

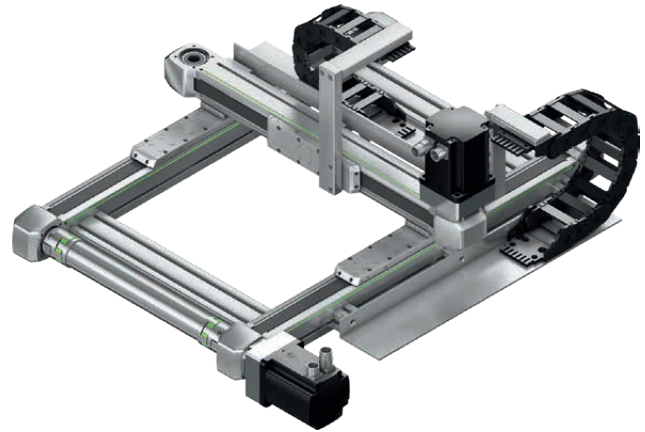
Linear axes & linear axis systems

Two-axis systems HS2

16. Two-axis systems HS2

16.1 Properties of the double axis systems HS2

HIWIN two-axis systems HS2 are flexible units for positioning along the X- and Y-axes. They consist of a HIWIN double axis HD in the X direction and a HIWIN belt axis HM-B or HT-B in the Y direction. HIWIN two-axis systems HS2 are especially suitable for two-dimensional or flat movements in one plane and form the basis for three-axis systems.



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.



Maximum axis speed in X direction

The maximum axis speed in the X direction depends on the size and the centre distance, which in the two-axis system HS2 results from the selected stroke in the Y direction. The dependence of the maximum axis speed on stroke length Y can be determined from the diagram in Fig. 16.1.

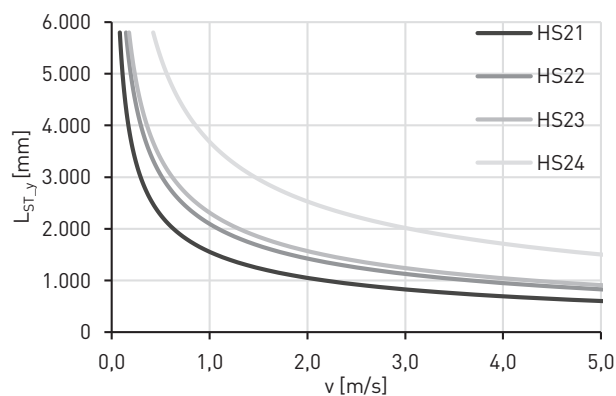
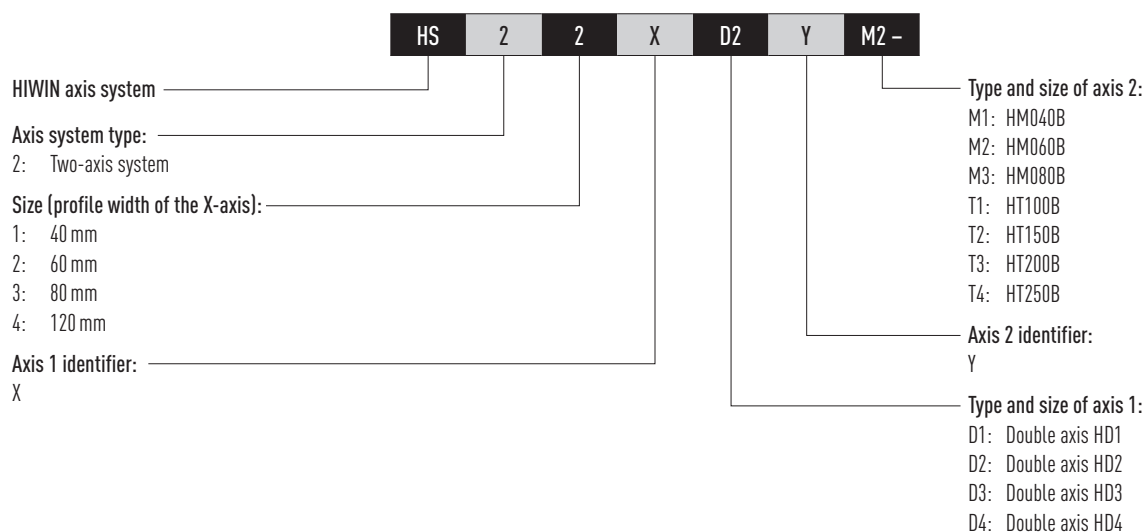
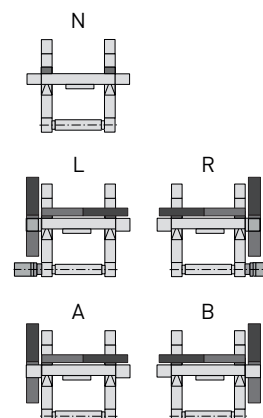
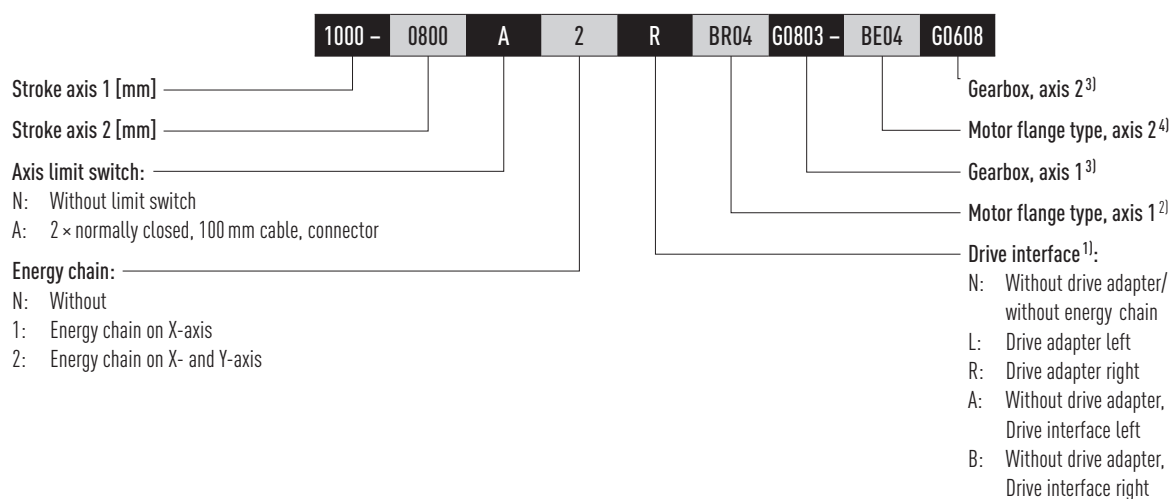


Fig. 16.1 Max. axis speed v in X direction, as a function of stroke L_{ST} in Y direction

16.2 Order code for two-axis systems HS2



Continuation, order code for two-axis systems HS2



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

²⁾ You can find all flange types in [Table 22.1 from page 160](#). If no flange type is selected, the "Gearbox, axis 1" position is omitted.

