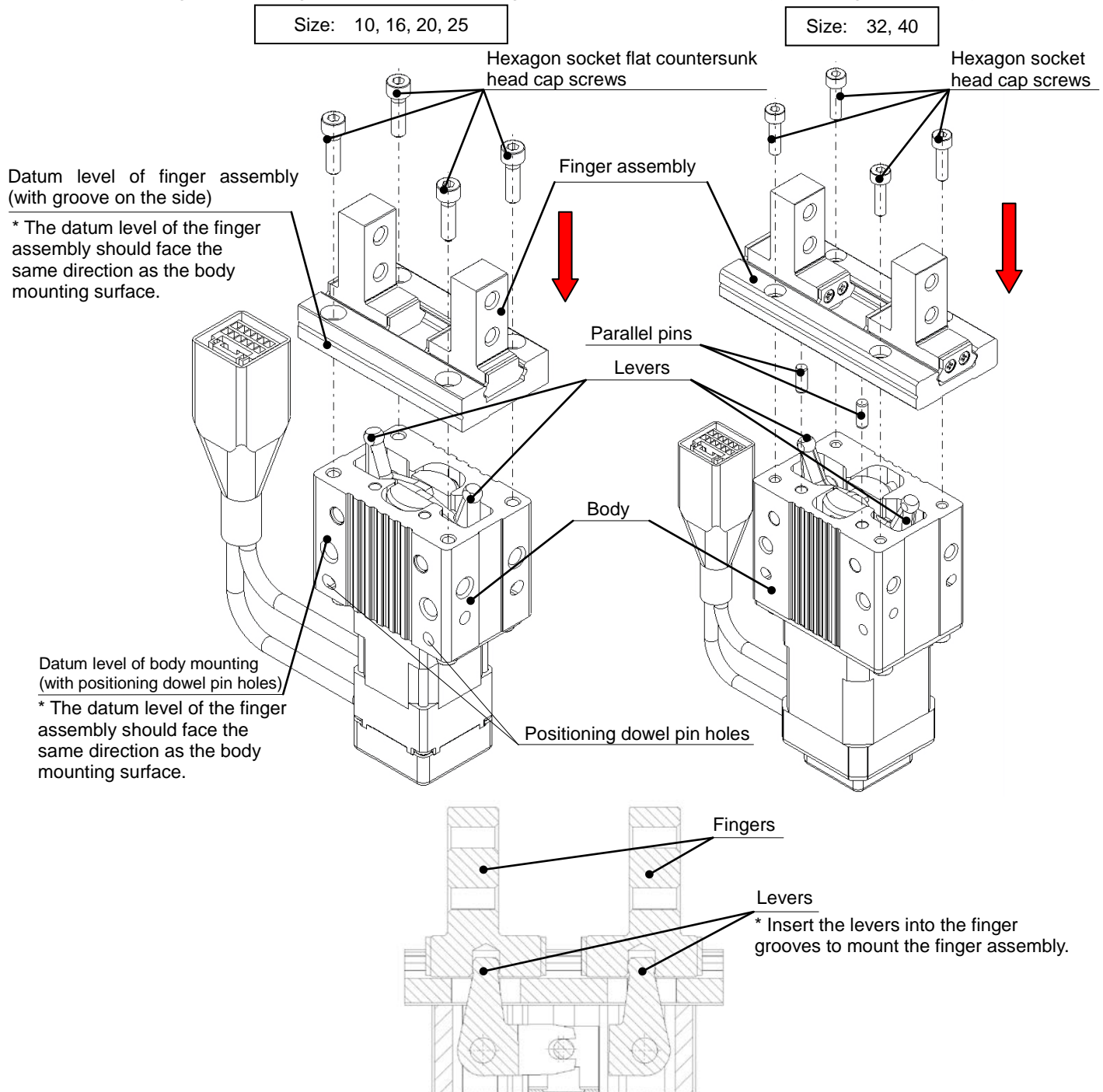


Fig. 4-1 finger assembly mounting condition

Table 4-2 Tightening torque for finger assembly screws

Size	Screw type	Thread size	Recommended tightening torque [Nm]	Qty.
10	Hexagon socket flat countersunk head cap screw	M2 x 10	0.32 +/-0.05	4
16	Hexagon socket flat countersunk head cap screw	M2.5 x 12.5	0.65 +/-0.10	4
20	Hexagon socket flat countersunk head cap screw	M3 x 15	1.14 +/-0.20	4
25	Hexagon socket flat countersunk head cap screw	M4 x 18	2.70 +/-0.30	4
32	Hexagon socket head cap screw	M4 x 14	2.70 +/-0.30	4
40	Hexagon socket head cap screw	M5 x 20	5.40 +/-1.00	4



## 5. Replacement of Finger Assembly (LEHZJ)

### 5-1. Removal of finger assembly (LEHZJ)

(1) After removing the dust cover, remove the hexagon socket flat countersunk head cap screws to remove the finger assembly.

