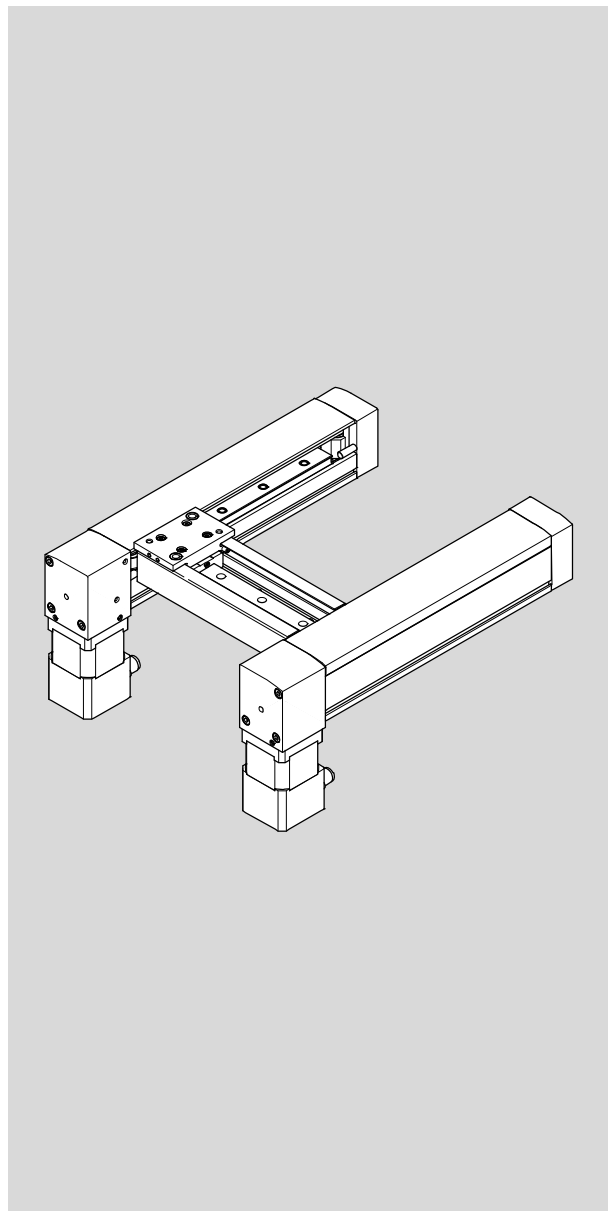


Planar surface gantry

EXCM-30



FESTO

Description

Mechanical
installation

8044417
1503a
[8044419]

Translation of the original instructions
GDCP-EXCM-30-EN

Identification of hazards and instructions on how to prevent them:



Warning

Hazards that can cause death or serious injuries.



Caution

Hazards that can cause minor injuries or serious material damage.

Other symbols:



Note

Material damage or loss of function.



Recommendations, tips, references to other documentation.



Essential or useful accessories.



Information on environmentally sound usage.

Text designations:

- Activities that may be carried out in any order.
- 1. Activities that should be carried out in the order stated.
- General lists.

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1 Safety and requirements for product use

1.1 Safety

1.1.1 General safety instructions

- Observe the general safety instructions in the corresponding chapters.



Specific safety regulations can be found immediately before the task instructions.

1.1.2 Intended use

The planar surface gantry EXCM-30 is designed for executing positioning tasks within machines or automated systems with a higher-order controller and is to be used as follows:

- in excellent technical condition
- in original status without unauthorised modifications, except for the adaptations described in this documentation
- within the limits of the product defined through the technical data
(→ Technical appendix A)



Note

Each restart results in a loss of the reference position. Homing is therefore required at each restart.



Note

In the event of damage caused by unauthorised manipulation or other than intended use, the guarantee is invalidated and the manufacturer is not liable for damages.

1.2 Requirements for product use

- Make this documentation available to the design engineer, installer and personnel responsible for commissioning the machine or system in which this product is used.
- Make sure that the specifications of the documentation are always complied with. Also read and follow all accompanying documentation and the documentation for any associated accessories.
- Take into consideration the legal regulations applicable for the destination, as well as:
 - regulations and standards
 - regulations of testing organisations and insurers
 - national specifications

1.2.1 Technical requirements

- All warnings and instructions in this documentation for the correct and safe use of the product must be observed at all times.
- Comply with the connection and ambient conditions of the product and all connected components specified in the technical data (➔ A.1 Technical data).
Only compliance with the limit values or load limits permits operation of the product in accordance with the relevant safety regulations.

1.2.2 Qualification of trained personnel

The product should only be installed by properly trained personnel in accordance with this documentation. The trained personnel must be familiar with:

- the applicable regulations for accident protection and industrial safety
- the documentation for the product

1.2.3 Range of application and certifications

Standards and test values which the product complies with and fulfils can be found in the technical data (➔ A.1 Technical data).

2 Transport and storage

2.1 Storage conditions

For safe later use, the following storage conditions must be complied with.

Storage conditions		
Storage temperature	[°C]	–10 ... +60
Air humidity	[%]	0 ... 90 (non-condensing)
Maximum shelf life		60 months
Requirements of storage location		dry, in the original packaging

Tab. 2.1

2.2 Checking the scope of delivery

The scope of delivery of the planar surface gantry EXCM-30 is dependent on the order.

1. After unpacking, check whether the product corresponds to the version you ordered.
2. Check delivery for completeness.

Designation		Number for EXCM-30-...-W-...	Number for EXCM-30-...-ST-... EXCM-30-...-SB-...
Planar surface gantry EXCM-30 with description		1	1
Profile mounting MUE-50	Stroke of the X-axis ≤ 499 mm	4 units (2 pair)	4 units (2 pair)
	Stroke of the X-axis ≥ 500 mm	6 units (3 pair)	6 units (3 pair)
Motor mounting kit (countersunk screws, sleeves and threaded pins)		2 (accompanying)	2 (mounted)
Assembly instructions for motor attachment kit		1	–
Motor cables with assembly instructions		–	2
Encoder cables with assembly instructions		–	2
Controller + CD with descriptions and software		–	1
Terminal strip power supply, 3-pin (inserted in controller)		–	1
Terminal strip emergency stop, 8-pin (inserted in controller)		–	1

Tab. 2.2

3 Overview

3.1 Characteristics

Planar surface gantry characteristics	Code	Specification	
Stroke of the X-axis	– 100	100 mm	Maximum stroke in direction of X-axis
	– 150	150 mm	
	– 200	200 mm	
	– 300	300 mm	
	– 400	400 mm	
	– 500	500 mm	
	– 90 ... 700	90 ... 700 mm	
Stroke of the Y-axis	– 110	110 mm	Maximum stroke in direction of Y-axis
	– 160	160 mm	
	– 210	210 mm	
	– 260	260 mm	
	– 310	310 mm	
	– 360	360 mm	
Guide	– KF	Recirculating ball bearing guide	
Motor type	– W	Without stepper motors	
	– ST	Stepper motors with encoder function	
	– SB	Stepper motors with encoder function and brake	
Motor attachment position	– B	Underneath ¹⁾	
	– B1	Underneath, cable outlets	To the front ²⁾
	– B2		At the rear ²⁾
	– B3		Inside ²⁾
	– B4		Outside ²⁾
	– T	On top ¹⁾	
	– T1	On top, cable outlets	To the front ²⁾
	– T2		At the rear ²⁾
	– T3		Inside ²⁾
	– T4		Outside ²⁾
Controller	–	Without controller ¹⁾	
	– E...	With controller, motor and encoder cables	

