

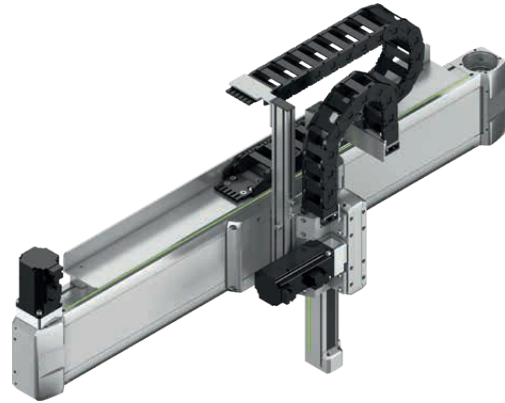
Linear axes & linear axis systems

Linear gantries HSL

18. Linear gantries HSL

18.1 Properties of the linear gantries HS3

HIWIN linear gantries HSL are flexible units for positioning along the X- and Z-axis. They consist of a HIWIN belt axis HT-B in the X direction and a HIWIN cantilever axis HC-B in the Z direction. HIWIN HSL linear gantries are particularly well suited for two-dimensional movements.

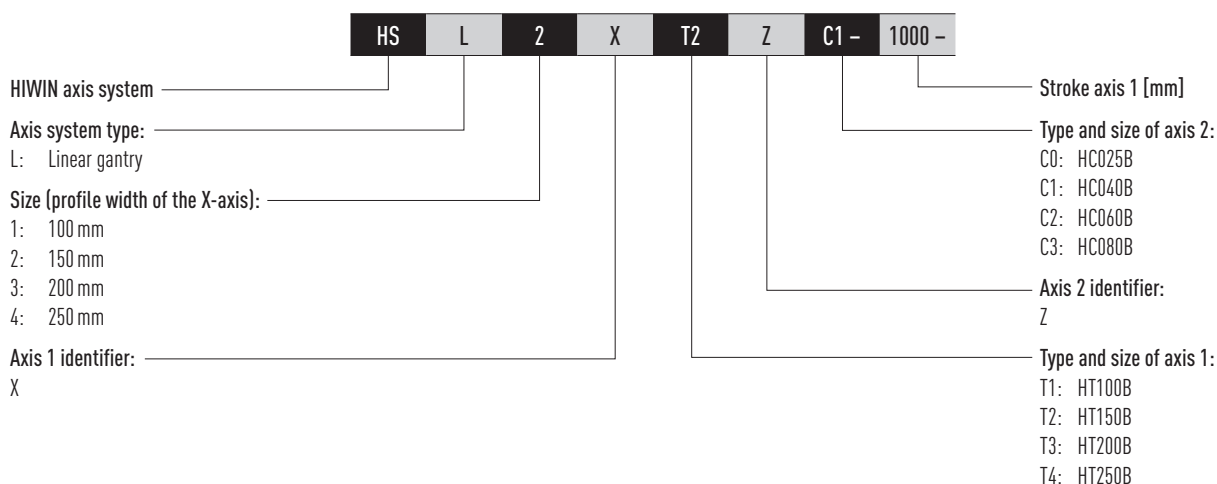


