

Linear axes & linear axis systems

Linear tables HT-B

7. Linear tables HT-B

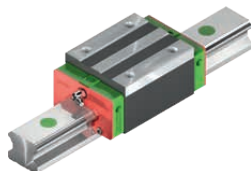
7.1 Properties of linear tables HT-B with toothed belt drive

The HIWIN linear tables with toothed belt drive are flexible positioning modules with integrated HIWIN double guide. They are ideal in particular for applications requiring high dynamic responses and high speeds.



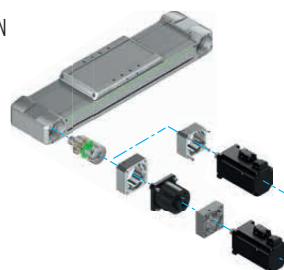
Linear guideway

A high-quality HIWIN double guide safely transfers forces and torques from the carriage to the axis profile. Four blocks are used per carriage, which are guided on a two parallel, high-precision profile rails. The SynchMotion™ technology with ball chain also ensures good synchronisation and smooth running in all sizes.



Drive adaptation

Thanks to its symmetrical design, the HIWIN linear table with toothed belt drive allows motors and gears to be mounted on all four sides of the drive blocks. You can find suitable adapters for all common motors in section [22.1.2 from page 160](#).



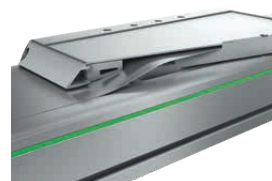
Toothed belt

The toothed belt with modern high performance profiles (HTD shape) and reinforced steel tension members enables high power transmission while offering high skip resistance.



Cover strip

The steel cover strip prevents dirt and dust from entering the axis interior. In addition, the cover strip allows the axes to be used in areas with coarse, sharp-edged or hot foreign bodies. The magnetic strips integrated in the axis profile hold the belt securely in position and increase the sealing effect.



Carriage

The carriages have additional bore holes on each mounting hole to ensure ideal, reproducible alignment of the adjacent construction. You will find the matching centring sleeves in the accessories on [Page 192](#). A grease nipple is provided on the carriage for each lubrication point for convenient maintenance of the linear axis.