1) Only in combination with motor type "–W–" (without motors)

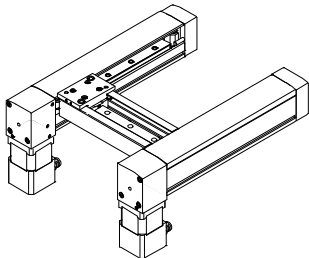
2) ➔ 3.1.1 Attachment position of motors

Tab. 3.1

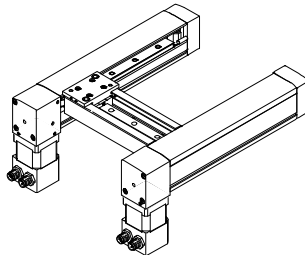
3.1.1 Attachment position of motors

Motors underneath:

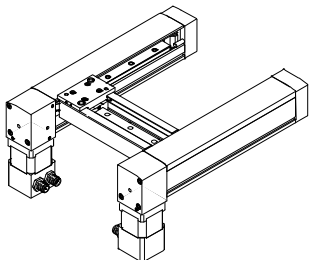
EXCM-30-...-B1 – Cable outlet at front



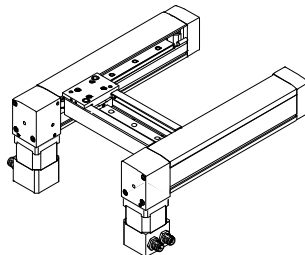
EXCM-30-...-B2 – Cable outlet at rear



EXCM-30-...-B3 – Cable outlet inside

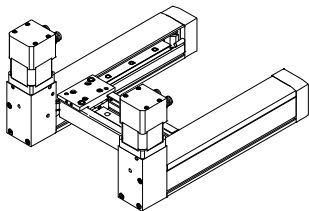


EXCM-30-...-B4 – Cable outlet outside

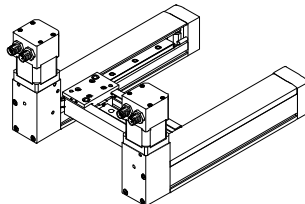


Motors on top:

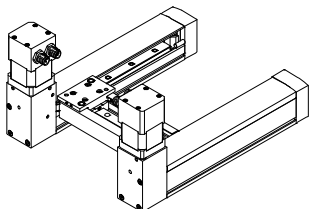
EXCM-30-...-T1 – Cable outlet at front



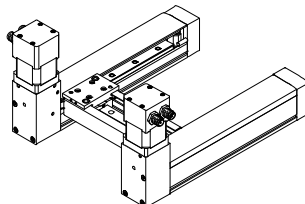
EXCM-30-...-T2 – Cable outlet at rear



EXCM-30-...-T3 – Cable outlet inside



EXCM-30-...-T4 – Cable outlet outside



3.2 Function and application

The planar surface gantry contains two servo motors which drive a H-shaped rotating toothed belt. The toothed belt moves a slide with recirculating ball bearing guides. The position of the slide is calculated by the controller from the encoder signals of the motors.

The motors are not directly assigned an axis (X- or Y-axis) of the planar surface gantry. Instead, the movement of the slide towards an axis is achieved through the interaction of the two motors, which is controlled by the controller (➔ Fig. 3.1).

The planar surface gantry is designed for executing positioning tasks within machines or automated systems with a higher-order controller.

3.3 Functional principle

The EXCM-30 planar surface gantry moves a slide in a 2-dimensional space by means of a shared toothed belt.

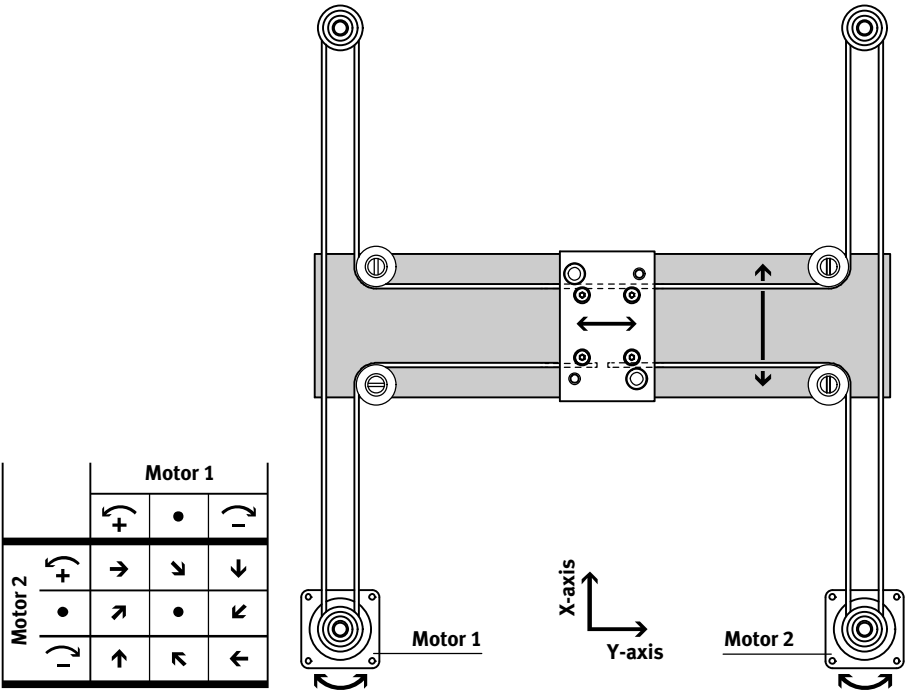
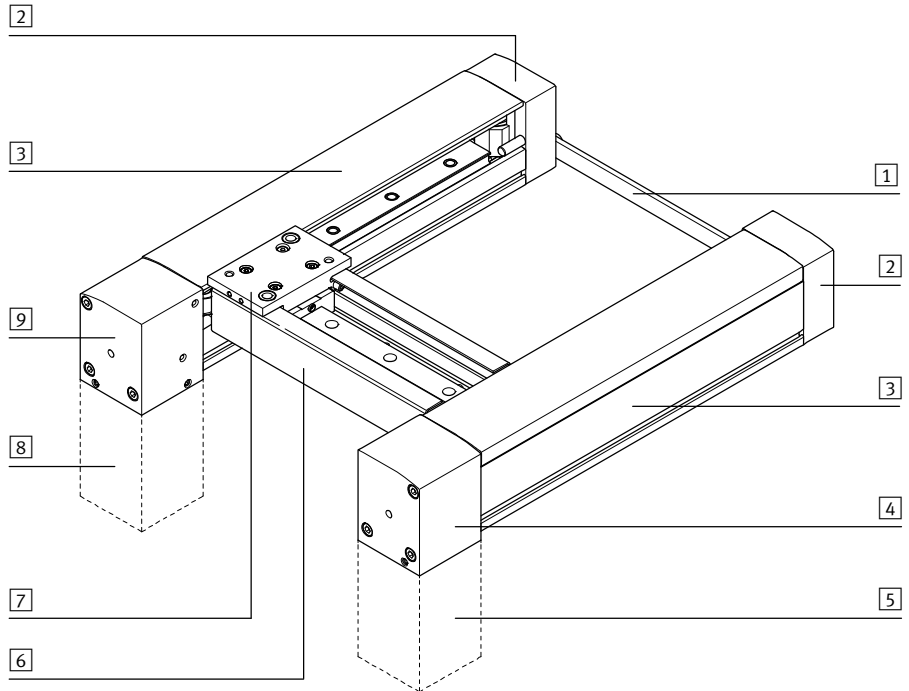


