

Linear units with spindle drive

LES 5



LES 5 with integrated belt drive module

Features

- Aluminium shaft housing profile W225 × H75 mm, naturally anodised
- Clamping area and profile underside milled flat
- With 4 precision steel shafts Ø 12 h6, material Cf53, Hardness 60 ± 2 HRC
- Aluminium shaft slides WS 5/70, 2 x WS 5/70 (70 mm long), adjustable for no play, central lubrication system
- Recirculating ball drive 2.5/4/5/10 and 20 mm pitches
- Profile sealing with friction-resistant lip seals
- Cast aluminium end plates
- With 2 limit or reference switches, Repeat accuracy ± 0.02 mm
- Sealed angular contact bearings in drive - steel flange

Ordering key

2 3 4 X X X 0 X X X

Drive

- 3 = Preparation Direct drive modules
- 4 = Preparation Belt drive module

Shaft slides

- 0 = 2 Shaft slides 70 mm
- 2 = 4 Shaft slides 70 mm

Profile length (L1)

- e.g. 029 = 290 mm (min.)
- 299 = 2990 mm (max.)

(rounded to the last digit)
Standard profile lengths available in 100 mm raster

Recirculating ball drive

- 0 = without
- 1 = Pitch 2.5 mm
- 2 = Pitch 4.0 mm
- 3 = Pitch 5.0 mm
- 4 = Pitch 10 mm
- 5 = Pitch 20 mm

Options:

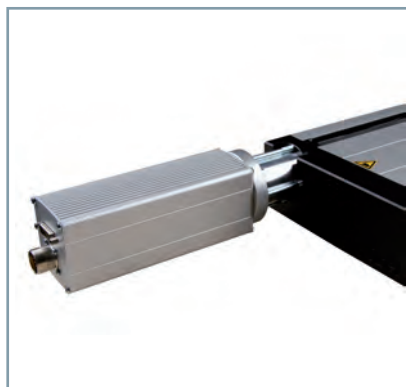
- Black powder-coated aluminium profile
- Electromagnetic brake
- Steel slides LS2 (Part no. 223007)
- Limit switch attachment kit (see accessories)

Available on request:

- Length measuring system
- Bellows gaiter cover

Drive modules

see pages 2-66 et seq. of the catalogue



Technical specification

Aluminium profile

| Aluminium profile LES 5 | |
|--|---------------------------|
| Moment of inertia I _x | 2,361.654 cm ⁴ |
| Moment of inertia I _y | 298.925 cm ⁴ |
| *Centre of gravity <small>see dimensioned drawing</small> | 33.39 mm |
| Cross-sectional area | 42.49 cm ² |
| Material | AlMgSi0, 5F22 |
| Anodising | E6/EV1 |
| Weight with steel shafts | 13.8 kg/m |
| Weight with steel shafts and spindles | 15.2 kg/m |

No load running torques

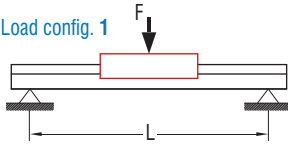
| No load torques (Ncm) | | | | | |
|-----------------------|---------------|----|----|----|----|
| Speed (rpm) | Spindle pitch | | | | |
| | 2.5 | 4 | 5 | 10 | 20 |
| 500 | 15 | 15 | 16 | 17 | 18 |
| 1500 | 19 | 19 | 19 | 20 | 21 |
| 3000 | 23 | 24 | 24 | 25 | 26 |

Linear units with spindle drive

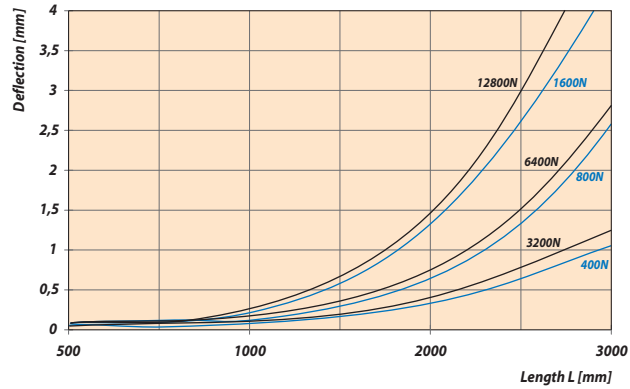
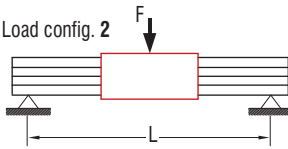
LES 5