\*1: Refer to the step (1) in the section "3-1. Removal of dust cover and encoder dust cover" of "3. Replacement of Dust Cover and Encoder Dust Cover" for how to remove the dust cover.

\*2: Be careful not to drop the body plate when removing the finger assembly.

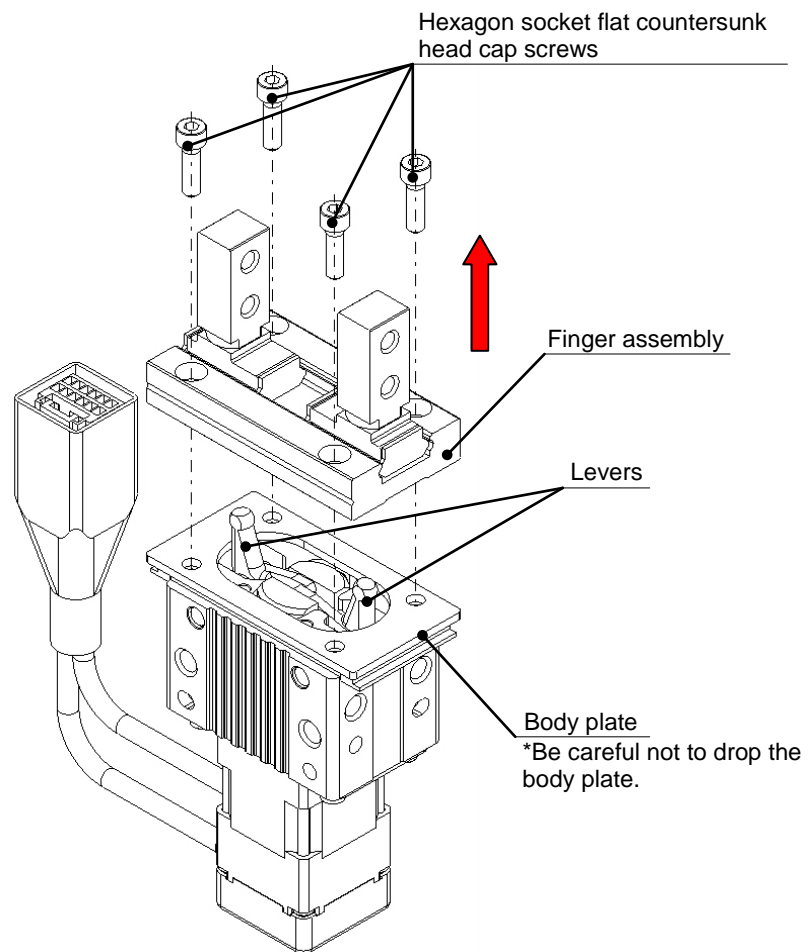


Table.5-1 Finger assembly screws

Size	Screw type	Thread size	Qty.
10	Hexagon socket flat countersunk head cap screw	M2 x 10	4
16	Hexagon socket flat countersunk head cap screw	M2.5 x 12.5	4
20	Hexagon socket flat countersunk head cap screw	M3 x 15	4
25	Hexagon socket flat countersunk head cap screw	M4 x 18	4

## 5-2. Re-mounting of finger assembly (LEHZJ)

- (1) Mount the finger assembly onto the body. Refer to Figure 5-1 for finger assembly mounting.  
The datum level of the finger assembly should face the same direction as the body mounting surface.
- (2) Tighten the finger assembly mounting screws to secure the body and finger assembly.
- (3) Mount the dust cover and encoder dust cover.  
Refer to the step (1) in the section "3-2. Re-mounting of dust cover and encoder dust cover" of "3. Replacement of Dust Cover and Encoder Dust Cover" for how to mount the dust cover and encoder dust cover.