Energy chain

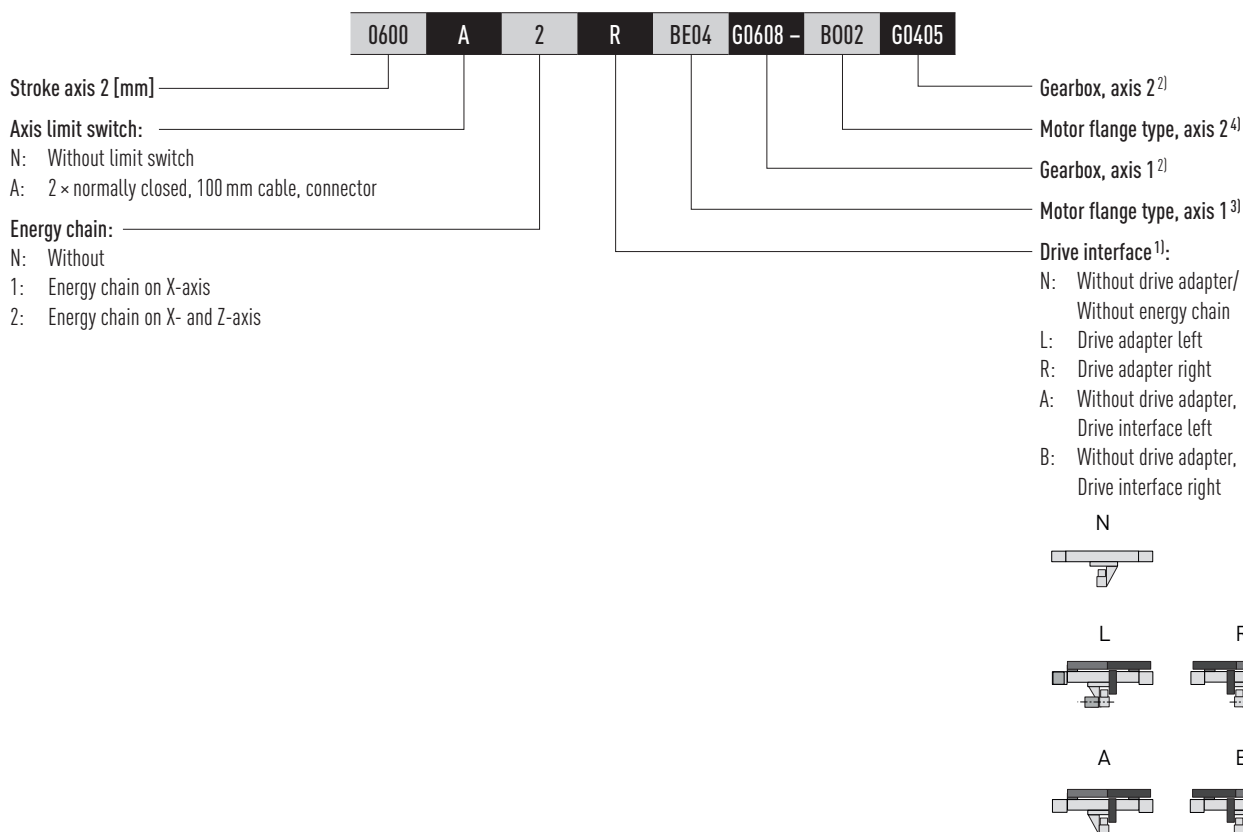
Generously dimensioned energy chains provide space for safely carrying the supply lines. The energy chains are integrated into the complete system in a particularly compact and space-saving way.



18.2 Order code for linear gantries HSL



Continuation, order code for linear gantries HSL



¹⁾ If no drive interface is selected, the order code ends after this digit.

²⁾ You can find matching gearboxes in section 22.1.5.5 from page 170.