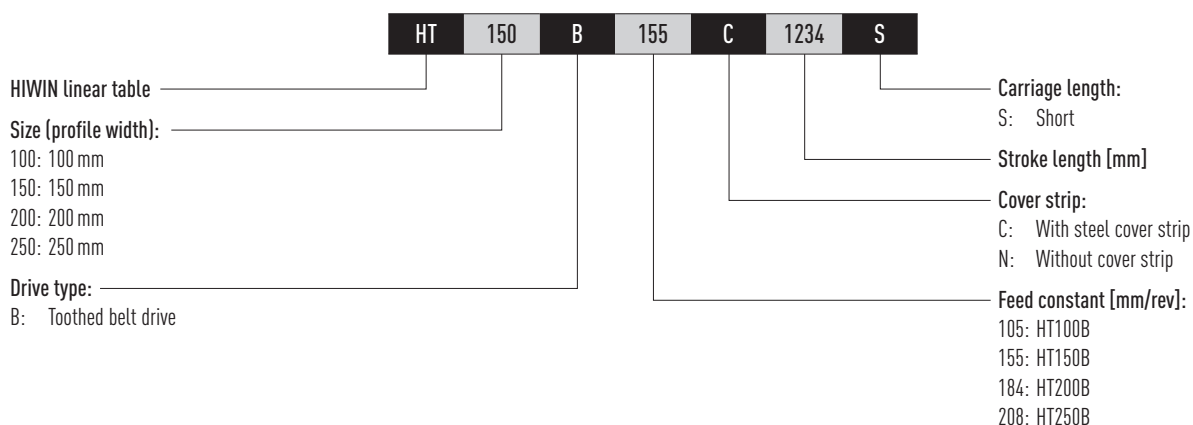


Energy chain

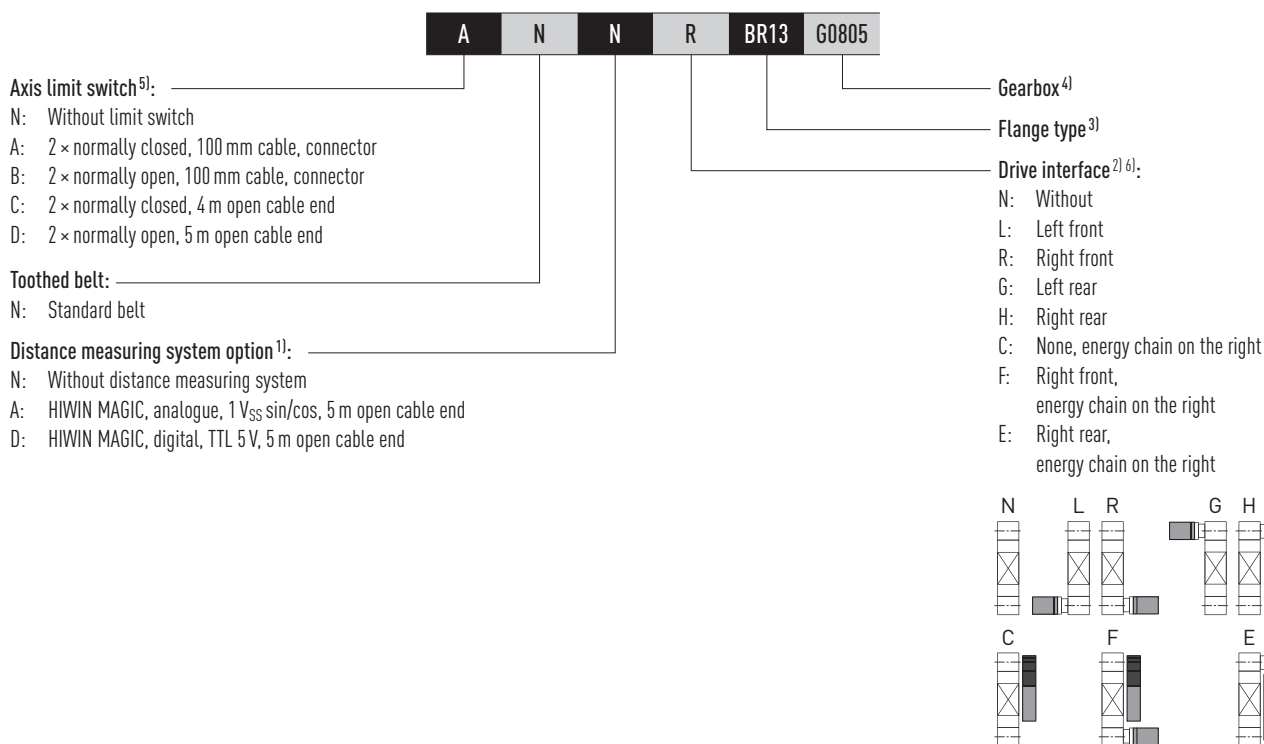
Generously dimensioned energy chains provide space for safely carrying the supply lines. They are extremely compact and save space when attached to the axis. For details on the orientation of the energy chain, see section [22.3 from page 186](#).



7.2 Order code for linear tables HT-B



Continuation, order code for linear tables HM-B



¹⁾ More detailed information in chapter 21 from page 156 or in the "HIWIN MAGIC Distance Measuring Systems" assembly instructions".

²⁾ If no drive interface is selected, the order code ends after this digit.

³⁾ You can find all flange types in Table 22.2 from page 161. If no gearbox is selected, the order code ends after this digit.

⁴⁾ You can find the right gearbox for the HIWIN axes in section 22.1.5.5 from page 170.

