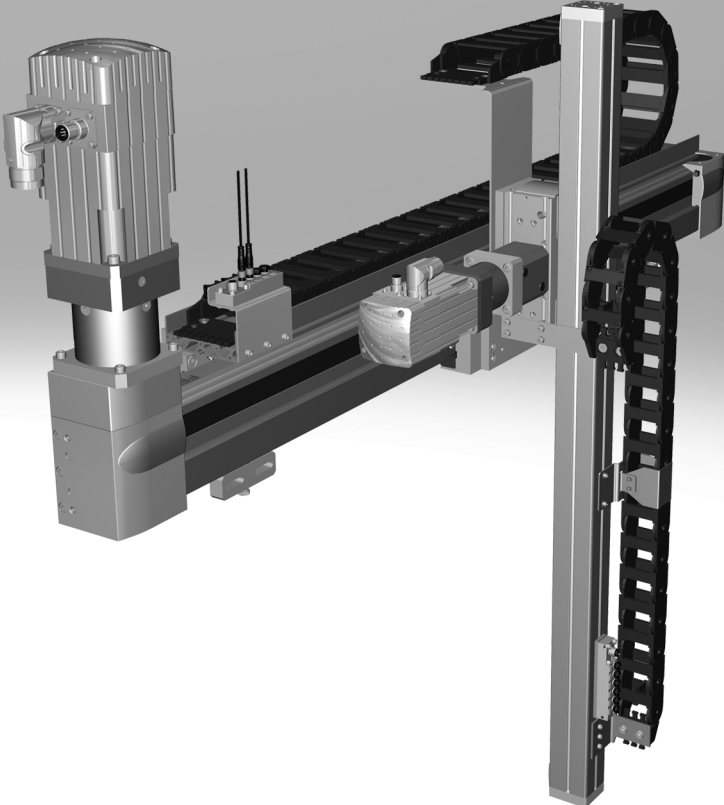


Linear gantries



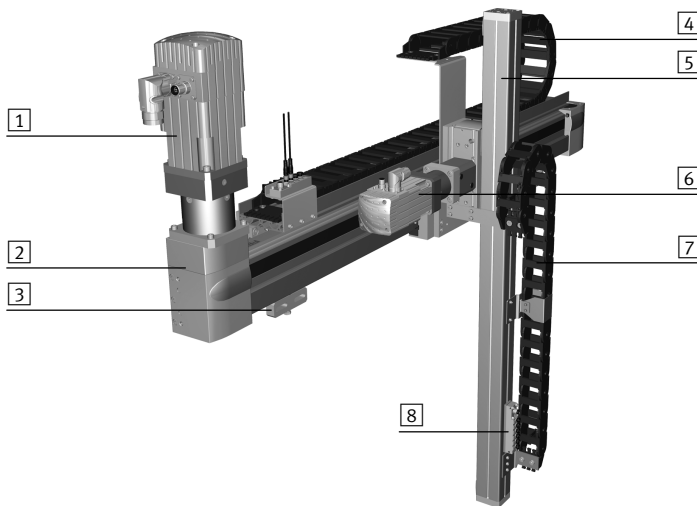
Linear gantries

Key features

At a glance

A linear gantry (YXCL) is an assembly of several axis modules (EHM.../DHMZ) to produce a movement in 2D space.

- Ideal for long gantry strokes and heavy loads
- High mechanical rigidity and sturdy design
- Frequently used in feeding or loading applications
- Use of tried and tested drives/axes from Festo



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

Description of the modules

Y module

Structure:

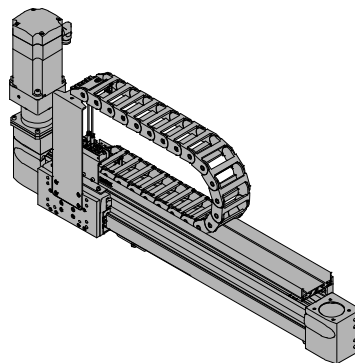
The Y module EHYM comprises a linear axis which is powered by a servo motor.

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

The following elements are located on the motor side:

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

Sample representation:



Linear gantries

Key features

Description of the modules

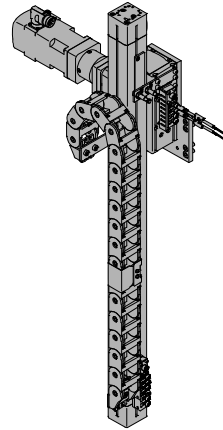
Z module

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.

