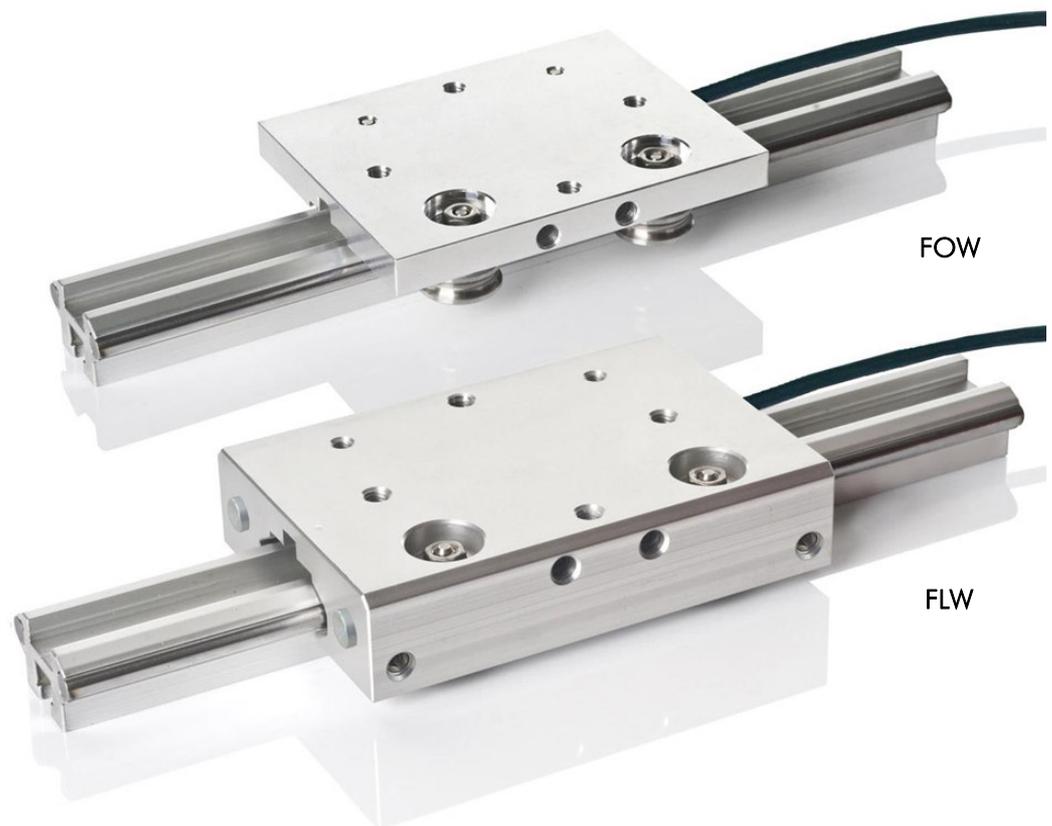


Series **FOW/FLW**

Guided Linear Units with Magnetic Incremental Linear Encoder



- Linear measuring units with roller guides
FOW: open guide carriage version
FLW: closed guide carriage version
with four wipers and lubrication elements
- High guidance accuracy and smooth running
- Optionally with installed incremental measuring system
Available resolutions: 0.1 mm, 0.025 mm and 0.01 mm
- The IP67-protected magnetic sensor is integrated directly
and with the correct reading position into the guide carriage

FOW/FLW - Guided Linear Units with Magnetic Incremental Linear Encoder

System Structure and Features

The FLW and FOW linear guides consist of composite rails with high-precision guideways and a carriage with four precision rollers. The rail body consists of a high-quality aluminium alloy in which hardened steel shafts are mounted.

The track rollers are optimized double row angular contact ball bearings. A reinforced outer ring with high-precision support profile ensures precise rolling with high radial and axial load capacity at the same time. They are fixed with steel bolts in the carriage; two eccentric bolts are used to adjust the carriage without backlash.

