

Ball screw and toothed belt axes ELGC and mini slides EGSC

FESTO



Compact!

Highlights

- Very compact and cost-efficient
- Optimal installation space to working space ratio
- Unique “one-size-down” assembly system
- Scalable modular system kit comprising linear axes and mini slides
- Standardised accessories for faster design and reduced warehousing
- Recommended for the production of lithium-ion batteries

For applications where compact dimensions are essential, these axes can be combined into very space-saving handling systems that fit seamlessly into assembly systems, testing and inspection systems, in battery production, small parts handling units, desk top applications and in the electronics industry. The low-cost linear axes ELGC and the mini slides EGSC offer an optimal ratio between installation space and working space. They feature a common system approach, platform architecture and, last but not least, adapterless connections.

Ball screw and toothed belt axes ELGC

The interior, protected recirculating ball bearing guide is ideal for XY-movements and vertical Z-movements.

Mini slide EGSC

The high-performance, resilient mini slide with quiet ball screw operation is ideal for vertical Z-movements or guided linear individual movements in any mounting position.

One technology

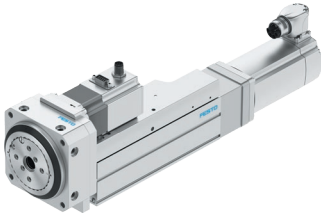
Both interfaces have a clean look and weight-optimised design as well as coordinated interfaces while the motor can be flexibly installed.

“One-size-down” assembly system

Our new handling systems, whether as simple linear or three-dimensional gantries, pick & place solutions or 3D cantilever systems, are easy to combine and assemble without the need for any special expertise or tools. As part of the common system approach, the larger base axes can easily be combined with smaller add-on axes via a universal profile fastener.

Compact and simple: the system at a glance

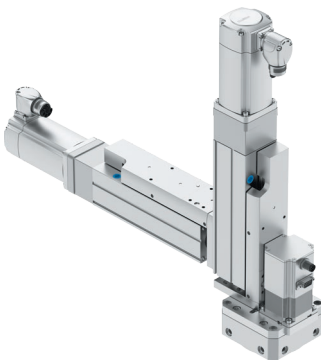
Start off with a low-cost, compact solution – from individual axes to a complete handling system



Single-axis system

Precision positioning and alignment of workpieces even with high loads

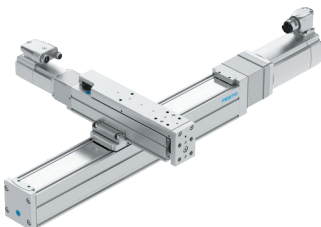
- Adapterless direct mounting of mini slides and rotary drives
- Also available as linear-rotary Z-axis in 2D and 3D systems



Pick & place solution

Compact response to simple requirements:

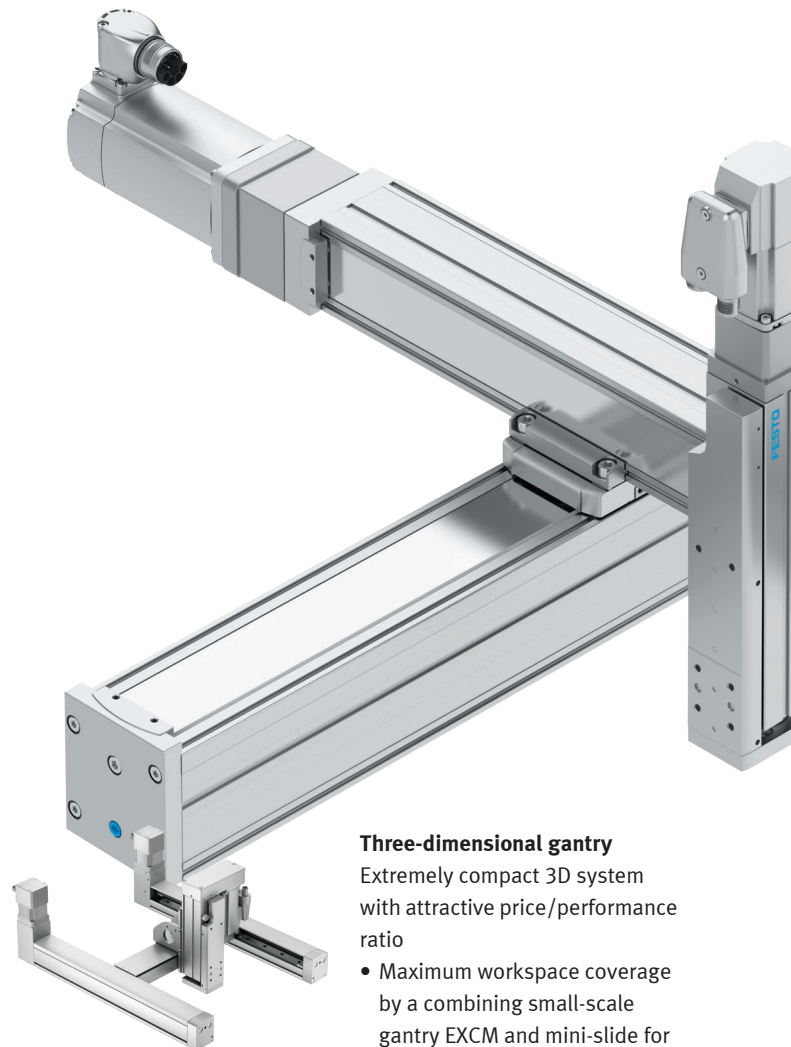
- Adapterless direct mounting of mini slides and rotary drives
- Mechanically sturdy design and precision positioning



