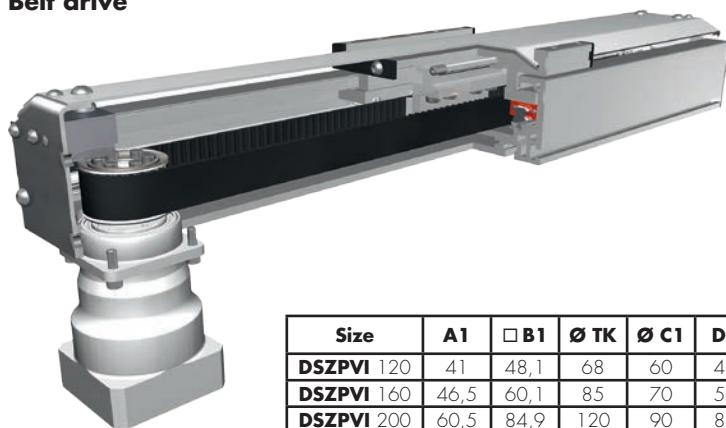


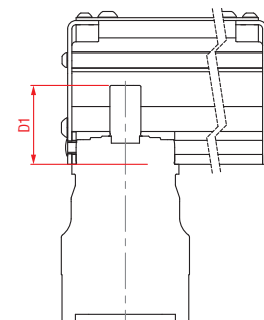
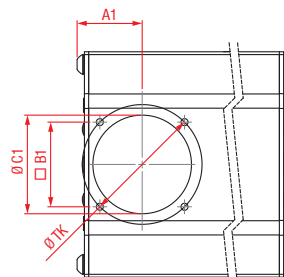
# Positioning system DSZPVI 120, 160, 200

## Specifications

### Belt drive



| Size              | A1   | □ B1 | Ø TK | Ø C1 | D1 |
|-------------------|------|------|------|------|----|
| <b>DSZPVI 120</b> | 41   | 48,1 | 68   | 60   | 48 |
| <b>DSZPVI 160</b> | 46,5 | 60,1 | 85   | 70   | 56 |
| <b>DSZPVI 200</b> | 60,5 | 84,9 | 120  | 90   | 88 |



### Function:

This unit consists of a rectangular aluminium profile with 2 integrated rail guides. The carriage is moved by a belt drive. On the drive side the pulley is beared on the shaft of a planetary gear. Belt tension can be readjusted by a simple screw adjustment at the opposite side of the drive. A special curved aluminium sheet is covering the carriage side. There is only a small gap between carriage and aluminium sheet. Because of its special design it is possible to drive the carriage over the pulley areas. This fact is making the unit very compact.

### Fitting position:

As required, max. 3.000 mm

### Carriage mounting:

By tapped holes.

### Unit mounting:

T-slots

### Belt type:

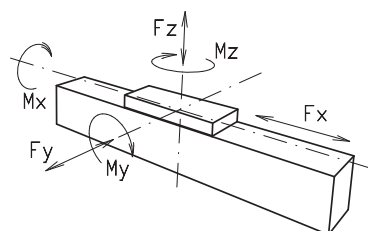
HTD with steel reinforcement, no backlash when changing direction, repeatability  $\pm 0,1$  mm.