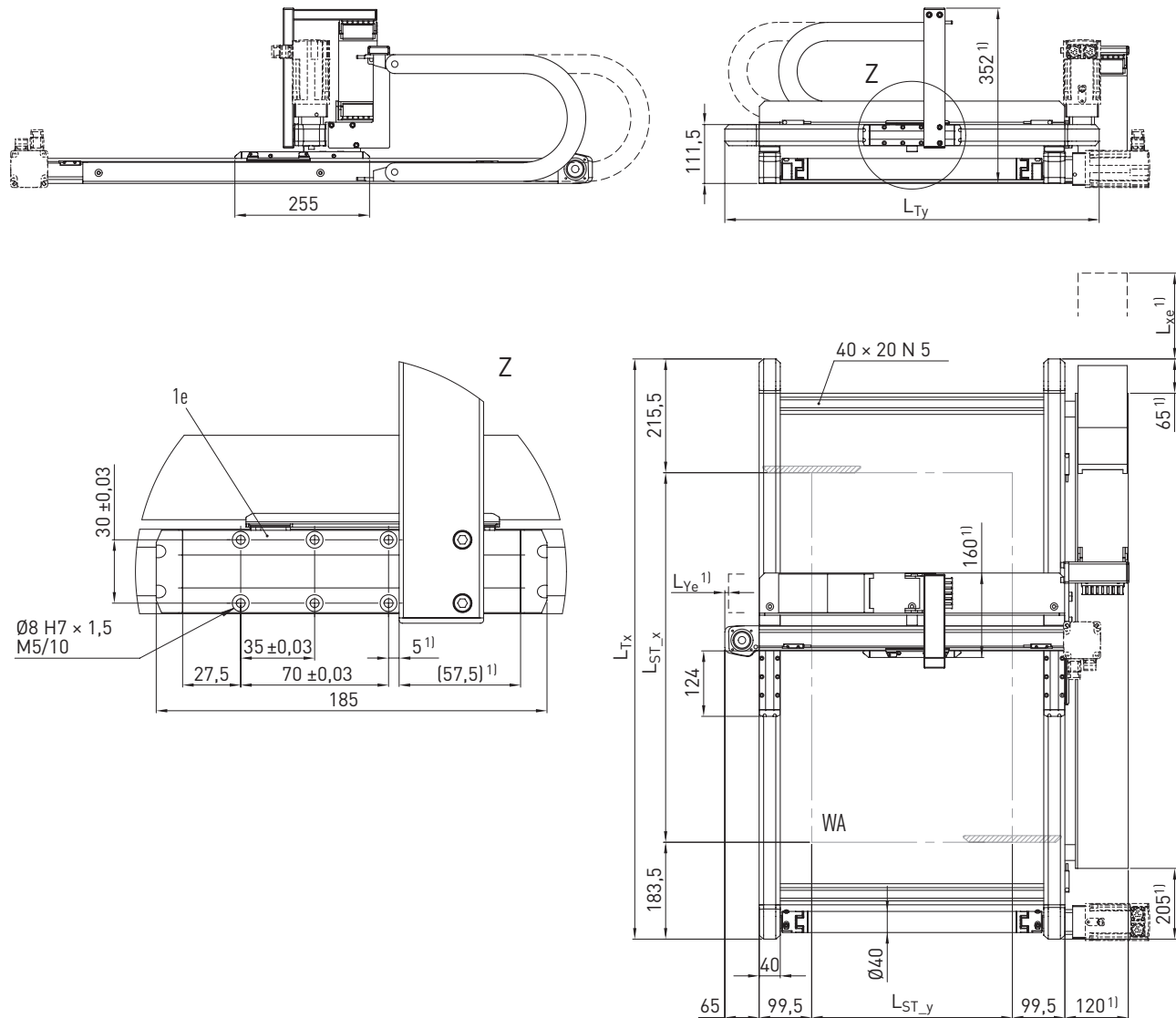
³⁾ You can find matching gearboxes in [section 22.1.5.5 from page 170](#).

⁴⁾ All flange types for linear modules HM-B can be found in [Table 22.1 from page 160](#), for linear tables HT-B in [Table 22.2 from page 161](#). If no flange type is selected, the order code ends after this digit.

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16.3 Dimensions and specifications of HS21-D-M

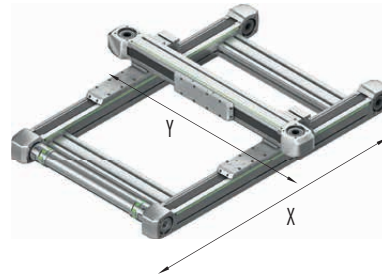


¹⁾ Omitted for variant without energy chain

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

Table 16.1 HS21-D-M dimensions	
Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 399$
Total length Y-axis L_{Ty} [mm]	$L_{Ty} = L_{ST_y} + 329$

Table 16.2 Energy chain		
	X-axis	Y-axis
Inner cross section W × H [mm]	77 × 25	57 × 25
Bending radius [mm]	100	75
End position at electrical zero F [mm]	$L_{Xe} = 195$	$L_{Ye} = 4.5$
End position at mechanical zero [mm]	$L_{Xm} = 200$	$L_{Ye} = 9.5$


Table 16.3 General technical data

	X-axis	Y-axis
Axis type	HD1N	HM040B-N
Sledge type	L	M
Max. feed force F_{x_max} [N]	450	300
Max. speed¹⁾ [m/s]	5	
Max. acceleration¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	7.9	5.3
Max. stroke [mm]	3,000	1,300
Typical load capacity [kg]	5	