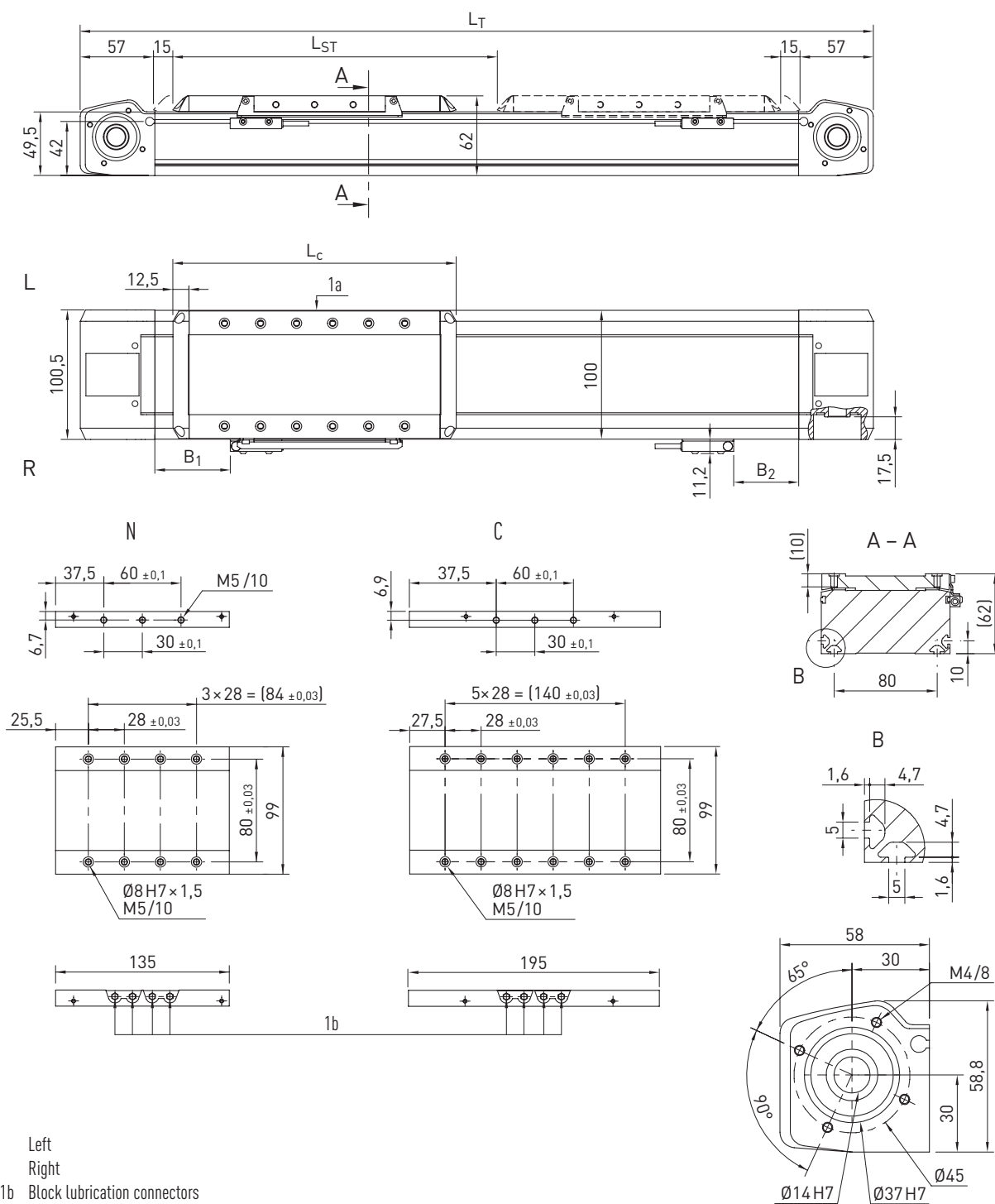
⁵⁾ Additional reference switches on request.

