Spindle and toothed belt axes ELGC and mini slides EGSC

Compact!

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, 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.

- 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

Highlights

Spindle 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 spindle 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:
- Spindle or toothed belt axes combined with mini slides for vertical 2D working space
- Space-optimised and easy to assemble
Cantilevers
Installation-space optimised, robust 3D handling unit for higher loads:
- Spindle 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 spindle 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 spindle 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

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
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 spindle 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
Spindle 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

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

Integrated coupling
- Highly compact design integrated into the spindle 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 spindle 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 design
• 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

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

Stainless steel cover band
• To protect the interior guide and toothed belt
• Tight seal thanks to magnetic strips
• No sagging with inverted installation

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

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

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
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
- Spindle with 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

Ring magnet for position sensing
- Position magnet as ring in spindle nut
- Standard with mini-slide EGSC
- For simple, low-cost position sensing together with proximity switch SMT-8M
The benefits of a modular system – use as a low-cost stand-alone axis or as a complete unit

**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

**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

**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°

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

**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
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. Its rapid recirculating ball bearing guide handles high loads and the appropriate drive and controller package CMXH is preconfigured for simple commissioning.

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

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

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
## Controls both movements simultaneously: drive and controller package CMXH

**Compact high performer for 2D motion**
The standardised controller package CMXH for the EXCM-30 consists of a motor and motor controller. It supports universal communication with the I/O interface in PNP, with rapid commissioning thanks to preconfiguration and Festo plug and work.

- Drive and controller package with degree of protection IP20
- Encoder for closed-loop servo operation
- STO safety in accordance with EN 61800-5-2 included

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## Flexible, high-performance control: motor controller for servo and stepper motors

**Servo motor controller CMMP-AS-M0/M3**
This range of servo motor controllers provides a highly functional solution for dynamic motion and is ideally suited for the electronic control of cam discs.

CMMP-AS-M0 is the basic variant with standard functions while the CMMP-AS-M3 offers expansion options, e.g. for Ethercat connection or safety module.

- Universal concept for commissioning, programming and parameterisation
- Integrated safe stop with restart blocking for safety-oriented applications
- SD card for parameters and firmware
- Safe Torque Off (STO) up to category 4, PLe integrated
- Safe stop functions and dynamic safety functions up to category 4, PLe

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**Stepper motor controller CMMS-ST**
CMMS-ST is a single-axis position controller with optional closed-loop servo system via encoder. Alternatively, it can be used as a low-cost open-loop system with stepper motors without encoder.

Closed-loop servo controller CMMO-ST is ideal for stepper motors – with “WebConfig” and “WebDiag”, the integrated HTML web server for configuration and diagnostics as well as STO (Safe Torque Off) with category 3, PLe.

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## Compact, high-performance motion: servo and stepper motors

**Servo motors EMMS/E-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

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