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

Note: Dimensions and specifications of double axis HD1 can be found in section 15.3 on page 106

Dimensions and specifications of single axis HM040B can be found in section 5.3 on page 26

Table 16.4 Drive

	X-axis	Y-axis
Toothed belt drive element	B15HTD3	
Feed constant [mm/U]	111	
Toothed belt effective diameter [mm]	35.33	

Table 16.5 Mechanical properties

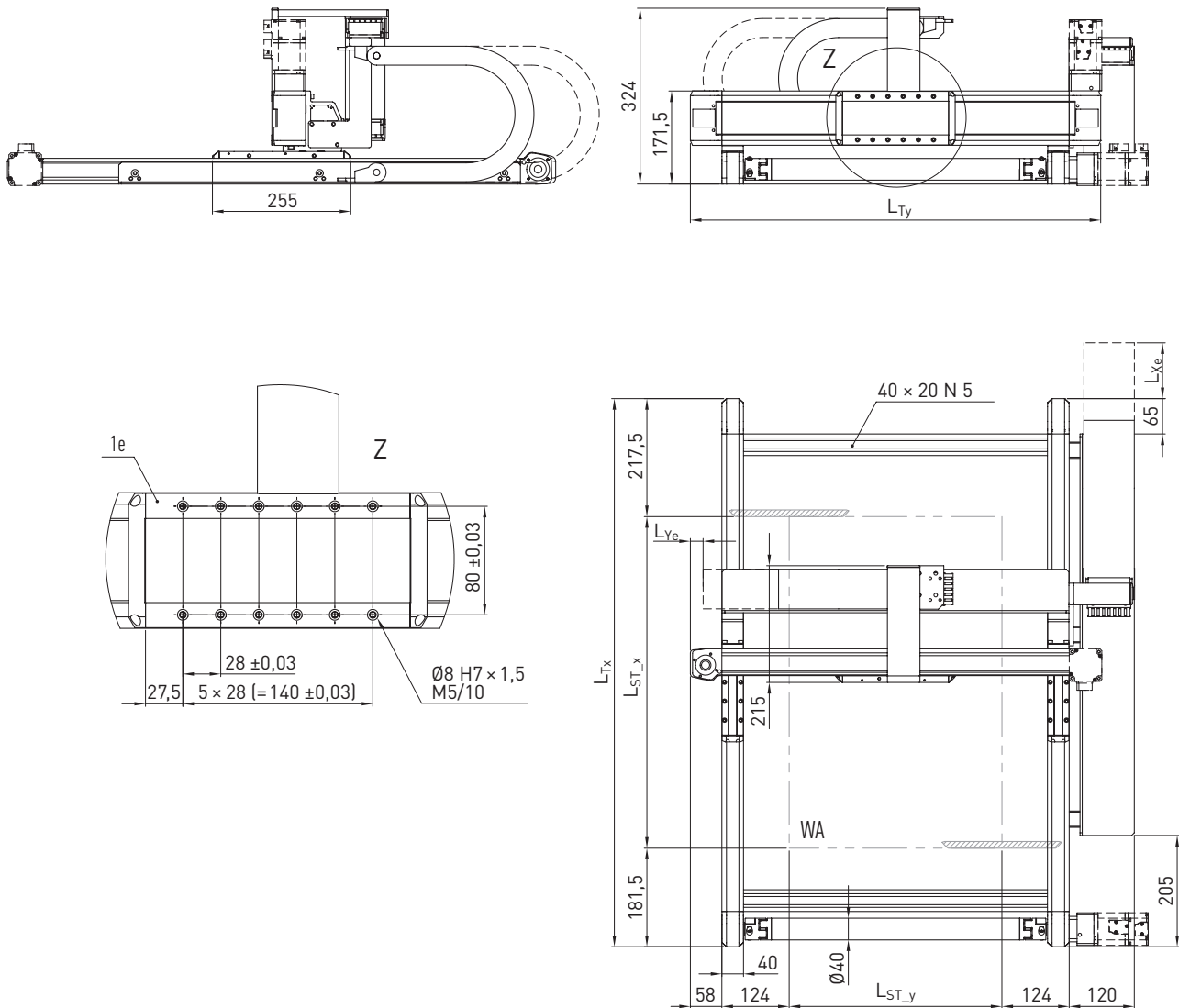
Moving mass Y-axis [kg]	0.43
Moving mass X-axis at 0-stroke Y-axis [kg]	3.26
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	3.10
Mass of total system at 0-stroke X- and Y-axis [kg]	6.92
Mass of total system per 1 m stroke X-axis [kg/m]	6.20
Mass of total system per 1 m stroke Y-axis [kg/m]	5.86

Note: All values without energy chain and without drive

Linear axes & linear axis systems

Two-axis systems HS2

16.4 Dimensions and specifications of HS21-D-T



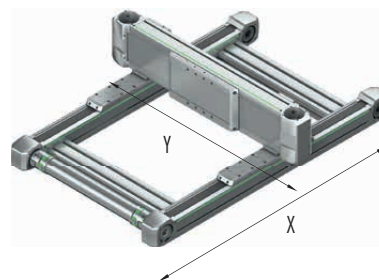
L_{ST} Stroke
 WA Working space
 $1e$ Interface application

Table 16.6 HS21-D-T dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 399$
Total length Y-axis L_{Ty} [mm]	$L_{Ty} = L_{ST_y} + 364$

Table 16.7 Energy chain

	X-axis	Y-axis
Inner cross section $W \times H$ [mm]	77×25	57×25
Bending radius [mm]	100	75
End position at electrical zero F [mm]	$L_{Xe} = 195$	$L_{Ye} = -23.5$
End position at mechanical zero [mm]	$L_{Xm} = 200$	$L_{Ym} = -16.0$


Table 16.8 General technical data

	X-axis	Y-axis
Axis type	HD1N	HT100B-C
Sledge type	L	S
Max. feed force F_{x_max} [N]	450	813
Max. speed¹⁾ [m/s]	5	
Max. acceleration¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	7.9	13.6
Max. stroke [mm]	3,000	1,300
Typical load capacity [kg]	20	

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

Note: Dimensions and specifications of double axis HD1 can be found in section 15.3 on page 106