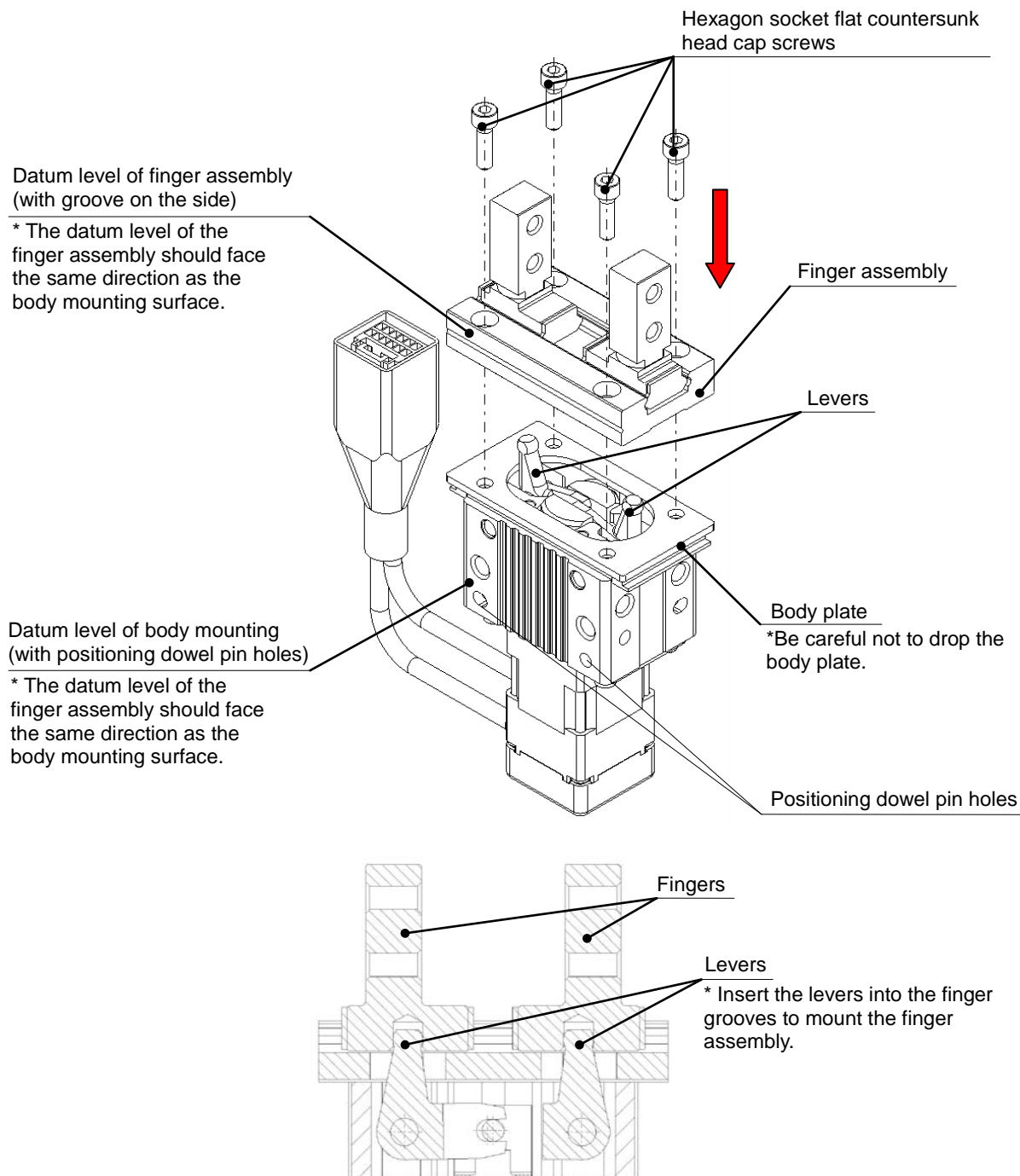


Fig. 5-1 finger assembly mounting condition

Table 5-2 Tightening torque for finger assembly screws

Size	Screw type	Thread size	Recommended tightening torque [Nm]	Qty
10	Hexagon socket flat countersunk head cap screw	M2 x 10	0.32 +/-0.05	4
16	Hexagon socket flat countersunk head cap screw	M2.5 x 12.5	0.65 +/-0.10	4
20	Hexagon socket flat countersunk head cap screw	M3 x 15	1.14 +/-0.20	4
25	Hexagon socket flat countersunk head cap screw	M4 x 18	2.70 +/-0.30	4

## 6. Replacement of Finger Assembly (LEHF)

### 6-1. Removal of finger assembly (LEHF)

- (1) Remove the hexagon socket head cap screws to remove the finger assembly.  
Be careful not to drop the parallel pins when removing the finger assembly.