Sample representation:



Dispatch options

Fully assembled:

The linear gantry is fully assembled. All cables and tubing are installed and connected.

Partially assembled:

The linear gantry is delivered partially assembled. This means that both axis modules (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 (→ 10) are enclosed.

Note evenness → table below.

System overview¹⁾

Size	YXCL-1	YXCL-2	YXCL-3	YXCL-4
Max. working stroke	Y: 1900 mm Z: 50 mm	Y: 3000 mm Z: 800 mm	Y: 3000 mm Z: 800 mm	Y: 3000 mm Z: 800 mm
Max. payload	Dependent on the selected dynamic response			
Mounting position	Horizontal			

1) Drive package depending on configuration selected.

Linear gantries

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 gantry
- 3D gantry

Benefits:


- Automatic selection of all relevant components
- Automatic design and calculation of workload
- Quote created automatically
- CAD model available immediately
- Fully automated processing
- You can order fully assembled or unassembled systems through the online shop
- Lots of possible options

Single-axis system

Single-axis system




Single-axis movement.
Single-axis module as a complete system.
Easy to connect to your own front unit.


 Animation

2D linear gantry

2D linear gantry

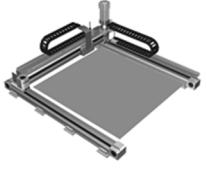


Movements in 2D in the vertical working space:
Linear gantries as complete systems.
Combining electric and pneumatic axes is possible.


 Animation

2D gantry

2D gantry



Movements in 2D in the horizontal working space:
Planar surface gantries as complete systems.
Combining electric axes.
Easy to connect to your own Z-unit.

 Animation

3D gantry

3D gantry



Movements in 3D:
Three-dimensional gantries as complete systems.
Combining electric and pneumatic axes is possible.

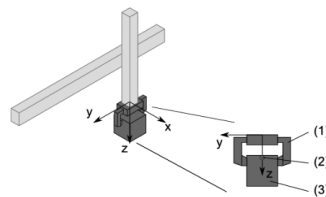
 Animation

Entering the application data

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

Payload

Find your handling solution in a few steps



Definition of payload

- (1) Your front unit
- (2) Centre of gravity
- (3) Your workpiece

Specify the characteristic values of the payload

Payload (front unit and workpiece)	<input type="text"/>	kg
Distance from the centre of the load	X	<input type="text"/> mm
	Y	<input type="text"/> mm
	Z	<input type="text"/> mm
Rotating or swivel motion at the front unit	<input type="radio"/> No <input type="radio"/> Yes	

Linear 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

Find your handling solution in a few steps

Select the appropriate system and continue with the configuration: 1

No.	System series	System workload	Repetition accuracy (+/-)
<input checked="" type="checkbox"/>	1 YXCL-2	64 %	0.08 mm
<input type="checkbox"/>	2 YXCL-2	77 %	0.09 mm
<input type="checkbox"/>	3 YXCL-2	64 %	0.08 mm
<input type="checkbox"/>	4 YXCL-2	77 %	0.09 mm
<input type="checkbox"/>	5 YXCL-3	39 %	0.08 mm

« 1-5 of 18 »

2D linear gantry YXCL-2: #1

Drive module	Gear units	Motor type	Motor position	Motor controller	Nominal voltage phases	Guide workload	Drive workload	Axis workload
Y module: toothed belt axis EGC-80	3:1	Servo motor EMMS-AS	Left	CMMS-AS	1-phase	38 %	3 %	5 %
Z-module: Spindle axis EGC-70	None	Servo motor EMMS-AS	Top	CMMS-AS	1-phase	20 %	21 %	64 %

Please note:
The calculation is subject to the following requirements:

- Operating pressure 6 bar
- Motor and motor controller from Festo
- No turning or swivel motions at the front unit

System overview

You will be given an overview of the whole system.