Dimensions and specifications of linear table HT100B can be found in section 7.3 on page 46

Table 16.9 Drive

	X-axis	Y-axis
Toothed belt drive element	B15HTD3	B25HTD5
Feed constant [mm/U]	111	105
Toothed belt effective diameter [mm]	35.33	33.42

Table 16.10 Mechanical properties

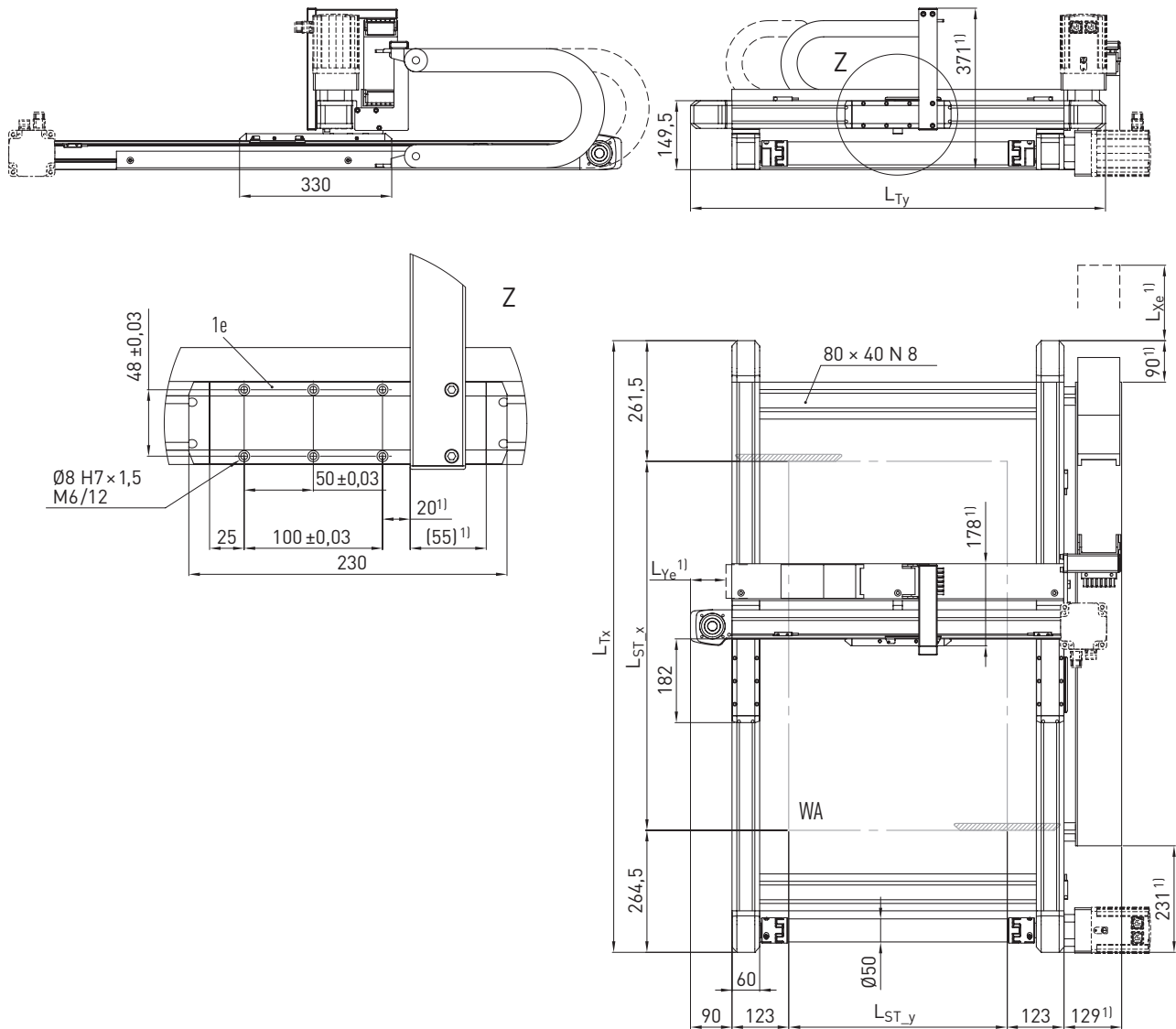
Moving mass Y-axis [kg]	1.59
Moving mass X-axis at 0-stroke Y-axis [kg]	6.52
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	6.65
Mass of total system at 0-stroke X- and Y-axis [kg]	10.31
Mass of total system per 1 m stroke X-axis [kg/m]	6.20
Mass of total system per 1 m stroke Y-axis [kg/m]	9.41

Note: All values without energy chain and without drive

Linear axes & linear axis systems

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16.5 Dimensions and specifications of HS22-D-M



¹⁾ Omitted for variant without energy chain

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

Table 16.11 HS22-D-M dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 526$
Total length Y-axis L_{Ty} [mm]	$L_{Ty} = L_{ST_y} + 426$

Table 16.12 Energy chain

	X-axis	Y-axis
Inner cross section $W \times H$ [mm]	75 × 35	57 × 25
Bending radius [mm]	100	75
End position at electrical zero F [mm]	$L_{Xe} = 200$	$L_{Ye} = -45.5$
End position at mechanical zero [mm]	$L_{Xm} = 210$	$L_{Ym} = -38.0$

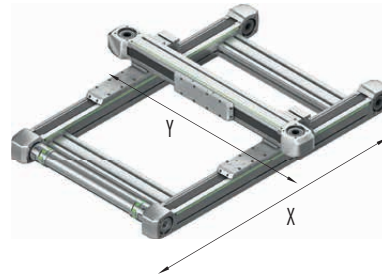


Table 16.13 General technical data

	X-axis	Y-axis
Axis type	HD2N	HM060B-N
Sledge type	L	M
Max. feed force F_{x_max} [N]	1,323	882
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s ²]	30	
Max. drive torque M_{A_max} [Nm]	33.1	22.1
Max. stroke [mm]	5,000	1,700
Typical load capacity [kg]	12	

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

Note: Dimensions and specifications of double axis HD2 can be found in section 15.4 on page 107

Dimensions and specifications of single axes HM060B can be found in section 5.4 on page 28

Table 16.14 Drive

	X-axis	Y-axis
Toothed belt drive element	B25HTD5	
Feed constant [mm/U]	155	
Toothed belt effective diameter [mm]	49.34	

