

Parallel kit
EAMM-U-...-D/S...-...G/H

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1. Applicable documents

All available documents for the product → www.festo.com/pk

- Gear unit operating instructions
- Motor operating instructions
- Axis operating instructions

2. Safety instructions and notes on mounting

- Switch off power supply before mounting work.
- Observe the safety information (→ applicable documents).
- Clean shafts. The spring pins ¹⁾3/4 only grip efficiently on dry and grease-free drive shafts.
- Each time after disconnecting or turning the motor, perform a homing procedure.
- Observe tightening torques. Unless otherwise specified, the tolerance is ±20 %.

3. Intended use

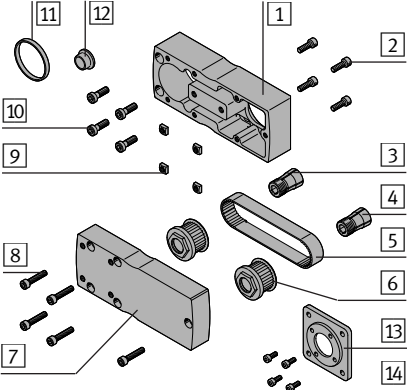
Parallel kit EAMM-U-...-D/S...-...G/H:
Connection of an axis to a motor in a parallel configuration (→ section 14).

4. Further information

Accessories → www.festo.com/catalogue

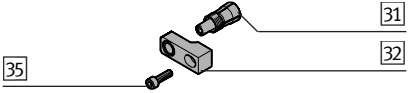
5. Scope of delivery

5a. Parallel kit EAMM-U-...-D/S...-...G/H



- | | | |
|----|-------------------------------|------|
| 1 | Lower part | (1x) |
| 2 | Screw | (4x) |
| 3 | Axis spring pin ¹⁾ | (1x) |
| 4 | Motor clamping sleeve | (1x) |
| 5 | Toothed belt | (1x) |
| 6 | Toothed belt pulley | (2x) |
| 7 | Upper part | (1x) |
| 8 | Screw | (5x) |
| 9 | Square nut | (4x) |
| 10 | Screw | (4x) |
| 11 | Centring ring ²⁾ | (1x) |
| 12 | Blanking plug ³⁾ | (1x) |
| 13 | Adapter plate | (1x) |
| 14 | Screw | (4x) |

5b. Counter bearing EAMG-U1-...⁶⁾



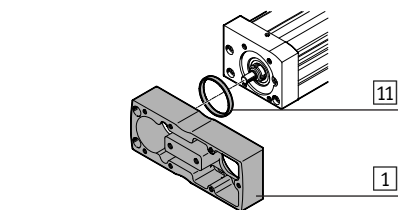
- | | | |
|----|----------------------|------|
| 31 | Axis clamping sleeve | (1x) |
| 32 | Axis counter bearing | (1x) |
| 35 | Screw ⁴⁾ | (1x) |

5c. Accessories (not included in delivery)

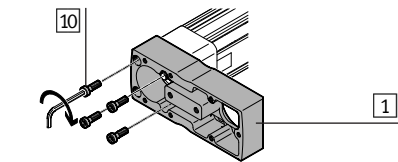


- | | | |
|----|--|------|
| 41 | Lubricating grease LUB-KC1 (silicon-free) | (1x) |
| 42 | Clamping element ⁵⁾ EADT-E-U1-110 | (1x) |

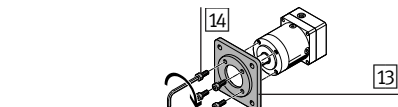
6. Mounting the lower part



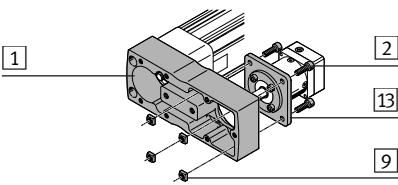
- Press the centring ring ¹⁾11²⁾ into the drill hole in the lower part ¹⁾1.



- Fasten the lower part ¹⁾1 to the axis by using the screws ⁷⁾10.