### 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.

8.1

### Forces and torques



| Size                                                | 120                                                                                                                                      |          | 160                      |          | 200                      |          |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|----------|--------------------------|----------|
| permitted dyn. Forces*                              | 5000 km                                                                                                                                  | 10000 km | 5000 km                  | 10000 km | 5000 km                  | 10000 km |
| F <sub>x</sub> (N)                                  | 894                                                                                                                                      | 800      | 1900                     | 1800     | 4000                     | 3800     |
| F <sub>y</sub> (N)                                  | 1776                                                                                                                                     | 1405     | 5570                     | 3900     | 15600                    | 11080    |
| F <sub>z</sub> (N)                                  | 2090                                                                                                                                     | 1650     | 7050                     | 5020     | 20600                    | 14600    |
| M <sub>x</sub> (Nm)                                 | 81                                                                                                                                       | 64       | 358                      | 255      | 1285                     | 915      |
| M <sub>y</sub> (Nm)                                 | 97                                                                                                                                       | 77       | 369                      | 262      | 1375                     | 980      |
| M <sub>z</sub> (Nm)                                 | 96                                                                                                                                       | 76       | 364                      | 258      | 1645                     | 960      |
| C (N)                                               | 2310                                                                                                                                     |          | 7800                     |          | 22800                    |          |
| All forces and torques related to the following:    |                                                                                                                                          |          |                          |          |                          |          |
| existing values                                     | $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$ |          |                          |          |                          |          |
| table values                                        |                                                                                                                                          |          |                          |          |                          |          |
| No-load torque                                      |                                                                                                                                          |          |                          |          |                          |          |
| Nm without cover bands                              | 1,2                                                                                                                                      |          | 1,5                      |          | 2,0                      |          |
| Speed                                               |                                                                                                                                          |          |                          |          |                          |          |
| (m/s) max                                           | 5                                                                                                                                        |          | 5                        |          | 5                        |          |
| Tensile force                                       |                                                                                                                                          |          |                          |          |                          |          |
| permanent (N)                                       | 900                                                                                                                                      |          | 1900                     |          | 4000                     |          |
| 0,2 s (N)                                           | 1000                                                                                                                                     |          | 2090                     |          | 4300                     |          |
| Geometrical moments of inertia of aluminium profile |                                                                                                                                          |          |                          |          |                          |          |
| I <sub>x</sub> mm <sup>4</sup>                      | 5,61x10 <sup>5</sup>                                                                                                                     |          | 2,32 x 10 <sup>5</sup>   |          | 48,07 x 10 <sup>5</sup>  |          |
| I <sub>y</sub> mm <sup>4</sup>                      | 34,19x10 <sup>5</sup>                                                                                                                    |          | 123,36 x 10 <sup>5</sup> |          | 259,99 x 10 <sup>5</sup> |          |
| Elastic modulus N/mm <sup>2</sup>                   | 70000                                                                                                                                    |          | 70000                    |          | 70000                    |          |

\* referred to life-time

### Formula: DSZPVI

Driving torque:

$$M_o = \frac{F \cdot P \cdot S_i}{2000 \cdot \pi} + M_{leer}$$

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

F = force (N)  
P = pulley action perimeter (mm)  
 $S_i$  = safety factor 1,2 ... 2  
 $M_{leer}$  = no-load torque (Nm)  
n = rpm pulley (min<sup>-1</sup>)  
 $M_o$  = driving torque (Nm)  
 $P_o$  = 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  
I = second moment of area (mm<sup>4</sup>)

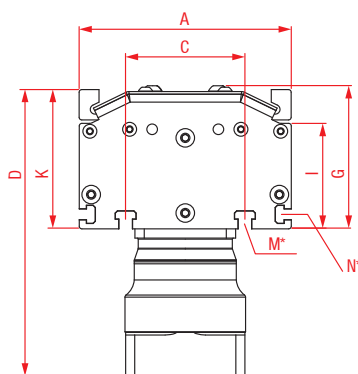
Nominal lifetime:

$$L = \left( \frac{C}{F} \right)^3 \times 10^5$$

L = Lifetime in meter  
C = Dynamic load factor (N)  
F = Middle load (N)

