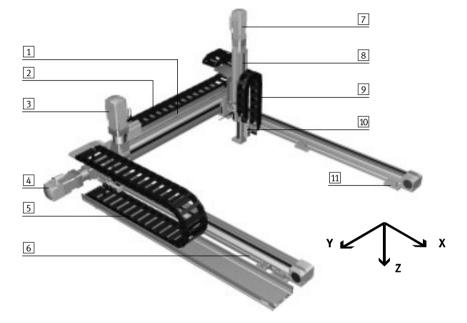




Key features

At a glance

- A three-dimensional gantry (YXCR) is an assembly of several axis modules (EHM.../DHMZ) to produce a movement in 3D space.
- Can be used universally for handling light to very heavy workpieces or high payloads
- Especially suitable for very long strokes
- High mechanical rigidity and sturdy design
- Pneumatic and electrical components freely combinable
- As an electrical solution 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



1 Y-axis

2 Energy chain for Y module

FESTO

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

Description of the modules

X module Structure:

The X module EHMX comprises

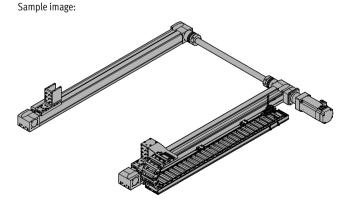
2 parallel toothed belt axes which are connected to one another by a connecting shaft. They are powered by a servo motor.

Adapters are installed on the slide 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 elements are located on the motor side:

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



Key features

Description of the modules

Y module

Structure:

The Y module EHMY comprises a linear axis which is powered by a servo motor.

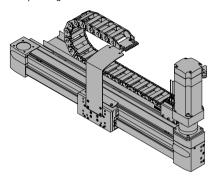
Adapters are installed on the slide of the Y-axis to connect the Z module.

The position of the motor and energy chain is dependent on the position of the motor on the X module. The following elements are located on

the motor side:

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

Sample image:



Z module

Structure:

The Z module EHMZ comprises an electric drive, the DHMZ comprises a pneumatic drive. In both variants, an energy chain is attached as a cable guide.

The Z module can be selected using the configurator, depending on the application.





Dispatch options Fully assembled:

The 3D 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 evenness → table below.

Partially assembled:

The 3D gantry is delivered partially assembled. This means that all three axis modules (X-/Y-/Z-axis) are assembled, each with an optional motor. The partially assembled system must be completed by the customer. Help can be found in the assembly instructions provided. Optional accessories (→ 9) are enclosed. Note evenness → table below.

System overview ¹⁾				
Size	YXCR-1	YXCR-2	YXCR-3	YXCR-4
Max. working stroke	X: 1900 mm	X: 3000 mm	X: 3000 mm	X: 3000 mm
	Y: 1900 mm	Y: 2000 mm	Y: 2000 mm	Y: 2000 mm
	Z: 50 mm	Z: 800 mm	Z: 800 mm	Z: 800 mm
Max. payload	Dependent on the selected dyn	amic response	·	
Required evenness of the mounting	≤ 0.1 mm/m			
surface				
Mounting position	Horizontal			

1) Drive package depending on configuration selected.

Key features

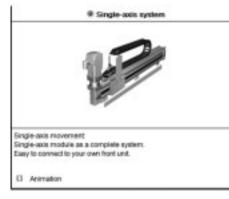
Configurator: Handling Guide Online (HGO)

Selecting a handling system

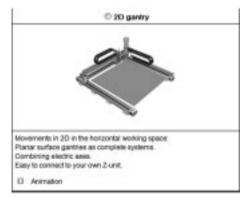
Planning complex handling systems takes a lot of time. You can use the "Handling Guide Online" (HGO) configurator to design a customised handling system for your application in just a few steps. You can choose from the following systems:

- Single-axis system
- 2D linear gantry
- 2D planar surface gantry
- 3D gantry

Single-axis system



2D planar surface gantry



Entering the application data

Payload

Payload

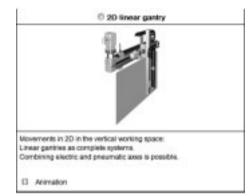
- Drive system of the axis
- Distance from the centre of the load Working stroke • Reference cycle

Driver whereas			
Specify the characteristic values of the psyload			
Paginal (Netherland solution)	10		
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reamply pake notes attached and	Bite Other		-

Benefits:

- Automatic selection of all relevant components
- Automatic design and calculation of workload
- Quote created automatically
- CAD model available immediately

2D linear gantry



3D gantry



- Fully automated processing
- You can order fully assembled or unassembled systems through the online shop

FESTO

• Lots of possible options

*

Three-dimensional gantries Key features

Result of calculation

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

The following are available

- immediately:
- CAD model
- Technical data for the selected
- system • Price information

Result of calculation

Neteci the appropriate system and cambinar with the coeffiquations (

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System overview

You will be given an overview of the • Request price whole system. • Send request • Add to basket

You will also have the following options:

Your handling solution

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Key features

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 HGO configurator on the "Result of calculation" page.