Fig. 3.1

3.4 Design

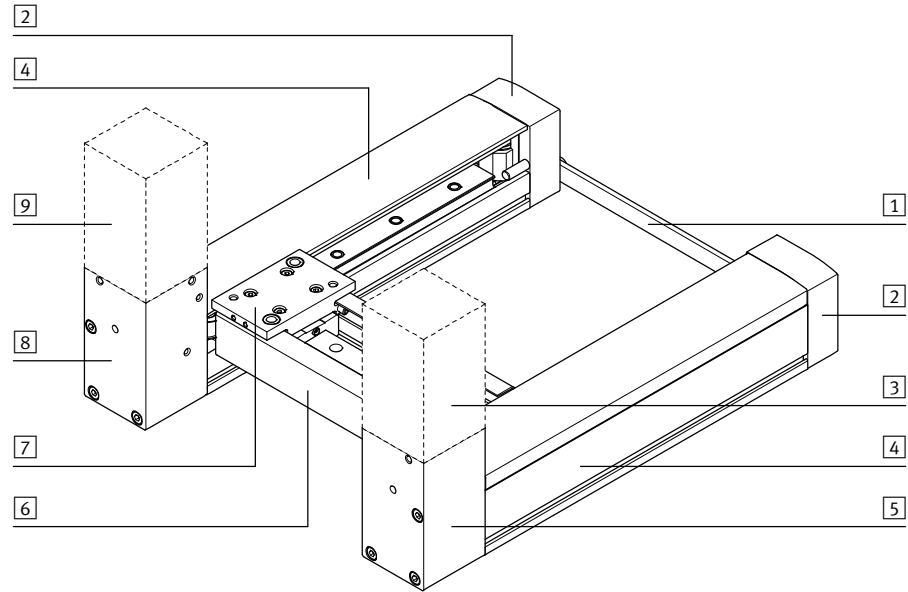
3.4.1 Attachment position of motors EXCM-30-...-B...



- | | | | |
|---|----------------------------------|---|----------------------------------|
| 1 | Transport protection | 6 | Traverse of the Y-axis |
| 2 | End cap | 7 | Slide |
| 3 | Profile of the X-axis | 8 | Motor 1 (optional, → 3.5 Motors) |
| 4 | Drive cover of motor 2 | 9 | Drive cover of motor 1 |
| 5 | Motor 2 (optional, → 3.5 Motors) | | |

Fig. 3.2

3.4.2 Attachment position of motors EXCM-30-...-T...



- | | |
|---|---|
| 1 Transport protection | 6 Traverse of the Y-axis |
| 2 End cap | 7 Slide |
| 3 Motor 2 (optional, ➔ 3.5 Motors) | 8 Drive cover of motor 1 |
| 4 Profile of the X-axis | 9 Motor 1 (optional, ➔ 3.5 Motors) |
| 5 Drive cover of motor 2 | |

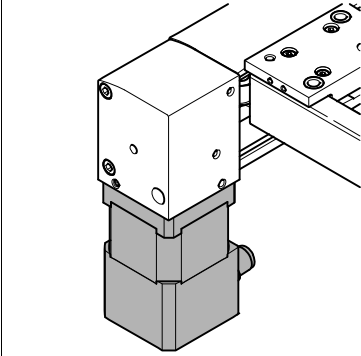
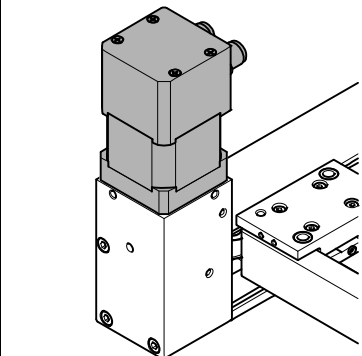
Fig. 3.3

3.5 Motors

The planar surface gantry EXCM-30 can be equipped with various motor configurations, dependent on the design ordered.

3.5.1 Mounting variants

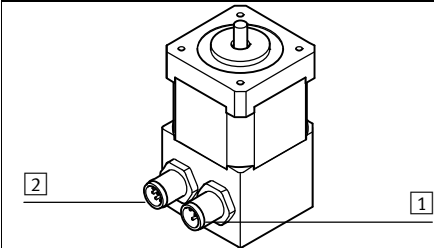
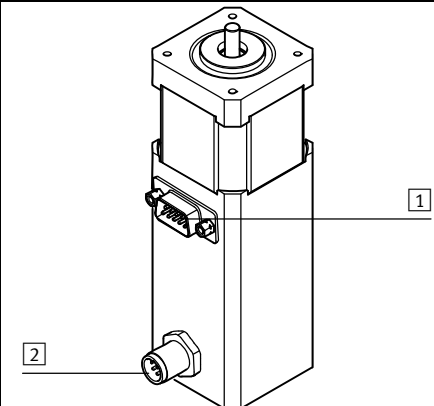
The motors can be mounted in different attachment positions and with different alignment of the cable outlets on the planar surface gantry (→ 3.1.1 Attachment position of motors).

Motor attachment position underneath (EXCM-30-...-B...) ¹⁾	Motor attachment position on top (EXCM-30-...-T...) ¹⁾
	

1) Represented is the option without motor brake with cable outlets to the front (EXCM-30-...-B1-ST-... or EXCM-30-...-T1-ST-...)

Tab. 3.2

3.5.2 Motor variants

Stepper motor without brake (EXCM-30-...-ST-...)	Stepper motor with brake (EXCM-30-...-SB-...)
	
<div>1 Motor connection</div> <div>2 Encoder connection</div>	<div>1 Motor connection</div> <div>2 Encoder connection</div>

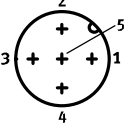
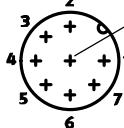
Tab. 3.3

3.6 Interfaces

3.6.1 Motor interfaces

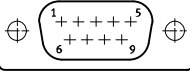
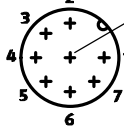
The design of the motor interfaces is dependent on the motor type (with or without brake).

