Three-dimensional gantries

FESTO

Characteristics

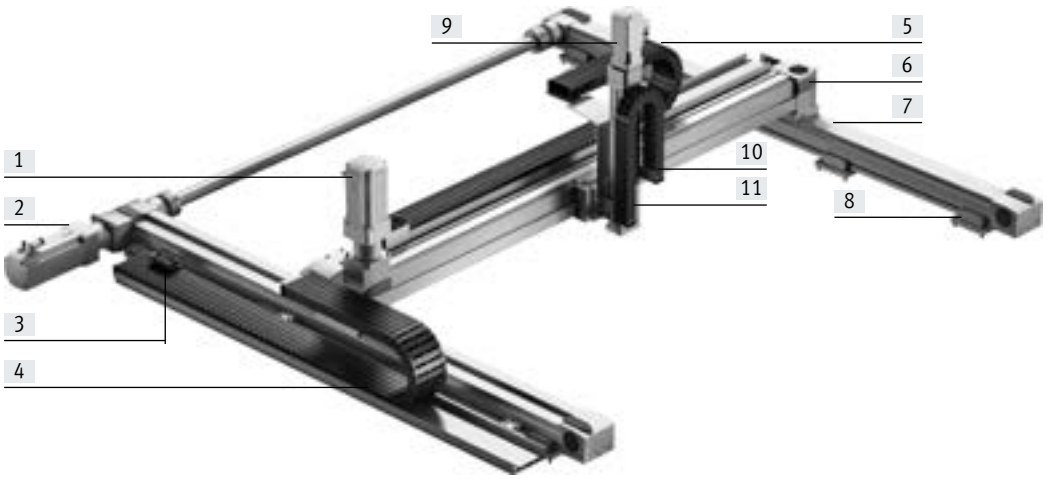
At a glance

The three-dimensional gantry facilitates movement in 3D space. Depending on the requirements, the gantry is either composed of several axis modules (YXCR) or using the planar surface gantries EXCM or EXCH (YXMR). All of these are tried-and-tested components from Festo.

- Can be used universally for light to very heavy workpieces or high payloads
- Especially suitable for very long strokes
- High mechanical rigidity and sturdy design
- Pneumatic and electric components are freely combinable
- As an electrical solution it is freely positionable/any intermediate positions

Range of applications:

- For any movements in 3D space
- Very high requirements for precision and/or very heavy workpieces combined with long strokes (YXCR)
- Cost-effective handling unit in a compact format for small parts handling and simple tasks (YXCR-B)



[1] Servo motor for the Y-module
[2] Servo motor for the X-module
[3] Multi-pin plug distributor which collectively transfers all electrical signals such as for end-position sensing
[4] Energy chain for the X-module
[5] Energy chain for the Y-module
[6] Y-axis
[7] X-axis
[8] Profile mounting/adjusting kit
[9] Servo motor for the Z-module
[10] Energy chain for the Z-module
[11] Z-axis

Description of the modules

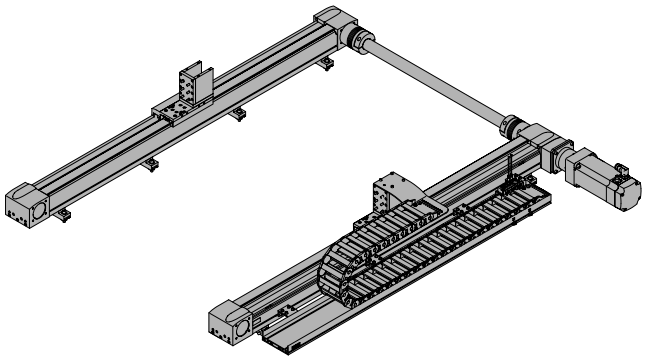
X-module

Design:

Depending on the configuration, the X-module comprises either two drive axes joined together by a connecting shaft (YXCR) or one drive axis + separate guide axis (YXCR-B).
They are powered by a servo or stepper motor.
Adapters are mounted on the slides of the X-axes to connect the Y-module.
The position of the motor and energy chain can be selected using the configurator.
The following components are located on the motor side:

- Energy chain (optional)
- Multi-pin plug distributor for proximity switch (if a sensor package has been selected)

Sample image:



Characteristics

Description of the modules

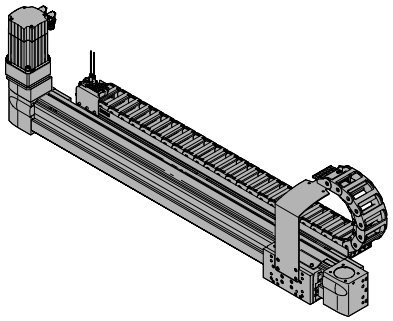
Y-module

Design:

The Y-module EHMY comprises a linear axis which is powered by a servo or stepper motor.
Adapters are mounted on the slides of the Y-axis to connect the Z-module.
The position of the motor and energy chain is dependent on the position of the motor on the X-module.
The following components are located on the motor side:

- Energy chain (optional)
- Multi-pin plug distributor for proximity switch (if a sensor package has been selected)

Sample image:

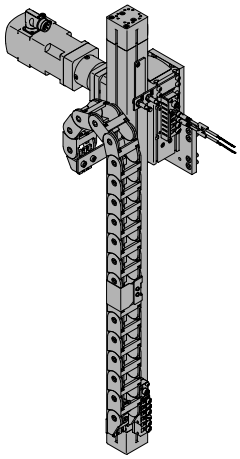


Z-module

Design:

The Z-module EHMZ comprises an electric drive, the DHMZ comprises a pneumatic drive. Based on the configuration, an energy chain is optionally installed as a cable guide depending on the axis type and stroke.
The Z-module can be selected using the configurator, depending on the application.

Sample image:

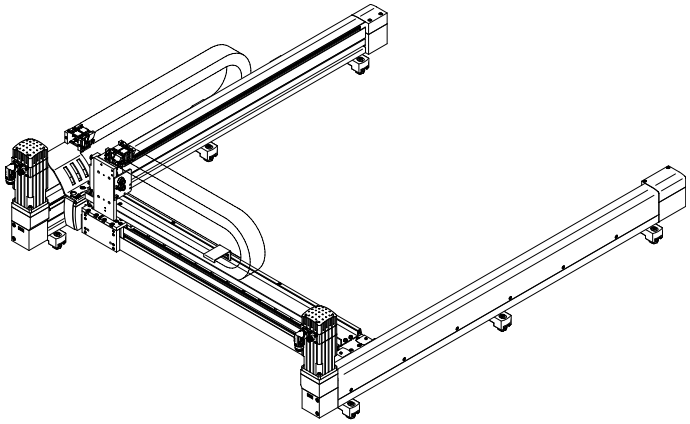


XY-module (EXCM, EXCH)

Design:

A slide is moved in a two-dimensional space (X-axis/Y-axis) via a toothed belt. The system is powered by two fixed motors. The motors are coupled to the toothed belt. The belt is guided by pulleys so that the slide can move to any position in a working space when the motors are actuated.
When using attachment components, additional processes can be carried out by independent Z-axes.