Linear gantry

Vertical 2D movements for simple handling tasks can be realised at low cost:

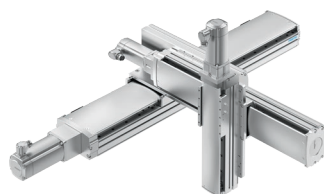
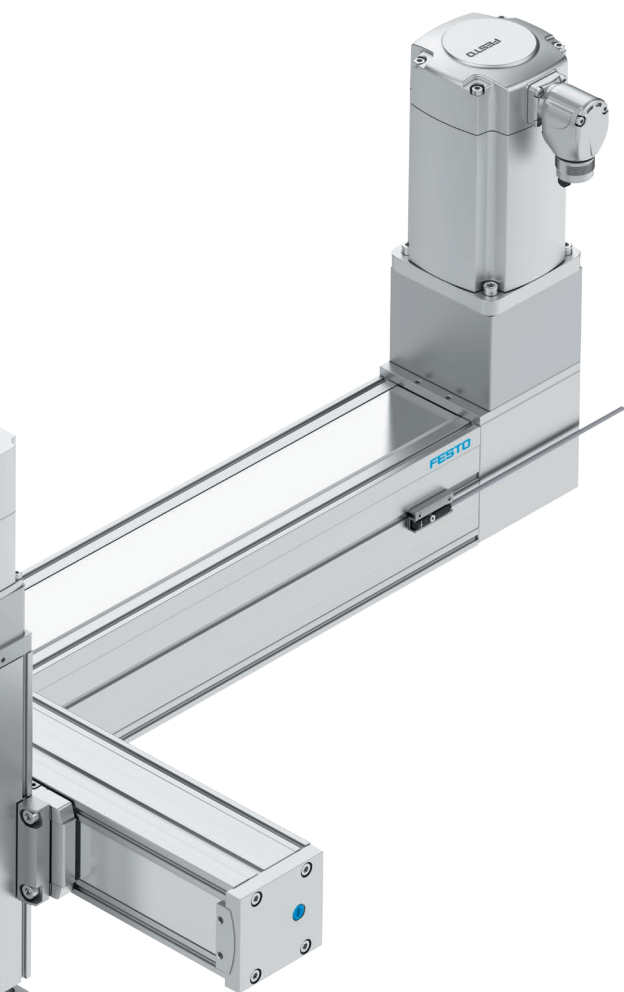
- Ball screw or toothed belt axes combined with mini slides for vertical 2D working space
- Space-optimised and easy to assemble



Three-dimensional gantry

Extremely compact 3D system with attractive price/performance ratio

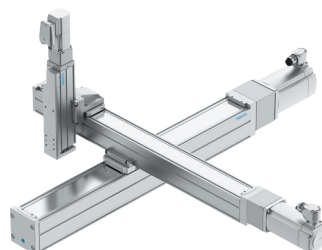
- Maximum workspace coverage by a combining small-scale gantry EXCM and mini-slide for the Z-axis
- Configurable length and width and with different Z-strokes



Cantilever system

Cost-effective system with integrated double guide designed for rigidity and high load capacity

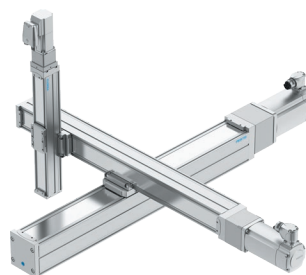
- Ball screw axes for 2D and 3D motions with long strokes and high loads
- Options for the Z-axis: ball screw axis ELGT, ball screw axis ELGC-BS, mini slide EGSC