EXCM-30-...-ST-... (without brake)

Motor connection			Encoder connection		
M12 plug (5-pin)	Pin	Function	M12 plug (8-pin)	Pin	Function
	1	String A/		1	Signal trace A
	2	String A		2	Signal trace A/
	3	String B		3	Signal trace B
	4	String B/		4	Signal trace B/
	5	GND (0 V)		5	GND (0 V)
				6	Signal trace N
				7	Signal trace N/
				8	Vcc (5 V)

Tab. 3.4

EXCM-30-...-SB-... (with brake)

Motor connection			Encoder connection		
Sub-D plug (9-pin)	Pin	Function	M12 plug (8-pin)	Pin	Signal
	1	String A		1	Signal trace A
	2	String A/		2	Signal trace A/
	3	String B		3	Signal trace B
	4	String B/		4	Signal trace B/
	5	–		5	GND (0 V)
	6	–		6	Signal trace N
	7	Brake (24 V)		7	Signal trace N/
	8	Brake (0 V)		8	Vcc (5 V)
	9	–			

Tab. 3.5

3.6.2 Controller interfaces



The interfaces of the controller are described in the EXCM “Commissioning” description.

4 Mounting and installation

4.1 Preparations for mounting

4.1.1 Mounting position



Warning

The use of the planar surface gantry without a motor brake in a mounting position other than horizontal can result in uncontrolled movements of the attached load. Freely movable loads can result in injury to people and damage to the peripherals of the planar surface gantry.

- Use a planar surface gantry without motor brake (EXCM-30-...-ST-...) exclusively in a horizontal mounting position.

Design	Mounting position
EXCM-30-...-ST-... (without motor brake)	Exclusively horizontal
EXCM-30-...-SB-... (with motor brake)	Any

Tab. 4.1

4.1.2 Requirements of the mounting surface

The following conditions must be met, otherwise the range of functions may be restricted:

General requirements

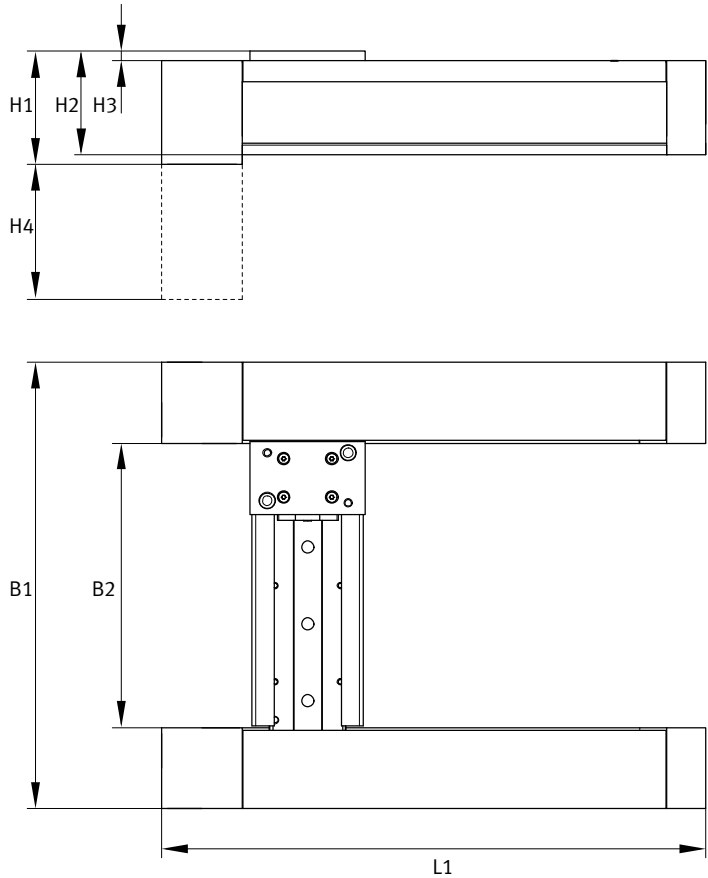
- sufficient space for movement of the planar surface gantry
- planar surface gantry mounted in a torsionally rigid and tension-free manner
- flat bearing surface (flatness $\leq 0.1 \text{ mm/m}^2$)
- full-surface support of the two profiles of the planar surface gantry
- sufficient attachment to absorb the maximum forces (→ 4.1.5 Number of profile mountings)

Additional requirements for motors flanged at the bottom (EXCM-30-...-B...)

- cut-outs in the mounting surface for the motors (dimensions → www.festo.com/catalogue)

4.1.3 Dimensions EXCM-30-...-B...

The dimensions are dependent on the stroke of the X- and Y-axis of the planar surface gantry as well as the attachment position and type of motors.



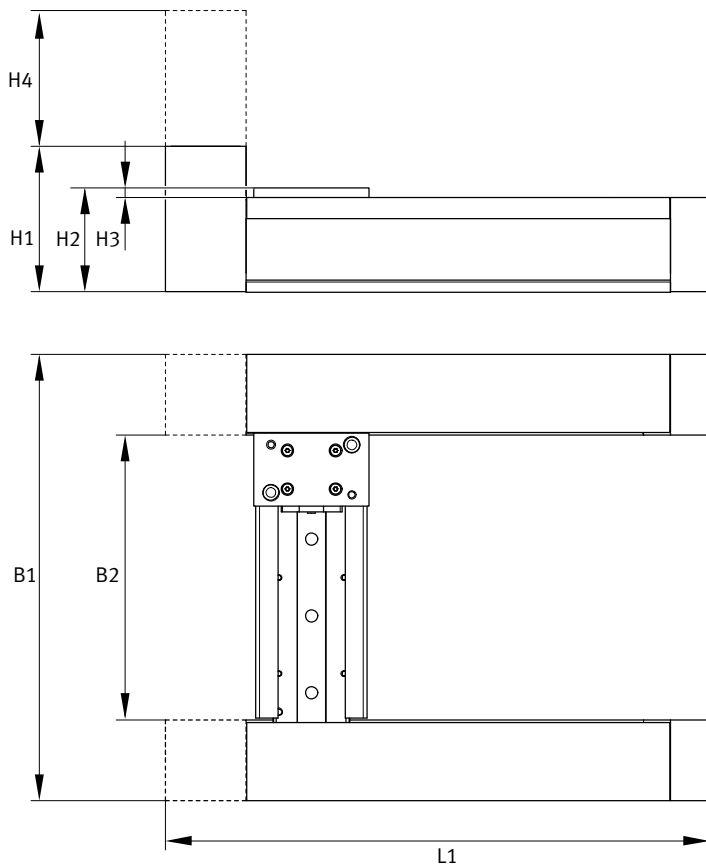
Dimensions [mm]							
Size	L1	B1	B2	H1	H2	H3	H4
EXCM-30-...-ST-B...	Stroke	Stroke	Stroke	58.8	54	5	70.4 ±0.5
EXCM-30-...-SB-B...	X-axis ¹⁾ + 133	Y-axis ¹⁾ + 122	Y-axis ¹⁾ + 38				127.4 ±1.3

1) (→ 3.1 Characteristics)

Tab. 4.2

4.1.4 Dimensions EXCM-30-...-T...

The dimensions are dependent on the stroke of the X- and Y-axis of the planar surface gantry as well as the attachment position and type of motors.



Dimensions [mm]							
Size	L1	B1	B2	H1	H2	H3	H4
EXCM-30-...-ST-T...	Stroke X-axis ¹⁾	Stroke Y-axis ¹⁾	Stroke Y-axis ¹⁾	75.6	54	5	70.4 ±0.5
EXCM-30-...-SB-T...	+ 133	+ 122	+ 38				127.4 ±1.3

1) (→ 3.1 Characteristics)

Tab. 4.3

4.1.5 Number of profile mountings

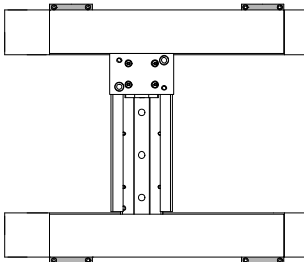
The number of profile mountings (type MUE-50) is dependent on the mounting position and design of the planar surface gantry (→ Tab. 4.4).