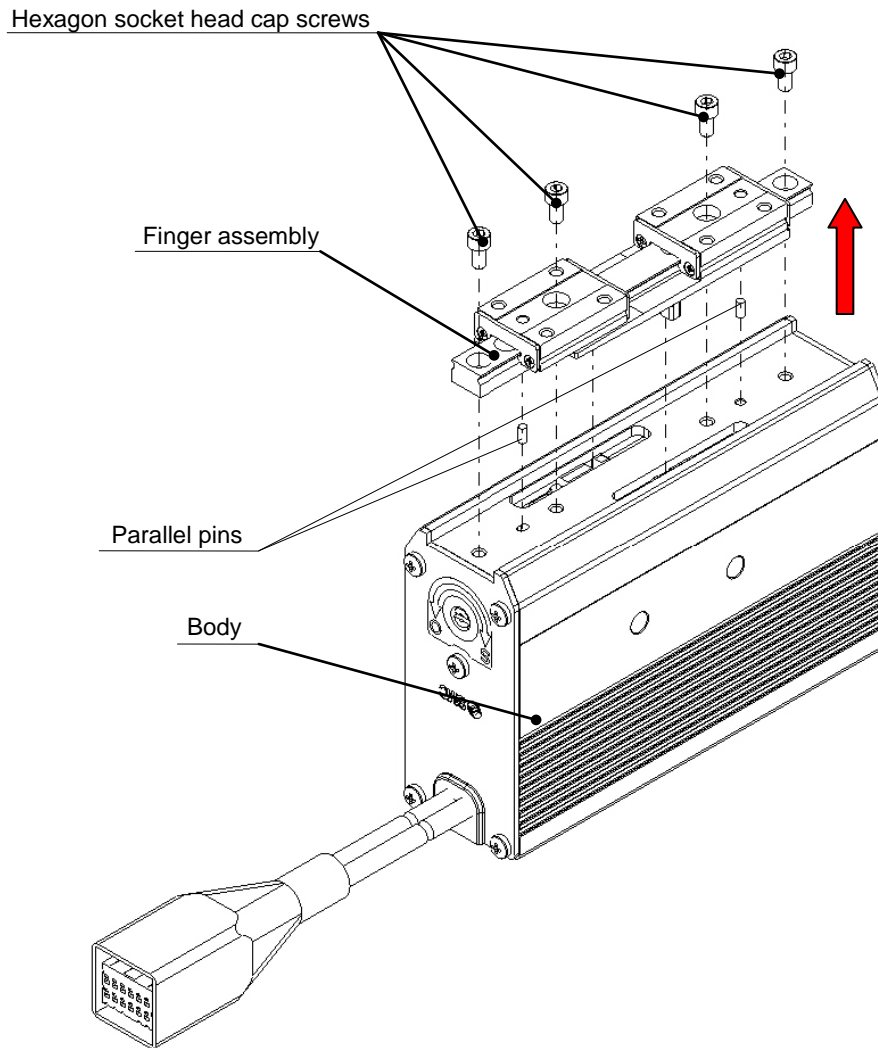


Table 6-1 Finger assembly screws

Size	Stroke	Screw type	Thread size	Qty.
10	Basic (16)	Hexagon socket head cap screw	M2.5 x 5	2
	Long (32)	Hexagon socket head cap screw	M2.5 x 5	4
20	Basic (24)	Hexagon socket head cap screw	M3 x 6	2
	Long (48)	Hexagon socket head cap screw	M3 x 6	4
32	Basic (32)	Hexagon socket head cap screw	M4 x 10	2
	Long (64)	Hexagon socket head cap screw	M4 x 10	4
40	Basic (40)	Hexagon socket head cap screw	M5 x 12	2
	Long (80)	Hexagon socket head cap screw	M5 x 12	4

## 6-2. Re-mounting of finger assembly (LEHF)

(1) Mount the parallel pins onto the finger assembly and mount it onto the body.

Please note the following points:

\*1: Be careful not to drop the parallel pins.

\*2: The datum level of the finger assembly should face the same direction as the front face of the body.