FLW (closed carriage)	FOW (open carriage)	FS25 (guide rail)
		
<p>The "FLW" carriages are characterized by their compact, closed design, low mass and an optimized arrangement of the precision guide rollers. The application-oriented guide clearance resp. a slight pretensioning to the rail is continuously adjustable.</p> <p>The aluminium bodies are anodized on all sides. The installation position is not subject to any restrictions.</p> <p>Standardly equipped with wipers and lubricating elements for the guideways. The track rollers are generally maintenance-free.</p>	<p>The open carriage "FOW" is a simple variant of the closed carriages.</p> <p>As with the closed version, the track rollers are fitted with 2 concentric and 2 eccentric axles in order to enable the guide to be adjusted without backlash.</p> <p>Wipers and lubrication elements are not required for of this variant.</p> <p>The track rollers are also generally maintenance-free.</p>	<p>The "FS25" guide rail is a composite construction that combines the high precision and hardness of the steel shaft with the low mass of the aluminium profile. The advantageous design of the cross-section allows different mounting options for easy installation.</p> <p>T-slot mounting with hexagonal bolts (DIN 931/933) is generally applicable</p> <p>The rail profile is standardly anodized. Stainless steel versions are available on request.</p>

Measuring System Integration:

Both carriage types (FLW and FOW) can be equipped with an incremental measuring system (magnetic sensor) for scanning ELGO magnetic tapes, which is available in different variants and resolutions (0.1 mm / 0.025 mm / 0.01 mm).

For this purpose, there is a corresponding milling groove on the underside of the carriage, into which the sensor is integrated and fixed with the correct distance to the magnetic tape.



Sensor integrated in the carriage

Available Measuring Systems:

The basic measuring systems are the incremental ELGO encoders LMIX1, EMIX1 (consisting of sensor and evaluation electronics in the D-SUB connector) or the battery powered display and measuring systems IZ16E or IZ15E, which are connected via a fixed cable outlet to the MS-250 magnetic sensor integrated in the carriage. Depending on the type, different magnetic tapes are used, which differ in their pole pitch (LMIX: 5 mm / EMIX 2 mm / IZ: 2,5 mm).

Available Indicators for external Mounting:

In addition to the basic measuring systems LMIX1 or EMIX1, the 24 VDC-supplied position indicators Z25 and Z50 are available.

Alternatively, the battery-powered measuring and display systems IZ16E or IZ15E can be used. No separate measuring system is required for both battery powered devices. For further information and order designations refer to the table "Accessories" on the last page.



Guide Carriage with battery powered IZ16E Indicator:

Both carriages can optionally be supplied with the factory-mounted, battery powered position indicator IZ16E in a built-in housing. No wiring is required, as the indicator unit is already connected to the integrated MS-250 magnetic sensor.

FOW/FLW - Guided Linear Units with Magnetic Incremental Linear Encoder

Technical Data:

Scope of Application

Speed	$V_{\max} = 10 \text{ m/s}$ (mechanically)
Acceleration	$a_{\max} = 50 \text{ m/s}^2$
Temperature range	$T = -20^\circ \text{C} \dots + 80^\circ \text{C}$

Weight

FLW (without sensor)	approx. 270 g
FOW (without sensor)	approx. 180 g
FS25 (guide rail)	approx. 800 g / m

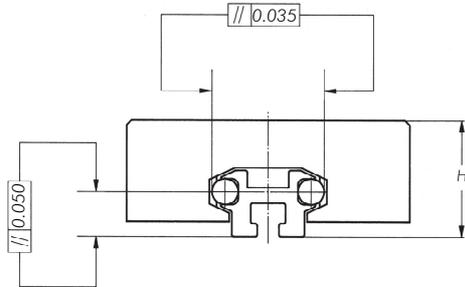
Rail Length

FS25 (guide rail)	max. 2000 mm (higher lengths are possible by arrangement in one row)
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Measuring Systems and Indicators

Measuring system	elgo.de ☞ LMIX1 ☞ EMIX1
Measuring system + indicator	elgo.de ☞ IZ15E ☞ IZ16E
Indicator	elgo.de ☞ Z25 ☞ Z50

Guiding precision

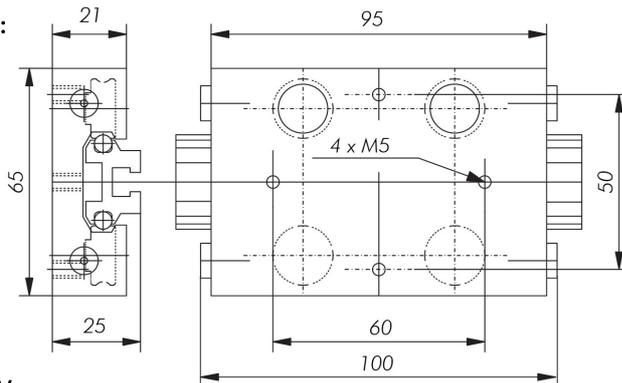


Guiding accuracy	max. 0.5 mm/m
Install. height H - tolerance	max. $\pm 0.2 \text{ mm}$
Deviation on one rail	max. $\pm 0.1 \text{ mm}$

