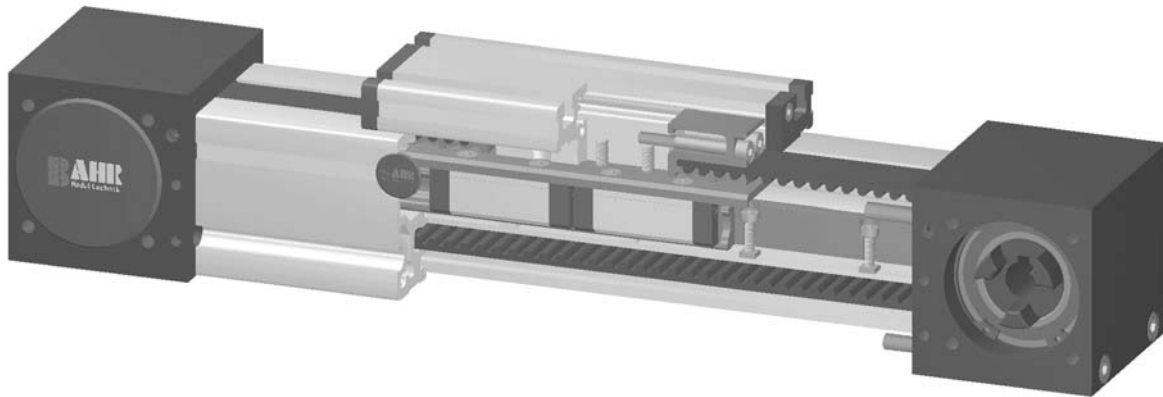


Positioning system QSZ 60, 80, 100

Specifications

Belt drive



Function:

This unit consists of a square aluminium profile with an integrated ball rail. The carriage is moved by a belt drive. Each standard pulley includes one coupling claw on one side. 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.

6.1

Fitting position:

As required. Max. length 6.000 mm without joints.

Carriage mounting:

By T-slots.

Unit mounting:

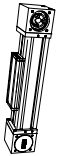
By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.

Belt performance:

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

Carriage support:

In the standard version, the carriage runs on two runner blocks which can be adjusted and serviced at a central servicing position. For longer carriages the number of runner blocks can be increased.



Forces and torques	Size	60		80		100	
	permitted dyn. Forces*	5000 km	10000 km	5000 km	10000 km	5000 km	10000 km
F_x (N)		894	800	1900	1800	4000	3800
F_y (N)		274	218	567	450	916	727
F_z (N)		2991	2374	4955	3933	7146	5671
M_x (Nm)		18	14	41	33	70	56
$M_y = M_z$ (Nm)		54	43	121	96	197	157
All forces and torques related to the following:							
existing values		$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$					
values of table							
No-load torque							
Nm		1,0		1,4		1,8	
Speed							
(m/sec) max		5		5		5	
Tensile force							
permanent (N)		900		1900		4000	
0,2 sec (N)		1000		2090		4300	
Geometrical moments of inertia of aluminium profile							
I_x mm ⁴		4,3x10 ⁵		16,5x10 ⁵		43,0x10 ⁵	
I_y mm ⁴		4,8x10 ⁵		18,7x10 ⁵		48,8x10 ⁵	
Elastic modulus N/mm ²		70000		70000		70000	

* referred to life-time

Formula: QSZ

Driving torque:

$$M_o = \frac{F \cdot p \cdot S}{2000 \cdot \pi} + M_{leer}$$

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

F = force (N)
 P = pulley action perimeter (mm)
 S = safety factor 1,2 ... 2
 M_{leer} = no-load torque (Nm)
 n = rpm pulley (min⁻¹)
 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 (N/mm²)
 I = second moment of area (mm⁴)

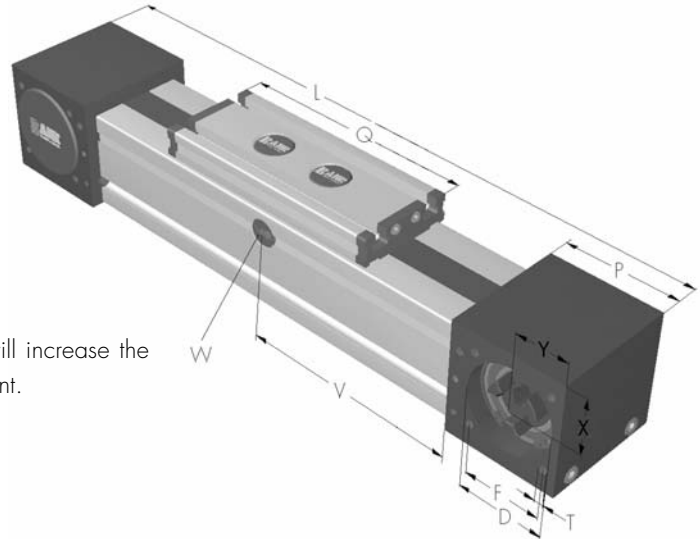
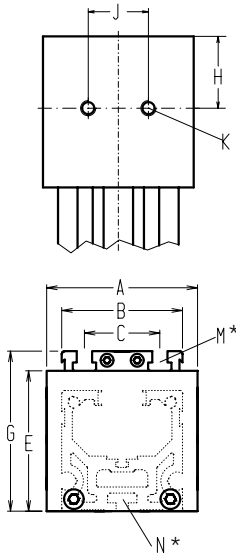
Nominal lifetime:

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

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

Positioning system QSZ 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 $V = Q + 100 \text{ mm}$ $W = \text{servicing position}$

Size	Basic length L	A	B	C	D	E	F	G	H	J	K	N for	M for	P	Q	T	X	Y	Basic weight	Weight per 100 mm
QSZ 60	300	80	60	36	47	63	42	79	29,5	30	M 8	M 5	M 6	59	177	M 6	27	26	3,5 kg	0,53 kg
QSZ 80	430	100	80	50	68	93	60	106	47,5	40	M 10	M 6	M 8	90	232	M 8	45	40	10,4 kg	1,02 kg
QSZ 100	510	130	100	66	90	110	80	129	55	50	M 12	M 10	M 10	110	268	M 10	49	50	15,9 kg	1,77 kg

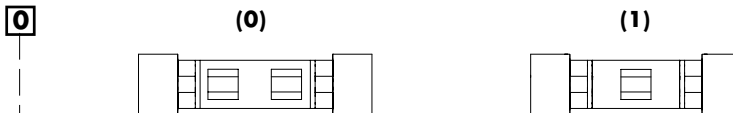
6.1



Choice of guide body profile:

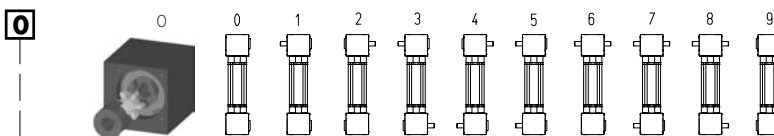
(0) Standard (1) stainless screws

Choice of carriages:



Size	Version 0		Version 1	
	Q	L	Q	L
60	177	300	152	280
80	232	430	196	390
100	268	510	260	500

Coupling - Selection of shaft mounting:



Size	Shaft \varnothing h6 x length	Key
60	14 x 35	5x5x28
80	18 x 45	6x6x40
100	22 x 45	6x6x40

9 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 3	60	5M25	130	26
0 4	80	8M30	176	22
0 7	100	8M50	224	28

Basic length + stroke = total length

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

Sample ordering code:
QSZ80 with standard body profile, standard carriage, coupling claw on one side, 1070 mm stroke

For additional accessories refer to chapter 2.2 – 4.2