Cantilevers

Installation-space optimised, robust 3D handling unit for higher loads:

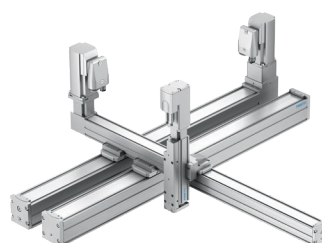
- Ball screw or toothed belt axes combined with mini slides for the Z-axis
- Additional 90° adapter for added rigidity during higher loads



Cantilevers

Simple handling unit in a compact format for simple tasks

- Combined ball screw or toothed belt axes for 3D movements
- Adapterless, cost-optimised system structure with long Z-stroke



Cantilevers

Compact, low-cost system with increased guidance

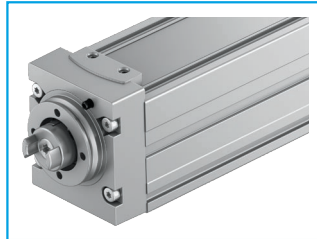
- Combined ball screw or toothed belt axes for 3D motion and longer Y-stroke
- Two axes installed in parallel, including guide axis ELFC, to absorb increased torque and provide improved guidance of cantilever axis

Compact and simple: the system at a glance

An optimally coordinated and modular system for unlimited expansion

Integrated coupling

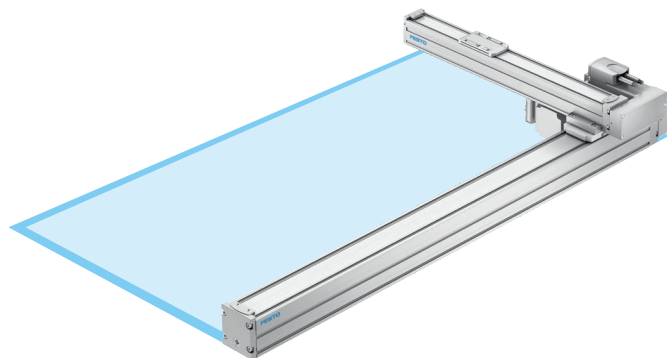
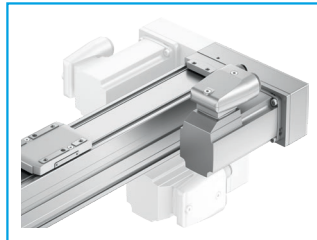
- Highly compact design requiring less space for motor mounting
- Easy to replace during servicing



Flexible motor positioning

Free choice of motor position with ball screw axes and mini slides:

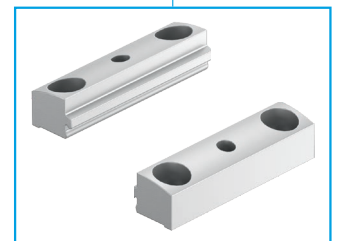
- Parallel kit with 3 x 90° mounting direction and motor position rotated 3 x 90°
- Axial kit with motor position rotated 4 x 90° as an alternative
- Change in position possible at a later date