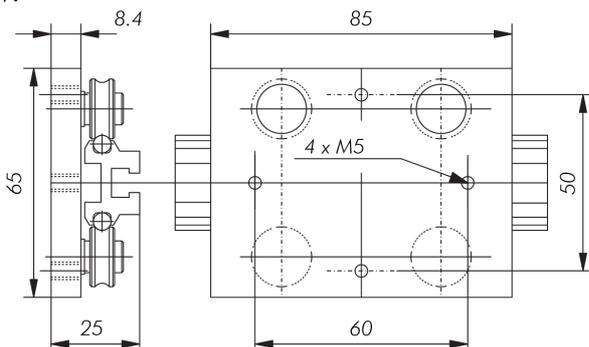
Forces and torques ☞ see table on the last page

Dimensions:

FLW:



FOW:



Type Designation of Guide Carriage:

FOW

FLW - $\overline{\text{AAA}} - \overline{\text{BB}} - \overline{\text{C}} - \overline{\text{D}} - \overline{\text{EE}} - \overline{\text{FF}} - \overline{\text{F}} - \overline{\text{G}}$

A Version

- 000 = ELGO standard
- 001 = 1.kundenspezifische Version

B Height

- 25 = 25 mm for standard rail FS25

C Wipers and Lubrication Elements

- 0 = for Type FOW (only available without)
- 4 = for Type FLW (only available with)

D Resolution

- 1 = 0.025 mm at 4 edge evaluation (LMIX1)
- 2 = 0.01 mm at 4 edge evaluation (EMIX1)
- 3 = 0.01 mm; switchable to 0.1 mm (IZ15E)
- 4 = 0.01 mm; switchable to 0.1 mm (IZ16E)

E Power Supply / Output Levels*

- 00 = 10 ... 30 VDC / HTL
- 01 = 10 ... 30 VDC / TTL line driver
- 11 = 5 VDC / TTL line driver

*) not relevant for IZ15E and IZ16E, please indicate „XX“

F Cable Length

Specification in XX.X meters
(LMIX1 / EMIX1 max. 20 m; IZ15E / IZ16E max. 2 m)

G Additional Indicator (battery powered)

- 0 = without indicator
- 1 = with IZ16E for external mounting
- 2 = with IZ16E mounted on the guide carriage
- 3 = with IZ15E for external mounting

Type Designation of Guide Rail:

FS25 - $\overline{\text{AAAA}} - \overline{\text{B}}$

A Guide Rail Length

- Please order in XXX0 mm (e.g. 1000 mm or 0350 mm)
- maximum available rail length: 2000 mm
- higher lengths are possible by arranging in one row*

FOW: Total Length = Measuring Length + 85 mm
FLW: Total Length = Measuring Length + 100 mm

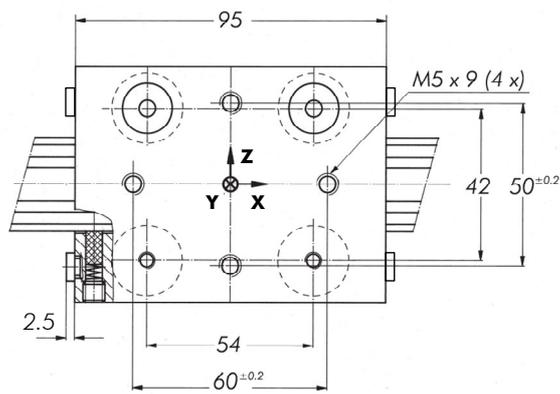
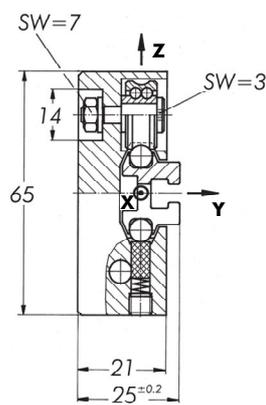
B Magnetband

- 0 = without magnetic tape
- Z = with glued-in* MB20-25 tape (for IZ16E / IZ15E)
- 1 = with glued-in* MB20-50 tape (for LMIX1)
- 2 = with glued-in* MB20-20 tape (for EMIX1)

