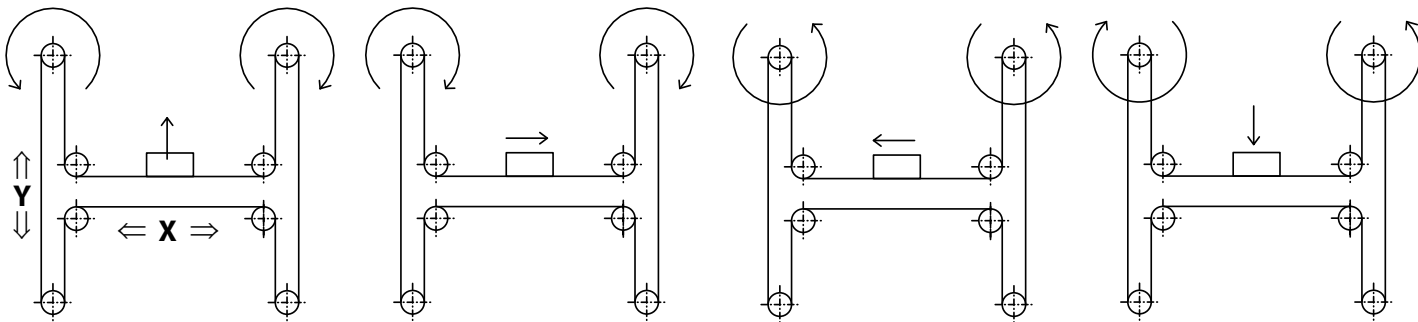## SURFACE PORTAL - STRENGTHENED CONSTRUCTION

Function:

Surface gantry consisting of two Y axes and one X axis. The unit is driven by a rotating belt, which remains connected through various deflection points. Due to the rectangular profile high torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems. The belt tension can be easily readjusted via a tensioning device within the carriage. The movement is realised by two motors. The coordinate lies diagonal to the deflection points of the X axis. Advantage: Only small masses are moved and thus it is possible to achieve high accelerations.

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	60 S	
Forces/Torques	static	dynamic
F_x (N)	894	800
F_y (N)	4100	3100
F_z (N)	2160	1600
M_x (Nm)	88	65
M_y (Nm)	190	140
M_z (Nm)	230	170
All forces and torques relate to the following:		
existing values / table values $\dfrac{Fy}{Fy_{dyn}} + \dfrac{Fz}{Fz_{dyn}} + \dfrac{Mx}{Mx_{dyn}} + \dfrac{My}{My_{dyn}} + \dfrac{Mz}{Mz_{dyn}} \leq 1$		
No-load torqe		
Nm	1,2	
Speed		
(m/s) max	5	
Tensile force		
permanent (N)	900	
0,2 s (N)	1000	
Geometrical moments of inertia of aluminium profile - Y-Axis		
I_x mm⁴	$6{,}79 \times 10^5$	
I_y mm⁴	$6{,}97 \times 10^5$	
E-Modul N/mm²	70000	
Geometrical moments of inertia of aluminium profile - X-Axis		
I_x mm⁴	$2{,}8 \times 10^6$	
I_y mm⁴	$9{,}6 \times 10^5$	
E-Modulus N/mm²	70000	

For life-time calculation of rollers use our homepage.

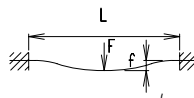Driving torque:

$$M_a = \frac{F * P * S_i}{2000 * \pi} + M_n$$

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

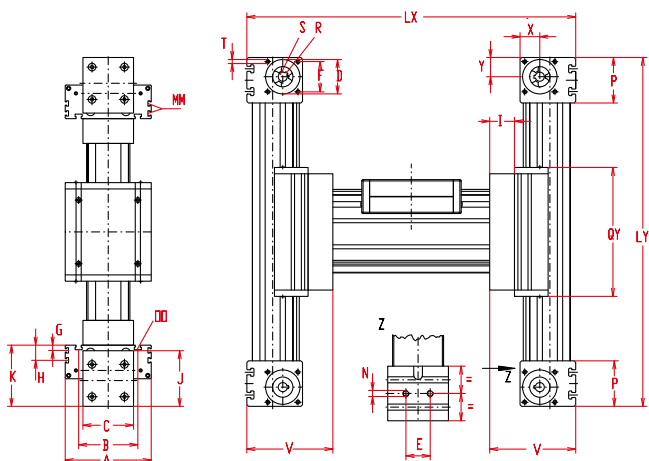|		
F	= force	(N)
P	= pulley action perimeter	(mm)
Si	= safety factor 1,2 … 2	
M_n	= no-load torque	(Nm)
n	= rpm pulley	(min⁻¹)
M_a	= driving torque	(Nm)
P_a	= motor power	(KW)

Deflection:

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

f	= deflection	(mm)
F	= load	(N)
L	= free length	(mm)
E	= elastic modulus 70000	(N/mm²)
I	= second moment of area	(mm⁴)

06/24

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*For slide nuts refer to chapter 2.2 page 2

Size	Basic length		A	B	C	D - 0,05	E	F	I	J	K	N for	NN for	OO for	P	Qx	Qy	T	V	X	Y	Basic weight	Weight per 100 mm
	Lx	Ly																					
ELZU 60 S **W**	450	400	170	108	80	47	30	42	33	82	94	M 8	M5	M 8	59	194	280	M6	127	27	26	17,9 kg	0,9 kg

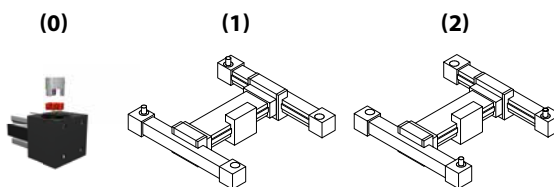**0** **Choice of guide body profile:**
(0) Standard **(2)** corrosion-protected guide rods and screws
(4) expanded corrosion-protected version (depending on the availability of components)

0 **Choice of carriages:**

(0)   **(1)**   **(2)**
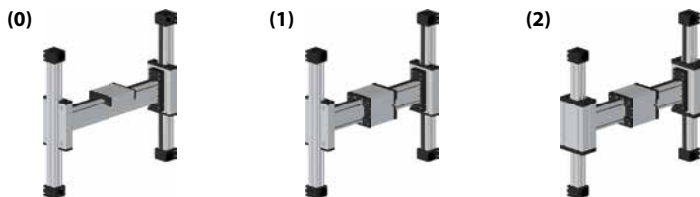
Size	Version 1				Version 2			
	Qx	Lx	Qy	Ly	Qx	Lx	Qy	Ly
60 S	214	470	280	400	214	470	300	420

0 **Drive version:**

(0)   **(1)**   **(2)**

The standard version is supplied without shaft. A shaft can be retrofitted by inserting it into the pulley bore and securing it with 2 locking rings.

Belt table:

Code No.		Size	Belt	mm/rev.	Number of teeth
0	**4**	**60 S**	5M25	130	26

Shaft dimensions / Coupling claw:

Size	Shaft ø h6 x length	Key	Coupling
60 S	14 x 35	5x5x28	14

X-Axis Basic length + stroke = total length

ELZU	60S W	7	0	0	0	0	4	1	01500

Y-Axes Basic length + stroke = total length

ELZU	60S W	8	0	0	0	0	4	1	00700

Pos.   1   2   3   4   5   6   7

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:
ELZU 60S W, standard body profile, standard carriage, coupling claw on one side, stroke X = 1080 / Y = 298 mm

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