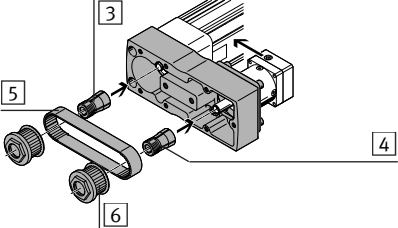
- Fasten the adapter plate ¹⁾13 to the gear unit with the screws ¹⁾14.



- Secure the adapter plate ¹⁾13 to the lower part ¹⁾1 using the screws ²⁾2 and the square nuts ²⁾9.

Check: The gear unit can be moved in the elongated holes.

7. Mounting the toothed belt

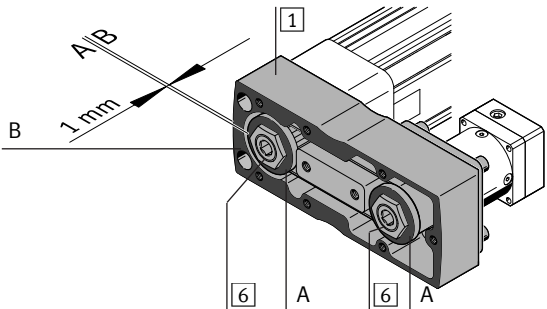
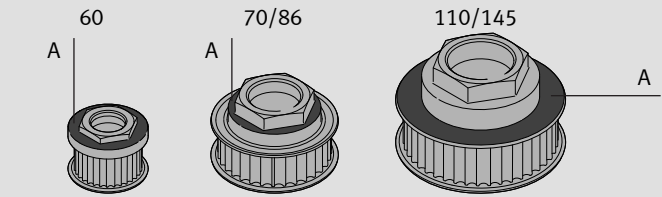


- Move the gear unit in the direction of the axis to the stop.
 - Grease the spring pins ¹⁾3/4 on the thread and outside of the cone with lubricating grease ⁴⁾41.
- Greased spring pins ¹⁾3/4 can be tightened evenly.

- Screw the spring pins ¹⁾3/4 into the threads of the toothed belt pulleys ⁶⁾6. Do not tighten.
- Insert the toothed belt pulleys ⁶⁾6 into the toothed belt ⁵⁾5.
- Place the spring pins ¹⁾3/4 onto the drive shafts.

Information

The position of the surface (A) depends on the size.

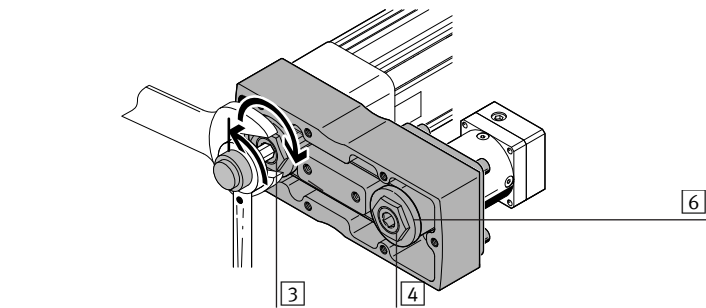


- Position surfaces (A) approx. 1 mm above the reference surface (B).
Background: The tooth belt pulley ⁶⁾6 moves inwards when tightening.

¹⁾ In the case of EAMM-U-...-S..., spring pin ³⁾31 replaces spring pin ³⁾3. The counter bearing ³⁾32 is mounted on the axis side (→ section 8).

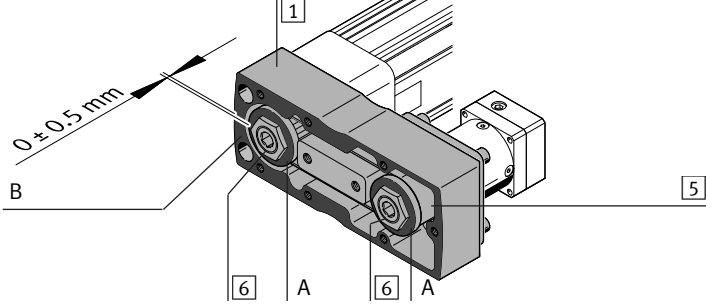
²⁾ For EAMM-U-...-D..., the centring ring ¹⁾11 is not needed.