⁶⁾ Dimensions of the drive interface and the energy chain can be found on Page 186.

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7.3 Dimensions and specifications of HT100B



L Left
R Right
1a + 1b Block lubrication connectors

Table 7.1 HT100B dimensions

	Variant without cover N	Variant with cover C
Total carriage length L_C [mm]	160	220
Switch distance B_1 [mm]	28.5	58.5
Switch distance B_2 [mm]	20.5	50.5
Max. stroke length L_{ST} [mm]	5,612	5,552
Total length L_T [mm]	$L_T = L_{ST} + 304$	$L_T = L_{ST} + 364$

Table 7.2 Load data

	Permissible load data		Theoretical load data	
Lifetime reference value	20,000 km		100 km	
	Version without cover	Version with cover	Version without cover	Version with cover
$F_{y\text{dynmax}}^{1)}$ [N]	3,350	3,350	27,176	27,176
$F_{z\text{dynmax}}^{1)}$ [N]	3,575	3,575	27,176	27,176
$M_{x\text{dynmax}}$ [Nm]	93	93	707	707
$M_{y\text{dynmax}}$ [Nm]	159	206	1,209	1,563
$M_{z\text{dynmax}}$ [Nm]	149	193	1,209	1,563
Load distance z [mm]	38.6	38.6	38.6	38.6

¹⁾ Force must only act free of torque

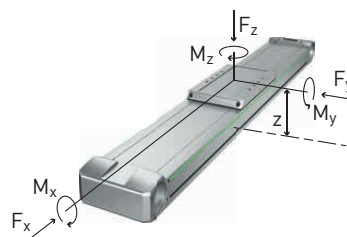


Table 7.3 General technical data

Repeatability [mm]	± 0.05
Max. feed force F_{x_max} [N]	813
Max. speed [m/s]	5
Max. acceleration [m/s²]	30
Max. drive torque M_{A_max} [Nm]	14
Typical load capacity [kg]	40
Maximum total length [mm]	5,916
Area moment of inertia of profile cross section I_x [mm⁴]	299,377
Area moment of inertia of profile cross section I_y [mm⁴]	1,516,426

Table 7.4 Guide

Type of carriage	QEH15CA × 4
Static load rating C_0 [N]	15,280 × 4
Dynamic load rating C_{dyn} 50 km [N]	12,530 × 4

Table 7.5 Drive

Drive element	B25HTD5
Feed constant [mm/U]	105
Toothed belt effective diameter [mm]	33.42

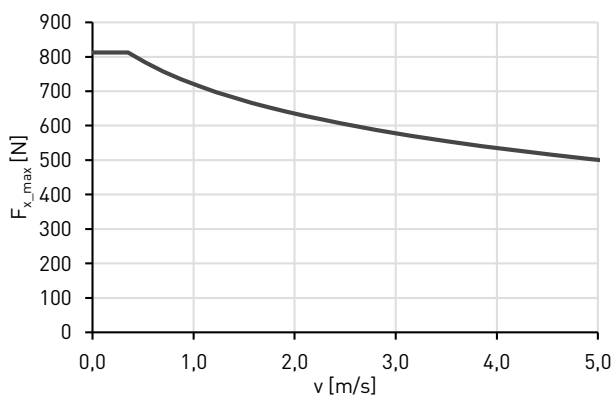


Fig. 7.1 Max. feed force F_{x_max} as a function of axis speed v

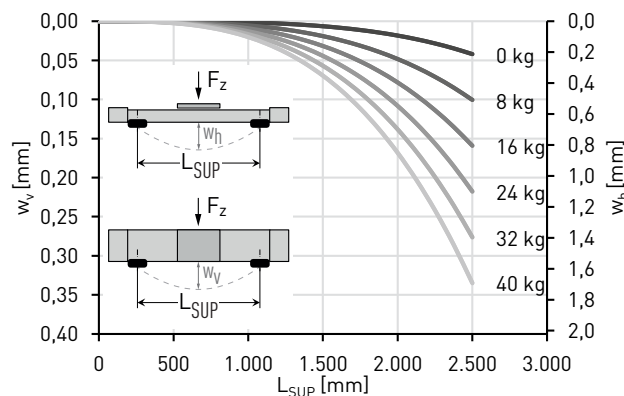


Fig. 7.2 Deflection w over unsupported axis length L_{SUP} under load capacity F_z