Table 16.15 Mechanical properties

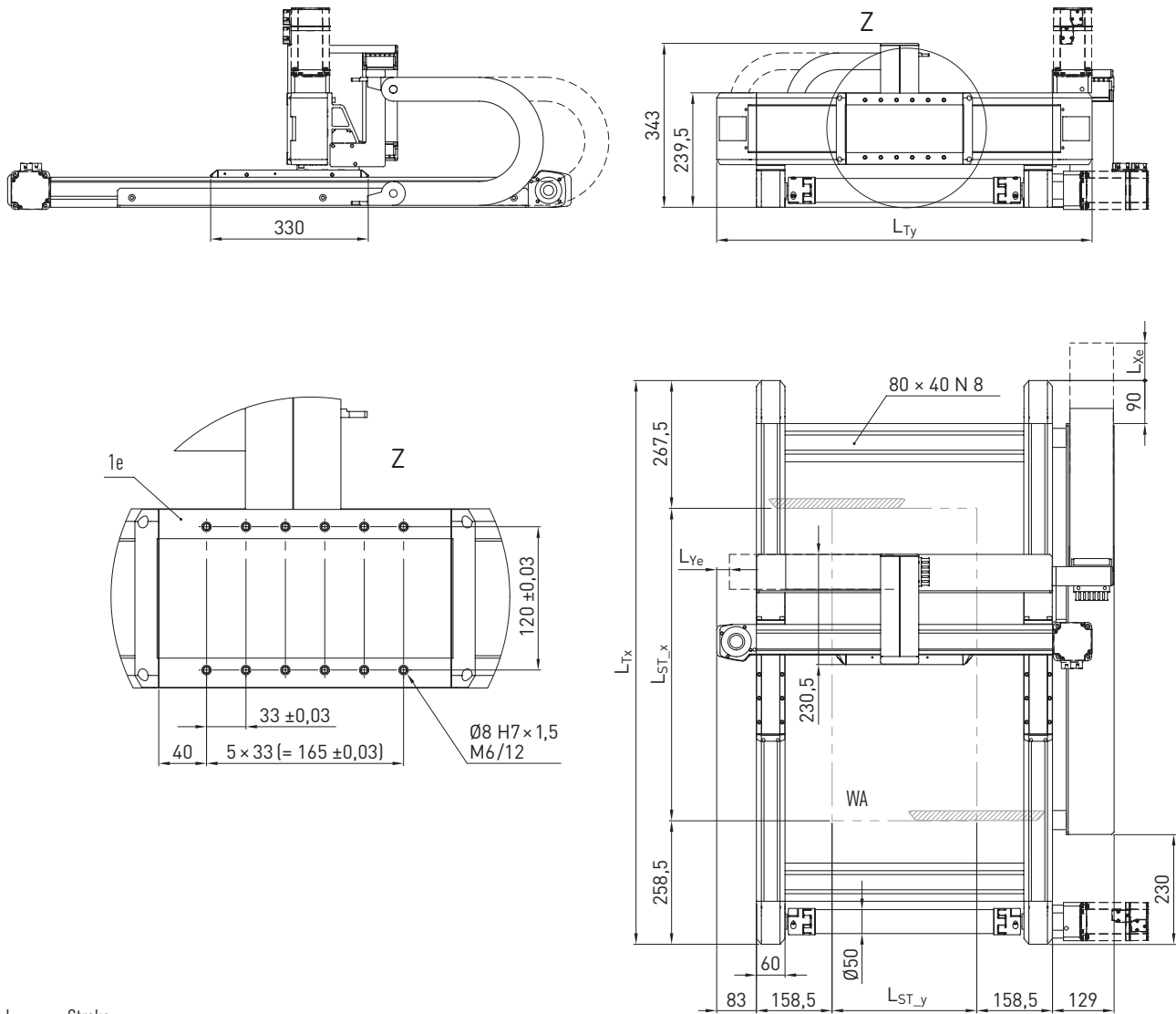
Moving mass Y-axis [kg]	1.00
Moving mass X-axis at 0-stroke Y-axis [kg]	7.47
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	5.48
Mass of total system at 0-stroke X- and Y-axis [kg]	16.84
Mass of total system per 1 m stroke X-axis [kg/m]	10.96
Mass of total system per 1 m stroke Y-axis [kg/m]	15.74

Note: All values without energy chain and without drive

Linear axes & linear axis systems

Two-axis systems HS2

16.6 Dimensions and specifications of HS22-D-T



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

Table 16.16 HS22-D-T dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 526$
Total length Y-axis L_{Ty} [mm]	$L_{Ty} = L_{ST_y} + 483$

Table 16.17 Energy chain

	X-axis	Y-axis
Inner cross section $W \times H$ [mm]	75 × 35	57 × 25
Bending radius [mm]	100	75
End position at electrical zero F [mm]	$L_{Xe} = 200$	$L_{Ye} = -46.5$
End position at mechanical zero [mm]	$L_{Xm} = 210$	$L_{Ym} = -36.5$

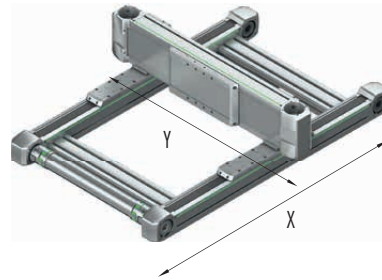


Table 16.18 General technical data

	X-axis	Y-axis
Axis type	HD2N	HT150B-C
Sledge type	L	S
Max. feed force F_{x_max} [N]	1,323	1,300
Max. speed¹⁾ [m/s]	5	
Max. acceleration¹⁾ [m/s²]	30	
Max. drive torque M_{A_max} [Nm]	33.1	32.1
Max. stroke [mm]	5,000	1,650
Typical load capacity [kg]	40	

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

Note: Dimensions and specifications of double axis HD2 can be found in section 15.4 on page 107

Dimensions and specifications of linear table HT150B can be found in section 7.4 on page 48

Table 16.19 Drive

	X-axis	Y-axis
Toothed belt drive element	B25HTD5	B40HTD5
Feed constant [mm/U]	155	
Toothed belt effective diameter [mm]	49.34	