³⁾ For EAMM-U-110/-145, the blanking plug ¹⁾12 is part of the scope of delivery.



- Select the required tightening torque for the toothed belt pulleys ⁶⁾6 (→ section 10).
- Tighten the toothed belt pulleys ⁶⁾6. Apply counter pressure to the spring pins ³⁾3/4.

Check: The surfaces (A) of the toothed belt pulleys ⁶⁾6 are flush with the reference surface (B) (tolerance: ± 0.5 mm).



→ Note

- Comply with the tolerance.
- If the toothed belt ⁵⁾5 or one of the toothed belt pulleys ⁶⁾6 is grinding against the housing:
- Unscrew the spring pins ³⁾3/4 slightly.
 - Readjust the toothed belt pulleys ⁶⁾6.

8. Installing the counter bearings

→ Note

When counter bearings are installed they enhance the service life of the axes and motors.

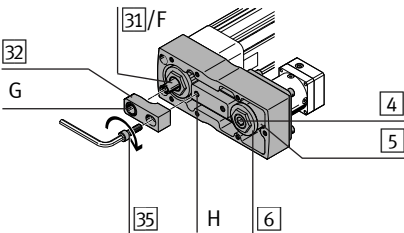
- Always mount the counter bearing ³⁾32 included in the scope of delivery.

In case of high loads, an optional mounting of the counter bearing is recommended (→ www.festo.com/catalogue: EAMG-U1).

→ Note

Malfunctions and material damage may occur if the trunnion (F) is bent.

- When tightening the toothed belt pulley ⁶⁾6, avoid a transverse load of the trunnion (F) on the spring pin ³⁾31.



- Mounting the components (→ section 5):
 - Toothed belt ⁵⁾5
 - Toothed belt pulleys ⁶⁾6
- Spring pins ⁴⁾4/31.
- Push the needle bush (G) in the counter bearing ³⁾32 onto the trunnion (F) in a tension-free manner.
- Mount the counter bearing ³⁾32 to the thread (H) with the screw ⁵⁾35⁴⁾.
- Tension the toothed belt ⁵⁾5 (→ section 9).

9. Tensioning the toothed belt

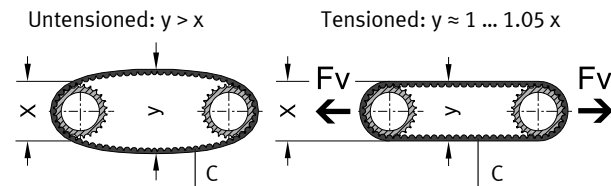
→ Note

A low toothed belt pretension is recommended.
Excessive toothed belt pretension can cause:

- impermissible radial loads/breaking of the shafts
- increased wear of the toothed belt ⁵⁾5 and the bearings of the axis and gear unit.

- Avoid excessive toothed belt pretension.

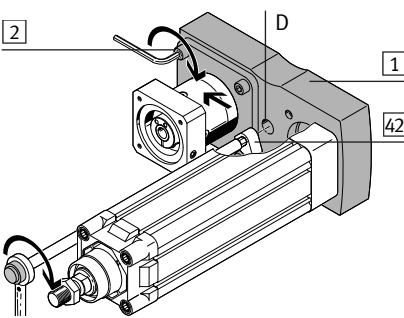
The toothed belt ⁵⁾5 is tensioned when the strands (C) run approximately parallel.



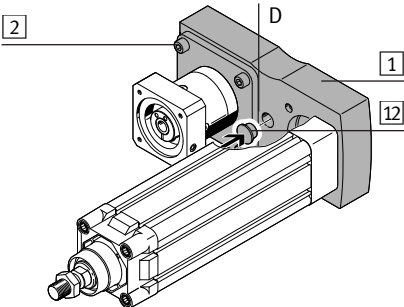
9a. For EAMM-U-60/-70/-86

- Move the gear unit by hand until the clamping force Fv is exerted on the toothed belt ⁵⁾5 (→ table).
- Tighten screws ²⁾2.

9b. For EAMM-U-110/-145



- Place the clamping element ⁴⁾42 into the drill hole (D) in the lower part ¹⁾1.
- Tighten the clamping element ⁴⁾42 with a hex wrench (↺ 8). Observe the recommended torque (→ table).
- Tighten screws ²⁾2.