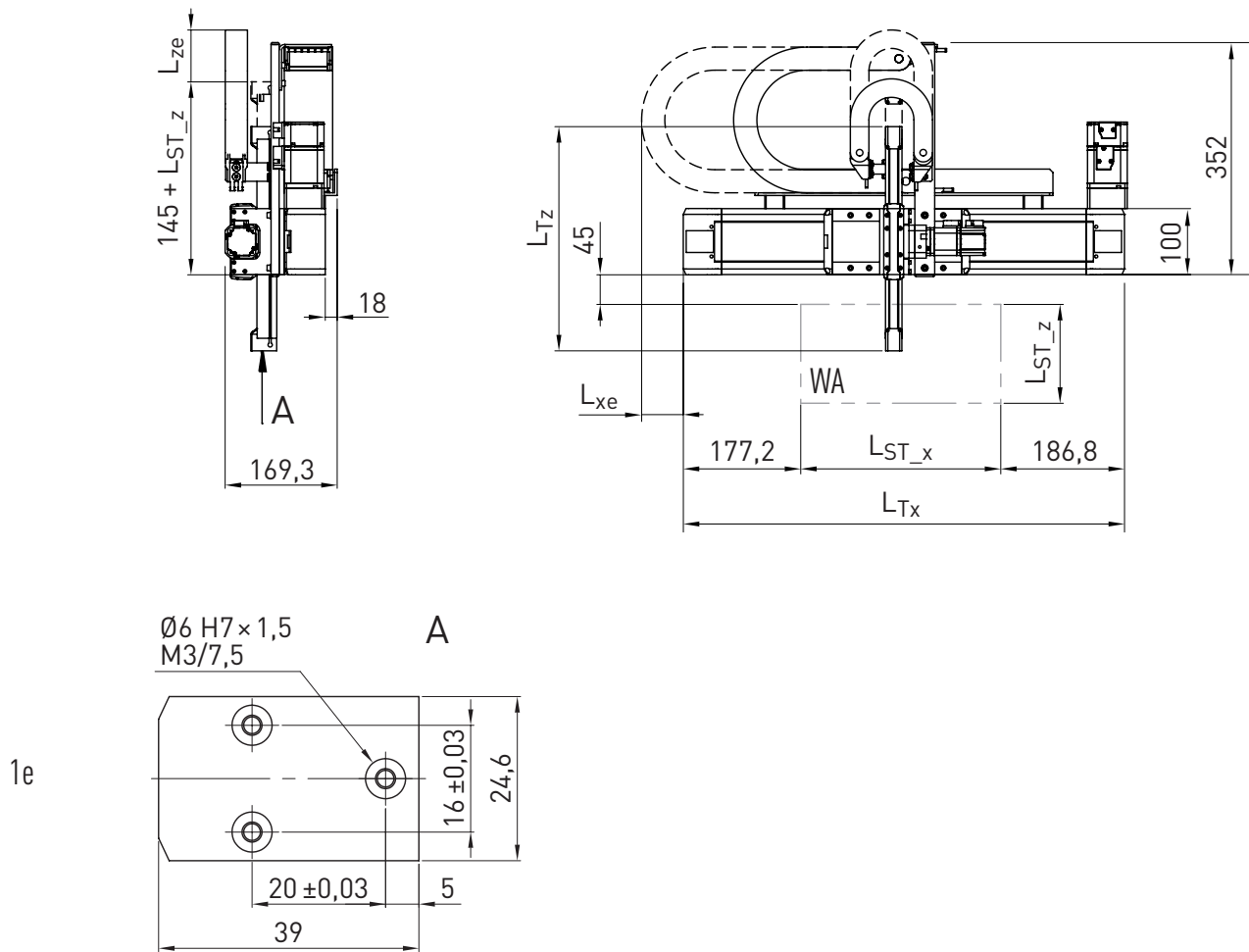
³⁾ You can find all flange types in Table 22.2 from page 161. If no flange type is selected, the "Gearbox, axis 1" position is omitted.

⁴⁾ You can find all flange types in Table 22.4 from page 163. If no flange type is selected, the order code ends after this digit.

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18.3 Dimensions and specifications of HSL1-T-C



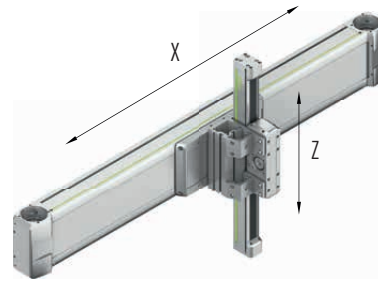
L_{ST} Stroke
 WA Working space
 $1e$ Interface application

Table 18.1 HSL1-T-C dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 364$
Total length Z-axis L_{Tz} [mm]	$L_{Tz} = L_{ST_z} + 190$

Table 18.2 Energy chain

	X-axis	Z-axis
Inner cross section $W \times H$ [mm]	57×25	20×21
Bending radius [mm]	75	48
End position at electrical zero F [mm]	$L_{xe} = 7.5$	$L_{ze} = 151.0 - L_{ST}/2$
End position at mechanical zero [mm]	$L_{xm} = 15.0$	$L_{zm} = 147.5 - L_{ST}/2$