Table 16.20 Mechanical properties

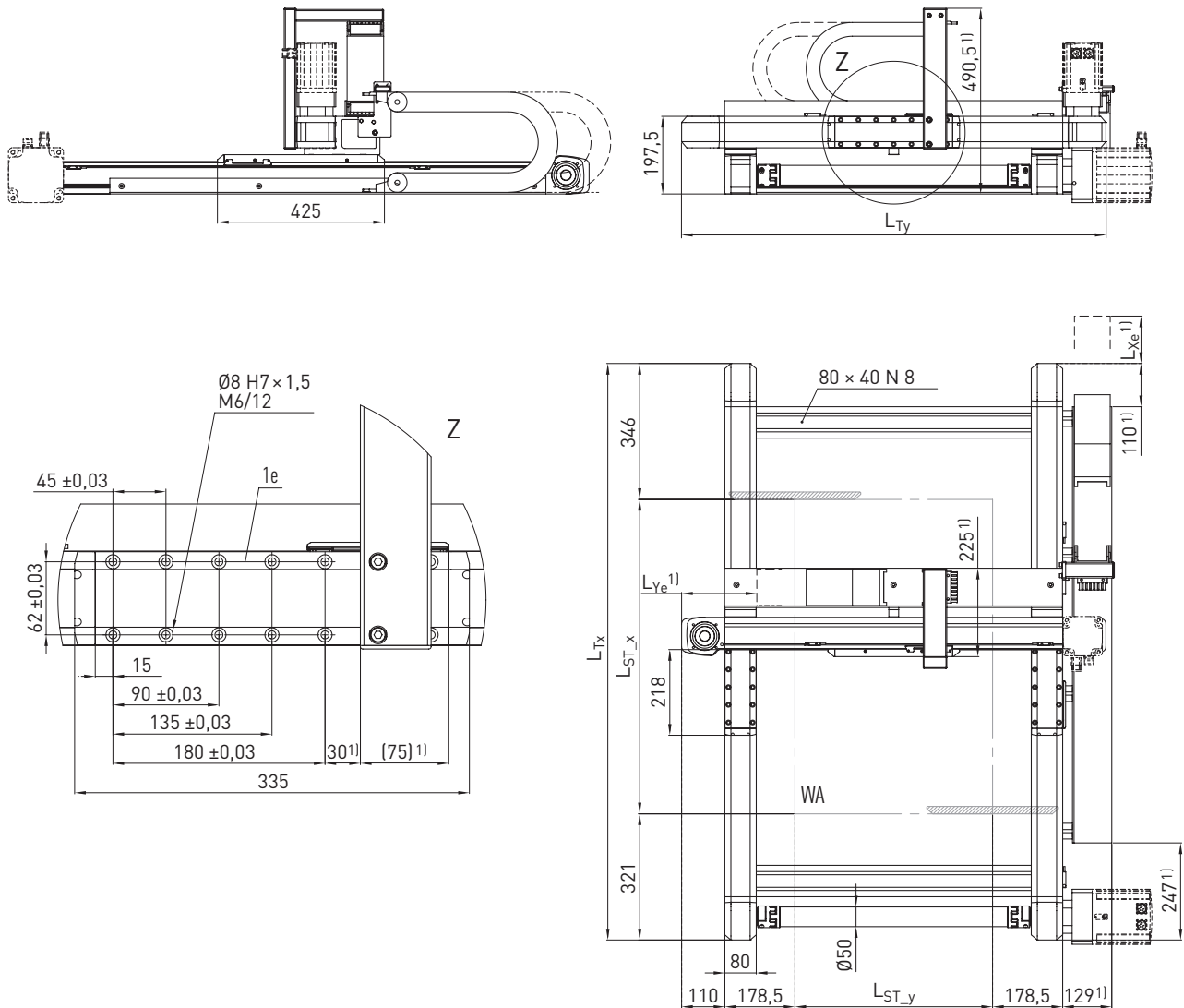
Moving mass Y-axis [kg]	3.08
Moving mass X-axis at 0-stroke Y-axis [kg]	14.41
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	11.13
Mass of total system at 0-stroke X- and Y-axis [kg]	24.51
Mass of total system per 1 m stroke X-axis [kg/m]	10.96
Mass of total system per 1 m stroke Y-axis [kg/m]	21.39

Note: All values without energy chain and without drive

Linear axes & linear axis systems

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16.7 Dimensions and specifications of HS23-D-M



¹⁾ Omitted for variant without energy chain

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

Table 16.21 HS23-D-M dimensions

Total length X-axis L _{Tx} [mm]	$L_{Tx} = L_{ST_x} + 667$
Total length Y-axis L _{Ty} [mm]	$L_{Ty} = L_{ST_y} + 577$

Table 16.22 Energy chain

	X-axis	Y-axis
Inner cross section W × H [mm]	75 × 35	77 × 25
Bending radius [mm]	100	100
End position at electrical zero F [mm]	L _{Xe} = 160	L _{Ye} = -158.7
End position at mechanical zero [mm]	L _{Xm} = 170	L _{Ye} = -148.7

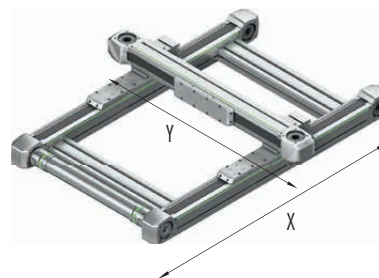


Table 16.23 General technical data

	X-axis	Y-axis
Axis type	HD3N	HM080B-N
Sledge type	L	M
Max. feed force F_{x_max} [N]	1,880	1,253
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s ²]	30	
Max. drive torque M_{A_max} [Nm]	56.8	37.9
Max. stroke [mm]	5,000	1,600
Typical load capacity [kg]	30	

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

Note: Dimensions and specifications of double axis HD3 can be found in section 15.5 on page 108

Dimensions and specifications of single axis HM080B can be found in section 5.5 on page 30

Table 16.24 Drive

	X-axis	Y-axis
Toothed belt drive element	B35HTD5	
Feed constant [mm/U]	190	
Toothed belt effective diameter [mm]	60.48	