- Press the blanking plug ¹⁾12 into the drill hole (D).

EAMM-U-	Recommended torque			Clamping force Fv
	[Nm]			⁵⁾ 5 [N]
⁴⁾ 42				
60	–	–	–	40 ... 70
70	–	–	–	60 ... 110
86	–	–	–	70 ... 130
110	0.2 ... 0.6	0.4 ... 0.8	0.6 ... 1.0	120 ... 300
145	1.0 ... 1.5	1.5 ... 2.0	2.0 ... 2.5	200 ... 450

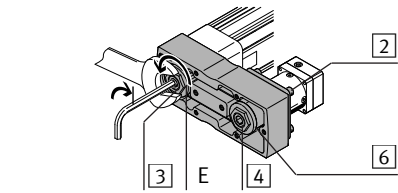
Continuation on the reverse side!

10. Dismantling the toothed belt

- Unscrew the screws [2] slightly.

Check: The gear unit can be moved in the elongated holes.

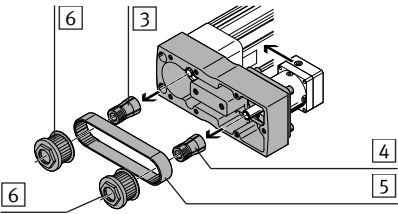
- Move the gear unit in the direction of the axis to the stop.
- Disassemble the counter bearing.



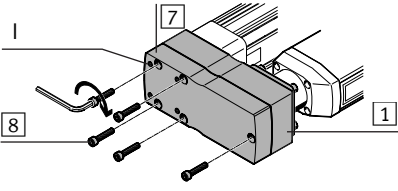
- Unscrew the toothed belt pulleys [6]. Apply counter pressure to the spring pins [3]¹⁾/[4].
- Rotate hex nut (E) anti-clockwise.

Check: The toothed belt pulleys [6] can be pulled from the cone of the spring pins [3]¹⁾/[4].

- Pull the spring pins [3]¹⁾/[4] from the drive shaft.
- Remove the toothed belt [5] from the toothed belt pulleys [6].



11. Mounting the upper part



- Attach the upper part [7] to the lower part [1] with the screws [8] before commissioning.

i Information

Accessories for mounting to the threads (I):
(➔ www.festo.com/catalogue: EAMM-U-...-D....G/H).

12. Tightening torques for the toothed belt pulleys

The transmittable torque depends on the tightening torque of the toothed belt pulleys [6].

- Select the tightening torque of the toothed belt pulley [6] from the permissible range (➔ table).

Check: The transmittable torque is greater than the output torque of the motor-gear unit assembly (➔ technical data of the motor).

EAMM-U-	Toothed belt pulley		Parallel kit	
	Tightening torque		Transferable torque	
	6	[Nm]		[Nm]
60	max.	15	3	
	min.	10	1.5	
70	max.	35	7	
	min.	22	3.5	
86	max.	40	9.5	
	min.	25	4.8	
110	max.	80	25	
	min.	65	12.5	
145	max.	180	50	
	min.	120	25	

EAMM-U	Toothed belt pulley		Clamping sleeve	
	[6]		[3]/[4]	
				[31]
60	≈ 22		≈ 8	
70/86	≈ 30		≈ 8	
110/145	≈ 36		≈ 10	

