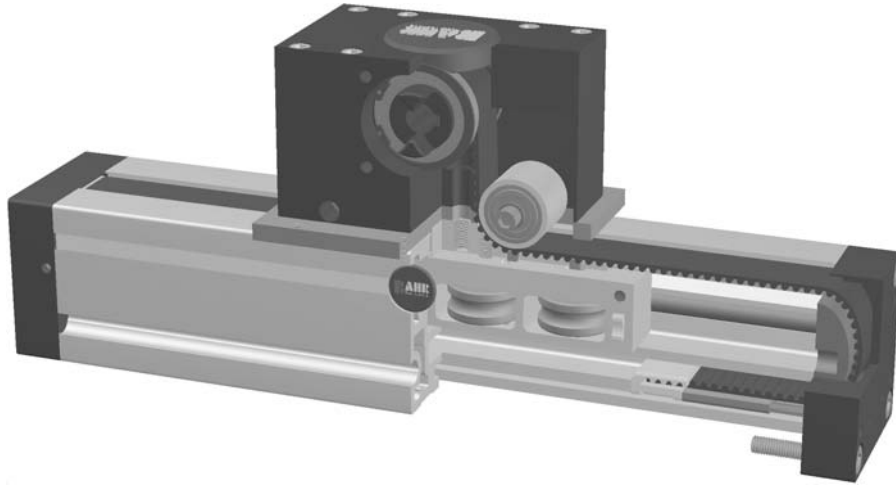


# Positioning system QLSZ 60, 80, 100

Specifications

Belt drive



5.1

**Function:**

This linear unit consists of an aluminium square profile with hardened steel guide rods. The carriage which has internal linear ball bearings that can be adjusted free of play is driven along the guide rods by a timing belt. The pulley has maintenance-free ball bearings. Belt tension can be readjusted by a simple tensioning device in one of the end blocks. This device can also be used for symmetrical adjustment of two or more linear units running parallel.



**Fitting position:**

As required. Max. length without joints 3.000 mm.

**Carriage mounting:**

By T-slots.

**Unit mounting:**

By T-slots or tapped holes in the bearing blocks, or mounting sets.

**Belt type:**

HTD with steel reinforcement, no backlash when changing direction, repeatability ± 0,1 mm.

| Forces and torques   | Size                | 60   |         | 80                   |         | 100    |         |
|--|---------------------|--|---------|----------------------|---------|--------|---------|
|  | Forces/Torques      | static   | dynamic | static               | dynamic | static | dynamic |
|  | F <sub>x</sub> (N)  |  |         | 894                  | 800     |        |         |
|  | F <sub>y</sub> (N)  |  |         | 1600                 | 1240    |        |         |
|  | F <sub>z</sub> (N)  |  |         | 1500                 | 1200    |        |         |
|  | M <sub>x</sub> (Nm) |  |         | 50                   | 40      |        |         |
|  | M <sub>y</sub> (Nm) |  |         | 100                  | 80      |        |         |
|  | M <sub>z</sub> (Nm) |  |         | 75                   | 60      |        |         |
| <b>All forces and torques related to the following:</b>    |                     |  |         |                      |         |        |         |
| existing values  |                     | $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$ |         |                      |         |        |         |
| values of table  |                     |  |         |                      |         |        |         |
| <b>No-load torque</b>                                      |                     |  |         |                      |         |        |         |
| Nm   |                     |  |         | 0,8                  |         |        |         |
| <b>Speed</b>   |                     |  |         |                      |         |        |         |
| [m/sec] max  |                     |  |         | 6                    |         |        |         |
| <b>Tensile force</b>                                       |                     |  |         |                      |         |        |         |
| permanent (N)  |                     |  |         | 1900                 |         |        |         |
| 0,2 sec (N)  |                     |  |         | 2090                 |         |        |         |
| <b>Geometrical moments of inertia of aluminium profile</b> |                     |  |         |                      |         |        |         |
| I <sub>x</sub> mm <sup>4</sup>                             |                     |  |         | 16,5x10 <sup>5</sup> |         |        |         |
| I <sub>y</sub> mm <sup>4</sup>                             |                     |  |         | 18,7x10 <sup>5</sup> |         |        |         |
| E-Modul N/mm <sup>2</sup>                                  |                     |  |         | 70000                |         |        |         |

For life-time calculation of rollers use our CD-ROM or homepage!

**Formula: QLZ**

Driving torque:

$$M_{\sigma} = \frac{F * P * S}{2000 * \pi} + M_{leer}$$

$$P_{\sigma} = \frac{M_{\sigma} * n}{9550}$$

- F = force (N)
- P = pulley action perimeter (mm)
- S = safety factor 1,2 ... 2
- M<sub>leer</sub> = no-load torque (Nm)
- n = rpm pulley (min<sup>-1</sup>)
- M<sub>σ</sub> = driving torque (Nm)
- P<sub>σ</sub> = motor power (KW)