Sample image:



Characteristics

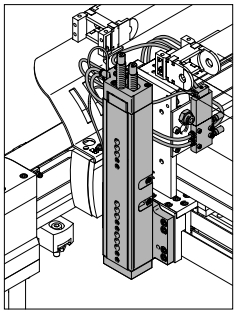
Description of the modules

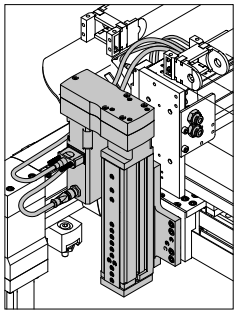
Z-module (EXCM, EXCH)

Design:

The Z-module comprises either an electric drive (EHMZ) or a pneumatic drive (DHMZ).
The Z-module can be selected using the configurator, depending on the application.

Sample image:





Dispatch options

Fully assembled:

The three-dimensional gantry is fully assembled. All cables and tubing are installed and connected. The system is already set up on delivery, but must be adapted to the particular mounting surface during installation.
Note flatness ➔ table below.

Partially assembled:

The three-dimensional gantry is delivered partially assembled. This means that all three axis modules (X-/Y-/Z-axis) are assembled, each with the optional motors. The partially assembled system must be completed by the customer. Help can be found in the assembly instructions provided.
Optional accessories (➔ page 12) are enclosed.
Note flatness ➔ table below.

System overview[1)]

Size	YXCR-1	YXCR-2	YXCR-3	YXCR-4
Max. working stroke	X: 1900 mm Y: 1800 mm Z: 50 mm	X: 3000 mm Y: 1820 mm Z: 800 mm	X: 3000 mm Y: 1755 mm Z: 800 mm	X: 3000 mm Y: 1640 mm Z: 800 mm
Max. payload	Dependent on the selected dynamic response			
Required flatness of the mounting surface	≤ 0.1 mm/m			
Mounting position	Horizontal			

Size	YXCR-1-B	YXCR-2-B
Max. working stroke	X: 800 mm Y: 600 mm Z: 150 mm	X: 1000 mm Y: 800 mm Z: 200 mm
Max. payload	Dependent on the selected dynamic response	
Required flatness of the mounting surface	≤ 0.1 mm/m	
Mounting position	Horizontal	

Size	YXMR-1	YXMR-2	YXMR-3
Max. working stroke	X: 700 mm Y: 510 mm Z: 100 mm (electric) 150 mm (pneumatic)	X: 2000 mm Y: 1000 mm Z: 200 mm (electric) 150 mm (pneumatic)	X: 2500 mm Y: 1500 mm Z: 200 mm
Max. payload	Dependent on the selected dynamic response		
Required flatness of the mounting surface	≤ 0.1 mm/m		
Mounting position	Horizontal		

1) Drive package depends on the configuration selected.

Characteristics

Configurator: Handling Guide Online (HGO)

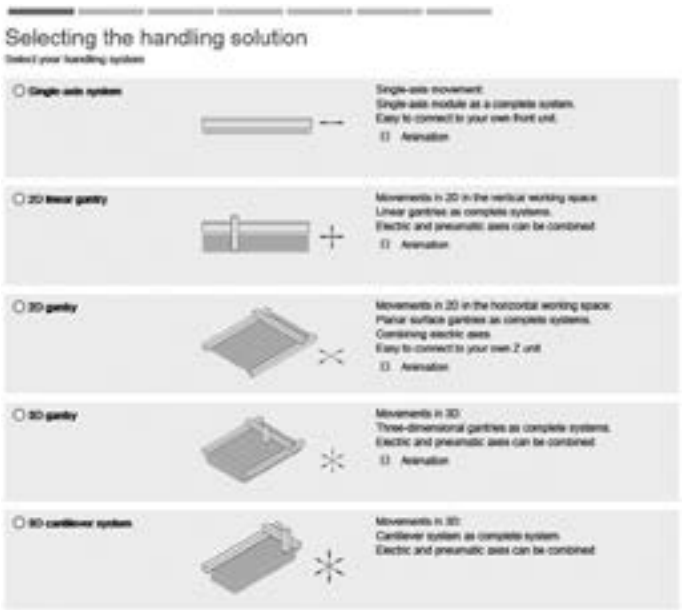
Selecting a handling system

Planning complex handling systems takes a lot of time. You can use the configurator "Handling Guide Online" (HGO) to design a customised handling system for your application in just a few steps.
You can choose from the following systems:

- Single-axis system
- 2D linear gantry
- 2D planar surface gantry
- Three-dimensional gantry
- 3D cantilever system

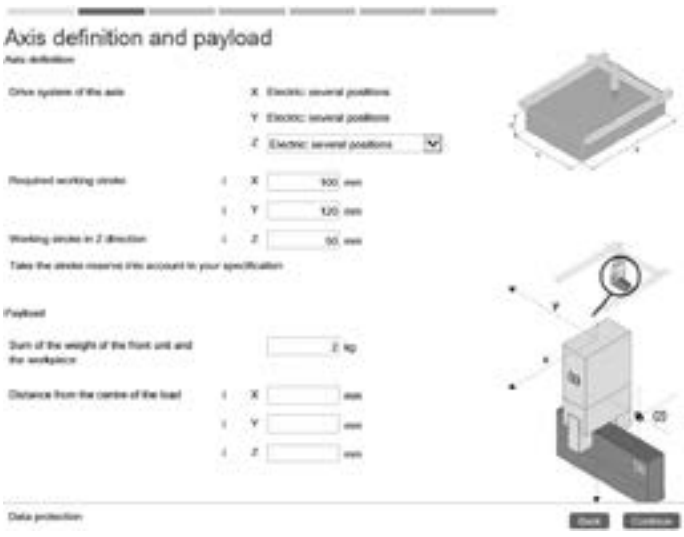
Advantages:

- Automatic selection of all relevant components
- Automatic design and calculation of the workload
- Quote created automatically
- CAD model available immediately
- Configuration-specific parameters for servo drives available immediately
- Complete Eplan project can be ordered according to the individual configuration
- Fully automated processing
- You can order fully or partially assembled systems through the Online Shop
- Lots of possible options



Entering the application data

- Payload
- Drive system of the axis
- Distance from the centre of the load
- Working stroke
- Reference cycle