Table 7.6 Mechanical properties

	Variant without cover N	Variant with cover C
Mass of the carriage [kg]	1.34	1.53
Mass at 0-stroke [kg]	4.13	4.73
Mass per 1 m stroke [kg/m]	6.54	6.71
$J_{rot.}^{1)}$ [kgcm²]	0.63	0.63
Idle torque at 0-stroke [Nm]	1.00	1.50

¹⁾ Rotational moment of inertia

Linear axes & linear axis systems

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7.4 Dimensions and specifications of HT150B

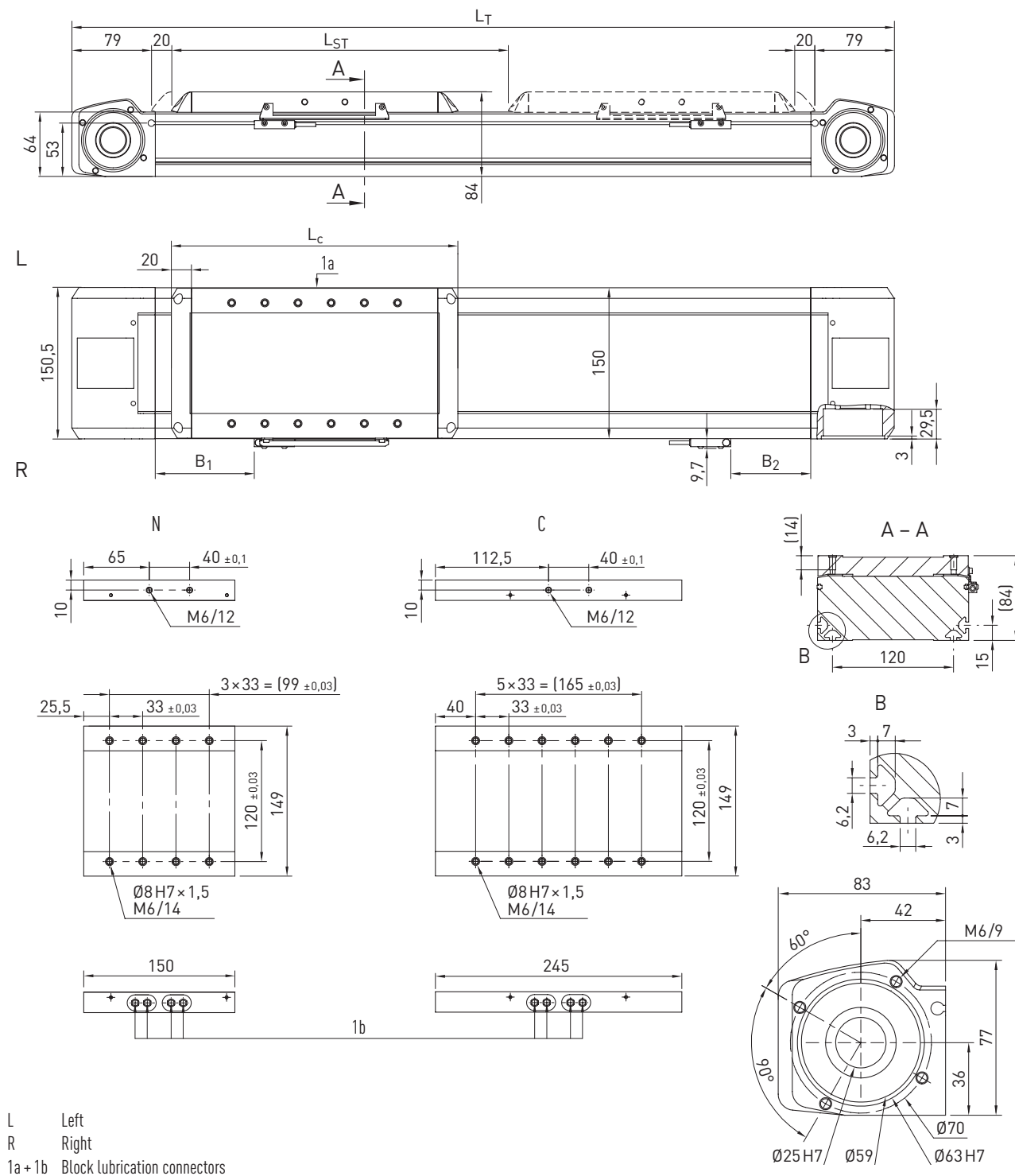


Table 7.7 HT150B dimensions

	Variant without cover N	Variant with cover C
Total carriage length L_C [mm]	190	285
Switch distance B_1 [mm]	51	98.5
Switch distance B_2 [mm]	32	79.5
Max. stroke length L_{ST} [mm]	5,578	5,483
Total length L_T [mm]	$L_T = L_{ST} + 388$	$L_T = L_{ST} + 483$

Table 7.8 Load data

	Permissible load data		Theoretical load data	
Lifetime reference value	20,000 km		100 km	
	Version without cover	Version with cover	Version without cover	Version with cover
$F_{y\text{dynmax}}^{1)}$ [N]	3,350	3,350	39,780	39,780