Compact handling systems

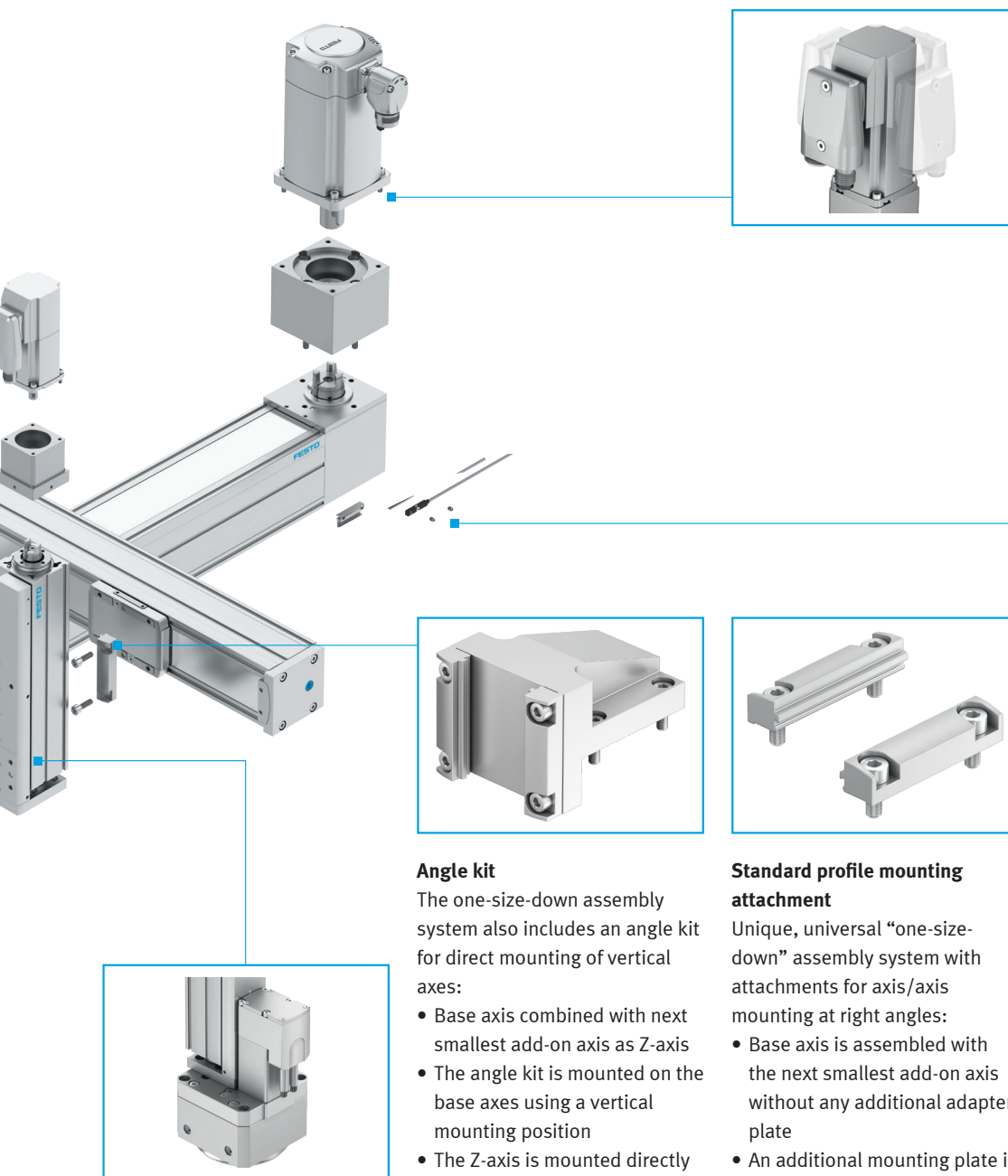
Space-efficient solutions thanks to axis design with optimised zero stroke length on one side:

- Optimal installation space to working space ratio
- Use of zero stroke length for motor mounting on this side of the axis, ideally with parallel attachment
- Meets the basic requirements of the electronics industry



Universal mounting accessories

- Standard profile mounting for assembly in the machine and interconnection of axes
- Lateral assembly on axis profile, freely positionable



Flexible motor positioning

Free choice of motor position with toothed belt axis

- Axial kit with motor position rotated 4 x 90°
- Parallel kit with assembly direction 3 x 90° and motor position rotated 3 x 90° as alternative
- Change in position possible at a later date

Low-cost position sensing

- Standard
 - Position magnet in slide of axes ELGC on both sides
 - Position magnet ring in mini slide EGSC
- With magneto-resistive proximity sensor SMT-8M
 - As normally open or normally closed contact with switching output PNP
 - Flexible, secure and rapid fitting in the profile with the sensor bracket
 - Simple flush insertion into the bracket from above
 - Can be added to or repositioned at any time

Angle kit

The one-size-down assembly system also includes an angle kit for direct mounting of vertical axes:

- Base axis combined with next smallest add-on axis as Z-axis
- The angle kit is mounted on the base axes using a vertical mounting position
- The Z-axis is mounted directly on the standard profile attachments without any other adapters

Standard profile mounting attachment

Unique, universal “one-size-down” assembly system with attachments for axis/axis mounting at right angles:

- Base axis is assembled with the next smallest add-on axis without any additional adapter plate
- An additional mounting plate is only required when combining two axes of the same size
- Also for mounting the base axis in the machine
- The same profile attachments can be used for all axes and slides from one product series

Yoke plate

With a standardised interface for electric rotary drive ERMO

- No adapter needed to mount the ERMO on mini slide EGSC
- Optimised installation space and Z-axis weight

Ball screw and toothed belt axes ELGC at a glance

The benefits of a modular system – use as a low-cost stand-alone axis or as a complete unit