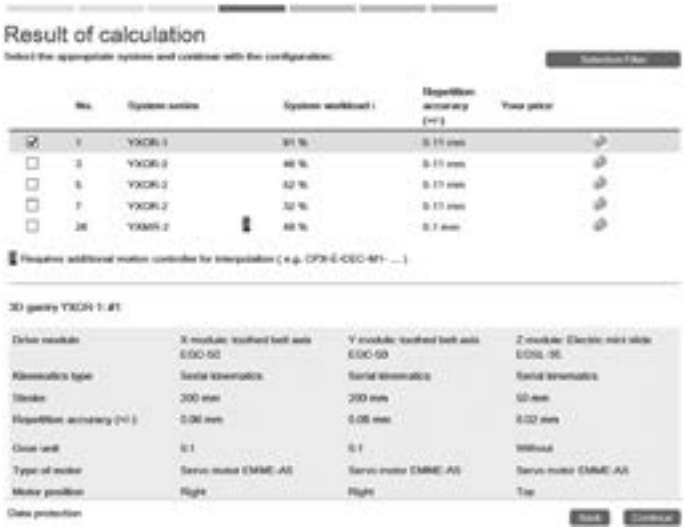
Characteristics

Configurator: Handling Guide Online (HGO)

Result of calculation

You will be offered a selection of systems calculated based on the application data you entered.

The following are available immediately:
- CAD model
- Datasheet of the selected system
- Price information



System overview

You will be given an overview of the complete system.
You will also have the following options:

- Show price
- Send request
- Add to basket

Characteristics

Standard components within the handling system

The handling system comprises a number of tried-and-tested standard components from Festo. Different components are used depending on the configuration. The single axes installed will be displayed in the configurator HGO on the "Result of calculation" page.

Drives/axes

X-axis

Toothed belt axis EGC-TB-KF

- Electric
- Rigid, closed profile
- Recirculating ball bearing guide for high loads and torques
- High dynamic response and minimum vibration

Spindle axis ELGC-BS

- Electric
- Optimal installation space to working space ratio
- Protected against external influences by internal guide
- Various spindle pitches

Guide axis ELFC

- Driveless linear guide unit with guide and freely movable slide unit
- The guide axis is designed to support forces and torques in multi-axis applications

Y-axis

Toothed belt axis EGC-TB-KF

- Electric
- Rigid, closed profile
- Recirculating ball bearing guide for high loads and torques
- High dynamic response and minimum vibration

Spindle axis ELGC-BS

- Electric
- Optimal installation space to working space ratio
- Protected against external influences by internal guide
- Various spindle pitches

Toothed belt axis EGC-HD-TB

- Electric
- Flat drive unit with rigid, closed profile
- Duo guide rail
- For maximum loads and torques, high feed forces and speeds and long service life

Characteristics

Standard components within the handling system

The handling system comprises a number of tried-and-tested standard components from Festo. Different components are used depending on the configuration. The single axes installed will be displayed in the configurator HGO on the "Result of calculation" page.

Z-axis

Mini slide EGSC

- Electric
- Compact design
- High load capacity
- Precision guide and ball screw drive
- Easy adjustment of end positions

Mini slide EGSL

- Electric
- Compact design
- High load capacity
- High dynamic response
- Easy adjustment of end positions

Mini slide DGST

- Pneumatic
- Precise and resilient roller bearing guide
- Slide and yoke plate as a single component
- High dynamic response

Mini slide DGSL

- Pneumatic
- Flat design
- High load capacity
- High dynamic response
- Easy adjustment of end positions

Spindle axis EGC-BS-KF

- Electric
- Rigid, closed profile
- Recirculating ball bearing guide for high loads and torques
- High dynamic response and minimum vibration
- Various spindle pitches

Characteristics

Possible axis combinations[1)]

Size	X-module	Y-module	Z-module
YXCR-1	• Toothed belt axis EGC-50-TB-KF	• Toothed belt axis EGC-50-TB-KF	• Mini slide pneumatic: DGSL-6 electric: EGSL-35
YXCR-1-B	• Spindle axis ELGC-60-BS	• Spindle axis ELGC-45-BS • Spindle axis ELGC-60-BS	• Mini slide pneumatic: DGST-8/12/16 electric: EGSC-32/45
YXCR-2	• Toothed belt axis EGC-80-TB-KF	• Toothed belt axis EGC-80-TB-KF • Toothed belt axis with heavy-duty guide EGC-HD-125-TB	• Mini slide pneumatic: DGSL-12/16 electric: EGSL-45/55 • Cantilever axis DGEA-18 • Spindle axis EGC-70-BS-KF
YXCR-2-B	• Spindle axis ELGC-80-BS	• Spindle axis ELGC-60-BS • Spindle axis ELGC-80-BS	• Mini slide pneumatic: DGST-12/16/20 electric: EGSC-45/60
YXCR-3	• Toothed belt axis EGC-120-TB-KF	• Toothed belt axis EGC-120-TB-KF • Toothed belt axis with heavy-duty guide EGC-HD-160-TB	• Mini slide pneumatic: DGSL-20/25 electric: EGSL-75 • Cantilever axis DGEA-25/40 • Spindle axis EGC-80-BS-KF
YXCR-4	• Toothed belt axis EGC-185-TB-KF	• Toothed belt axis EGC-185-TB-KF • Toothed belt axis with heavy-duty guide EGC-HD-220-TB	• Cantilever axis DGEA-40 • Spindle axis EGC-120-BS-KF
YXMR-1	• Planar surface gantry EXCM-30	• Planar surface gantry EXCM-30	• Mini slide pneumatic: DGSL-8/10/12 electric: EGSC-25/32
YXMR-2	• Planar surface gantry EXCM-40, EXCH-40	• Planar surface gantry EXCM-40, EXCH-40	• Mini slide pneumatic: DGSL-16 electric: EGSL-45
YXMR-3	• Planar surface gantry EXCH-60	• Planar surface gantry EXCH-60	• Mini slide pneumatic: DGSL-20 electric: EGSL-55

1) Drive package depends on the configuration selected.

Characteristics

Standard components within the handling system

The handling system comprises a number of tried-and-tested standard components from Festo. Different components are used depending on the configuration. You can alter the scope and design of the drive package in the configurator HGO on the "System configuration" page.