$F_{z\text{dynmax}}^{1)}$ [N]	5,233	5,233	39,780	39,780
$M_{x\text{dynmax}}$ [Nm]	246	246	1,870	1,870
$M_{y\text{dynmax}}$ [Nm]	246	345	1,870	2,625
$M_{z\text{dynmax}}$ [Nm]	157	221	1,870	2,625
Load distance z [mm]	51.4	51.4	51.4	51.4

¹⁾ Force must only act free of torque

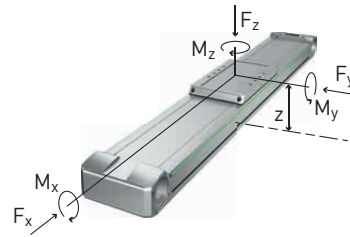


Table 7.9 General technical data

Repeatability [mm]	± 0.05
Max. feed force $F_{x\text{max}}$ [N]	1,300
Max. speed [m/s]	5
Max. acceleration [m/s²]	30
Max. drive torque $M_{A\text{max}}$ [Nm]	32.1
Typical load capacity [kg]	80
Maximum total length ¹⁾ [mm]	5,966
Area moment of inertia of profile cross section I_x [mm⁴]	907,754
Area moment of inertia of profile cross section I_y [mm⁴]	7,417,610

¹⁾ Long axes on request

Table 7.10 Guide

Type of carriage	QEH15CA × 4
Static load rating C_0 [N]	15,280 × 4
Dynamic load rating C_{dyn} 50 km [N]	12,530 × 4

Table 7.11 Drive

Drive element	B40HTD5
Feed constant [mm/U]	155
Toothed belt effective diameter [mm]	49.34