Stroke in X direction	Number of profile mountings (type MUE-50)	
	Horizontal mounting position	Mounting position not horizontal
100 ... 499 mm	2 per profile, inside or outside	4 per profile, inside and outside
500 ... 700 mm	3 per profile, inside or outside	6 per profile, inside and outside

Tab. 4.4

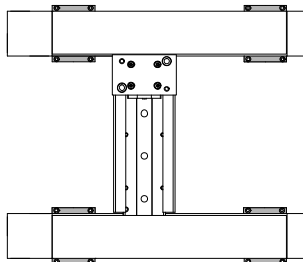
Mounting examples (top view)

Horizontal mounting position (< 500 mm)



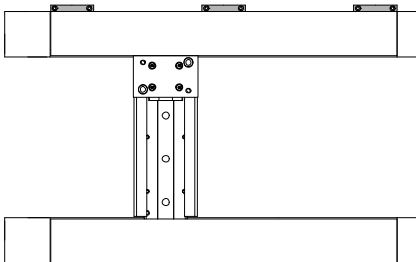
2 profile mountings per profile at the profile ends, optionally inside or outside.

Mounting position not horizontal (< 500 mm)



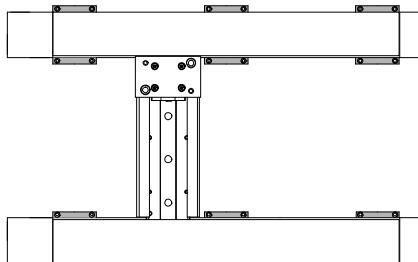
4 profile mountings per profile at the profile ends, in each case inside and outside.

Horizontal mounting position (≥ 500 mm)




2 profile mountings per profile at the profile ends, 1 additional profile mounting per profile in the middle, optionally inside or outside.

Mounting position not horizontal (≥ 500 mm)



4 profile mountings per profile at the profile ends, 2 additional profile mountings per profile in the middle, in each case inside and outside.

4.1.6 Mounting holes for profile mountings



Note

The profile mountings must be attached completely outside on the profile ends in order to avoid shifting of the profiles in case of jerky movement of the effective load in the direction of the X-axis.

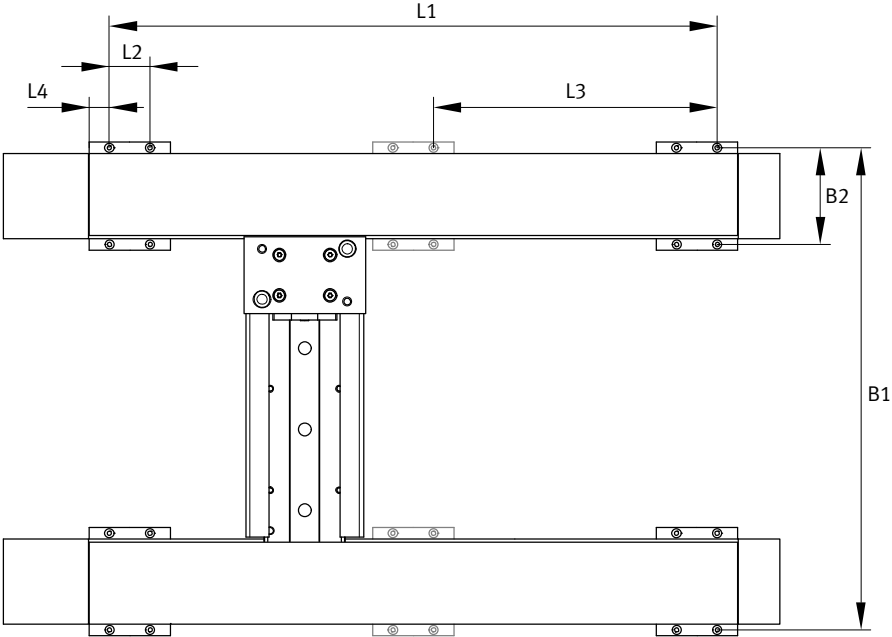


Fig. 4.1

Dimensions [mm]						
Size	B1	B2	L1	L2	L3	L4
EXCM-30-...	Stroke Y-axis ¹⁾ + 130	50	Stroke X-axis ¹⁾ + 50.5	20.0	Min. 215.25	10

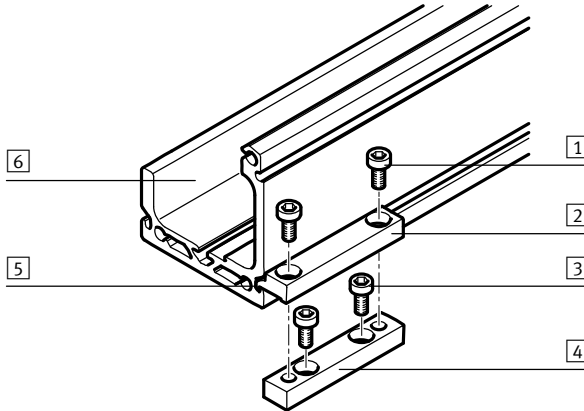
1) (→ 3.1 Characteristics),
Additional profile mounting on half the profile length with stroke X-axis ≥ 500 mm (→ 4.1.5 Number of profile mountings)

Tab. 4.5

4.2 Mounting of the planar surface gantry

The planar surface gantry is fastened with the accompanying profile mountings in the grooves of the two profiles on the prepared mounting surface. The profile mountings can be attached to the profiles inside and outside (→ 4.1.5 Number of profile mountings).

4.2.1 Use of the profile mounting



- | | |
|---|--|
| <p>1 Socket head screw M3 for clamping the profile mounting (enclosed)</p> <p>2 Upper part, profile mounting with flange for profile slot</p> | <p>3 Socket head screw M3 for mounting on the lower part (not enclosed)</p> <p>4 Lower part, profile mounting</p> <p>5 Mounting slot in the profile of the X-axis</p> <p>6 Profile of the X-axis</p> |
|---|--|

Fig. 4.2

1. Mount the lower part of the profile mounting with 2 socket head screws onto the mounting surface.
2. Attach the profile of the planar surface gantry to the lower part of the profile mounting.
3. Set the upper part of the profile mounting onto the lower part while guiding the flange of the upper part into the mounting slot of the profile.
4. Tighten the screws slightly and align the profile.
5. After aligning the profile, tighten the screws to achieve complete attachment (tightening torque 1 Nm).

4.2.2 Attachment



Note

The transport safety measures of the planar surface gantry may be dismantled only after attachment is complete. This simplifies mounting and prevents an undesired shifting of the profiles.



Note

The planar surface gantry is delivered with a backlash-free setting.

- When mounting the planar surface gantry make sure that it is not distorted, because if it is, it can change this setting.
- Follow the subsequently described procedure for attachment of the planar surface gantry to avoid tension.