Motors and controllers

Servo motors EMMT-AS

- Dynamic, brushless, permanently excited servo motor
- Digital absolute displacement encoder in single-turn or multi-turn version
- With optional brake

Servo motors EMME-AS

- Dynamic, brushless, permanently excited servo motor
- Digital absolute displacement encoder in single-turn or multi-turn version
- With optional brake

Servo motors EMMS-AS

- Dynamic, brushless, permanently excited servo motor
- Digital absolute displacement encoder in single-turn or multi-turn version
- With optional brake

Servo motors EMMB-AS

- Dynamic, brushless, permanently excited servo motor
- Digital absolute displacement encoder in single-turn or multi-turn version
- With optional brake

Stepper motors EMMS-ST

- 2-phase hybrid technology
- Step angle 1.8°
- With optional brake

Gear unit EMGA

- Low-backlash planetary gear
- Gear ratio
  i = 3 and 5
- Life-time lubrication

Motor controller CMMP-AS, for servo motor

- Complete integration of all components for controller and power unit, including USB interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic activation for a brake

Options:

- Safety function: safe torque off (STO)/category 4, Performance Level e
- Additional digital inputs and outputs

- Bus protocols
  - CANopen
  - DeviceNet
  - EtherCAT
  - EtherNet/IP
  - PROFIBUS DP
  - PROFINET

Characteristics

Standard components within the handling system

The handling system comprises a number of tried-and-tested standard components from Festo. Different components are used depending on the configuration. You can alter the scope and design of the drive package in the configurator HGO on the "System configuration" page.

Servo drive CMMT-AS, for servo motor

- Universal servo drive
- For synchronous servo motors
- Integrated EMC filters
- Integrated brake chopper
- Integrated braking resistor
- Position controller
- Speed controller
- Force controller
- Range of control functions

Options:
- Safety function: safe torque off (STO)/category 4, Performance Level e
- Safe stop 1 (SS1)
- Safe brake control (SBC) up to SIL3/ category 3, Performance Level e

- Bus protocols
  - EtherCAT
  - PROFINET RT/IRT
  - EtherNet/IP
  - Modbus TCP

Servo drive CMMT-ST, for stepper motor

- Servo drive for operating stepper motors and brushless direct current motors
- Options for point-to-point and interpolating motion and for precise positioning
- Primary voltage from 24 ... 48 V DC
- Position controller
- Speed controller
- Force controller
- Range of control functions

Options:
- Safety function: safe torque off (STO)/category 3, Performance Level e
- Safe stop 1 time controlled (SS1-t)

- Bus protocols
  - EtherCAT
  - PROFINET RT/IRT
  - EtherNet/IP
  - Modbus TCP

Motor controller CMMO-ST, for stepper motor

- Separate load and logic supply
- Monitoring of freely defined positions and torque ranges
- Backup file enables seamless device replacement

- Encoder option (closed loop), in other words no step losses, following errors are corrected

Options:
- Safety function: safe torque off (STO)/category 3, Performance Level e

- Easy activation via:
  - I/O interface
  - IO-Link or I-Port
  - Modbus TCP

Controller CMXH-ST2, for stepper motor

- The controller controls two stepper motors in servo mode which drive an H-shaped recirculating toothed belt. The toothed belt moves a slide whose position is calculated by the controller using the encoder signals from the motors

Options:
- Safety function: safe torque off (STO)/category 3, Performance Level e

- Bus protocols
  - I/O interface
  - CAN interface
  - Ethernet TCP/IP

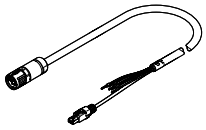
Ordering data – Accessories

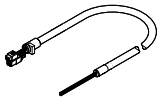
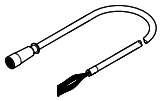
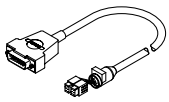
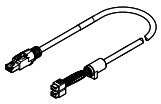
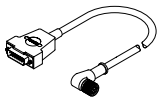
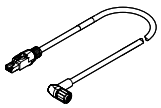
Module/motor combinations

We recommend that the three-dimensional gantry is operated with the proposed motors from Festo. These precisely match the mechanical system. When using third-party motors, it is essential that the technical limits are observed.

Module	Motor				
	Servo motor				Stepper motor
X-module					
EHMX-EGC-50-TB-KF	–	–	EMME-AS-40-M-LV-...	–	EMMS-ST-42-S-...
EHMX-EGC-80-TB-KF	EMMT-AS-60-L-LS-...	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
	EMMT-AS-100-M-HS-...				
EHMX-EGC-120-TB-KF	EMMT-AS-80-L-LS-...	–	EMME-AS-80-S-LS-...	–	–
	EMMT-AS-80-L-HS-...				
EHMX-EGC-185-TB-KF	EMMT-AS-100-L-HS-...	–	–	–	–
EHMX-ELGC-60-BS	–	–	–	EMMB-AS-80-07	EMMS-ST-57-M
EHMX-ELGC-80-BS	–	–	–	EMMB-AS-80-07	EMMS-ST-87-M
Y-module					
EHMY-...-EGC-50-TB-KF	–	–	EMME-AS-40-S-LV-...	–	EMMS-ST-57-M-...
EHMY-...-EGC-80-TB-KF	EMMT-AS-60-S-LS-...	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMY-...-EGC-120-TB-KF	EMMT-AS-80-L-LS-...	–	EMME-AS-80-S-LS-...	–	EMMS-ST-87-S-...
	EMMT-AS-80-L-HS-...				
EHMY-...-EGC-125-TB-HD	EMMT-AS-60-L-LS-...	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMY-...-EGC-160-TB-HD	EMMT-AS-80-M-LS-...	–	EMME-AS-80-S-LS-...	–	EMMS-ST-87-S-...
	EMMT-AS-80-L-HS-...				
EHMY-...-EGC-185-TB-KF	EMMT-AS-100-L-HS-...	–	EMME-AS-100-M-HS-...	–	–
EHMY-...-EGC-220-TB-HD	EMMT-AS-100-L-HS-...	–	EMME-AS-100-M-HS-...	–	–
EHMY-RP-ELGC-45-BS	–	–	–	EMMB-AS-40-01	EMMS-ST-42-S
EHMY-RP-ELGC-60-BS	–	–	–	EMMB-AS-60-04	EMMS-ST-57M
EHMY-RP-ELGC-80-BS	–	–	–	EMMB-AS-60-04	EMMS-ST-87-M
Z-module					
EHMZ-DGEA-18-TB-KF	–	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMZ-DGEA-25-TB-KF	–	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMZ-DGEA-40-TB-KF	–	–	EMME-AS-80-M-LS-...	–	–
EHMZ-EGC-70-BS-KF	EMMT-AS-60-S-LS-...	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMZ-EGC-80-BS-KF	EMMT-AS-60-M-LS-...	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMZ-EGC-120-BS-KF	EMMT-AS-80-S-LS-...	–	EMME-AS-80-S-LS-...	–	–
	EMMT-AS-80-M-LS-...				
	EMMT-AS-80-S-HS-...				
	EMMT-AS-80-L-HS-...				
EHMZ-EGSL-35-BS-KF	–	–	EMME-AS-40-S-LV-...	–	EMMS-ST-28-L-...
EHMZ-EGSL-45-BS-KF	EMMT-AS-60-S-LS-...	–	EMME-AS-40-S-LV-...	–	EMMS-ST-57-S-...
EHMZ-EGSL-55-BS-KF	EMMT-AS-60-S-LS-...	–	EMME-AS-60-M-LS-...	–	EMMS-ST-57-S-...
EHMZ-EGSL-75-BS-KF	EMMT-AS-80-S-LS-...	–	EMME-AS-80-S-LS-...	–	EMMS-ST-87-S-...
EHMZ-EGSC-32	–	–	–	EMMB-AS-40-01	EMMS-ST-42-S
EHMZ-EGSC-45	–	–	–	EMMB-AS-40-01	EMMS-ST-42-S
EHMZ-EGSC-60	–	–	–	EMMB-AS-60-02	EMMS-ST-57M
XY-module (EXCM, EXCH)					
EXCM-30	–	–	–	–	EMMS-ST-42-S-...
EXCM-40	–	–	–	–	EMMS-ST-57-M-...
EXCH-40	–	EMMS-AS-70-M-LS-...	–	–	–
EXCH-40	–	EMMS-AS-100-S-HS-...	–	–	–
EXCH-60	–	EMMS-AS-100-M-HS-...	–	–	–
EXCH-60	–	EMMS-AS-140-S-HV-...	–	–	–
Z-module (EXCM, EXCH)					
EHMZ-EGSC-BS-KF-25-...-V1	–	–	–	–	EMMS-ST-28-L-...
EHMZ-EGSC-BS-KF-32-...-V1	–	–	–	–	EMMS-ST-42-S-...
EHMZ-EGSL-45-BS-KF	–	EMMS-AS-40-M-LS-...	–	–	–
EHMZ-EGSL-55-BS-KF	–	EMMS-AS-55-S-LS-...	–	–	–