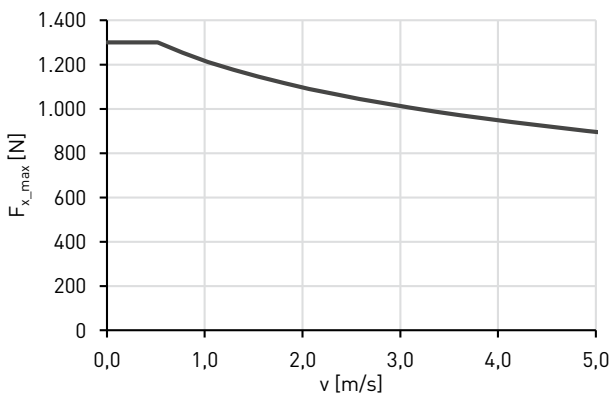


Fig. 7.3 Max. feed force $F_{x\text{max}}$ as a function of axis speed v

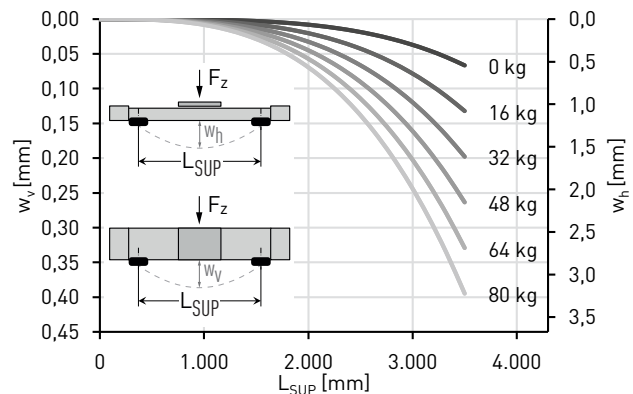


Fig. 7.4 Deflection w over unsupported axis length L_{SUP} under load capacity F_z

Table 7.12 Mechanical properties

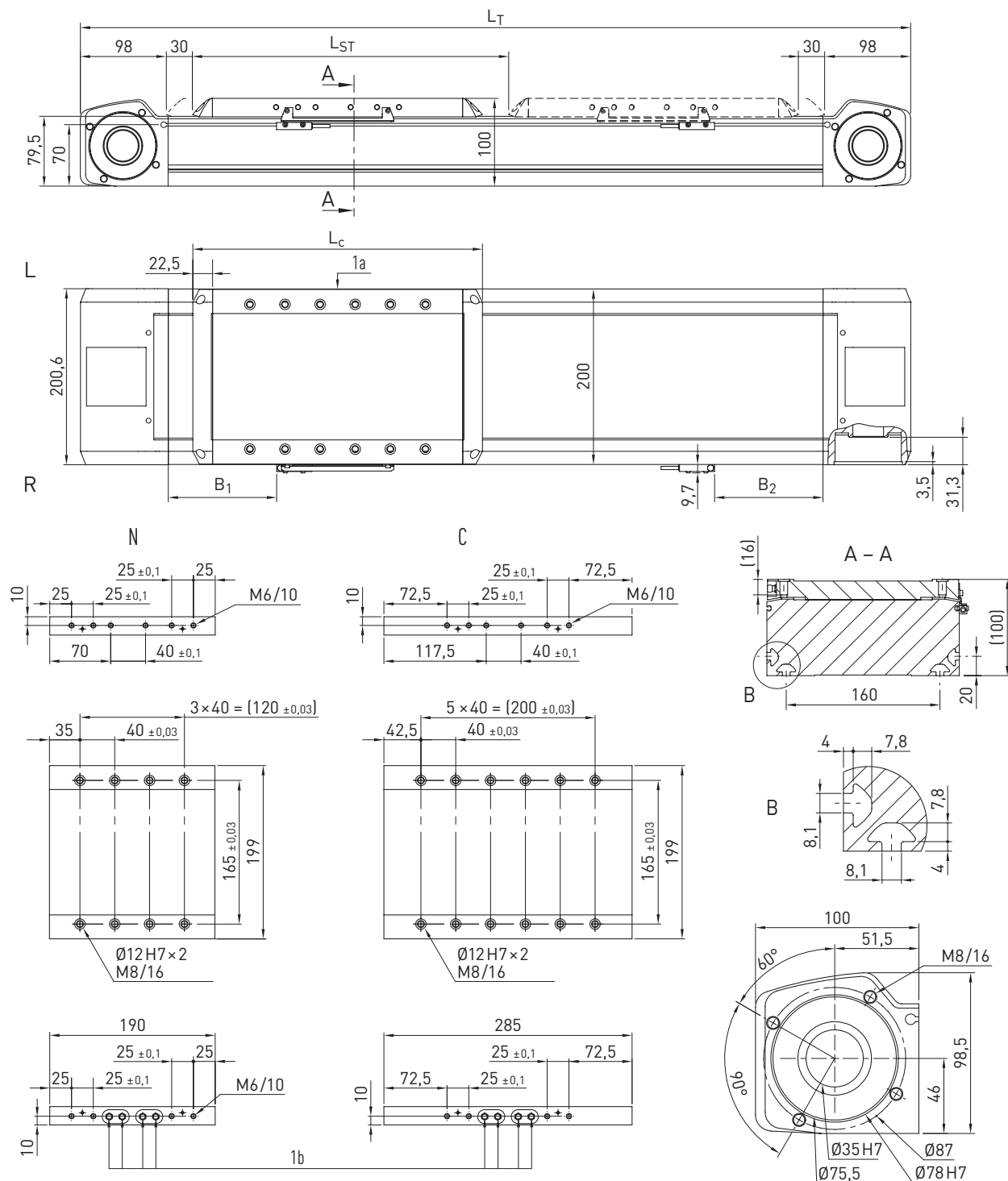
	Variant without cover N	Variant with cover C
Mass of the carriage [kg]	2.33	2.94
Mass at 0-stroke [kg]	8.60	10.29
Mass per 1 m stroke [kg/m]	10.84	11.13
$J_{\text{rot.}}^{1)}$ [kgcm²]	5.09	5.09
Idle torque at 0-stroke [Nm]	1.00	1.50