Table 18.3 General technical data

	X-axis	Z-axis
Axis type	HT100B-C	HC025B
Max. feed force F_{x_max} [N]	813	241
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	13.6	3.1
Max. stroke [mm]	5,000	300
Typical load capacity [kg]	2	

¹⁾ Restrictions possible with variant with energy chain depending on the stroke

Note: Dimensions and specifications of single axes HT100B can be found in section 7.3 on page 46

Dimensions and specifications of single axis HC025B can be found in section 13.3 on page 88

Table 18.4 Drive

	X-axis	Z-axis
Toothed belt drive element	B25HTD5	B12HTD3
Feed constant [mm/U]	105	81
Toothed belt effective diameter [mm]	33.42	25.78

Table 18.5 Mechanical properties

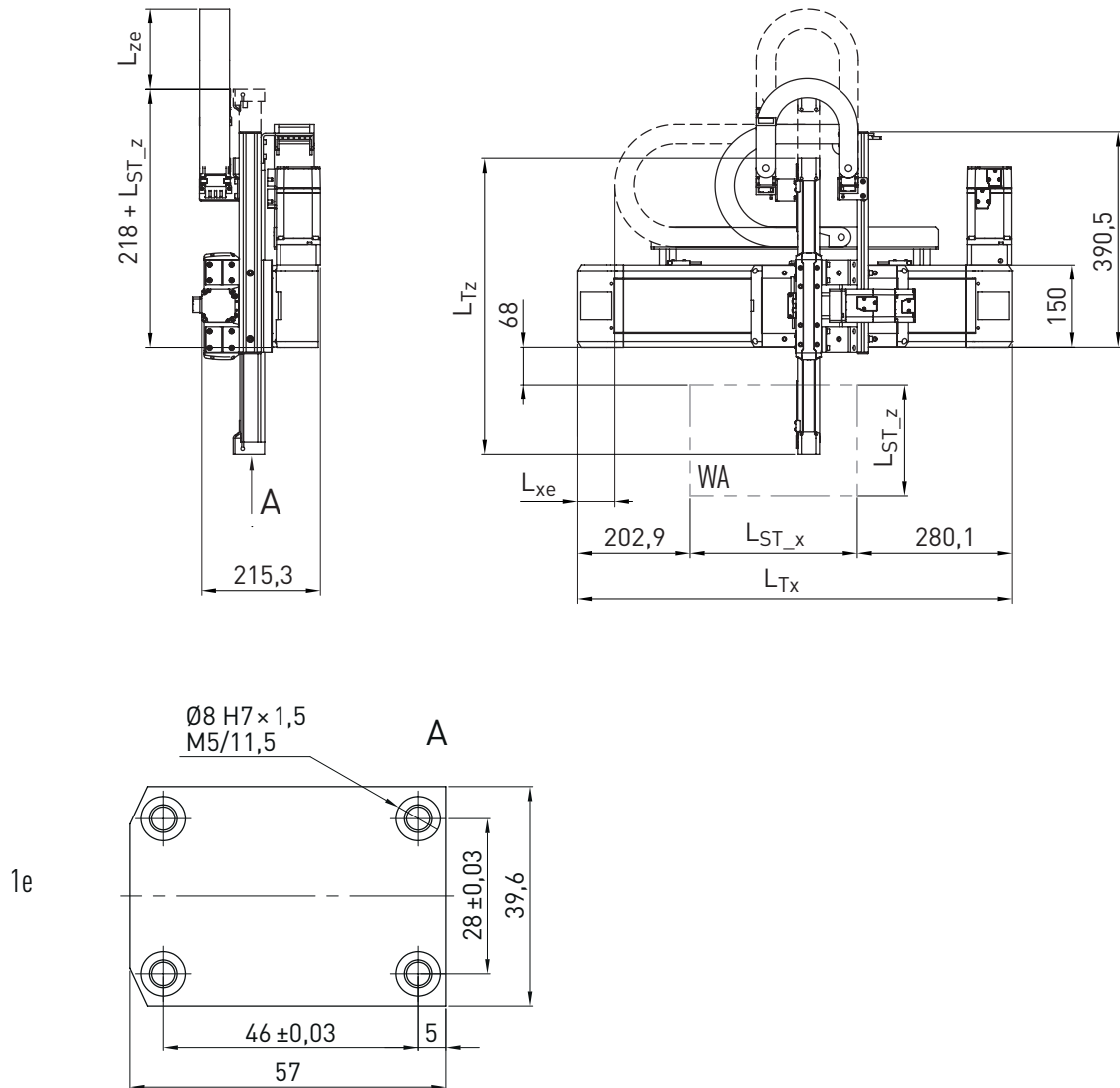
Moving mass Z-axis at 0-stroke [kg]	0.30
Moving mass Z-axis per 1 m stroke [kg/m]	1.27
Moving mass X-axis at 0-stroke Z-axis [kg]	2.61
Moving mass X-axis per 1 m stroke Z-axis [kg/m]	1.27
Mass of total system at 0-stroke X- and Z-axis [kg]	5.68
Mass of total system per 1 m stroke X-axis [kg/m]	6.65
Mass of total system per 1 m stroke Z-axis [kg/m]	1.27