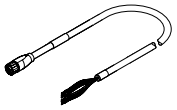
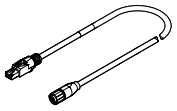
Ordering data – Accessories

Ordering data	Description	Cable length [m]	Part no.	Type
For servo motor EMMT-AS				
Motor cable				
	• For EMMT-AS-60/80 with CMMT-AS	2.5	**5251374**	**NEBM-M23G15-EH-2.5-Q7N-R3LEG14**
		5	**5251375**	**NEBM-M23G15-EH-5-Q7N-R3LEG14**
		7.5	**5251376**	**NEBM-M23G15-EH-7.5-Q7N-R3LEG14**
		10	**5251377**	**NEBM-M23G15-EH-10-Q7N-R3LEG14**
		15	**5251378**	**NEBM-M23G15-EH-15-Q7N-R3LEG14**
		20	**5251379**	**NEBM-M23G15-EH-20-Q7N-R3LEG14**
	• For EMMT-AS-100 with CMMT-AS	2.5	**5251381**	**NEBM-M23G15-EH-2.5-Q9N-R3LEG14**
		5	**5251382**	**NEBM-M23G15-EH-5-Q9N-R3LEG14**
		7.5	**5251383**	**NEBM-M23G15-EH-7.5-Q9N-R3LEG14**
		10	**5251384**	**NEBM-M23G15-EH-10-Q9N-R3LEG14**
		15	**5251385**	**NEBM-M23G15-EH-15-Q9N-R3LEG14**
		20	**5251386**	**NEBM-M23G15-EH-20-Q9N-R3LEG14**

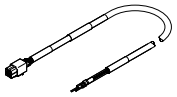
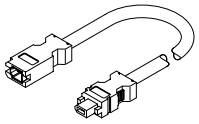
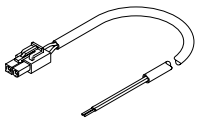
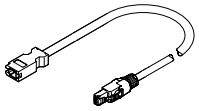
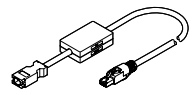
Designation	Description	Cable length [m]	Part no.	Type
For servo motor EMMS-AS				
Motor cable[1]				
	• For servo motor EMMS-AS-40/55 with CMMP-AS	5	**550306**	**NEBM-T1G8-E-5-Q7N-LE8**
		10	**550307**	**NEBM-T1G8-E-10-Q7N-LE8**
		15	**550308**	**NEBM-T1G8-E-15-Q7N-LE8**
	• For servo motor EMMS-AS-40/55 with CMMT-AS	5	**8085948**	**NEBM-T1G8-E-5-Q7N-LE8-1**
		10	**8085949**	**NEBM-T1G8-E-10-Q7N-LE8-1**
		15	**8085950**	**NEBM-T1G8-E-15-Q7N-LE8-1**
	• For servo motor EMMS-AS-70/100/140 with CMMP-AS	5	**550310**	**NEBM-M23G8-E-5-Q9N-LE8**
		10	**550311**	**NEBM-M23G8-E-10-Q9N-LE8**
		15	**550312**	**NEBM-M23G8-E-15-Q9N-LE8**
	• For servo motor EMMS-AS-70/100/140 with CMMT-AS	5	**5391141**	**NEBM-M23G8-E-5-Q9N-LE8-1**
		10	**5391144**	**NEBM-M23G8-E-10-Q9N-LE8-1**
		15	**5391139**	**NEBM-M23G8-E-15-Q9N-LE8-1**
Encoder cable[1]				
	• For servo motor EMMS-AS-40/55 with CMMP-AS	5	**550314**	**NEBM-T1G8-E-5-N-S1G15**
		10	**550315**	**NEBM-T1G8-E-10-N-S1G15**
		15	**550316**	**NEBM-T1G8-E-15-N-S1G15**
	• For servo motor EMMS-AS-40/55 with CMMT-AS	5	**8085944**	**NEBM-T1G8-E-5-N-R3G8**
		10	**8085945**	**NEBM-T1G8-E-10-N-R3G8**
		15	**8085946**	**NEBM-T1G8-E-15-N-R3G8**
	• For servo motor EMMS-AS-70/100/140 with CMMP-AS	5	**550318**	**NEBM-M12W8-E-5-N-S1G15**
		10	**550319**	**NEBM-M12W8-E-10-N-S1G15**
		15	**550320**	**NEBM-M12W8-E-15-N-S1G15**
	• For servo motor EMMS-AS-70/100/140 with CMMT-AS	5	**5213423**	**NEBM-M12W8-E-5-N-R3G8**
		10	**5213425**	**NEBM-M12W8-E-10-N-R3G8**
		15	**5213426**	**NEBM-M12W8-E-15-N-R3G8**