(2) Tighten the hexagon socket head cap screws to secure the body and finger assembly.

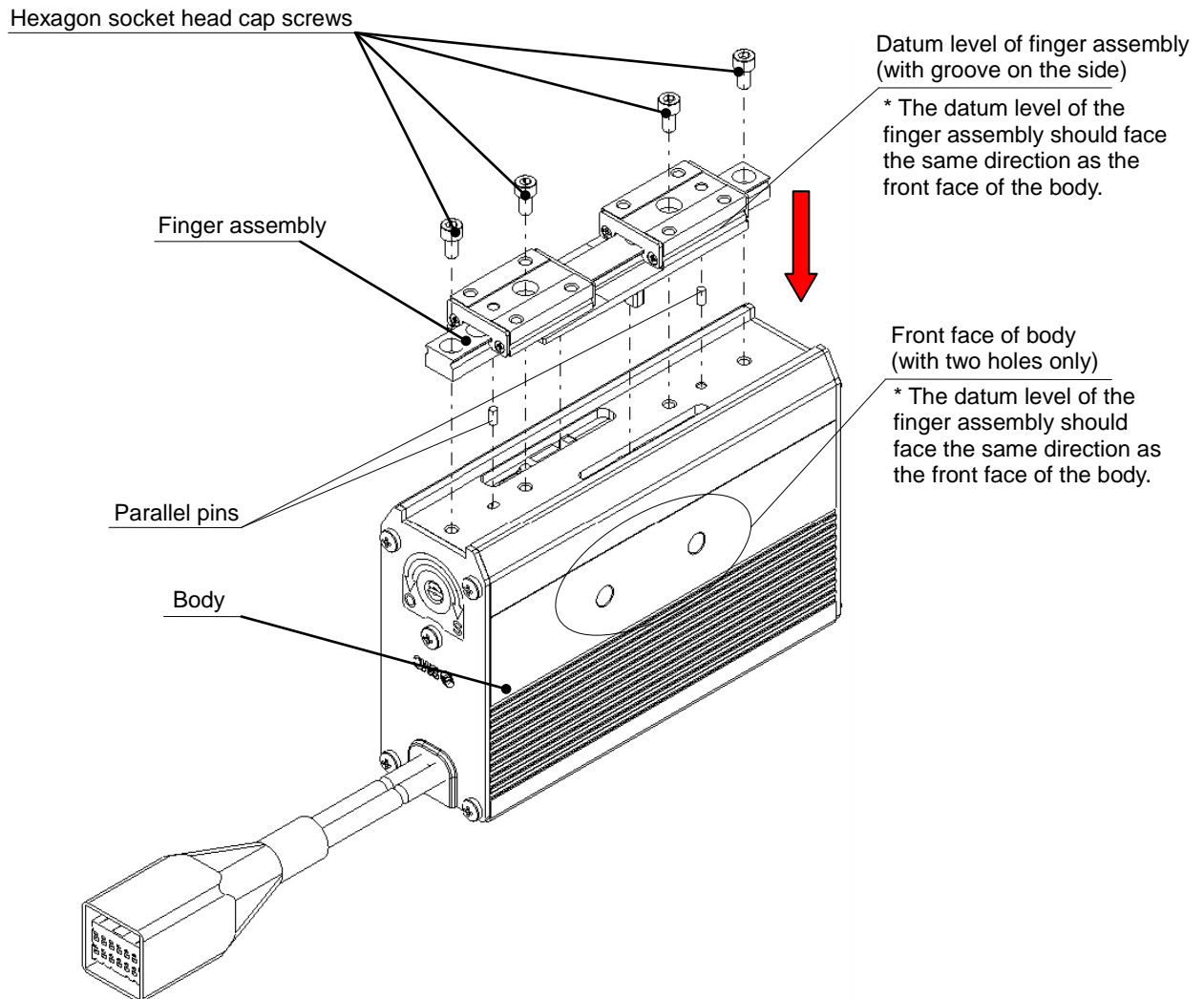


Table 6-2 Tightening torque for finger assembly screws

Size	Stroke	Screw type	Thread size	Recommended tightening torque [Nm]	Qty.
10	Basic (16)	Hexagon socket head cap screw	M2.5 x 5	0.45 +/-0.10	2
	Long (32)	Hexagon socket head cap screw	M2.5 x 5		4
20	Basic (24)	Hexagon socket head cap screw	M3 x 6	0.90 +/-0.10	2
	Long (48)	Hexagon socket head cap screw	M3 x 6		4
32	Basic (32)	Hexagon socket head cap screw	M4 x 10	2.70 +/-0.30	2
	Long (64)	Hexagon socket head cap screw	M4 x 10		4
40	Basic (40)	Hexagon socket head cap screw	M5 x 12	5.40 +/-1.00	2
	Long (80)	Hexagon socket head cap screw	M5 x 12		4