Note: All values without energy chain and without drive

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Linear gantries HSL

18.4 Dimensions and specifications of HSL2-T-C



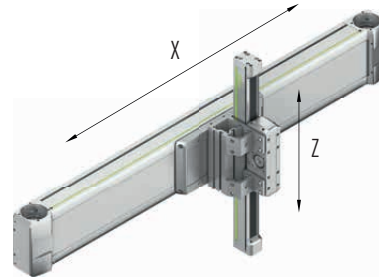
L_{ST} Stroke
 WA Working space
 $1e$ Interface application

Table 18.6 HSL2-T-C dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 483$
Total length Z-axis L_{Tz} [mm]	$L_{Tz} = L_{ST_z} + 286$

Table 18.7 Energy chain

	X-axis	Z-axis
Inner cross section $W \times H$ [mm]	57×25	38×25
Bending radius [mm]	75	75
End position at electrical zero F [mm]	$L_{Xe} = -68.0$	$L_{Ze} = 274.0 - L_{ST}/2$
End position at mechanical zero [mm]	$L_{Xm} = -58.0$	$L_{Zm} = 269.0 - L_{ST}/2$


Table 18.8 General technical data

	X-axis	Z-axis
Axis type	HT150B-C	HC040B
Max. feed force F_{x_max} [N]	1,300	404
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	32.1	7.9
Max. stroke [mm]	5,000	500
Typical load capacity [kg]	8	

¹⁾ Restrictions possible with variant with energy chain depending on the stroke

Note: Dimensions and specifications of single axes HT150B can be found in section 7.4 on page 48

Dimensions and specifications of single axis HC040B can be found in section 13.4 on page 90

Table 18.9 Drive

	X-axis	Z-axis
Toothed belt drive element	B40HTD5	B20HDT3
Feed constant [mm/U]	155	123
Toothed belt effective diameter [mm]	49.34	39.15