1) Cables especially suitable for the motor controller and motor.
Degree of protection to IP65 (in assembled state)

Ordering data – Accessories

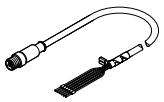
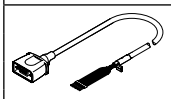
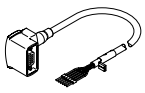
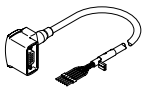
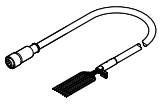
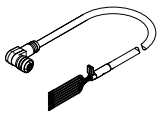
Ordering data	Description	Cable length [m]	Part no.	Type
For servo motor EMME-AS				
Motor cable				
	• For EMME-AS-40/60 with CMMT-AS	2.5	**5391541**	**NEBM-M16G8-E-2.5-Q7-LE8-1**
		5	**5391543**	**NEBM-M16G8-E-5-Q7-LE8-1**
		7.5	**5391548**	**NEBM-M16G8-E-7.5-Q7-LE8-1**
		10	**8085952**	**NEBM-M16G8-E-10-Q7-LE8-1**
		15	**8085953**	**NEBM-M16G8-E-15-Q7-LE8-1**
		20	**611113**	**NEBM-M16G8-E-20-Q7-LE8-1**
	• For EMME-AS-80/100 with CMMT-AS	2.5	**5391540**	**NEBM-M16G8-E-2.5-Q9-LE8-1**
		5	**5391545**	**NEBM-M16G8-E-5-Q9-LE8-1**
		7.5	**5391547**	**NEBM-M16G8-E-7.5-Q9-LE8-1**
		10	**5391549**	**NEBM-M16G8-E-10-Q9-LE8-1**
		15	**5391550**	**NEBM-M16G8-E-15-Q9-LE8-1**
		20	**611114**	**NEBM-M16G8-E-20-Q9-LE8-1**
Encoder cable				
	• For EMME-AS-40/60/80/100 with CMMT-AS	2.5	**5212312**	**NEBM-M12G8-E-2.5-N-R3G8**
		5	**5212313**	**NEBM-M12G8-E-5-N-R3G8**
		7.5	**5212314**	**NEBM-M12G8-E-7.5-N-R3G8**
		10	**5212315**	**NEBM-M12G8-E-10-N-R3G8**
		15	**5212316**	**NEBM-M12G8-E-15-N-R3G8**
		20	**611112**	**NEBM-M12G8-E-20-N-R3G8**

Ordering data – Accessories

Ordering data				
		Cable length [m]	Part no.	Type
For servo motor EMMB-AS				
Motor cable				
	• For EMMB-AS-40/60/80 with CMMT-AS	2.5	**5219197**	**NEBM-H6G4-E-2.5-Q13N-LE4**
		5	**5219198**	**NEBM-H6G4-E-5-Q13N-LE4**
		7.5	**5219199**	**NEBM-H6G4-E-7.5-Q13N-LE4**
		10	**5219200**	**NEBM-H6G4-E-10-Q13N-LE4**
		15	**8097203**	**NEBM-H6G4-E-15-Q13N-LE4**
Encoder cable				
	• For EMMB-AS-40/60/80 with CMMT-AS	2.5	**5219213**	**NEBM-REG6-E-2.5-Q14N-REG6**
		5	**5219214**	**NEBM-REG6-E-5-Q14N-REG6**
		7.5	**5219215**	**NEBM-REG6-E-7.5-Q14N-REG6**
		10	**5219216**	**NEBM-REG6-E-10-Q14N-REG6**
		15	**8097200**	**NEBM-REG6-E-15-Q14N-REG6**
Connecting cable for brake				
	• For EMMB-AS-40/60/80 with CMMT-AS	2.5	**5219205**	**NEBM-H7G2-E-2.5-Q14N-LE2**
		5	**5219206**	**NEBM-H7G2-E-5-Q14N-LE2**
		7.5	**5219207**	**NEBM-H7G2-E-7.5-Q14N-LE2**
		10	**5219208**	**NEBM-H7G2-E-10-Q14N-LE2**
		15	**8097206**	**NEBM-H7G2-E-15-Q14N-LE2**
Adapter for encoder cable (absolutely essential)				
	• For EMMB-AS-40/60/80 with CMMT-AS	**For single-turn version with CMMT-AS**		
		0.5	**8097197**	**NEFM-REG6-K-0.5-R3G8**
	• For EMMB-AS-40/60/80 with CMMT-AS	**For multi-turn version with CMMT-AS**[1]		
		0.5	**8097195**	**NEFM-REG6-K-0.5-B-R3G8**
		For multi-turn version with CMMB-AS[1]		
		0.5	**8097196**	**NEFM-REG6-K-0.5-B-REG6**

1) The required battery is not included in the scope of delivery

Ordering data – Accessories

Designation	Description	Cable length [m]	Part no.	Type
For stepper motor EMMS-ST				
Motor cable[1]				
	• For stepper motor EMMS-ST-28 with CMMT-ST/CMMO-ST	1.5	**1449600**	**NEBM-SM12G8-E-1.5-Q5-LE6**
		2.5	**1449601**	**NEBM-SM12G8-E-2.5-Q5-LE6**
		5	**1449602**	**NEBM-SM12G8-E-5-Q5-LE6**
		7	**1449603**	**NEBM-SM12G8-E-7-Q5-LE6**
		10	**1449604**	**NEBM-SM12G8-E-10-Q5-LE6**
		15	**5105618**	**NEBM-SM12G8-E-15-Q5-LE6**
		20	**5105619**	**NEBM-SM12G8-E-20-Q5-LE6**
	• For stepper motor EMMS-ST-42/57 with CMMT-ST/CMMO-ST • Straight plug	2.5	**1450369**	**NEBM-S1G9-E-2.5-Q5-LE6**
		5	**1450370**	**NEBM-S1G9-E-5-Q5-LE6**
		7	**1450371**	**NEBM-S1G9-E-7-Q5-LE6**
		10	**1450372**	**NEBM-S1G9-E-10-Q5-LE6**
		15	**5085055**	**NEBM-S1G9-E-15-Q5-LE6**
		20	**5085056**	**NEBM-S1G9-E-20-Q5-LE6**
	• For stepper motor EMMS-ST-42/57 with CMMT-ST/CMMO-ST • Angled plug	2.5	**1450737**	**NEBM-S1W9-E-2.5-Q5-LE6**
		5	**1450738**	**NEBM-S1W9-E-5-Q5-LE6**
		7	**1450739**	**NEBM-S1W9-E-7-Q5-LE6**
		10	**1450740**	**NEBM-S1W9-E-10-Q5-LE6**
		15	**610856**	**NEBM-S1W9-E-15-Q5-LE6**
	• For stepper motor EMMS-ST-87 with CMMT-ST/CMMO-ST • Angled plug	2.5	**1450944**	**NEBM-S1W15-E-2.5-Q7-LE6**
		5.0	**1450945**	**NEBM-S1W15-E-5-Q7-LE6**
		7.0	**1450946**	**NEBM-S1W15-E-7-Q7-LE6**
		10	**1450947**	**NEBM-S1W15-E-10-Q7-LE6**
		15	**610857**	**NEBM-S1W15-E-15-Q7-LE6**
Encoder cable[1]				
	• For stepper motor EMMS-ST-28/42/57/87 with CMMT-ST/CMMO-ST • Straight plug	2.5	**1451587**	**NEBM-M12G8-E-2.5-LE8**
		5	**1451588**	**NEBM-M12G8-E-5-LE8**
		7	**1451589**	**NEBM-M12G8-E-7-LE8**
		10	**1451590**	**NEBM-M12G8-E-10-LE8**
		15	**611110**	**NEBM-M12G8-E-15-LE8**
		20	**611111**	**NEBM-M12G8-E-20-LE8**
	• For stepper motor EMMS-ST-28/42/57/87 with CMMT-ST/CMMO-ST • Angled plug	2.5	**1451675**	**NEBM-M12W8-E-2.5-LE8**
		5	**1451676**	**NEBM-M12W8-E-5-LE8**
		7	**1451677**	**NEBM-M12W8-E-7-LE8**
		10	**1451678**	**NEBM-M12W8-E-10-LE8**
		15	**610858**	**NEBM-M12W8-E-15-LE8**

