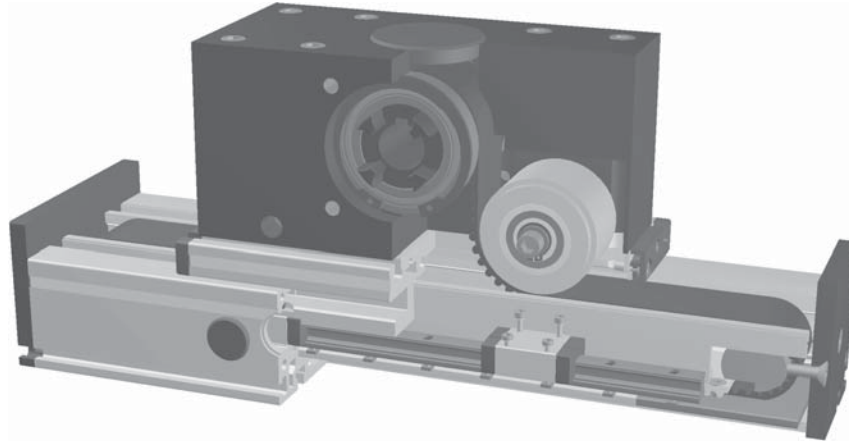


# Modular Linear Actuator DSSZ 160, 200

Static Belt Drive, Profile Rail



### Function:

This linear unit consists of a rectangular aluminium profile with integrated profile rail guides. The carriage which has runner blocks is driven by a timing belt. Each standard pulley includes a jaw coupling on one side and is equipped with maintenance-free ball bearings. Belt tension can be readjusted by a simple screw adjustment device in the carriage. This device can also be used for symmetrical adjustment of two or more linear units running parallel.

**Fitting position:** As required. Max. length 6,000 mm single/extrusion.

**Carriage mounting:** T-slots

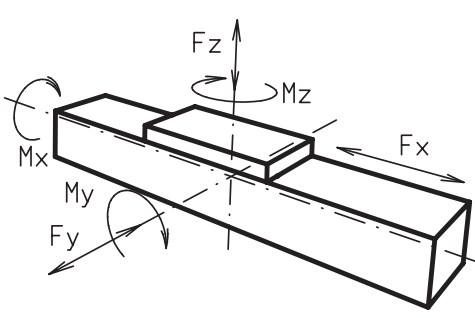
**Unit mounting:** T-slots and mounting sets. The linear axis can be combined with any T-slot profile.

**Belt performance:** HTD with steel reinforcement, no backlash when changing direction, repeatability  $\pm 0,1$  mm.

**Carriage support:** In the standard version, the carriage runs on 4 runner blocks which can be serviced at a central servicing position. For longer carriages the number of runner blocks can be increased.



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| Forces and torques  | Size                  | 160     |                    | 200     |          |
|---|-----------------------|---------|--------------------|---------|----------|
|   | Forces/Torques        | 5000 km | 10000 km           | 5000 km | 10000 km |
|  | $F_x$ (N)             | 5000    | 4000               | 10000   | 8000     |
|   | $F_y$ (N)*            | 2236    | 1775               | 5155    | 4092     |
|   | $F_z$ (N)*            | 5278    | 4189               | 11311   | 8977     |
|   | $M_x$ (Nm)*           | 282     | 224                | 752     | 597      |
|   | $M_y$ (Nm)*           | 283     | 225                | 813     | 646      |
|   | $M_z$ (Nm)*           | 300     | 238                | 862     | 684      |
|   | <b>No-load torque</b> |         |                    |         |          |
| (Nm)  | 2,9                   |         | 3,3                |         |          |
| <b>Speed</b>  |                       |         |                    |         |          |
| (m/sec) max   | 5                     |         | 5                  |         |          |
| <b>Tensile force</b>  |                       |         |                    |         |          |
| permanent (N)   | 4000                  |         | 5900               |         |          |
| 0,2 sec (N)   | 4300                  |         | 6350               |         |          |
| <b>Geometrical moments of inertia of aluminium profile</b>                          |                       |         |                    |         |          |
| $I_x$ mm <sup>4</sup>   | 21,3x10 <sup>5</sup>  |         | 23x10 <sup>5</sup> |         |          |
| $I_y$ mm <sup>4</sup>   | 12,3x10 <sup>5</sup>  |         | 27x10 <sup>5</sup> |         |          |
| Elastic modulus N/mm <sup>2</sup>   | 70000                 |         | 70000              |         |          |