Table 16.25 Mechanical properties

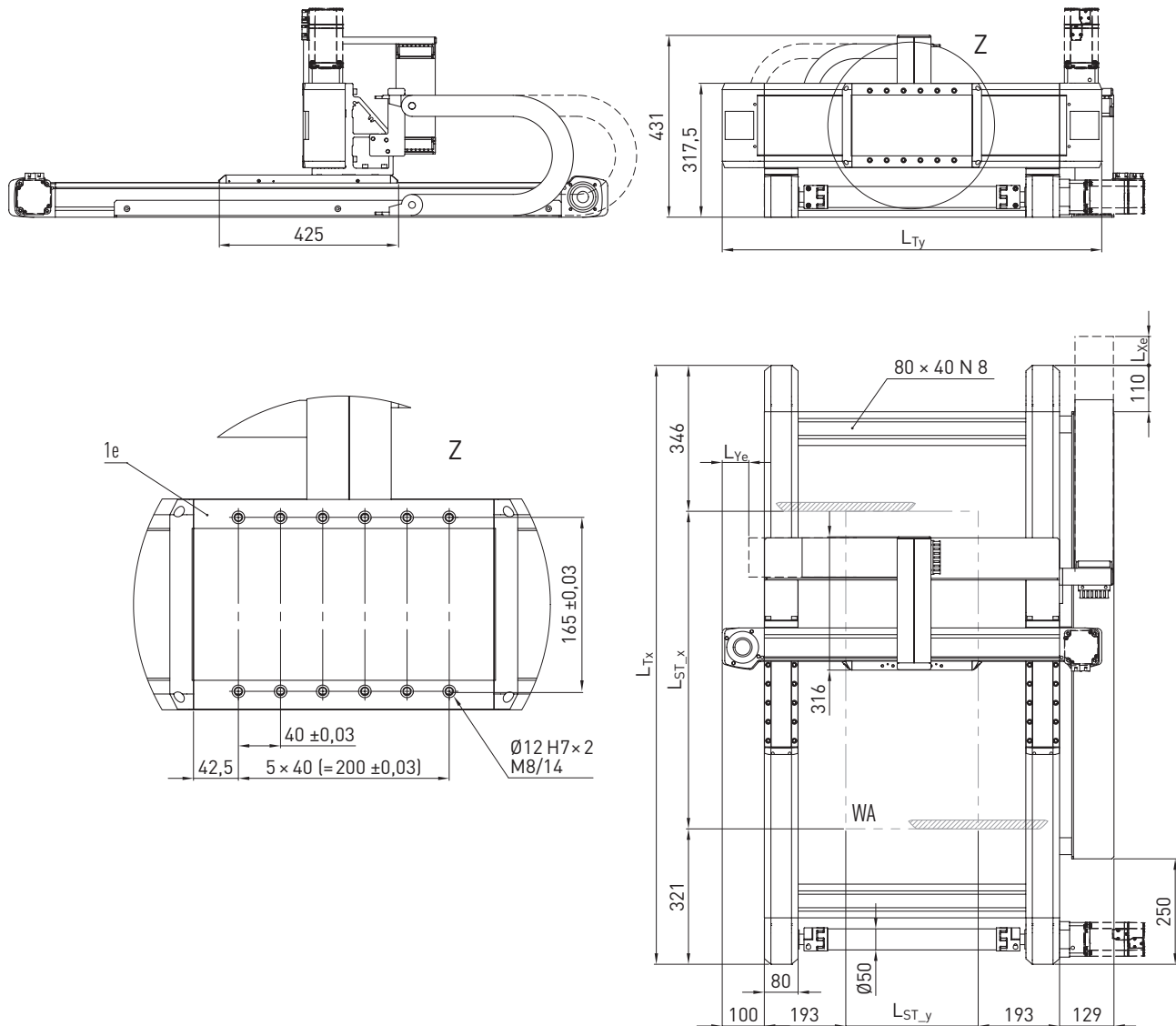
Moving mass Y-axis [kg]	2.14
Moving mass X-axis at 0-stroke Y-axis [kg]	16.98
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	9.94
Mass of total system at 0-stroke X- and Y-axis [kg]	35.37
Mass of total system per 1 m stroke X-axis [kg/m]	19.88
Mass of total system per 1 m stroke Y-axis [kg/m]	20.20

Note: All values without energy chain and without drive

Linear axes & linear axis systems

Two-axis systems HS2

16.8 Dimensions and specifications of HS23-D-T



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

Table 16.26 HS23-D-T dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 667$
Total length Y-axis L_{Ty} [mm]	$L_{Ty} = L_{ST_y} + 586$

Table 16.27 Energy chain

	X-axis	Y-axis
Inner cross section $W \times H$ [mm]	75 × 35	77 × 25
Bending radius [mm]	100	100
End position at electrical zero F [mm]	$L_{Xe} = 160$	$L_{Ye} = -53.0$
End position at mechanical zero [mm]	$L_{Xm} = 170$	$L_{Ye} = -38.0$

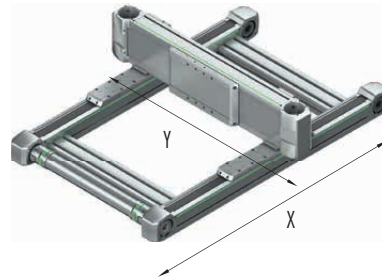


Table 16.28 General technical data

	X-axis	Y-axis
Axis type	HD3N	HT200B-C
Sledge type	L	S
Max. feed force F_{x_max} [N]	1,880	3,000
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s ²]	30	
Max. drive torque M_{A_max} [Nm]	56.8	87.9
Max. stroke [mm]	5,000	1,550
Typical load capacity [kg]	80	

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

Note: Dimensions and specifications of double axis HD3 can be found in section 15.5 on page 108

Dimensions and specifications of linear table HT200B can be found in section 7.5 on page 50

Table 16.29 Drive

	X-axis	Y-axis
Toothed belt drive element	B35HTD5	B50HTD8
Feed constant [mm/U]	190	184
Toothed belt effective diameter [mm]	60.48	58.57