1) Cables especially suitable for the motor controller and motor.
Degree of protection to IP65 (in assembled state)

Possible cable and tube lengths

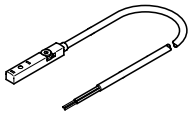
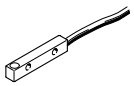
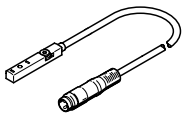
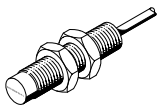
- Cables and tubing are selected so that the length specified when ordering will be the minimum connection length from the energy chain output.
- Cables and tubing are only available in fixed lengths as stated in the table below. This can mean that the cable plugs of the different cables do not end at the same point.

Length	1 m	2 m	5 m	7 m	10 m
Motor cable	–	■	■	■	■
Encoder cable	–	■	■	■	■
Multi-pin plug connecting cable	–	■	■	■	■
Tubing (for DHMZ only)	■	■	■	–	–

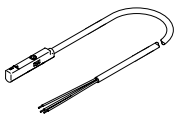
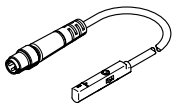
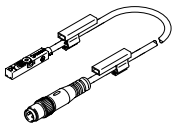
Ordering data – Accessories

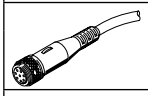
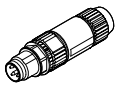
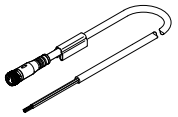
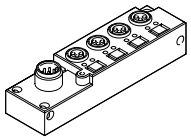
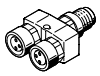
Standard components within the handling system

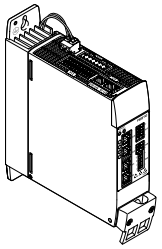
The handling system comprises a number of tried-and-tested standard components from Festo. Different components are used depending on the configuration. You can alter the scope and design of the accessories in the configurator HGO on the "System configuration" page.

Designation	Description		Cable length [m]	Part no.	Type
Proximity switch (inductive) for sensing the position of the slide on the X-/Y-/Z-axis					
	**Cable with open end**				
	• For toothed belt axis EGC-TB, EGC-HD-TB • For spindle axis EGC-BS • For spindle axis ELGC-BS • For mini slide EGSL • For mini slide EGSC • For DC voltage Included if the "Festo sensor package" is selected: • For EGC, ELGC: 2 pieces • For EGSL, EGSC: 1 piece	PNP, N/C contact	7.5	**551391**	**SIES-8M-PO-24V-K-7.5-OE**
		PNP, N/O contact	7.5	**551386**	**SIES-8M-PS-24V-K-7.5-OE**
		NPN, N/C contact	7.5	**551401**	**SIES-8M-NO-24V-K-7.5-OE**
		NPN, N/O contact	7.5	**551396**	**SIES-8M-NS-24V-K-7.5-OE**
Proximity switches for sensing the position of the slide on the X-axis					
	• For EXCM-40, EXCH-40, EXCH-60	PNP, N/O contact	–	**150491**	**SIES-V3B-PS-S-L**
	• For EXCM-40, EXCH-40, EXCH-60	PNP, N/C contact	–	**174552**	**SIES-Q8B-PO-K-L**
	Included if the "Festo sensor package" is selected: • 1 piece				
Proximity switch (inductive) for sensing the position of the slide on the Y-axis					
	**Cable with plug**				
	• For EXCM-40, EXCH-40, EXCH-60 • For DC voltage Included if the "Festo sensor package" is selected: • 1 piece	PNP, N/C contact	0.3	**551392**	**SIES-8M-PO-24V-K-0.3-M8D**
		PNP, N/O contact	0.3	**551387**	**SIES-8M-PS-24V-K-0.3-M8D**
Proximity switch (inductive) for sensing the position of the slide on the Z-axis					
	**Cable with open end**				
	• For cantilever axis DGEA • For DC voltage Included if the "Festo sensor package" is selected: • 2 pieces	PNP, N/C contact	2.5	**150398**	**SIEN-M8NB-PO-K-L**
		PNP, N/O contact	2.5	**150394**	**SIEN-M8NB-PS-K-L**
		NPN, N/C contact	2.5	**150396**	**SIEN-M8NB-NO-K-L**
		NPN, N/O contact	2.5	**150392**	**SIEN-M8NB-NS-K-L**

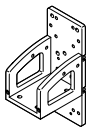
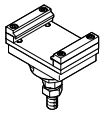
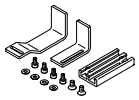
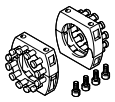
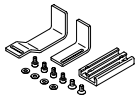
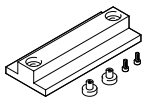
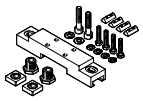
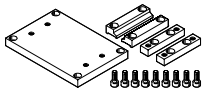
Ordering data – Accessories