Table 18.10 Mechanical properties

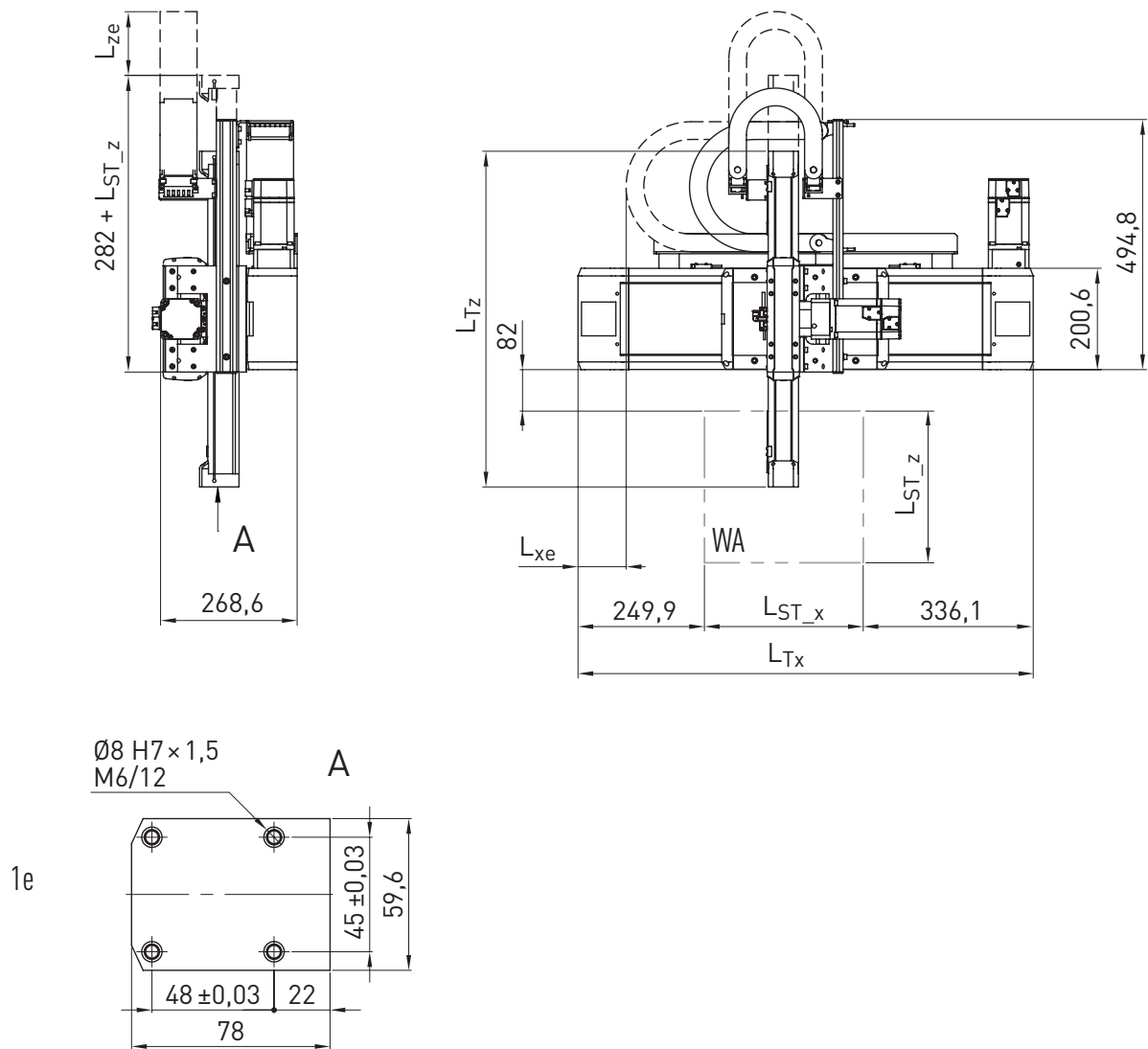
Moving mass Z-axis at 0-stroke [kg]	0.91
Moving mass Z-axis per 1 m stroke [kg/m]	2.75
Moving mass X-axis at 0-stroke Z-axis [kg]	6.74
Moving mass X-axis per 1 m stroke Z-axis [kg/m]	2.75
Mass of total system at 0-stroke X- and Z-axis [kg]	13.96
Mass of total system per 1 m stroke X-axis [kg/m]	11.13
Mass of total system per 1 m stroke Z-axis [kg/m]	2.75

Note: All values without energy chain and without drive

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18.5 Dimensions and specifications of HSL3-T-C



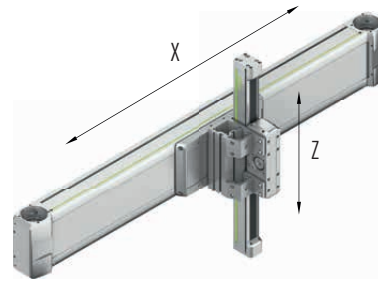
L_{ST} Stroke
 WA Working space
 $1e$ Interface application

