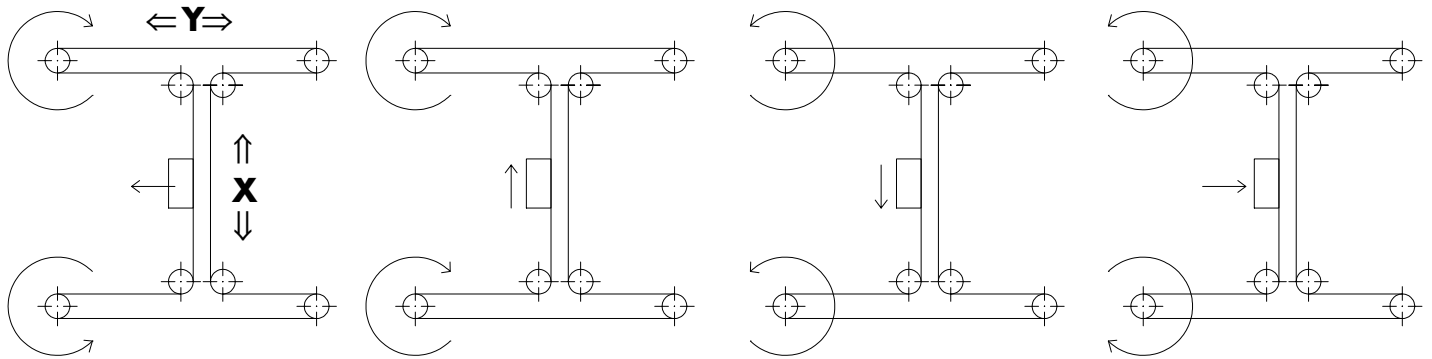
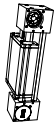


# Positioning system ELZU 30, 40, 60, 80, 80S, 100

Specifications

## Surface portal

3.1



### Function:

Surface portal, consisting of 2 Y-axes and 1 X-axis, driven by one rotating belt. This belt runs around different deflection pulleys. Positioning is achieved by two motors. The coordinate is diagonal to the deflection points of Y-axis.  
 Advantage: Only small weights are moved, thus enabling high accelerations to be achieved.

**Fitting position:** As required. Max. length and width 3.000 mm.

**Carriage mounting:** By T-slots.

**Unit mounting:** By T-slots or tapped holes in the bearing block, mounting sets.

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

| Forces and torques   | Size                | ELZU 30              |         | ELZU 40              |         | ELZU 60              |         | ELZU 80               |         | ELZU 80 S             |         | ELZU 100             |        |
|--|---------------------|----------------------|---------|----------------------|---------|----------------------|---------|-----------------------|---------|-----------------------|---------|----------------------|--------|
|  | Forces/Torques      | static               | dynamic | static               | dynamic | static               | dynamic | static                | dynamic | static                | dynamic | statisch             | dynam. |
|  | F <sub>x</sub> (N)  | 200                  | 180     | 390                  | 350     | 894                  | 800     | 1900                  | 1800    | 1900                  | 1800    | 4000                 | 3800   |
|  | F <sub>y</sub> (N)  | 90                   | 60      | 1200                 | 700     | 3000                 | 2000    | 3000                  | 2000    | 4600                  | 3600    | 8000                 | 6500   |
|  | F <sub>z</sub> (N)  | 90                   | 60      | 900                  | 650     | 1700                 | 1100    | 1700                  | 1100    | 3000                  | 1800    | 3600                 | 2200   |
|  | M <sub>x</sub> (Nm) | 10                   | 5       | 25                   | 20      | 67                   | 43      | 90                    | 55      | 170                   | 140     | 300                  | 230    |
|  | M <sub>y</sub> (Nm) | 13                   | 6       | 32                   | 18      | 90                   | 70      | 110                   | 80      | 270                   | 230     | 400                  | 270    |
|  | M <sub>z</sub> (Nm) | 14                   | 7       | 35                   | 25      | 120                  | 100     | 150                   | 120     | 300                   | 220     | 750                  | 500    |
| <b>All forces and torques relate 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   |                     | 0,2                  |         | 0,6                  |         | 1,2                  |         | 1,8                   |         | 1,8                   |         | 2,6                  |        |
| <b>Speed</b>   |                     |                      |         |                      |         |                      |         |                       |         |                       |         |                      |        |
| (m/sec) max  |                     | 2                    |         | 4                    |         | 5                    |         | 6                     |         | 6                     |         | 8                    |        |
| <b>Tensile force</b>   |                     |                      |         |                      |         |                      |         |                       |         |                       |         |                      |        |
| permanent (N)  |                     | 200                  |         | 390                  |         | 900                  |         | 1900                  |         | 1900                  |         | 3600                 |        |
| 0,2 sec (N)  |                     | 280                  |         | 480                  |         | 1000                 |         | 2090                  |         | 2090                  |         | 4000                 |        |
| <b>Geometrical moments of inertia of aluminium profile</b>   |                     |                      |         |                      |         |                      |         |                       |         |                       |         |                      |        |
| I <sub>x</sub> mm <sup>4</sup>   |                     | 4,09x10 <sup>4</sup> |         | 1,32x10 <sup>5</sup> |         | 6,79x10 <sup>5</sup> |         | 18,99x10 <sup>5</sup> |         | 18,99x10 <sup>5</sup> |         | 44,4x10 <sup>5</sup> |        |
| I <sub>y</sub> mm <sup>4</sup>   |                     | 4,00x10 <sup>4</sup> |         | 1,34x10 <sup>5</sup> |         | 6,97x10 <sup>5</sup> |         | 18,97x10 <sup>5</sup> |         | 18,97x10 <sup>5</sup> |         | 44,8x10 <sup>5</sup> |        |
| E-Modul N/mm <sup>2</sup>  |                     | 70000                |         | 70000                |         | 70000                |         | 70000                 |         | 70000                 |         | 70000                |        |

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

### Formula: ELZU

Driving torque:

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

$$P_a = \frac{M_a * n}{9550}$$

- 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>a</sub> = driving torque (Nm)
- P<sub>a</sub> = motor power (KW)

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

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