You will also have the following options:

- Request price
- Send request
- Add to basket

Your handling solution

Find your handling solution in a few steps

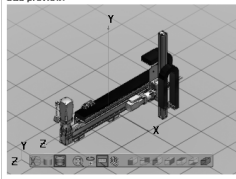
Your selected system overview:

Your entries	
Characteristic	Value
Handling type	2D linear gantry
Payload	12 kg
Rotary/swivel motion	No
Drive system of the Y-axis	Electric: several positions
Drive system of the Z-axis	Electric: several positions
Working stroke in Y direction	200 mm
Working stroke in Z direction	200 mm
Motor position on the Y-axis	Left
Fieldbus interface	I/O operation or CANopen integrated
AC 1-phase	230 V
AC 3-phase	400 V
Travel, vertical 1 in Z direction	200 mm
Travel, horizontal 1 in Y direction	200 mm
Travel, vertical 2 in Z direction	200 mm
Travel time	10 s

Your system

Your options

Cad preview:



Your next step:

[Send request](#)

Linear gantries

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.

Result of calculation

Find your handling solution in a few steps

Select the appropriate system and continue with the configuration: 1

	No.	System series
<input checked="" type="checkbox"/>	1	YXCL-2
<input type="checkbox"/>	2	YXCL-2
<input type="checkbox"/>	3	YXCL-2
<input type="checkbox"/>	4	YXCL-2
<input type="checkbox"/>	5	YXCL-3

2D linear gantry YXCL-2: #1

Drive module	Gear units	Motor type
Y module: toothed belt axis EGC-80	3:1	Servo motor EMMS-AS
Z module: Spindle axis EGC-70	None	Servo motor EMMS-AS

Drives/axes

Y-axis

Toothed belt axis EGC-TB-KF



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

Toothed belt axis EGC-HD-TB



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

Z-axis

Mini slide DGSL



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

Mini slide EGSL



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

Toothed belt axis EGC-TB-KF



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

Cantilever axis DGEA



- Electrical
- High rigidity
- High load capacity
- High dynamic response

Linear 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 axis combinations ¹⁾		
Size	Y module	Z module
YXCL-1	<ul style="list-style-type: none"> • Toothed belt axis EGC-50-TB-KF 	<ul style="list-style-type: none"> • Mini slide pneumatic: DGSL-6 • electrical: EGSL-35
YXCL-2	<ul style="list-style-type: none"> • Toothed belt axis EGC-80-TB-KF • Toothed belt axis with heavy-duty guide EGC-HD-125-TB 	<ul style="list-style-type: none"> • Mini slide pneumatic: DGSL-12/16 • electrical: EGSL-45/55 • Cantilever axis DGEA-18 • Spindle axis EGC-70-BS-KF
YXCL-3	<ul style="list-style-type: none"> • Toothed belt axis EGC-120-TB-KF • Toothed belt axis with heavy-duty guide EGC-HD-160-TB 	<ul style="list-style-type: none"> • Mini slide pneumatic: DGSL-20/25 • electrical: EGSL-75 • Cantilever axis DGEA-25/40 • Spindle axis EGC-80-BS-KF
YXCL-4	<ul style="list-style-type: none"> • Toothed belt axis EGC-185-TB-KF • Toothed belt axis with heavy-duty guide EGC-HD-220-TB 	<ul style="list-style-type: none"> • Cantilever axis DGEA-40 • Spindle axis EGC-120-BS-KF

1) Drive package depending on configuration selected.

Linear gantries

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.

System configuration
Find your handling solution in a few steps

<input checked="" type="checkbox"/> Festo motor and motor controller package Please note: The calculated performance data assume motors and motor controllers from Festo will be used.	
Motor controller	CMMS-AS
Safety function, motor controller	Safe torque off (STO), Category 3, PL e
Expansion of digital inputs and outputs	None
Fieldbus interface	IO operation or CANopen integrated
Control cable for I/O interface to any controller	<input checked="" type="radio"/> Yes <input type="radio"/> No
Programming cable	<input checked="" type="radio"/> Yes <input type="radio"/> No
Encoder type on motor	Absolute encoder, single-turn
Motor brake	X <input type="radio"/> Yes <input checked="" type="radio"/> No
	Y <input type="radio"/> Yes <input checked="" type="radio"/> No
<input checked="" type="checkbox"/> Festo sensor package	
Switching output	PNP
Switching element function	NIC contact

Motors and controllers

Servo motors EMMS-AS



- Dynamic, brushless, permanently excited servo motor
 - Digital absolute displacement encoder in single-turn or multi-turn version
 - With optional brake
- Options:
- With or without brake
 - Encoder type: single-turn or multi-turn

Gear unit EMGA



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

Stepper motors EMMS-ST



- 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

Linear gantries

Key features

Motors and controllers

Motor cable NEBM



- Cables specially coordinated for motor controller and motor
 - Degree of protection to IP65 (in assembled state)
- Options:
- Minimum cable length