## 7. Grease application (LEHZ)

1. Refer to the drawing below for the assembly procedure

A

- (1) Open the fingers at both ends.
- (2) Wipe off any grease adhered to the steel ball rolling surface (surface with arrows) using a cloth.
- (3) Apply grease evenly to the part which pointed by arrow (rolling contact surface of steel ball) by “things like a thin spatula”.

\*For lubrication, use lithium grease No. 2.

\* The reference amount of the grease is shown in Table 7-1.

\*SMC provide a grease pack, Refer to table7-2 for the product number.

Table.7-1 Amount of grease

Model	Size	Applied section	Application quantity (reference) [cc]
LEHZ	10	Steel ball part of fingers (4 parts)	0.05
	16		0.05
	20		0.10
	25		0.10
	32		0.20
	40		0.30

Table.7-2 Grease package (Lithium grease No. 2)

Applied section	Product No.
Refer to the figure below	GR-S-010(10g)
	GR-S-020(20g)

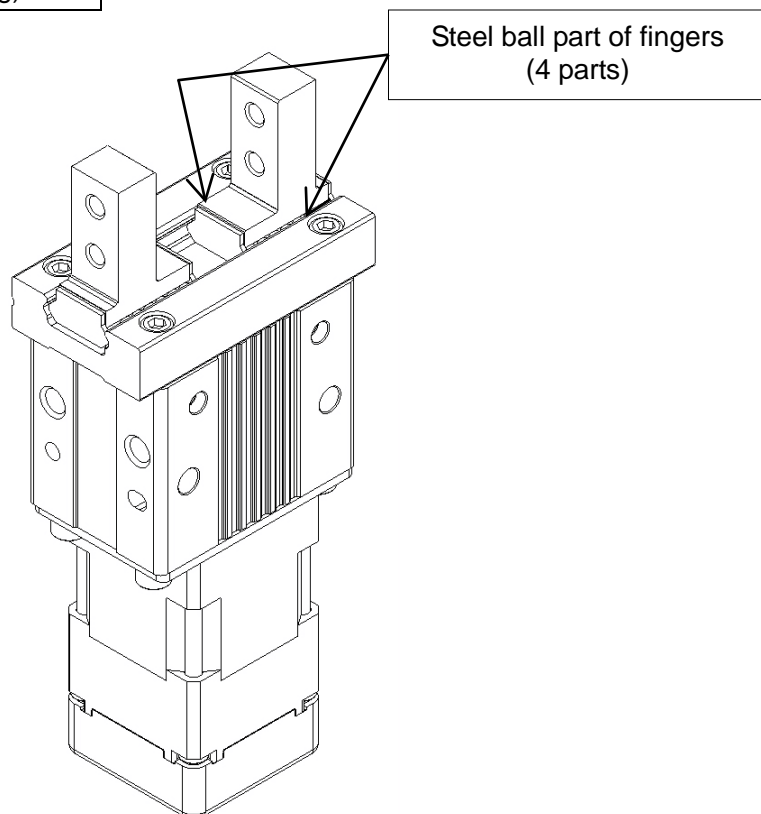


Fig.7-1 Grease applying method

## 8. Grease application (LEHF)

1. Refer to the drawing below for the assembly procedure

- (1) Open the guide blocks at both ends.
- (2) Wipe off any grease adhered to the steel ball rolling surface (surface with arrows) using a cloth.
- (3) Apply grease evenly to the part which pointed by arrow (rolling contact surface of steel ball) by "things like a thin spatula".

\*For lubrication, use lithium grease No. 2.

\* The reference amount of the grease is shown in Table 7-3.

\* SMC provide a grease pack, Refer to table7-4 for the product number.