Warning

Inappropriate mounting material can cause the planar surface gantry to loosen and fall down if the mounting position is not horizontal, which can result in injuries.

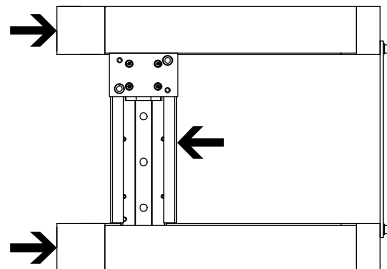
- Make sure that the mounting material used (socket head screws of the profile mountings) ensures sufficient strength in combination with the mounting surface.

Procedure:



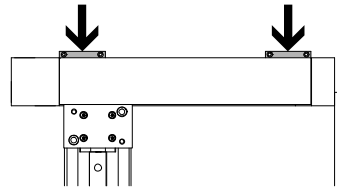
The following graphics about the procedure for attachment of the planar surface gantry represent as an example the design EXCM-30-150-110-... with horizontal mounting position.

1. Prepare the mounting surface (→ 4.1.2 Requirements of the mounting surface).
2. Shift the traverse of the Y-axis in the direction of the drive cover onto the stop position of the two profile ends.

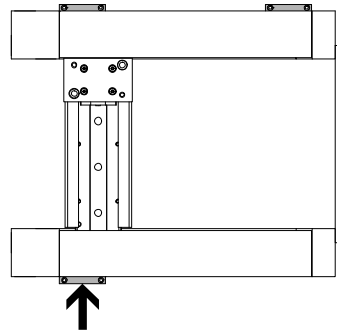


4 Mounting and installation

3. First mount only one side or only one profile of the planar surface gantry using the accompanying profile mounting attachments MUE-50 (→ 4.2.1 Use of the profile mounting).

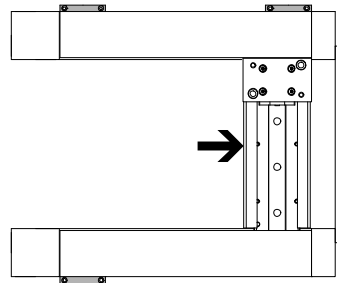


4. Make sure that the traverse of the Y-axis is aligned on the stop position in the direction of the drive covers at both profile ends (→ point 2).

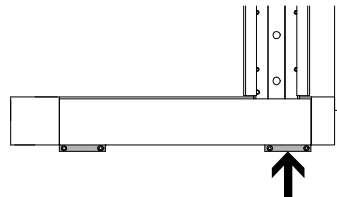


5. First mount the other profile of the planar surface gantry only to the drive cover using the accompanying profile mounting attachments MUE-50 (→ 4.2.1 Use of the profile mounting). In doing so, make sure the profile cannot shift.

6. Move the Y-traverse of the planar surface gantry in the direction of the end cap to the stop position on both profile ends.



7. Mount the second profile to the end cap by means of the accompanying profile mounting attachments MUE-50 (→ 4.2.1 Use of the profile mounting).

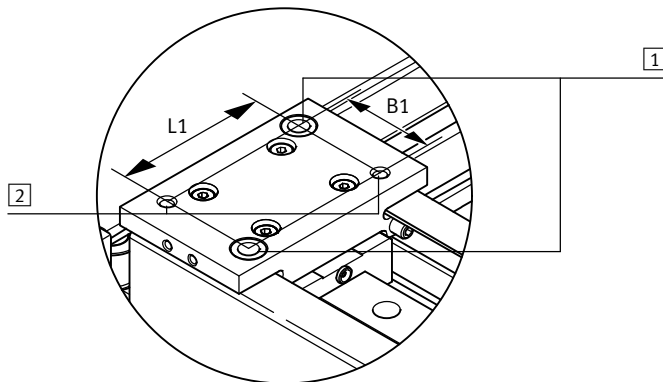


8. Tighten all screws of the profile mounting attachments (tightening torque 1 Nm).
9. Remove the transport safety measures of the planar surface gantry to complete the procedure.

4.3 Attachment components and accessories

4.3.1 Mounting extension elements

To mount attachment elements, 2 threads and 2 centring sleeves are prepared (→ Fig. 4.3).



1 Centring sleeves 5 mm, pressed in tightly

2 Thread M4

Fig. 4.3

Dimensions [mm]		
Size	L1	B1
EXCM-30	42 ±0.03 ¹⁾	26 ±0.03 ¹⁾

1) The tolerance refers to the holes of the centring sleeves

Tab. 4.6

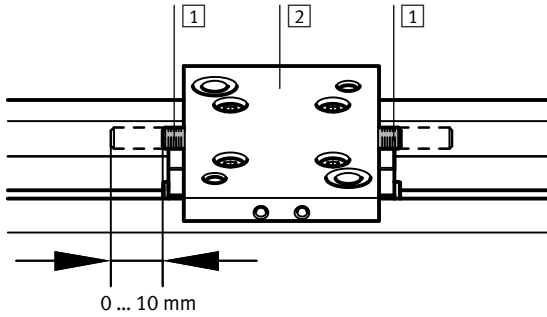


Note

- Observe the following when designing and mounting extension elements:
 - the reduced freedom of movement through parts of the planar surface gantry (e.g. motors in the top attachment position)
 - the limit values defined in the technical data (→ www.festo.com/catalogue)
 - the maximum screw-in depth of 5 mm
 - the maximum tightening torque of 1.5 ±0.3 Nm

4.3.2 Setting end stops of the Y-axis

To reduce the danger of collisions between attachment elements and planar surface gantry, the stroke of the Y-axis can be reduced by up to 10 mm on both sides by setting the end stops (threaded pins).



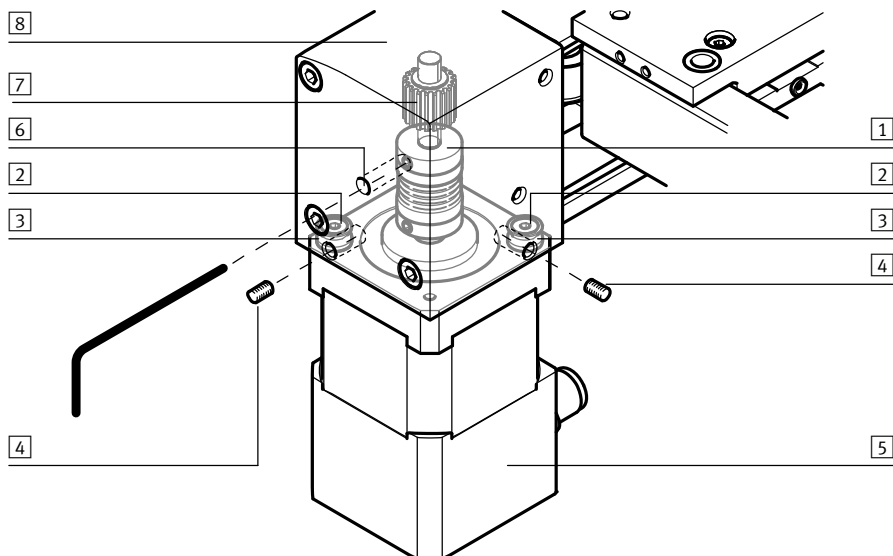
1 Threaded pin

2 Slide

Fig. 4.4

4.4 Motor mounting

4.4.1 Fastening principle



- | | |
|----------------------------|--|
| 1 Coupling | 5 Motor |
| 2 Countersunk screw | 6 Drill hole – clamping screw coupling access |
| 3 Sleeve | 7 Drive pinion |
| 4 Threaded pin | 8 Drive cover |

Fig. 4.5



If you ordered the planar surface gantry without motor, the motor attachment kit comprising the entries **2**, **3** and **4** (two each) is included.
The coupling is not part of the scope of delivery.