Table 18.11 HSL3-T-C dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 586$
Total length Z-axis L_{Tz} [mm]	$L_{Tz} = L_{ST_z} + 364$

Table 18.12 Energy chain

	X-axis	Z-axis
Inner cross section $W \times H$ [mm]	77×25	57×25
Bending radius [mm]	100	75
End position at electrical zero F [mm]	$L_{Xe} = -94$	$L_{Ze} = 282,5 - L_{ST}/2$
End position at mechanical zero [mm]	$L_{Xm} = -79$	$L_{Zm} = 275,0 - L_{ST}/2$


Table 18.13 General technical data

	X-axis	Z-axis
Axis type	HT200B-C	HC060B
Max. feed force F_{x_max} [N]	3,000	997
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	87,9	27
Max. stroke [mm]	5,000	800
Typical load capacity [kg]	16	

¹⁾ Restrictions possible with variant with energy chain depending on the stroke

Note: Dimensions and specifications of single axes HT200B can be found in section 7.5 on page 50

Dimensions and specifications of single axis HC060B can be found in section 13.5 on page 92

Table 18.14 Drive

	X-axis	Z-axis
Toothed belt drive element	B50HTD8	B30HTD5
Feed constant [mm/U]	184	170
Toothed belt effective diameter [mm]	58.57	54.11

Table 18.15 Mechanical properties

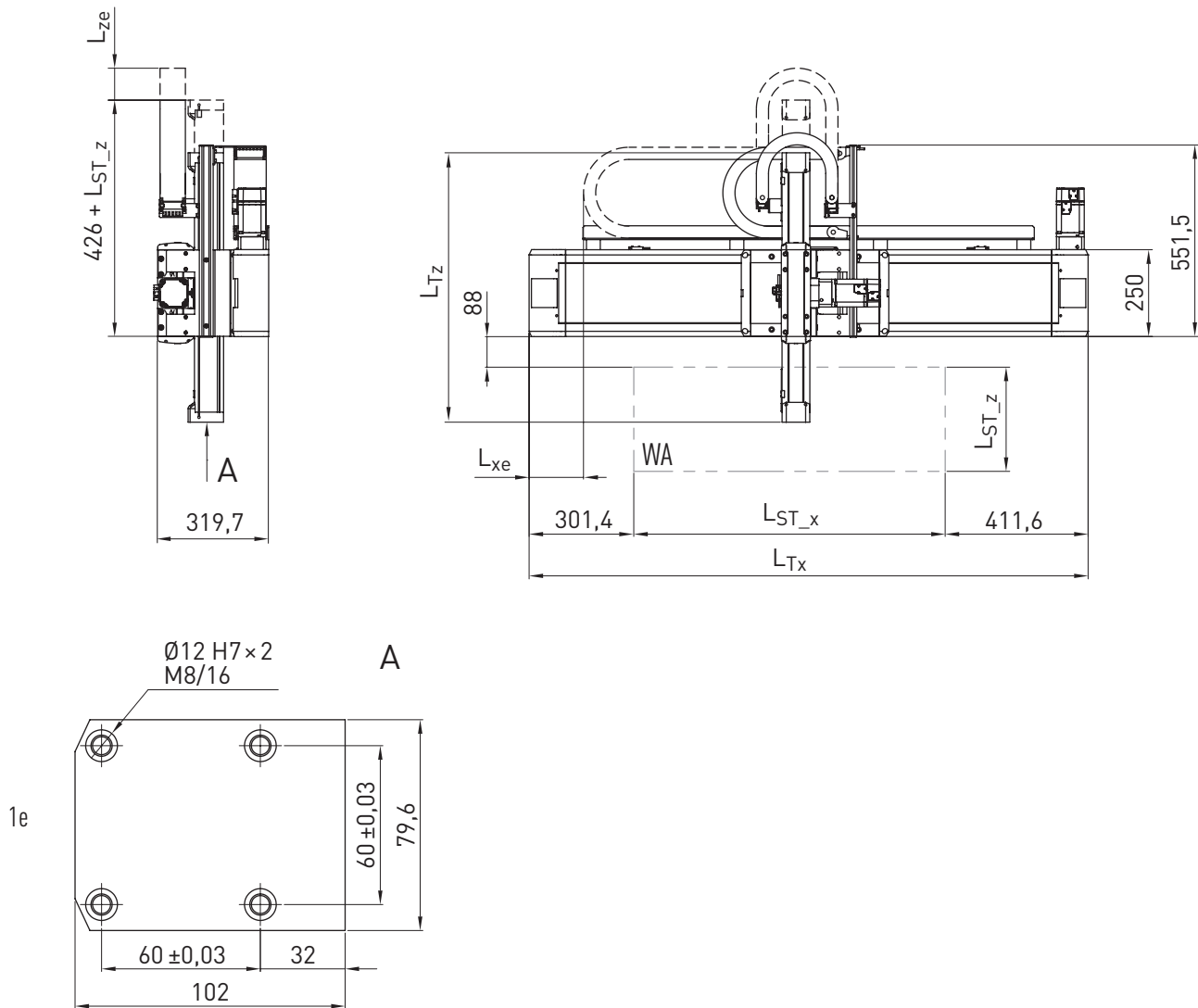
Moving mass Z-axis at 0-stroke [kg]	2.23
Moving mass Z-axis per 1 m stroke [kg/m]	5.18
Moving mass X-axis at 0-stroke Z-axis [kg]	13.12
Moving mass X-axis per 1 m stroke Z-axis [kg/m]	5.18
Mass of total system at 0-stroke X- and Z-axis [kg]	27.14
Mass of total system per 1 m stroke X-axis [kg/m]	17.75
Mass of total system per 1 m stroke Z-axis [kg/m]	5.18