Table.7-3 Amount of grease

Model	Size	Applied section	Application quantity (reference) [cc]
LEHF	10-16	Steel ball rolling contact groove of guide rail (2 parts)	0.05
	10-32		0.05
	20-24		0.05
	20-48		0.10
	32-32		0.10
	32-64		0.20
	40-40		0.20
	40-80		0.30

Table.7-4 Grease package (Lithium grease No. 2)

Applied section	Product No.
Refer to the figure below	GR-S-010(10g)
	GR-S-020(20g)

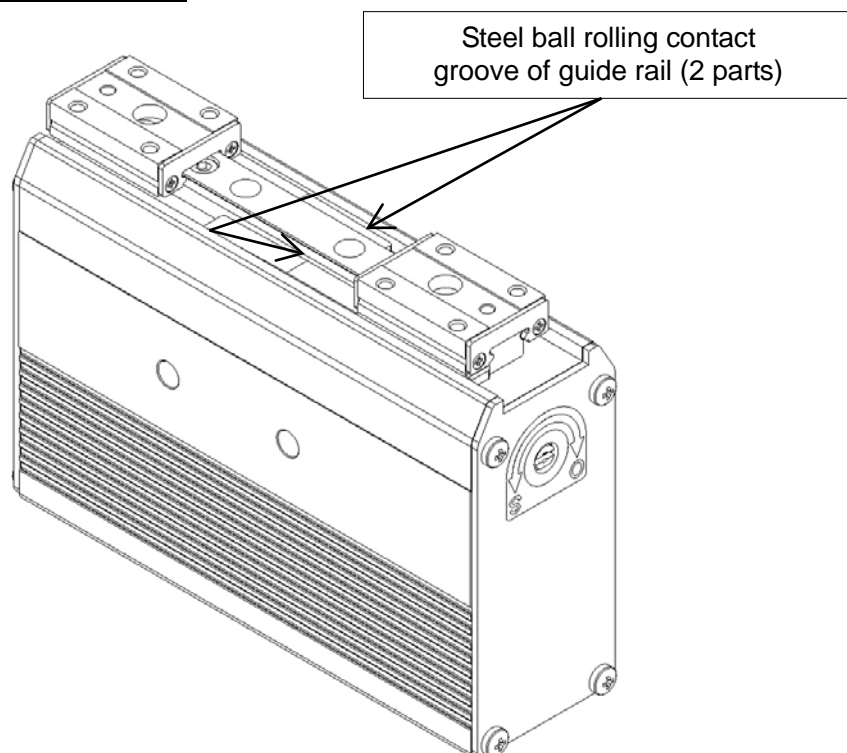


Fig.7-2 Grease applying method

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.  
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No.	Name	Order number	Applicable actuator model	Contents	Remark	
1	Motor Ass'y	LEH-MP10-D	LEHZ10*-*/ LEHZJ10*-*/ LEHS10*-*/ LEHS10*-*R	[LEH-MP*-D: Motor cable entry: Nil / Entry on the front side] [LEH-MP*-DF: Motor cable entry: Entry on the front side]  Motor Slide bolt Motor plate Guide ring Bolts	[Tightening torque] 0.32N・m	
		LEH-MP10-DF	LEHZ10*-*F / LEHZJ10*-*F / LEHS10*-*F			
		LEH-MP10L-D	LEHZ10L*-*/ LEHZJ10L*-*/ LEHS10L*-*/ LEHS10L*-*R			[Tightening torque] 1.14N・m
		LEH-MP10L-DF	LEHZ10L*-*F / LEHZJ10L*-*F / LEHS10L*-*F			
		LEH-MP16-D	LEHZ16*-*/ LEHZJ16*-*			
		LEH-MP16-DF	LEHZ16*-*F / LEHZJ16*-*F			
		LEH-MP16L-D	LEHZ16L*-*/ LEHZJ16L*-*			
		LEH-MP16L-DF	LEHZ16L*-*F / LEHZJ16L*-*F			
		LEH-MP20-D	LEHZ20*-*/ LEHZJ20*-*/ LEHS20*-*/ LEHS20*-*R		[Tightening torque] 2.70N・m	
		LEH-MP20-DF	LEHZ20*-*F / LEHZJ20*-*F / LEHS20*-*F			
		LEH-MP20L-D	LEHZ20L*-*/ LEHZJ20L*-*/ LEHS20L*-*/ LEHS20L*-*R			
		LEH-MP20L-DF	LEHZ20L*-*F / LEHZJ20L*-*F / LEHS20L*-*F			
		LEH-MP25-D	LEHZ25*-*/ LEHZJ25*-*			
		LEH-MP25-DF	LEHZ25*-*F / LEHZJ25*-*F			
		LEH-MP25L-D	LEHZ25L*-*/ LEHZJ25L*-*			
		LEH-MP25L-DF	LEHZ25L*-*F / LEHZJ25L*-*F			
		LEH-MP32-D	LEHZ32*-*/ LEHS32*-*/ LEHS32*-*R			
		LEH-MP32-DF	LEHZ32*-*F / LEHS32*-*F			
		LEH-MP40-D	LEHZ40*-*			
		LEH-MP40-DF	LEHZ40*-*F			
		LEH-MP40S-D	LEHS40*-*/ LEHS40*-*R			
		LEH-MP40S-DF	LEHS40*-*F			