Select the a	ppropriate system and o	cettinan with t	to configurat	RIFC 1
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- 16	1	YEERIC		
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Drives/axes

X-axis

Y-axis

Toothed belt axis EGC-TB-KF



Toothed belt axis EGC-TB-KF



Z-axis **Mini slide DGSL**



Toothed belt axis EGC-TB-KF



Electrical

ElectricalRigid, closed profile

- Rigid, closed profile
- Recirculating ball bearing guide for high loads and torques

Recirculating ball bearing guide for high loads and torques
High dynamic response and minimum vibration

• High dynamic response and minimum vibration

Toothed belt axis EGC-HD-TB



Duo guide rail

• Electrical

profile

• For maximum loads and torques, high feed forces and speeds and long service life

• Flat drive unit with rigid, closed

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

- ElectricalRigid, closed profile
- Recirculating ball bearing guide for
- high loads and torques
 High dynamic response and minimum vibration
- Small toothed disc diameter

Mini slide EGSL



Cantilever axis DGEA



High load capacity

• Electrical

High dynamic response

• Compact design

• Easy adjustment of end positions

• Electrical

- High rigidity
- High load capacity
- High dynamic response

Three-dimensional gantries Key features

Drives/axes Z-axis Spindle axis EGC-BS-KF



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

Possible axi	s 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 electrical: EGSL-35
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 electrical: EGSL-45/55 Cantilever axis DGEA-18 Spindle axis EGC-70-BS-KF
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 electrical: 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

1) Drive package depending on configuration selected.

Key features

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 HGO configurator on the "System configuration" page.

Bystein configuration			
Efforts mate and motor compiler package			
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Motors and controllers

Servo motors EMMS-AS



Stepper motors EMMS-ST



• Dynamic, brushless, permanently excited servo motor

- Digital absolute displacement encoder, single-turn or multi-turn
- · With optional brake Options:
- With or without brake
- Type of encoder: single-turn or multi-turn
- 2-phase hybrid technology
- Step angle 1.8°
- With optional brake

Motor controller CMMP-AS for servo motor



- Complete integration of all components for controller and power section, 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
- Fieldbus interface
- CANopen
- DeviceNet
- EtherCAT
- EtherNet/IP
- PROFIBUS DP
- PROFINET

Motor controller CMMS-ST for stepper motor



- Complete integration of all components for controller and power section, including RS232 interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic activation for a brake

Options:

• Safety function: safe torque off (STO)/category 3, Performance Level d

• Fieldbus interface

- CANopen
- DeviceNet - PROFIBUS DP

Subject to change - 2016/09

→ Internet: www.festo.com/catalogue/...





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



Module/motor combinations

We recommend that the 3D 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	
X module		
EHMX-EGC-50-TB-KF	EMMS-AS-40-M-LS	
EHMX-EGC-80-TB-KF	EMMS-AS-70-M-LS	
EHMX-EGC-120-TB-KF	EMMS-AS-100-M-HS	
EHMX-EGC-185-TB-KF	EMMS-AS-140-L-HS	
Y module		
EHMYEGC-50-TB-KF	EMMS-AS-40-M-LS	
EHMYEGC-80-TB-KF	EMMS-AS-70-S-LS	
EHMYEGC-120-TB-KF	EMMS-AS-100-S-HS	
EHMYEGC-125-TB-HD	EMMS-AS-70-S-LS	
EHMYEGC-160-TB-HD	EMMS-AS-100-S-HS	
EHMYEGC-185-TB-KF	EMMS-AS-100-S-HS	
EHMYEGC-220-TB-HD	EMMS-AS-140-S-HS	
Z module		
EHMZ-DGEA-18-TB-KF	EMMS-AS-55-S-LS	
EHMZ-DGEA-25-TB-KF	EMMS-AS-70-S-LS	
EHMZ-DGEA-40-TB-KF	EMMS-AS-100-S-HS	
EHMZ-EGC-70-BS-KF	EMMS-AS-55-S-LS	
EHMZ-EGC-80-BS-KF	EMMS-AS-70-S-LS	
EHMZ-EGC-120-BS-KF	EMMS-AS-100-S-HS	-
EHMZ-EGSL-35-BS-KF	EMMS-ST-28-L	-
EHMZ-EGSL-45-BS-KF	EMMS-AS-40-M-LS	
EHMZ-EGSL-55-BS-KF	EMMS-AS-55-S-LS	
EHMZ-EGSL-75-BS-KF	EMMS-AS-70-S-LS	