Table 16.30 Mechanical properties

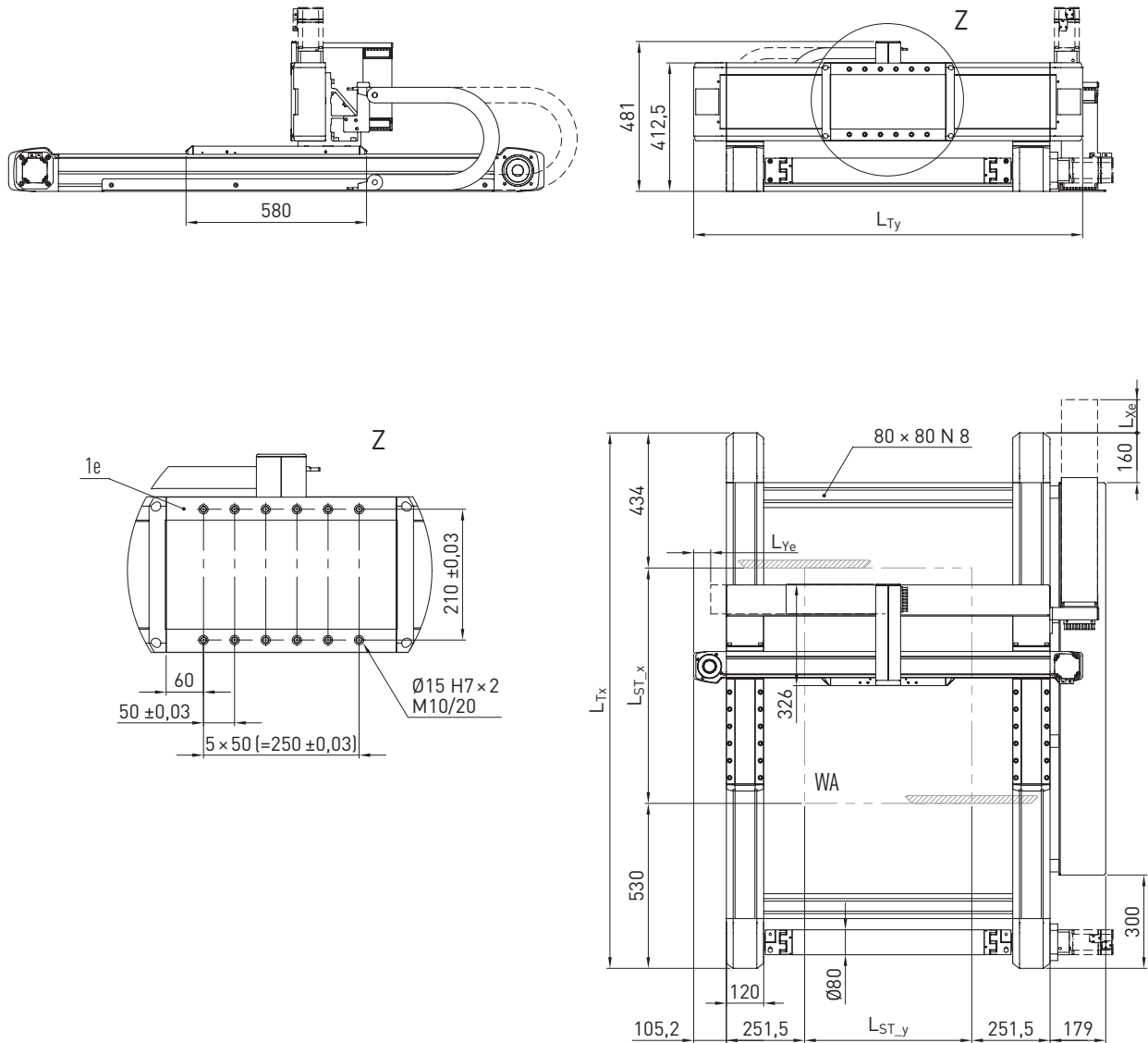
Moving mass Y-axis [kg]	5.52
Moving mass X-axis at 0-stroke Y-axis [kg]	29.17
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	17.75
Mass of total system at 0-stroke X- and Y-axis [kg]	47.86
Mass of total system per 1 m stroke X-axis [kg/m]	19.88
Mass of total system per 1 m stroke Y-axis [kg/m]	28.00

Note: All values without energy chain and without drive

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16.9 Dimensions and specifications of HS24-D-T



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

Table 16.31 HS24-D-T dimensions

Total length X-axis L_{Tx} [mm]	$L_{Tx} = L_{ST_x} + 964$
Total length Y-axis L_{Ty} [mm]	$L_{Ty} = L_{ST_y} + 713$

Table 16.32 Energy chain

	X-axis	Y-axis
Inner cross section $W \times H$ [mm]	100 × 35	77 × 25
Bending radius [mm]	125	100
End position at electrical zero F [mm]	$L_{Xe} = 120$	$L_{Ye} = -116.5$
End position at mechanical zero [mm]	$L_{Xm} = 140$	$L_{Ye} = -96.5$

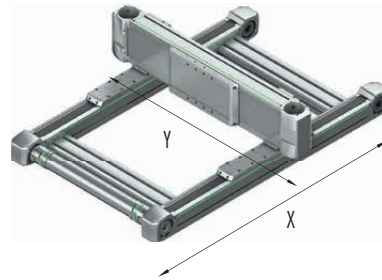


Table 16.33 General technical data

	X-axis	Y-axis
Axis type	HD4N	HT250B-C
Sledge type	L	S
Max. feed force F_{x_max} [N]	4,385	4,500
Max. speed ¹⁾ [m/s]	5	
Max. acceleration ¹⁾ [m/s ²]	30	
Max. drive torque M_{A_max} [Nm]	201	149
Max. stroke [mm]	5,000	1,400
Typical load capacity [kg]	130	

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

Note: Dimensions and specifications of double axis HD4 can be found in section 15.6 on page 109

Dimensions and specifications of linear table HT250B can be found in section 7.6 on page 52

Table 16.34 Drive

	X-axis	Y-axis
Toothed belt drive element	B60HTD8	B75HTD8
Feed constant [mm/U]	288	208
Toothed belt effective diameter [mm]	91.67	66.21

Table 16.35 Mechanical properties

Moving mass Y-axis [kg]	10.27
Moving mass X-axis at 0-stroke Y-axis [kg]	57.57
Moving mass X-axis per 1 m stroke Y-axis [kg/m]	23.09
Mass of total system at 0-stroke X- and Y-axis [kg]	109.90
Mass of total system per 1 m stroke X-axis [kg/m]	42.06
Mass of total system per 1 m stroke Y-axis [kg/m]	40.78

Note: All values without energy chain and without drive