2	Finger Ass'y	MHZ-AA1002	LEHZ10*	【Product number: In the case of MHZ*-AA*】 Finger Ass'y Bolts  【Product number: In the case of MHZ*-A*】 Finger Ass'y Parallel pin Bolts  【Product number: In the case of LEHF-A*】 Finger Ass'y Parallel pin Bolts	[Tightening torque] 0.32N・m	
		MHZ-AA1002-1			[Tightening torque] 0.65N・m	
		MHZ-AA1002-2				
		MHZ-A1002-3				
		MHZ-AA1602	LEHZ16*		[Tightening torque] 1.14N・m	
		MHZ-AA1602-1				
		MHZ-AA1602-2				
		MHZ-A1602-3				
		MHZ-AA2002	LEHZ20*		[Tightening torque] 2.70N・m	
		MHZ-AA2002-1				
		MHZ-AA2002-2				
		MHZ-A2002-3				
		MHZ-AA2502	LEHZ25*		[Tightening torque] 5.40N・m	
		MHZ-AA2502-1				
		MHZ-AA2502-2				
		MHZ-A2502-3				
		MHZ-A3202	LEHZ32*		[Tightening torque] 0.32N・m	
		MHZ-A3202-1				
		MHZ-A3202-2				
		MHZ-A3202-3				
		MHZ-A4002	LEHZ40*		[Tightening torque] 0.65N・m	
		MHZ-A4002-1				
		MHZ-A4002-2				
		MHZ-A4002-3				
		MHZJ-AA1002	LEHZJ10*		[Tightening torque] 0.32N・m	
		MHZJ-AA1602	LEHZJ16*		[Tightening torque] 0.65N・m	
		MHZJ-AA2002	LEHZJ20*		[Tightening torque] 1.14N・m	
		MHZJ-AA2502	LEHZJ25*		[Tightening torque] 2.70N・m	
		LEHF-A0802-1	LEHF10*2-16		[Tightening torque] 0.45N・m	
		LEHF-A0802-2	LEHF10*2-32		[Tightening torque] 0.90N・m	
		LEHF-A1202-1	LEHF20*2-24			
		LEHF-A1202-2	LEHF20*2-48		[Tightening torque] 2.70N・m	
LEHF-A1602-1	LEHF32*2-32					
LEHF-A1602-2	LEHF32*2-64	[Tightening torque] 5.40N・m				
LEHF-A2002-1	LEHF40*2-40					
LEHF-A2002-2	LEHF40*2-80					
3	Dust cover	MHZJ2-J10	LEHZJ10*	Dust cover (Material: CR)	-	
		MHZJ2-J10F		Dust cover (Material: FKM)	-	
		MHZJ2-J10S		Dust cover (Material: Si)	-	
		MHZJ2-J16	LEHZJ16*	Dust cover (Material: CR)	-	
		MHZJ2-J16F		Dust cover (Material: FKM)	-	
		MHZJ2-J16S		Dust cover (Material: Si)	-	
		MHZJ2-J20	LEHZJ20*	Dust cover (Material: CR)	-	
		MHZJ2-J20F		Dust cover (Material: FKM)	-	
		MHZJ2-J20S		Dust cover (Material: Si)	-	
		MHZJ2-J25	LEHZJ25*	Dust cover (Material: CR)	-	
		MHZJ2-J25F		Dust cover (Material: FKM)	-	
		MHZJ2-J25S		Dust cover (Material: Si)	-	
4	Encoder dust cover	LE-D-7-1	LEHZJ10* / LEHZJ16*	Encoder dust cover	-	
	LE-D-7-2	LEHZJ20* / LEHZJ25*				