Designation	Description	Cable length	Part No.	Туре
For servo motor				
Motor cable ¹⁾				
	For servo motor EMMS-AS-40-M-LS/	5 m	550306	NEBM-T1G8-E-5-Q7N-LE8
	EMMS-AS-55-S-LS	10 m	550307	NEBM-T1G8-E-10-Q7N-LE8
ALL AL		15 m	550308	NEBM-T1G8-E-15-Q7N-LE8
Motor cable ¹⁾				
	For servo motor EMMS-AS-70-S-LS/	5 m	550310	NEBM-M23G8-E-5-Q9N-LE8
	EMMS-AS-70-M-LS/EMMS-AS-100-S-HS/	10 m	550311	NEBM-M23G8-E-10-Q9N-LE8
	EMMS-AS-100-M-HS/EMMS-AS-140-S-HS/ EMMS-AS-140-L-HS	15 m	550312	NEBM-M23G8-E-15-Q9N-LE8

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



Designation	Description	Cable length	Part No.	Туре
For servo motor				
Encoder cable ¹⁾				
	 For servo motor EMMS-AS-40-M-LS/ 	5 m	550314	NEBM-T1G8-E-5-N-S1G15
ST al	EMMS-AS-55-S-LS	10 m	550315	NEBM-T1G8-E-10-N-S1G15
		15 m	550316	NEBM-T1G8-E-15-N-S1G15
Encoder cable ¹⁾				
	• For servo motor EMMS-AS-70-S-LS/	5 m	550318	NEBM-M12W8-E-5-N-S1G15
	EMMS-AS-70-M-LS/EMMS-AS-100-S-HS/	10 m	550319	NEBM-M12W8-E-10-N-S1G15
W	EMMS-AS-100-M-HS/EMMS-AS-140-S-HS/	15 m	550320	NEBM-M12W8-E-15-N-S1G15
	EMMS-AS-140-L-HS			
For stepper motor				
Motor cable ¹⁾				
	For stepper motor EMMS-ST-28-L	1.5 m	1449600	NEBM-SM12G8-E-1.5-Q5-LE6
AT 2		2.5 m	1449601	NEBM-SM12G8-E-2.5-Q5-LE6
		5 m	1449602	NEBM-SM12G8-E-5-Q5-LE6
		7 m	1449603	NEBM-SM12G8-E-7-Q5-LE6
		10 m	1449604	NEBM-SM12G8-E-10-Q5-LE6
Encoder cable ¹⁾				
	• For stepper motor EMMS-ST-28-L	5 m	550748	NEBM-M12G8-E-5-S1G9
$\langle \rangle$		10 m	550749	NEBM-M12G8-E-10-S1G9
		15 m	550750	NEBM-M12G8-E-15-S1G9

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 plug connectors 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)				-	-

FESTO

Standard components within the handling system

The handling system comprises a	System configuration		
number of tried and tested standard components from Festo. Different	Michaely system Surg	Britan sources Tributered	
components are used depending on the configuration. You can alter the	Elementa di reportemen Monteri canale congle tenti congle fermi congle anteriora tradi ar pagi pateritari consta e constance territori	ter Tere	đ.,
scope and design of the accessories in the HGO configurator on the "System configuration" page.	Presentation Baselow Facilitations (Jalano Date of Additional (Jalano Date of Additional (Jalano) Baselow Additional (Jalano) Baselow Additional (Jalano)	New Point-point Dist	1
conngulation page.	Ryambig Kaling halan Propingengengengen	€ Grante associa E constante Energy	

Designation	Description		Cable length	Part No.	Туре
Programming cable					
	High-speed USB 2.0 connecting cable		1.8 m	1501332	NEBC-U1G4-K-1.8-N-U2G4
Control cable					
	For I/O interface to any controller		2.5 m	552254	NEBC-S1G25-K-2.5-N-LE26
Proximity sensor (in	ductive) for sensing the position of the slide on t Cable with open end	he X-/Z-axis			
	For toothed belt axis EGC-TB	PNP, N/C contact	7.5 m	551391	SIES-8M-PO-24V-K-7,5-OE
E B	For spindle axis EGC-BS	PNP, N/O contact	7.5 m	551386	SIES-8M-PS-24V-K-7,5-0E
	For mini slide EGSL	NPN. N/C contact	7.5 m	551401	SIES-8M-NO-24V-K-7,5-OE
	 For DC voltage Included if "Festo sensor package" is selected: 2 pieces 	NPN, N/O contact	7.5 m	551396	SIES-8M-NS-24V-K-7,5-OE
Proximity sensor (in	ductive) for sensing the position of the slide on t	he Y-axis			
	Cable with plug				
all	• For toothed belt axis EGC-TB,	PNP, N/C contact	0.3	551392	SIES-8M-PO-24V-K-0,3-M8D
ETT T	EGC-HD-TB	PNP, N/C contact	2.5	551393	SIES-8M-PO-24V-K-2,5-M8D
SV-	• For DC voltage	PNP, N/O contact	0.3	551387	SIES-8M-PS-24V-K-0,3-M8D
	Included if "Festo sensor package" is	PNP, N/O contact	2.5	551388	SIES-8M-PS-24V-K-2,5-M8D
	selected:	NPN, N/C contact	0.3	551402	SIES-8M-NO-24V-K-0,3-M8D
	• 2 pieces	NPN, N/C contact	2.5	551403	SIES-8M-NO-24V-K-2,5-M8D
		NPN, N/O contact	0.3	551397	SIES-8M-NS-24V-K-0,3-M8D
		NPN, N/O contact	2.5	551398	SIES-8M-NS-24V-K-2,5-M8D