Designation	Description		Cable length [m]	Part no.	Type
Proximity switches (magnetoresistive) for sensing the position of the slide on the Z-axis					
	**Cable with open end**				
	• For mini slide DGSL • For DC voltage Included if the "Festo sensor package" is selected: • 2 pieces	PNP, N/O contact	2.5	**551373**	**SMT-10M-PS-24V-E-2.5-L-OE**
		NPN, N/O contact	2.5	**551377**	**SMT-10M-NS-24V-E-2.5-L-OE**
	• For mini slide DGST-8/-12 • For DC voltage Included if the "Festo sensor package" is selected: • 2 pieces	PNP, N/O contact	2.5	**551375**	**SMT-10M-PS-24V-E-0.3-L-M8D**
		NPN, N/O contact	2.5	**551379**	**SMT-10M-NS-24V-E-0.3-L-M8D**
	• For mini slide DGST-16/-20 • For DC voltage Included if the "Festo sensor package" is selected: • 2 pieces	PNP, N/O contact	2.5	**574334**	**SMT-8M-A-PS-24V-E-0.3-M8D**
		NPN, N/O contact	2.5	**574339**	**SMT-8M-A-NS-24V-E-0.3-M8D**

Designation	Description	Cable length [m]	Part no.	Type
Plug socket with cable				
	• Connection between multi-pin plug distributor NEDU and control cabinet	5	**525618**	**SIM-M12-8GD-5-PU**
		10	**570008**	**SIM-M12-8GD-10-PU**
Plug				
	• For connection to the multi-pin plug distributor NEDU / distributor NEDY	–	**562024**	**NECU-S-M8G3-HX**
Connecting cable				
	• Connection between distributor NEDY and control cabinet	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
		5	**541343**	**NEBU-M8G4-K-5-LE4**
		7.5	**610854**	**NEBU-M8G4-K-7.5-LE4**
		10	**589560**	**NEBU-M8G4-K-10-LE4**
		15	**610855**	**NEBU-M8G4-K-15-LE4**
Multi-pin plug distributor				
	• With the help of the multi-pin plug distributor, electrical signals such as for end-position sensing can be transferred collectively Options: – 4 individual connections – 6 individual connections	–	**574586**	**NEDU-L4R1-M8G3L-M12G8**
			574587	**NEDU-L6R1-M8G3L-M12G8**
	• With the help of the distributor, electrical signals such as for end-position sensing can be transferred collectively – 2 individual connections	–	**8005312**	**NEDY-L2R1-V1-M8G3-N-M8G4**

Designation	Description
Motor controller/servo drive	
	The accessories for the relevant motor controllers/servo drives can be found at: • www.festo.com/catalogue/cmmp • www.festo.com/catalogue/cmmt • www.festo.com/catalogue/cmmo • www.festo.com/catalogue/cmxh

Ordering data – Accessories

Designation	Description		Part no.	Type
Mounting kit				
	• Mounting kit for the energy chain and a Z-axis, such as EGSL, DGSL	EXCM-30	**4070088**	**EAHT-E9-FB-3D-30**
Adjusting kit				
	• Height-adjustable mounting kit	EXCM-30	**4070088**	**EADC-E11-30**
Sensor mounting				
	• For homing in combination with third-party motors	EXCM-30	**4070088**	**EAPR-E11-30**
Energy chain				
	• As a cable guide for the Z-axis	EXCM-30	**8059999**	**EADH-U-3D-30**
			8060324	**EADH-U-3D-40**
Connector set				
	• Retaining brackets for mounting the energy chain	EXCM-30	**8060325**	**EAHT-AE-3D-30**
			8060326	**EAHT-AE-3D-40**
Sensor mounting				
	• For mounting the proximity switches SIES-Q8B, SIES-V3B on the X-axis	EXCM-40, EXCH-40	**2536353**	**EAPR-E12-40**
		EXCH-60	**2478805**	**EAPR-E12-60**
Adjusting tool				
	• For aligning and checking the flatness of the planar surface gantry	EXCM-40, EXCH-40, EXCH-60	**3197697**	**EADT-W-E12**
Adjusting kit				
	• Used to mount the handling system on the supporting surface • Can be used to easily compensate for any unevenness in the supporting surface	EHMX-...-EGC-50-TB-KF	**8047565**	**EADC-E15-50-E7**
		EHMX-...-EGC-80-TB-KF	**8047566**	**EADC-E15-80-E7**
		EHMX-...-EGC-120-TB-KF	**8047567**	**EADC-E15-120-E7**
		EHMX-...-EGC-185-TB-KF	**8047568**	**EADC-E15-185-E7**
		EHMX-...-ELGC-60-BS	**8142650**	**EADC-E15-60-E22**
		EHMX-...-ELGC-80-BS	**8142651**	**EADC-E15-80-E22**
Profile mounting				
	• Used to mount the handling system on the supporting surface • It is not height-adjustable	EHMX-...-ELGC-60-BS	**8142652**	**EAHM-E15-60-E22**
		EHMX-...-ELGC-80-BS	**8142653**	**EAHM-E15-80-E22**

Programming aid

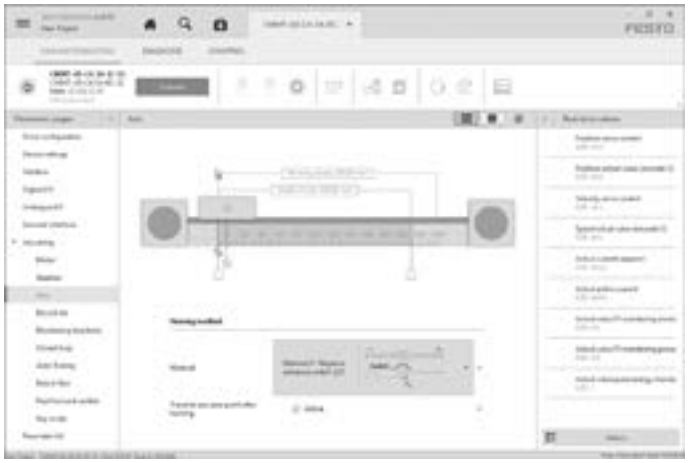
FCT software – Festo Configuration Tool

Software platform for electric drives from Festo (➔ www.festo.com/sp/fct)

- All drives in a system can be managed and saved in a common project
- Project and data management for all supported types of equipment
- Simple to use thanks to graphically supported parameter entry
- Universal mode of operation for all drives
- Work offline at your desk or online at the machine

Festo Automation Suite

Parameterisation and programming software for electronic devices from Festo



- Parameterisation, programming and commissioning in a clear and user-friendly interface
- Optimum support for complex processes thanks to guided wizards (e.g. for commissioning, drive configuration, etc.)
- Fast access to the required documents and additional information
- Easy integration of electric drives in the controller programming