Bending

Load config. 1



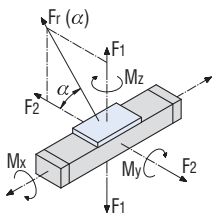
Load config. 2



Load factors

$$F_r(\alpha) = \frac{F_2}{\cos \alpha}$$

$$F_r(\alpha) = \frac{F_1}{\sin \alpha}$$



| LES 5 with two WS 5/70 | | LES 5 with four WS 5/70 | |
|------------------------|-----------|-------------------------|-----------|
| C_0 | 5153.30 N | C_0 | 6,606 N |
| C | 2319.41 N | C | 3,746 N |
| F_1 stat. | 4401.33 N | F_1 stat. | 5,642 N |
| F_1 dyn. | 1980.96 N | F_1 dyn. | 3,198 N |
| F_2 stat. | 5153.30 N | F_2 stat. | 6,606 N |
| F_2 dyn. | 2319.14 N | F_2 dyn. | 3,746 N |
| M_x stat. | 376.59 Nm | M_x stat. | 423.15 Nm |
| M_y stat. | 164.31 Nm | M_y stat. | 366.73 Nm |
| M_z stat. | 192.39 Nm | M_z stat. | 429.39 Nm |
| M_x dyn. | 169.49 Nm | M_x dyn. | 239.85 Nm |
| M_y dyn. | 73.95 Nm | M_y dyn. | 207.87 Nm |
| M_z dyn. | 86.59 Nm | M_z dyn. | 243.49 Nm |

Permissible spindle speeds

| LES 4 / 5 / 6 | Spindle pitch p [mm] | max. permissible feed speed v permissible [mm/s] | | | | |
|---------------|----------------------|--|-----|-----|-----|------|
| | | 2.5 | 4 | 5 | 10 | 20 |
| 490 | 4000 | 167 | 267 | 333 | 667 | 1333 |
| 990 | 3000 | 125 | 200 | 250 | 500 | 1000 |
| 1390 | 1500 | 63 | 100 | 125 | 250 | 500 |
| 1490 * | 3000 | 125 | 200 | 250 | 500 | 500 |
| 1990 * | 1650 | 69 | 110 | 138 | 275 | 550 |
| 2490 * | 1050 | 44 | 70 | 88 | 175 | 350 |
| 2990 * | 750 | 31 | 50 | 63 | 125 | 250 |

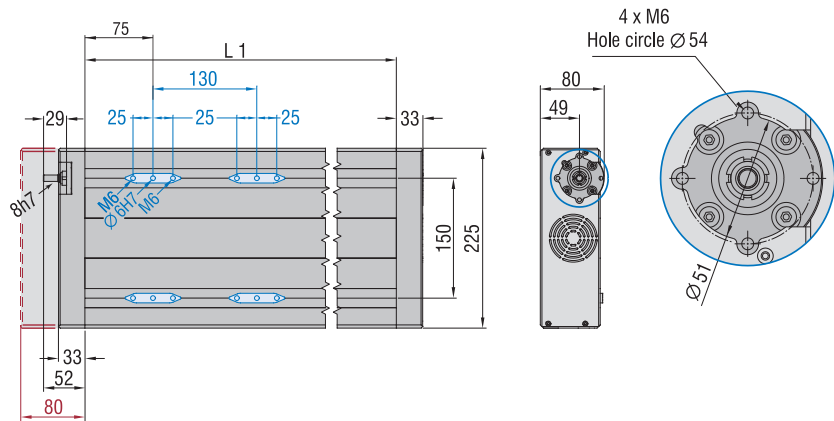
* with spindle support

Dimensioned drawing

Process travel

at 2xWS 5/70 = L1 -150 mm
at 4xWS 5/70 = L1 -280 mm

external limit switches see pages 2-81



Dimensioned drawing

Aluminium profile