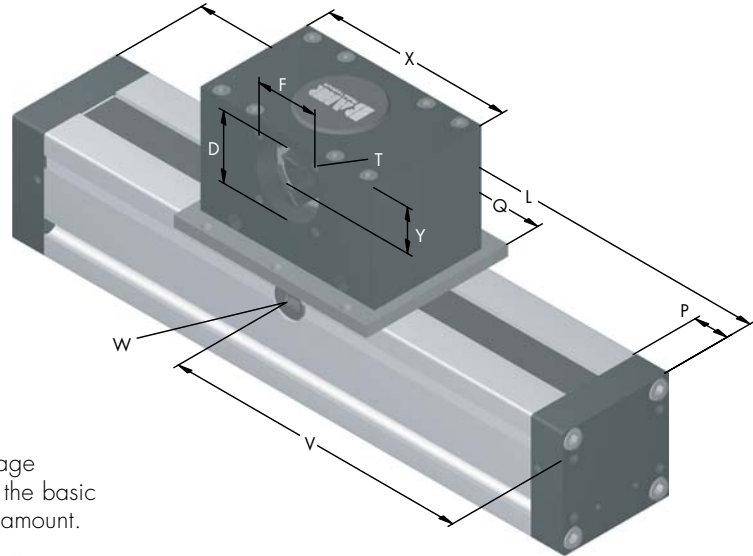
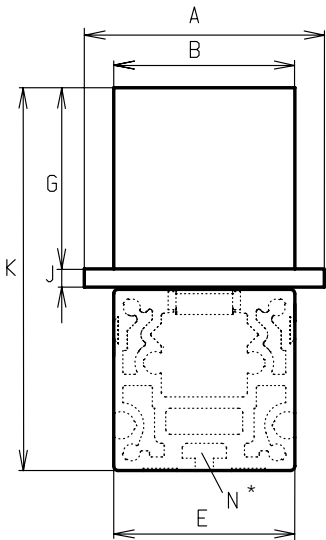
$$f = \frac{F * L^3}{E * I * 192}$$

- f = deflection (mm)
- F = load (N)
- L = free length (mm)
- E = elastic modulus 70000 (N/mm<sup>2</sup>)
- I = second moment of area (mm<sup>4</sup>)



# Positioning system QLSZ 60, 80, 100

Dimensions (mm)



Increasing the carriage length will increase the basic length by the same amount.

\*For slide-nuts refer to chapter 2.2 page 2

$$V = Q + 100 \text{ mm}$$

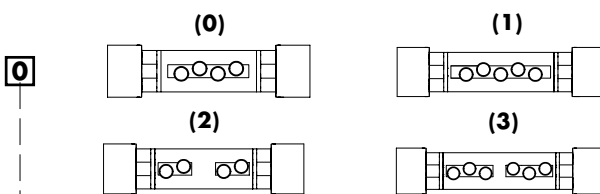
W = servicing position

| Size □   | Basic length L | A   | B  | D  | E  | F  | G  | J | K   | N for | P  | Q   | T  | X   | Y  | Basic weight | Weight per 100 mm |
|----------|----------------|-----|----|----|----|----|----|---|-----|-------|----|-----|----|-----|----|--------------|-------------------|
| QLSZ 60  |                |     |    |    |    |    |    |   |     |       |    |     |    |     |    |              |                   |
| QLSZ 80  | 200            | 106 | 80 | 47 | 80 | 42 | 80 | 8 | 169 | M6    | 24 | 144 | M6 | 130 | 30 | 5,2 kg       | 0,78 kg           |
| QLSZ 100 |                |     |    |    |    |    |    |   |     |       |    |     |    |     |    |              |                   |

5.1

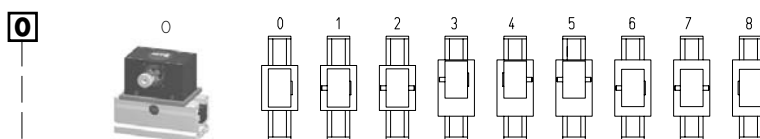
**Choice of guide body profile:**  
 (0) Standard  (1) stainless guide rods  (2) stainless guide rods and screws  (3) stainless guide rods, rollers and screws

**Choice of carriages:**



| Size | Version 0 |     | Version 1 |     | Version 2 |      | Version 3 |      |
|------|-----------|-----|-----------|-----|-----------|------|-----------|------|
|      | Q         | L   | Q         | L   | Q         | L    | Q         | L    |
| 60   |           |     |           |     |           |      |           |      |
| 80   | 144       | 200 | 194       | 240 | >244      | >290 | >244      | >290 |
| 100  |           |     |           |     |           |      |           |      |

**Coupling - Selection of shaft mounting:**



| Size | Shaft ø h6 x length | Key    |
|------|---------------------|--------|
| 60   |                     |        |
| 80   | 14 x 35             | 5x5x28 |
| 100  |                     |        |

8 is as 0, but with coupling claws on both sides. The standard version is supplied without shaft.  
 A shaft can be retrofitted by inserting in the pulley bore and securing with 2 locking rings:

**Belt table**

| Code No. | Size | Belt | Pulley  |                 |
|----------|------|------|---------|-----------------|
|          |      |      | mm/rev. | Number of teeth |
| 0 7      | 80   | 5M25 | 130     | 26              |

Basic length + stroke = total length

For additional accessories refer to chapter 2.2 – 4.2

QLSZ 80 1 0 0 0 0 7 1 01500  
 Pos. 1 2 3 4 5 6 7

Sample ordering code:  
 QLSZ80, standard body profile, standard carriage, coupling claw on one side, 1300 mm stroke