Encoder cable NEBM



- Cables specially coordinated for motor controller and motor
 - Degree of protection to IP65 (in assembled state)
- Options:
- Minimum cable length

Module/motor combinations

We recommend that the linear 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
Y module	
EHMY-...-EGC-50-TB-KF	EMMS-AS-40-M-LS-...
EHMY-...-EGC-80-TB-KF	EMMS-AS-70-S-LS-...
EHMY-...-EGC-120-TB-KF	EMMS-AS-100-S-HS-...
EHMY-...-EGC-125-TB-HD	EMMS-AS-70-S-LS-...
EHMY-...-EGC-160-TB-HD	EMMS-AS-100-S-HS-...
EHMY-...-EGC-185-TB-KF	EMMS-AS-100-S-HS-...
EHMY-...-EGC-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-...

Linear gantries

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 accessories in the HGO configurator on the “System configuration” page.

System configuration	
Find your handling solution in a few steps	
Electrical system	
Minimum cable length from energy chain output	5 m
Additional multi-pin plug distributor on the Z-module for front unit	None
Pneumatics	
Number of additional tubes	None
Outside diameter of additional tubes for front unit	Please select
Minimum tube length from energy chain output	2 m
Assembly	
Mounting method	<input checked="" type="radio"/> Complete assembly <input type="radio"/> Unmounted
Printed user documentation	English

Optional accessories

Proximity sensor SIEN



- For cantilever axis DGEA
 - Inductive proximity sensor
 - Round design
 - For DC voltage
- Included if “Festo sensor package” is selected:
- 2 pieces

Proximity sensor SIES-8M



- For toothed belt axis EGC-TB, EGC-HD-TB
 - Inductive proximity sensor
 - For drives/axes with T-slot
 - For DC voltage
 - Flush installation
- Included if “Festo sensor package” is selected:
- 2 pieces

Proximity sensor SMT-10M



- For mini slide DGSL
 - Measuring principle: magneto-resistive
 - For drives with C-slot
 - For DC voltage
 - Flush installation
- Included if “Festo sensor package” is selected:
- 2 pieces

Plastic tubing PUN



- Material: polyurethane
 - Colour: blue
- Options:
- Additional 2 tubing for front unit
 - Outside diameter of additional tubing
 - Tube length

Multi-pin plug distributor NEDU



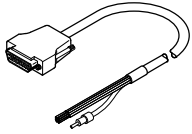
- With the help of the multi-pin plug distributor, electrical signals such as end-position sensing can be collectively transferred
- Options:
- Additional multi-pin plug distributor for Z module
 - 4 individual connections
 - 6 individual connections

Linear gantries

Key features

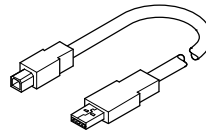
Optional accessories

Control cable NEBC



- For I/O interface to any controller
- Cable length: 2.5 m

Programming cable NEBC



- High-speed USB 2.0 connecting cable
- Cable length: 1.8 m

Possible cable and tube lengths

Cables and tubing are sized so that the minimum length available from the energy chain output is the connection length specified when ordering.

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)	■	■	■	–	–

Linear gantries

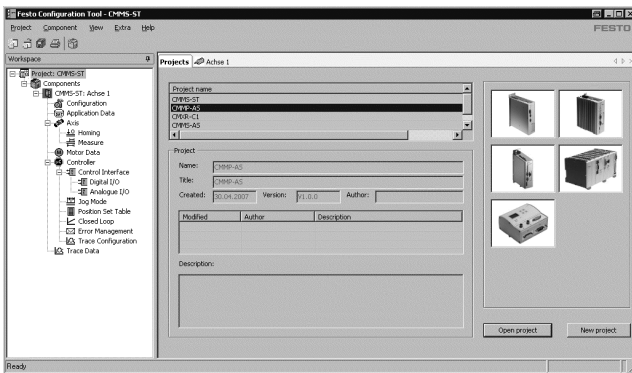
Programming aid

Easy programming with

FCT software – Festo Configuration Tool

Software platform for electric drives from Festo

- Once you have ordered the handling system, a basic project, which matches the configuration, is automatically prepared in FCT. This saves a lot of time and simplifies commissioning
- All drives in a system can be managed and saved in a common project
- Project and data management for all supported device types
- Easy 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



- All drives in a system can be managed and saved in a common project
- Project and data management for all supported device types
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