### Formula: DSSZ

Driving torque:

$$M_o = \frac{F \cdot P \cdot S_i}{2000 \cdot \pi} + M_{\text{no-load}}$$

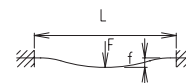
$$P_o = \frac{M_o \cdot n}{9550}$$

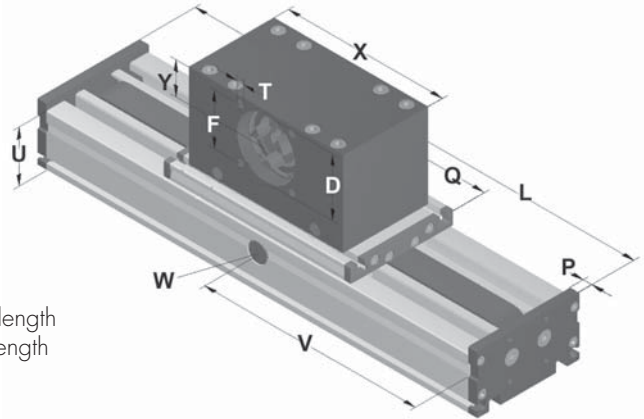
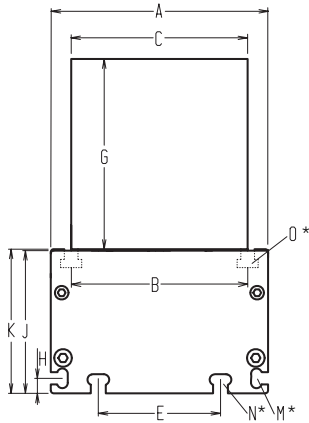
F = force (N)  
 P = pulley action perimeter (mm)  
 S<sub>i</sub> = safety factor 1,2 ... 2  
 M<sub>no-load</sub> = no-load torque (Nm)  
 n = rpm pulley (min<sup>-1</sup>)  
 M<sub>o</sub> = driving torque (Nm)  
 P<sub>o</sub> = motor power (KW)

Deflection:

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

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>)



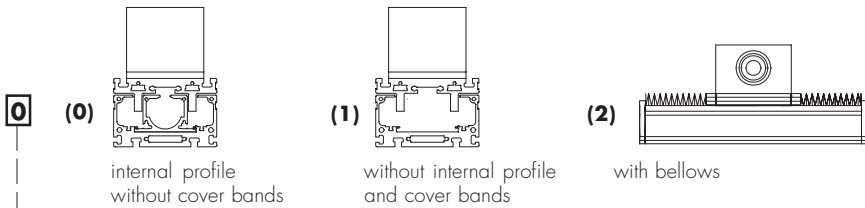


\*For Truts refer to accessory section

W = servicing position

| Size     | Basic length L | A   | B   | C   | D   | E   | F   | G   | H   | J   | K   | M   | N   | O   | P   | Q   | R   | S   | T   | U   | X   | Y   | Basic weight | Additional Weight per 100 mm |
|----------|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|------------------------------|
| DSSZ 160 | 330            | 160 | 130 | 130 | 90  | 90  | 80  | 140 | 11  | 105 | 106 | M6  | M8  | M8  | 12  | 290 | 53  | 60  | M10 | 80  | 270 | 60  | 27,8 kg      | 1,8 kg                       |
| DSSZ 200 | TBD            | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD          | TBD                          |

**Choice of guide body profile:**



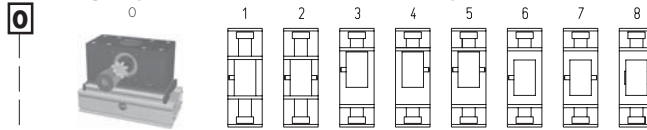
Guide body profile with stainless screws upon request.

**Choice of carriages:**



| Size | Version 0 |     | Version 1 |      |
|------|-----------|-----|-----------|------|
|      | Q         | L   | Q         | L    |
| 160  | 290       | 330 | >370      | >410 |
| 200  | TBD       | TBD | TBD       | TBD  |

**Coupling - Selection of shaft mounting:**



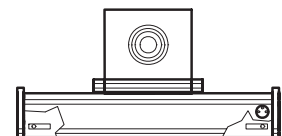
8 is as 0, but with jaw couplings on both sides. The standard version is supplied without shaft. A shaft can be retrofitted by inserting in the pulley bore and securing with 2 locking rings or tension sets (size 200).

**Belt table**

| Code No. | Size | Belt | mm/rev. | Number of teeth |
|----------|------|------|---------|-----------------|
| 0 9      | 160  | 8M50 | 256     | 32              |
| 1 0      | 200  | 8M70 | 304     | 38              |

**Shaft dimensions**

| Size | Shaft ø h6 x length | Key    |
|------|---------------------|--------|
| 160  | 22 x 45             | 6x6x40 |
| 200  | 30 x 55             | 8x7x40 |



Basic length + stroke = total length

**DSSZ 160 1 0 0 0 0 9 2 01500**

Pos. 1 2 3 4 5 6 7

Inductive proximity switch sets, which can be mounted inside of the square profile, are available as accessories. Coupling and a special plug are mounted from the outside. See accessory section.

Sample ordering code:  
DSSZ160, standard body profile, standard carriage, jaw couplings on one side, 1170 mm stroke