Guide axis ELFC-KF

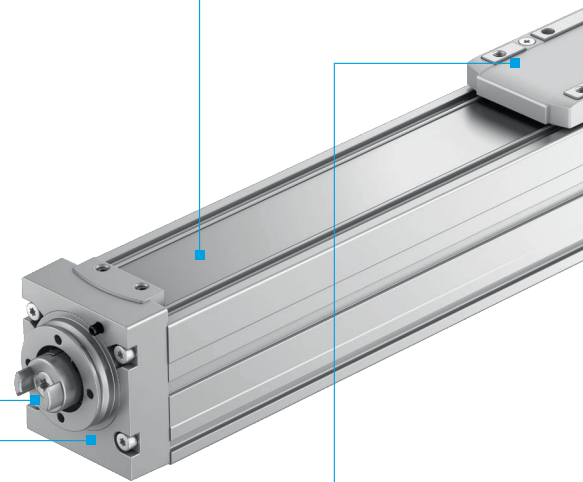
- Driveless linear guide unit with recirculating ball bearing guide and freely movable slide unit
- To absorb forces and torques in multi-axis applications
- Increased torsional resistance and reduced vibration during dynamic loads



Ball screw axis ELGC-BS-KF

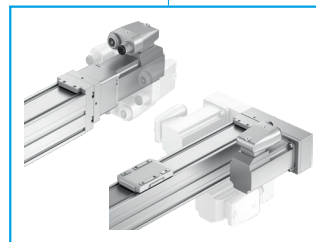
- Four sizes for movements up to 1 m/s at a max. length of 1,000 mm
- Ball screw and precise, resilient recirculating ball bearing guide inside the slide
- Guide and ball screw are protected by a stainless steel cover band

Copper and zinc content of less than 1% – suitable for battery production



Integrated coupling

- Highly compact design integrated into the ball screw axis
- Output half of coupling including clamping ring is part of the axis mechanics
- Optimally designed for the ELGC-BS-KF
- Easy to replace during servicing
- Compatible with axial and parallel kit
- Pinion on parallel kit with hollow interior to save even more space



Vacuum port

- Standard: sealed connection for leak-proof axis
- Optional: can be upgraded with vacuum connection later if required
- With vacuum connection: increased protection of the system thanks to lower particle emissions

Flexible motor mounting with ball screw axis

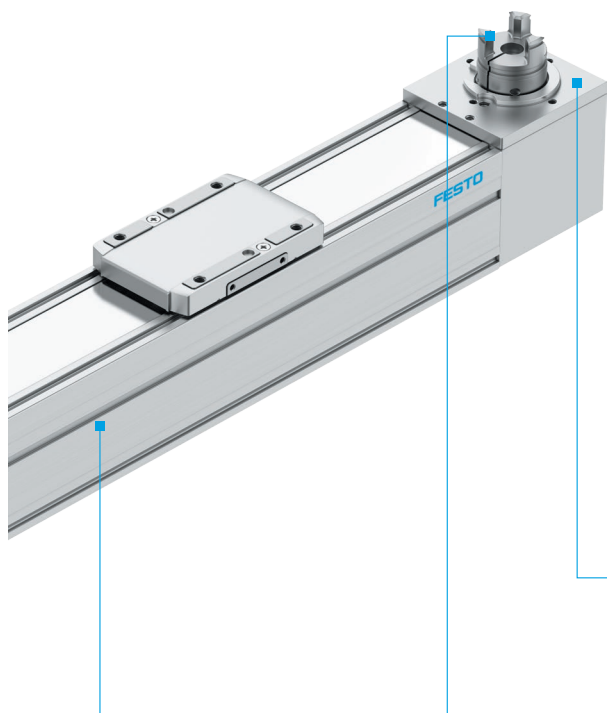
Free choice of motor positions and mounting kits, can also be changed at a later date:

- Axial kit: motor position 4 x 90° and outlet orientation of lines rotated 2 x 180°
- Parallel kit: mounting direction 3 x 90° and motor position rotated 3 x 90° in each case, outlet orientation of lines rotated 2 x 180°

Slide and profile mounting

Together with a standard universal profile fastening, the intelligently designed slide forms a unique “one-size-down” assembly system:

- Adapterless connection of axes and mini slides for compact handling systems
- Base axis combined with next smallest mounting axis without any additional adapter plate



Clean look

- ELGC in clean look design with smooth surfaces and no sensor slots
- Easy to clean and less susceptible to contamination
- Ideal for use in the electronics industry and within the machine's visible area