13. Screw sizes and tightening torques M_A

EAMM-U	[2]	[Nm]	[8]	[Nm]	[10] ⁷⁾	[Nm]	[14]	[Nm]	[35]	[Nm]
60-D32-40G	M5x16	6	M5x25	6	M6x18	6/5 ⁸⁾	M4x10	3	M6x20	10
60-D40-40G										
60-S38-40G					M5x12	6				
60-S48-40G										
70-D32-60G	M4x16	3	M5x35	6	M6x18	6/5 ⁸⁾	M5x10	6	M8x30	18
70-D32-60H										
70-D40-60G										
70-D40-60H										
70-S48-60G					M5x14	6				
70-S48-60H										
86-D40-60G	M5x16	6	M6x40	10	M6x18	6/5 ⁸⁾	M5x12	6	M8x30	18
86-D40-60H										
86-D50-60G	M5x18	6			M8x20	12	M5x10	6		
86-D50-60H										
86-D60-60G					M8x20	12/9 ⁹⁾	M5x12	6		
86-D60-60H										
86-S48-60G	M5x16	6			M5x12	6				
86-S48-60H										
86-S62-60G					M6x12	10				
86-S62-60H										
110-D50-60G	M6x20	10	M8x50	18	M8x20	12	M5x10	6	M8x40	18
110-D50-60H										
110-D50-80G	M8x25	18					M6x12	10		
110-D60-60G	M6x20	10			M8x20	12/9 ⁹⁾	M5x12	6		
110-D60-60H										
110-D60-80G	M8x25	18					M6x12	10		
110-D80-80G					M10x20	25				
110-S95-80G					M8x16	18				
145-D100-120G	M10x55	30			M8x50	18	M10x20	25		

14. Permissible axes and motors

➔ Note

Malfunction and material damage due to overloading.

The output variables of the motor must not exceed the permissible technical data of the components used (➔ www.festo.com/catalogue: Gear unit, axis).

- Limit motor output variables accordingly.

- Derive the shaft and gear unit from the interface codes in the type code.

Example: EAMM-U-60-**D40-40G**

- Axis interface **D40**
- Gear unit interface **40G**

Axis Interface	Axis ¹⁰⁾
D32	DNCE-32, EGSL-45, ESBF-32
D40	DNCE-40, EGSL-55, ESBF-40
D50	ESBF-50
D60	DNCE-63, EGSL-75, ESBF-63
D80	ESBF-80
D100	ESBF-100
S38	EGC-70-BS, EGC-HD-125-BS
S48	EGC-80-BS, EGC-HD-160-BS
S62	EGC-120-BS, EGC-HD-220-BS
S95	EGC-185-BS

Gear unit Interface	Gear units
40G	EMGA-40, EMGC-40
60G	EMGA-60-...-SAS, EMGA-60-...-SST
60H	EMGA-60-...-EAS, EMGC-60
80G	EMGA-80
120G	EMGA-120

15. Operation

⚠ Warning

For EAMM-U-145-D100 with mounting accessories on the threads (I):

Screw [10] breakouts in the housing. Unexpected movement of components. Injury due to impacts or pinching.

- Limit the feed forces of the axis:
 - maximum 13 kN in the event of a dynamic tensile load
 - maximum 11 kN in the event of an alternating tensile/pressure load.

⚠ Warning

Belt failure. Unexpected movement of components.

Injury due to impacts or pinching.

- Make sure there are supplementary safety measures if a belt failure could result in injuries.

⚠ Caution

Hot surface. The motor attachment set becomes hot due to the heat dissipation of the motor. Injury due to burns.

- Avoid contact without suitable gloves.
- Let the motor attachment set before mounting work.

16. Maintenance

The toothed belt [5] is a wearing part (➔ www.festo.com/spareparts).

- Check the toothed belt [5] at regular intervals:
 - during maintenance of the machine
 - when replacing an axis.

- Replace the toothed belt [5] at the following signs of wear:

- excessive accumulation of wear particles in the housing
- cracks on the back of the toothed belt
- visible glass fibre cords in the tooth base.

⚠ Danger

In the case of EAMM-U-145-D100 with mounting accessories on the threads (I) and in case of the use of axis ESBF in the high-load range (>50 % of the maximum ESBF feed force):

Screw [10] breakouts in the housing. Unexpected movement of components.

Injury due to impacts, shocks, or pinching.

- Replace the axis and parallel kit at the same time.
 - The service life of the components is comparable with one another.

⁷⁾ When the tightening torques are exceeded in the case of EAMM-U-...-D..., the cover screws of the axis detach during disassembly.

⁸⁾ In case of axis ESBF: 6 Nm
In case of axis DNCE, EGSL: 5 Nm

⁹⁾ In case of axis ESBF: 12 Nm
In case of axis DNCE, EGSL: 9 Nm

¹⁰⁾ Electric cylinder DNCE, toothed belt axis EGC, mini slide EGSL, electric cylinder ESBF