4.4.2 Third-party motors



Caution

Third-party motors with driving torque that is too high can damage the planar surface gantry.

- In selecting the motors, observe the limits specified in the technical data (→ A.1 Technical data).



Note

To connect third-party motors, use the accompanying motor attachment as well as a suitable coupling to connect the motor shaft to the shaft of the drive pinion (→ www.festo.com/catalogue).

You can take the dimensions of the required adapter plate (flange) from the assembly instructions that accompany the motor attachment kit.

4.5 Installation

4.5.1 Connecting motor and encoder cables



Note

Connecting the planar surface gantry with motors integrated at the plant and accompanying controller is described in the assembly instructions of the likewise accompanying motor and encoder cables.



Note

If third-party motors or third-party controllers are used, the information on installation must be taken from the corresponding documentation.

4.5.2 Mounting of sensors



Mounting of sensors may be required if third-party motors are used.

If third-party motors are used, proximity sensors can be used to reference the planar surface gantry. A sensor mounting is available as an accessory for mounting the proximity sensor to the planar surface gantry (→ www.festo.com/catalogue).

Assembly instructions accompany the sensor mounting.

4.5.3 Adapting the position of the motor cable outlets

The factory-set position of the motor cable outlets is dependent on the design ordered of the planar surface gantry. If necessary, it can be adapted subsequently to the installation situation.

Rotation around the motor axis (180°)	Rotation around the motor axis (90°)
Both motors can be rotated 180° independently of each other and while maintaining their mounting location.	By interchanging the motors, both can be rotated 90° each.

Tab. 4.7



For planar surface gantries with motor brake, the brake must be released to dismantle the motors, e.g. with the help of the Festo Configuration Tools (FCT). Only in this way can the traverse of the Y-axis be shifted to make the clamping screw of the coupling accessible (→ Fig. 4.5).



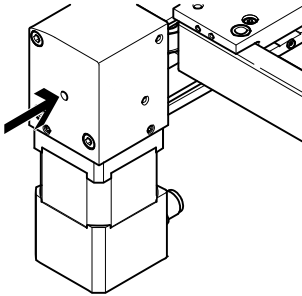
Note

After loosening the threaded pins and the coupling (→ subsequent example), the motor is no longer fixed and can be removed from the drive cover.

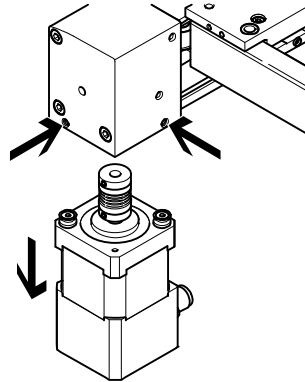
- Switch off power to the controller.
- Disconnect the connected motor cables prior to dismantling the motor.
- Secure the motor in time from falling down.



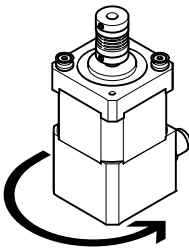
The following representations of the procedure for changing the position of the motor cable outlets represent an example for the design without motor brake and motor attachment position underneath (EXCM-30-...-ST-B...). The procedure applies correspondingly for deviating designs.



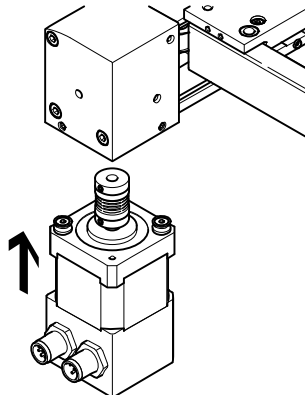
1. Move the traverse of the Y-axis until the clamping screw of the coupling can be detected in the marked hole of the drive cover.
2. Loosen this to separate the coupling from the shaft of the drive pinion.



3. Loosen the marked threaded pins and remove the motor from the drive cover.



4. Rotate the motor 180° around the position of the cable outlets in order to change the same angle (exchange the two motors for a change of 90°).



5. Position the coupling so that its clamping screws point in the direction of the drive cover hole (→ step 1.).
6. Install the motor into the drive cover again in the inverse sequence.

5 Commissioning



Note

Commissioning should only be carried out by specially trained personnel. The following knowledge is required:

- Knowledge of the Festo Configuration Tool (FCT)
- Experience in installing and operating electrical control systems

Commissioning is described in separate documents.

For support in commissioning:

- Please contact your regional Festo contact person.

Additional information can be found in the Internet (➔ www.festo.com/sp).

6 Maintenance and care



Caution

Uncontrolled moving masses cause injury to people or damage to objects.

Unintended starting can trigger unexpected movements.

- Switch off the controller of the planar surface gantry in all modification and maintenance work and secure it from being restarted.

If a toothed belt breaks in combination with a mounting position of the planar surface gantry that is other than horizontal, the work mass will fall down.

- Contact our service department if there are signs of wear.



Note

Maintenance work should only be conducted by properly trained personnel in accordance with these instructions.

6.1 Cleaning



Note

Cleaning of the system is not normally required and should only be conducted in exceptional circumstances while taking the following requirements into account.

- Observe the permissible environmental materials in selecting the cleaning agent (→ A.1.6 Operating and environmental conditions).
- When cleaning the system omit the guide elements in order to avoid impairing their lubrication. Otherwise, the lubrication of the guide elements will need to be renewed (→ 6.2 Lubrication).

6.2 Lubrication

The system is initially lubricated during production. Subsequent lubrication is only required if the guide elements have been degreased.

- Grease the following components:

	Bearing guide	Guide rail
Lubricating point	Lubrication hole	Surface
Grease ¹⁾	Roller bearing grease	

1) Grease gun, blast pipes and grease (→ 7.3 Accessories)

Tab. 6.1

Greasing the guide rail

1. Thinly lubricate the guide rails of both axes (→ Fig. 6.1) with grease (→ 7.3 Accessories).
2. Move both axes repeatedly over the entire stroke.

Greasing the bearing guides

1. Grease the marked bearing guides (→ Fig. 6.1) on both sides at all lubrication holes.
2. Move the slide the complete travel distance during lubrication in order to distribute the grease evenly inside.