Note: All values without energy chain and without drive

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18.6 Dimensions and specifications of HSL4-T-C



L_{ST} Stroke
 WA Working space
 $1e$ Interface application

Table 18.16 HSL4-T-C dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 713$
Total length Z-axis L_{Tz} [mm]	$L_{Tz} = L_{ST_z} + 426$

Table 18.17 Energy chain

	X-axis	Z-axis
Inner cross section $W \times H$ [mm]	77×25	57×25
Bending radius [mm]	100	100
End position at electrical zero F [mm]	$L_{xe} = -197,5$	$L_{ze} = 259,0 - L_{ST}/2$
End position at mechanical zero [mm]	$L_{xm} = -177,5$	$L_{zm} = 249,0 - L_{ST}/2$

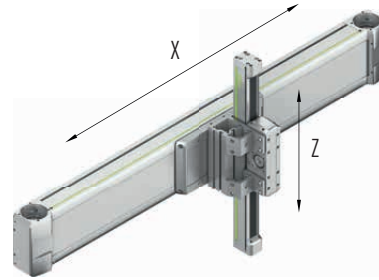


Table 18.18 General technical data

	X-axis	Z-axis
Axis type	HT250B-C	HC080B
Max. feed force F_{x_max} [N]	4,500	1,330
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	149	42.3
Max. stroke [mm]	5,000	1200
Typical load capacity [kg]	30	

¹⁾ Restrictions possible with variant with energy chain depending on the stroke

Note: Dimensions and specifications of single axes HT250B can be found in section 7.6 on page 52

Dimensions and specifications of single axis HC080B can be found in section 13.6 on page 94

Table 18.19 Drive

	X-axis	Z-axis
Toothed belt drive element	B75HTD8	B40HTD5
Feed constant [mm/U]	208	200
Toothed belt effective diameter [mm]	66.21	63.66

Table 18.20 Mechanical properties

Moving mass Z-axis at 0-stroke [kg]	4.35
Moving mass Z-axis per 1 m stroke [kg/m]	9.01
Moving mass X-axis at 0-stroke Z-axis [kg]	26.20
Moving mass X-axis per 1 m stroke Z-axis [kg/m]	9.01
Mass of total system at 0-stroke X- and Z-axis [kg]	49.40
Mass of total system per 1 m stroke X-axis [kg/m]	23.09
Mass of total system per 1 m stroke Z-axis [kg/m]	9.01

Note: All values without energy chain and without drive