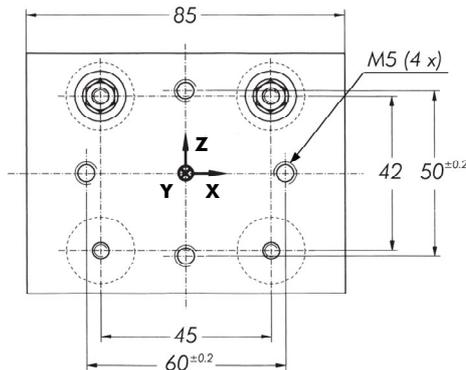
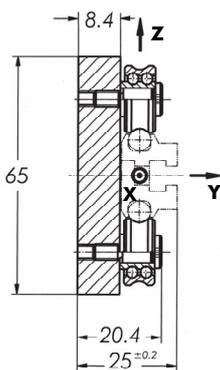
*) Several rails, which are arranged in one row, have flush milled joints. For rail lengths over 2000 mm the magnetic tape is supplied separately, as it must be glued by the customer into the row of rail elements.

Torques and Forces:

FLW:



FOW:



Maximum permissible loads:

Forces in N

Torques in Nm

Magnitude	$F_{y,per.}$	$F_{0y,per.}$	$F_{z,per.}$	$F_{0z,per.}$	$M_{x,per.}$	$M_{0x,per.}$	$M_{y,per.}$	$M_{0y,per.}$	$M_{z,per.}$	$M_{0z,per.}$
FLW/FOW	400	650	700	700	4,4	7,2	19	19	11	18

Accessories for FOW / FLW:

Order Designation	Description
MB20-50-10-1-R	Magnetic tape for LMIX1 (5.0 mm pole pitch); please indicate the length in XX,X m
MB20-20-10-1-R	Magnetic tape for EMIX1 (2.0 mm pole pitch); please indicate the length in XX,X m
MB20-25-10-1-R	Magnetic tape for IZ16E / IZ15E (2.5 mm pole pitch); please indicate the length in XX,X m
IZ16E-043-8-XX.X*-0-AG	Battery powered IZ16E indicator in a built-on housing for carriage mounting. The housing is equipped with an adjustable mounting bracket. The sensor cable is connected via a fixed cable outlet to the indicator. *) Please indicate the required length in XX.X m (max. 2.0 m available)!
IZ16E-043-8-XX.X*-1-AG	Battery powered IZ16E indicator in a built-on housing for carriage mounting. The housing is equipped with an adjustable mounting bracket. With screwable round connector instead of fixed cable outlet. *) Please indicate the required length in XX.X m (max. 2.0 m available)!
IZ16E-043-1-XX.X*-0	Battery powered IZ16E indicator in a built-in housing for panel mounting. The sensor cable is connected via a fixed cable outlet to the indicator. *) Please indicate the required length in XX.X m (max. 2.0 m available)!
IZ16E-043-1-XX.X*-1	Battery powered IZ16E indicator in a built-in housing for panel mounting. With screwable round connector instead of fixed cable outlet. *) Please indicate the required length in XX.X m (max. 2.0 m available)!
IZ15E-002-4-XX.X*-0	Battery powered IZ15E indicator in a built-in housing for panel mounting. The sensor cable is connected via a fixed cable outlet to the indicator. *) Please indicate the required length in XX.X m (max. 2.0 m available)!
Z25-000-024-X*	24 VDC supplied Z25 indicator in a built-in housing for panel mounting. *) X = 0: for 10 ... 30 V HTL signals (channels: A and B) X = 2: for 5 V-TTL signals (channels: A, A', B, B', Z, Z')
Z50-000-024-X*	24 VDC supplied Z50 indicator in a built-in housing for panel mounting. *) X = 0: for 10 ... 30 V HTL signals (channels: A and B), 24 V encoder supply X = 2: for 5 V-TTL signals (channels: A, A', B, B', Z, Z'), 24 V encoder supply X = 3: for 5 V-TTL signals (channels: A, A', B, B', Z, Z'), 5 V encoder supply X = 6: for 5 V-TTL signals (channels: A, B, Z), 5 V encoder supply
NG24.0	External 24 VDC power supply (primary 115 / 230 VAC) for Z25 or Z50

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