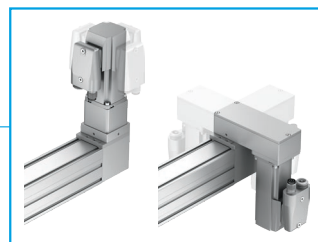
Integrated coupling

- Highly compact design integrated into the toothed belt axis
- Output half of coupling including clamping ring is part of the axis mechanics
- Optimally designed for the ELGC-TB-KF
- Easy to replace during servicing
- Compatible with axial and parallel kit
- Pinion on parallel kit with hollow interior to save even more space



Toothed belt axis ELGC-TB-KF

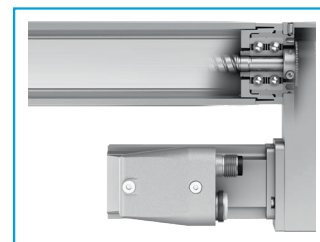
- Three sizes for movements up to 1.5 m/s at a max. length of 2,000 mm
- Toothed belt and precise, resilient recirculating ball bearing guide inside the slide
- Guide and toothed belt are protected by a stainless steel cover band



Flexible motor mounting with toothed belt axis

Free choice of motor positions and mounting kits, can also be changed at a later date:

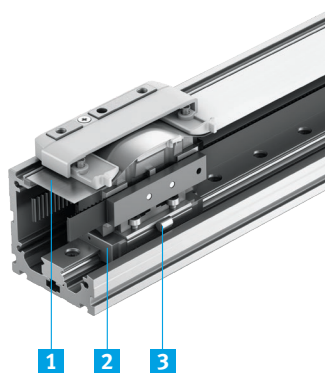
- Axial kit: motor position 4 x 90° and outlet orientation of lines rotated 2 x 180°
- Parallel kit: mounting direction 3 x 90° and motor position rotated 3 x 90° in each case, outlet orientation of lines rotated 2 x 180°



Compact double bearing

High-performance, double ball bearing integrated in the axis to absorb drive forces and torque:

- Compact installation in the axis
- No additional bearing of pinions required in the parallel kit
- Smaller dimensions for more compact handling systems



1 Stainless steel cover band

- To protect the interior guide and toothed belt
- Tight seal thanks to magnetic strips
- No sagging with inverted installation

2 Recirculating ball bearing guide

- Integrated recirculating ball bearing guide with long service life
- Rigid precision guide rail to absorb high guide forces

3 Magnet for position sensing

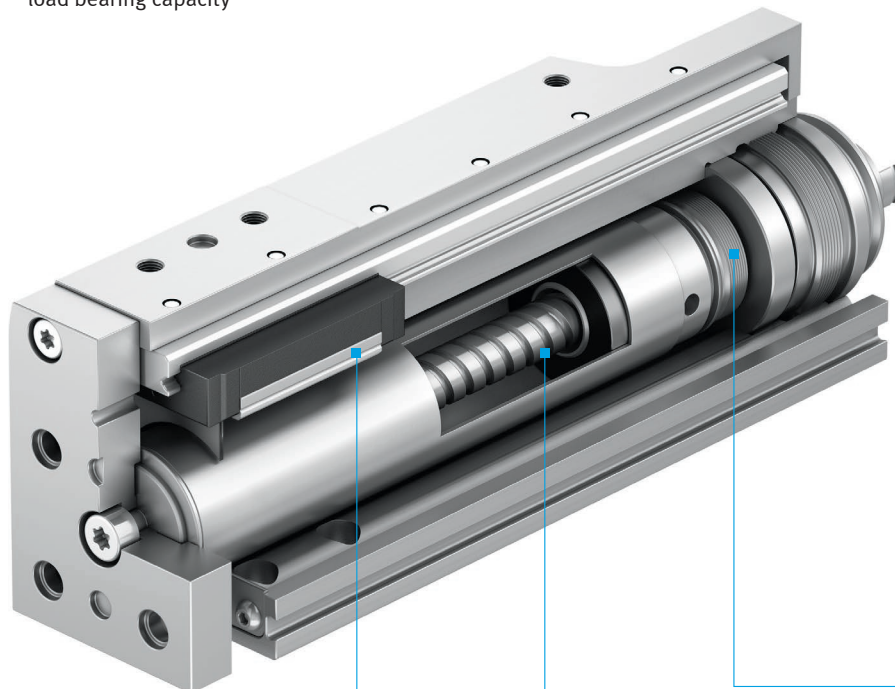
- Position magnet on both sides in slide
- Standard with ball screw and toothed belt axes
- For simple, low-cost position sensing together with proximity switch SMT-8M