Designation	Description	Description		Part No.	Туре		
Proximity sensor (in	ductive) for sensing the position of the slide on t	he Z-axis					
	Cable with open end	Cable with open end					
A A A A A A A A A A A A A A A A A A A	For cantilever axis DGEA	PNP, N/C contact	2.5 m	150398	SIEN-M8NB-PO-K-L		
	For DC voltage	PNP, N/O contact	2.5 m	150394	SIEN-M8NB-PS-K-L		
	Included if "Festo sensor package" is	NPN, N/C contact	2.5 m	150396	SIEN-M8NB-NO-K-L		
	selected:	NPN, N/O contact	2.5 m	150392	SIEN-M8NB-NS-K-L		
	• 2 pieces						
			1				
Proximity sensor (m	agneto-resistive) for sensing the position of the s	slide on the Z-axis					
	Cable with open end	Cable with open end					
all all	• For mini slide DGSL	PNP, N/O contact	2.5 m	551373	SMT-10M-PS-24V-E-2,5-L-OE		
	• For DC voltage	NPN, N/O contact	2.5 m	551377	SMT-10M-NS-24V-E-2,5-L-OE		
	Included if "Festo sensor package" is						
	selected:			1			
	• 2 pieces						

Designation	Description	Cable length	Part No.	Туре
Plug socket with cable				
	Connection between multi-pin plug distributor and control cabinet	5 m	525618	SIM-M12-8GD-5-PU
A LINE		10 m	570008	SIM-M12-8GD-10-PU
Plug connector				
	• For connection to the multi-pin plug distributor	-	562024	NECU-S-M8G3-HX
Multi-pin plug distributo	r			
	• With the help of the multi-pin plug distributor, electrical signals	-	574586	NEDU-L4R1-M8G3L-M12G8
P P P P P P P P P P P P P P P P P P P	such as end-position sensing can be collectively transferred Options: – 4 individual connections – 6 individual connections		574587	NEDU-L6R1-M8G3L-M12G8

Designation	Description	Part No.	Туре					
Interface	Interface							
	For additional I/Os	567855	CAMC-D-8E8A					
	For DeviceNet	547451	CAMC-DN					
	For EtherCAT	567856	CAMC-EC					
	For EtherNet/IP	1911917	CAMC-F-EP					
	For PROFINET RT	1911916	CAMC-F-PN					
ler	For PROFIBUS DP	547450	CAMC-PB					
Safety module								
	For safe torque off (STO)	1501330	CAMC-G-S1					

Designation	Description	Part No.	Туре
Switch module			
	If the safety module CAMC-G-S1 is not used, the switch module is absolutely essential for operating of the motor controller CMMP-ASM3	1501329	CAMC-DS-M1
Bus connection			
A REAL	For DeviceNet interface	525635	FBSD-KL-2X5POL
		l	
Plug connector			
~/e	For CANopen interface	533783	FBS-SUB-9-WS-CO-K
	For PROFIBUS interface	533780	FBS-SUB-9-WS-PB-K

Designation	Description		Part No.	Туре
Adjusting kit				
	Used to mount the handling system on	EHMYEGC-50-TB-KF	8047565	EADC-E15-50-E7
	the bearing surface	EHMYEGC-80-TB-KF	8047566	EADC-E15-80-E7
	Can be used to compensate any	EHMYEGC-120-TB-KF	8047567	EADC-E15-120-E7
	unevenness in the bearing surface	EHMYEGC-185-TB-KF	8047568	EADC-E15-185-E7
Profile mounting				
	Used to mount the handling system on the system of th	he bearing surface	-	
	• It is not height-adjustable			

Three-dimensional gantries Programming aid

Easy programming with

FCT software – Festo Configuration Tool

Software platform for electric drives from Festo

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