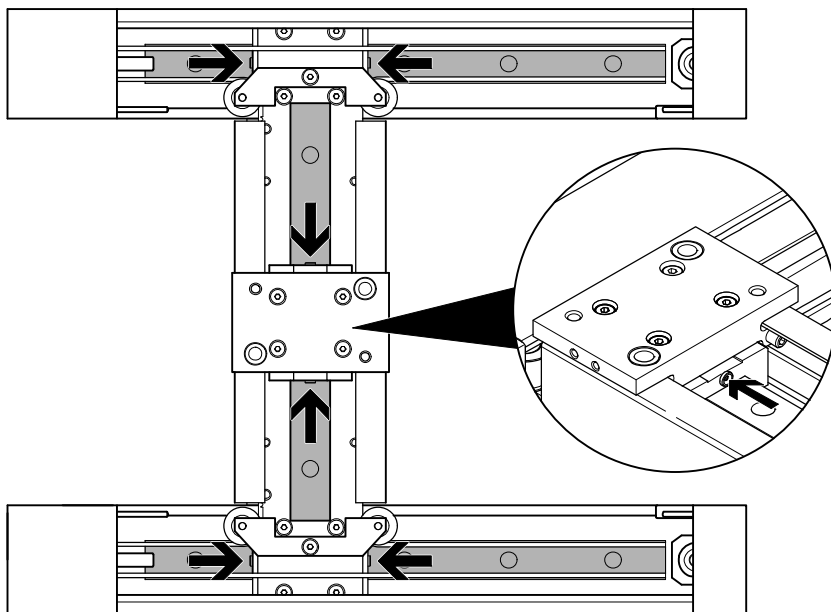


Fig. 6.1

7 Disassembly and repair

7.1 Dismounting



Caution

Squeezing of body parts and damage to the system.
Unintended starting can trigger unexpected movements.

- Switch off the controller of the planar surface gantry in all modification and maintenance work and secure it from being restarted.

- Disconnect the planar surface gantry from the higher-order controller.
- Disassemble the planar surface gantry corresponding to the selected mounting process.

7.2 Repair

- Contact our service department.
This way the required fine tuning and tests will be taken into special consideration.
- Information about spare parts and accessories (➔ www.festo.com/spareparts)

7.3 Accessories



- Please select the corresponding accessories from our catalogue
(➔ www.festo.com/catalogue).

Designation	Type
Grease	LUB-KC1

Tab. 7.1

7.4 Disposal

- When dismantling parts, observe the instructions (➔ 7.1 Dismounting).



- Observe the local regulations for environmentally-friendly disposal of modules. Some materials are listed in the technical data section to enable separate disposal of particular materials (➔ A.1 Technical data).
- Handle the lubricants (greases, oils) in accordance with the applicable regulations governing health and safety and hazardous materials.
- Observe the local regulations regarding waste disposal and the environment.

A Technical appendix

A.1 Technical data

A.1.1 General

Variant	EXCM-30-...
Design	Planar surface gantry
Guide	Recirculating ball bearing guide
Mounting position	Any ¹⁾
Type of mounting	Profile mounting MUE-50

1) Motors with brake must be used in the case of vertical installation (EXCM-30-...-SB-...).

A.1.2 Certifications

Variant	EXCM-30-...-E...
CE marking (see declaration of conformity) (→ www.festo.com)	To EU EMC Directive ¹⁾
Declaration of Incorporation (→ www.festo.com).	In accordance with EC Machinery Directive 2006/42/EC

1) The device is intended for use in an industrial environment. Measures for interference suppression may need to be implemented in residential areas.

Tab. A.1

A.1.3 Materials

Component	Material
Profiles of the X-axis	Aluminium
Drive cover	
End cap	
Guide pulley	
Y-traverse	
Slides	
Coupling	Aluminium with stainless steel metal bellows
Guide	Steel
Drive pinion	
Ball bearing	
Toothed belt	Polychloroprene with glass cord
Cover of the X-axis	Plastic
Cover of the Y-axis	Steel

Tab. A.2

A.1.4 Product weight

The product weight is dependent on the stroke of the X- and Y-axis as well as the motor equipment, without taking account of effective load, cables or controller.

Variant	Weight
Reference stroke X=150 mm; Y=110 mm (without motors) [kg]	2.7
Motors EXCM-30-...-ST-... (without brake) [kg]	2 × 0.45
Motors EXCM-30-...-SB-... (with brake) [kg]	2 × 0.75
Additional weight per 50 mm of the stroke of the X-axis [kg]	0.237
Additional weight per 50 mm of the stroke of the Y-axis [kg]	0.132

Tab. A.3

Weight of the Y-traverse [kg]						
Size	30					
Stroke of the Y-axis [mm]	110	160	210	260	310	360
	0.67	0.8	0.93	1.07	1.2	1.33

Tab. A.4



Note

The weight forces due to load when the gantry is mounted vertically must be taken into consideration in the feed force. This is done by adding the weight of the Y-traverse (→ Tab. A.4) to the load when the X-axis is vertical. The feed force is reduced by the value of the weight force with vertical travel upwards and increased with vertical travel downwards.

A.1.5 Dynamic data (EXCM-30-...-ST or EXCM-30-...-SB)

Size	30
Motor type	Stepper motor
Effective load at max. dynamic response [kg]	2/3 ¹⁾
Max. driving torque [Nm]	0.2 ²⁾
Max. no-load torque [Nm]	0.04 ²⁾³⁾
Max. acceleration [m/s ²]	10
Max. speed [m/s]	0.5
Max. feed force [N]	(→ Tab. A.6)
Repetition accuracy [mm]	±0.05

1) Vertical / horizontal mounting position.

2) These values must also be complied with during installation of third-party motors

3) At v=0.2 m/s and 45° diagonal travel

Tab. A.5

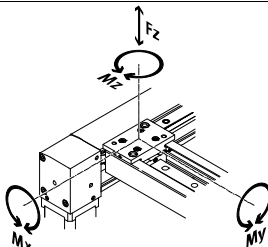
Feed forces [N]							
Size		30					
Stroke of the Y-axis	[mm]	110	160	210	260	310	360
Travel in X direction		55	55	55	50	40	34
Travel in Y direction		55	55	46	38	32	28
Travel 45° diagonal		35	35	35	30	25	23

Tab. A.6

**Note**

The indicated forces and torques refer to the slide surface. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. They apply for $v = 0.2 \text{ m/s}$. These values must not be exceeded during dynamic operation. Special attention must be paid to the deceleration phase.

Permissible forces and torques		
Size		30
$F_{z_{\max}}$	[N]	1345
$M_{x_{\max}}$	[Nm]	5.5
$M_{y_{\max}}$	[Nm]	10.9
$M_{z_{\max}}$	[Nm]	5.5



Calculating the load comparison factor:

$$f_v = \frac{|M_x|}{M_{x_{\max}}} + \frac{|M_y|}{M_{y_{\max}}} + \frac{|M_z|}{M_{z_{\max}}} + \frac{|F_z|}{F_{z_{\max}}} \leq 1$$

- 1) Vertical / horizontal mounting position.
- 2) At $v=0.2 \text{ m/s}$ and 45° diagonal travel
- 3) These values must also be complied with during installation of third-party motors

Tab. A.7

A.1.6 Operating and environmental conditions

Size		30
Ambient temperature	[°C]	+10 ... +45
Protection class		IP20
Storage temperature	[°C]	-10 ... +60
Air humidity	[%]	0 ... 90 (non-condensing)
Maximum noise level	[dB(A)]	55
Duty cycle	[%]	100

Tab. A.8

Copyright:
Festo AG & Co. KG
Postfach
73726 Esslingen
Germany

Phone:
+49 711 347-0

Fax:
+49 711 347-2144

e-mail:
service_international@festo.com

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