Mini slide EGSC-BS at a glance

The benefits of a modular system – use as a low-cost stand-alone axis or as a complete unit

Mini slide EGSC-BS

- Four highly compact sizes for precision positioning up to 600 mm/s at a max. length of 200 mm
- Long-life, low-wearing interior ball screw
- Recirculating ball bearing guide for yoke slide with high load bearing capacity



Integrated linear guide

The yoke slide's resilient and precise linear guide and the high-quality, durable ball bearing guide are integrated into the housing:

- Rigid precision guide rail to absorb transverse forces
- Improved protection against rotation at high torques
- Enhanced rigidity of the mini slide

Ball screw

- High grade ball screw with low interior friction
- The minimal basic load torque allows use of a smaller motor
- This reduces the size and weight as well as the power consumption

Copper and zinc content of less than 1% – suitable for battery production



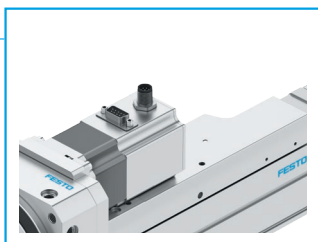
Ring magnet for position sensing

- Position magnet as ring in ball screw nut
- Standard with mini-slide EGSC
- For simple, low-cost position sensing together with proximity switch SMT-8M



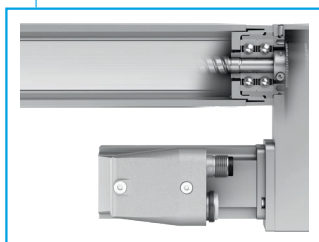
Integrated coupling

- Highly compact design integrated into the mini slide
- Output half of coupling including clamping ring is part of the axis mechanics
- Optimally designed for the EGSC-BS
- Easy to replace during servicing
- Compatible with axial and parallel kit
- Pinion on parallel kit with hollow interior to save even more space



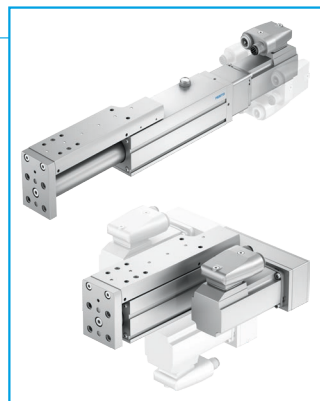
Yoke plate

- Standardised interface for electric rotary drive ERMO
- No adapter needed to mount the ERMO on mini slide EGSC



Compact double bearing:

- High-performance, double ball bearing integrated in the mini slide for absorption of drive forces and torque:
- Compact installation in the axis
 - No additional bearing of pinions required in the parallel kit
 - Smaller dimensions for more compact handling systems



Highly flexible motor mounting

- Free choice of motor positions and mounting kits, can also be changed at a later date:
- Axial kit: motor position 4 x 90° and outlet orientation of lines rotated 2 x 180°
 - Parallel kit: mounting direction 3 x 90° and motor position rotated 3 x 90° in each case, outlet orientation of lines rotated 2 x 180°



Pressure relieving port

- Standard: sintered plate screwed in port
- Optional: pressure compensation air can be ducted subsequently using fittings and tubing
- With ducted pressure compensation air: no ambient particles or moisture are sucked into the mini slide and no particles are emitted from the drive into the ambient atmosphere

Ball screw axis ELGT as a cantilever system at a glance

The benefits of a modular system – use as a low-cost stand-alone axis or as a complete unit

Ball screw axis ELGT

- Compact and cost-effective ball screw axis with integrated double guide
- High load capacity and rigidity thanks to the integrated double guide and the extremely sturdy connecting components
- Perfect for combining into 2D and 3D cantilever systems
- Suitable for a wide range of applications: in the electronics industry, with desktop applications as well as in battery production

Copper and zinc content of less than 1% – suitable for battery production

Hardcover-Design

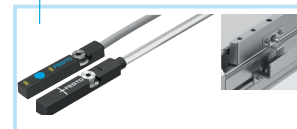
Protects the ball screw and slide guide

Double guide of the axis slide for size 120/160
Extra-wide individual guide of the axis slide for size 90

Adapter kits for servo motors from Festo and many Asian and European third-party motors

Mounting options

- Direct mounting (direct screw connection)
- Mounting via slot nuts
- Mounting via mounting bracket on the side (same as for ELGC)