# Positioning system DSZPVI 120, 160, 200

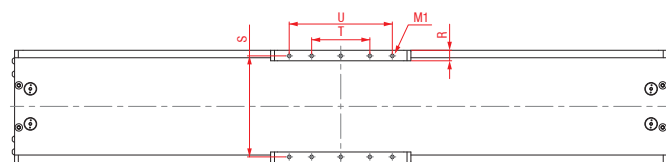
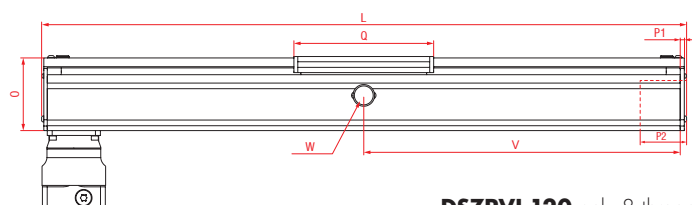
Dimensions (mm)



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



Optionally available with angular planetary gearbox



**DSZPVI 120** only 8 threaded holes in the carriage

**DSZPVI 160** M1 = thread depth M8 x 12

**DSZPVI 200** M1 = M10 x 12

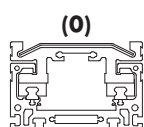
$V = Q + 100$

W = servicing position

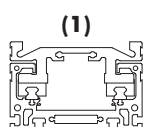
\*For slide nuts refer to chapter 2.2 page 2

| Size              | Basic length L | A   | C   | D     | G     | I   | K    | M for | N for | O   | P1 | P2   | Q   | R    | S   | T   | U   | Basic weight without gearbox | Weight per 100 mm |
|-------------------|----------------|-----|-----|-------|-------|-----|------|-------|-------|-----|----|------|-----|------|-----|-----|-----|------------------------------|-------------------|
| <b>DSZPVI 120</b> | 223            | 120 | 78  | 169   | 82,5  | 60  | 79,5 | M6    | M5    | 78  | 2  | 35   | 148 | 11,5 | 106 | 40  | 120 | 3,45 kg                      | 0,87 kg           |
| <b>DSZPVI 160</b> | 298            | 160 | 90  | 217,5 | 108,5 | 80  | 106  | M8    | M6    | 104 | 3  | 52,5 | 188 | 15   | 144 | 80  | 160 | 10,27 kg                     | 2,24 kg           |
| <b>DSZPVI 200</b> | 383            | 200 | 140 | 251   | 132,5 | 100 | 129  | M10   | M8    | 128 | 3  | 62,5 | 248 | 17   | 180 | 100 | 200 | 18,20 kg                     | 3,15 kg           |

## Choice of guide body profile:



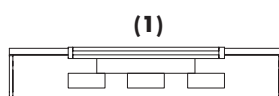
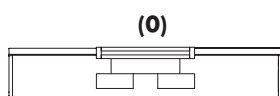
with cover profile



without cover profile

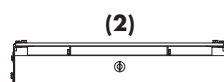
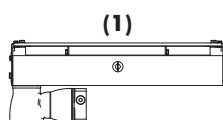
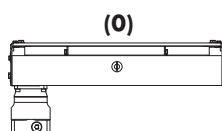
Stainless versions upon request.

## Choice of carriages:



| Size       | Version 0 |     | Version 1 |      |
|------------|-----------|-----|-----------|------|
|            | Q         | L   | Q         | L    |
| <b>120</b> | 148       | 223 | >148      | >223 |
| <b>160</b> | 188       | 298 | >220      | >330 |
| <b>200</b> | 248       | 383 | >290      | >430 |

## Drive version:



- (0) planetary gearbox  
(1) angular planetary gearbox  
(2) without gearbox

## Belt table:

| Code-No.   | Size       | Belt | mm/rev. | Number of teeth |
|------------|------------|------|---------|-----------------|
| <b>0 4</b> | <b>120</b> | 5M25 | 130     | 26              |
| <b>0 7</b> | <b>160</b> | 8M30 | 176     | 22              |
| <b>0 9</b> | <b>200</b> | 8M50 | 224     | 28              |

**DSZPVI 160 1 0 0 0 0 7 1 01500**

Pos. 1 2 3 4 5 6 7

Basic length + stroke = total length

Sample ordering code:

DSZPVI 160 with cover bands, standard carriage, with planetary gearbox, 1202 mm stroke.