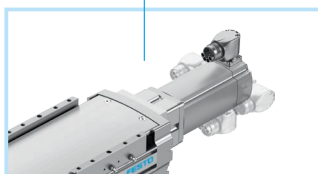


Cost-effective and simple position sensing

- Inductive proximity sensors SIES-8M and SME/SMT-8 mounted directly in the slot
- Adapter kit for opto-electrical sensors commonly found on the market in Asia, for example from Omron

Lubrication nipples

for separate lubrication of the guide cassettes and ball screw



Free choice of motor positions (turned 4 x 90°), can also be changed at a later date

Approaches any position within its working space: the mini planar surface gantry EXCM-30

Highly functional, extremely compact and with maximum work space coverage

The parallel kinematic drive concept of the EXCM-30 ensures low moving masses and is even suitable for cleanroom applications. The planar surface gantry covers a maximum working space of 700 x 510 mm and its rapid recirculating ball bearing guide handles high loads.

Communication

- I/O for simple activation of up to 31 position sets
- CANopen and Ethernet for maximum freedom of movement

Optional Clean Look design

- Clean and elegant Y-axis cover
- Basic protection against the ingress and emission of materials/particles
- Especially useful for inverted installation

Further options

- Universal flange adapter for connection of Z-axes and energy chain
- Flexible, simple energy chain concept with 3D energy chain
- Height-adjustable, rotating and tilting adjusting kit



Precision and powerful pivoting: the electric rotary drive ERMO

Flexible solution package for low-cost swivelling and positioning

The highly compact ERMO has been developed for turning and aligning parts and workpieces or swivelling tasks with higher loads. This makes it suitable for demanding tasks such as rotary indexing table applications at manual workstations. It has a sealed hollow shaft for channelling power and sensor cables or tubing so that it can be easily integrated into handling systems.

Robust and precise bearing

- Backlash-free pretensioned ball bearing of rotating plate
- Excellent planar and concentric running properties
- Designed to absorb high forces and torques
- External mounting kit for limiting the swivel angle, adjustable up to max. 270°

Further options

- Motor can be rotated by 3 x 90° during installation, position can be changed at any time
- Closed-loop operation with an encoder is available as an option
- Integrated reference sensor for multi-turn applications with M8 connection
- Optional energy through-feed for infinite rotation: pneumatic, e.g. grippers and electric, e.g. for sensors or the transmission of IO-Link signals



Servo drive for compact and powerful control

Servo drive for compact and powerful control

CMMT-AS

The price- and size-optimised, compact servo drive CMMT-AS is suitable for point-to-point and interpolating motions. The closed-loop controller is suitable for different Ethernet-based bus systems and can be smoothly integrated into the controller environments of various manufacturers.

- Ethernet-based communication: 1 servo drive platform for numerous fieldbuses, easily integrated into automation solutions with controllers from, for example, Siemens, Rockwell, Beckhoff and others
- Control unit CDSB: Simple, full-text diagnostics and setting of the closed-loop controller on site
- Compact design: all connections and the control unit CDSB are at the front and on top of the closed-loop controller.
- Motor connection: the servo motor EMMT-AS is connected with one cable plug (OCP). Other servo motors are connected with separate cables.
- Standard safety functions (STO, SS1 and SBC) can be configured without software



CMMT-ST

The extra-low voltage servo drive CMMT-ST represents highly economical positioning tasks and motion solutions with low power requirements up to 300 W. Even more compact and significantly less expensive than its big brother, the CMMT-AS, while the connection and communication concept, function modules and standard safety remain the same.

- Ethernet-based communication: 1 servo drive platform for numerous fieldbuses, easily integrated into automation solutions with controllers from, for example, Siemens, Rockwell, Beckhoff and others
- Extremely compact: 50% more compact than the smallest CMMT-AS with almost the exact same performance
- Standard safety functions (STO and SS1) can be configured without software
- Suitable for point-to-point and interpolating motions



Major advantage of the entire CMMT series:

Quick and error-free commissioning in just a few

minutes and in just a few steps with the Festo Automation Suite



Compact, high performance motion: servo and stepper motors



Servo motors EMMT-AS

- Single-turn or multi-turn absolute encoder
- Degree of protection IP67: complete housing and connection technology



Servomotor EMMB-AS

- Digital single-turn encoder (standard) or multi-turn encoder (optional)
- Optimised connection with cables suitable for energy chains



Servo motors EMME-AS

- Single-turn shaft encoder (standard), multi-turn shaft encoder (optional)
- Degree of protection IP65 for motor housing and power/encoder connection



Stepper motors EMMS-ST

- Encoder for closed-loop function (optional)
- Degree of protection IP65 for motor housing and plug connection

www.festo.com