¹⁾ Rotational moment of inertia

Linear axes & linear axis systems

Linear tables HT-B

7.5 Dimensions and specifications of HT200B



L Left
R Right
1a + 1b Block lubrication connectors

Table 7.13 HT200B dimensions

	Variant without cover N	Variant with cover C
Total carriage length L_c [mm]	235	330
Switch distance B_1 [mm]	76	123.5
Switch distance B_2 [mm]	76	123.5
Max. stroke length L_{ST} [mm]	5,509	5,414
Total length L_T [mm]	$L_T = L_{ST} + 491$	$L_T = L_{ST} + 586$

Table 7.14 Load data

	Permissible load data		Theoretical load data	
Lifetime reference value	20,000 km		100 km	
	Version without cover	Version with cover	Version without cover	Version with cover
$F_{y\text{dynmax}}^{1)}$ [N]	7,800	7,800	95,244	95,244
$F_{z\text{dynmax}}^{1)}$ [N]	12,528	12,528	95,244	95,244
$M_{x\text{dynmax}}$ [Nm]	852	852	6,477	6,477
$M_{y\text{dynmax}}$ [Nm]	708	1,002	5,381	7,620
$M_{z\text{dynmax}}$ [Nm]	441	624	5,381	7,620
Load distance z [mm]	58.5	58.5	58.5	58.5

¹⁾ Force must only act free of torque

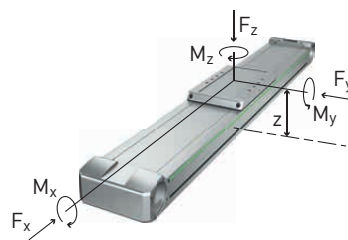


Table 7.15 General technical data

Repeatability [mm]	± 0.05
Max. feed force $F_{x\text{max}}$ [N]	3,000
Max. speed [m/s]	5
Max. acceleration [m/s²]	30
Max. drive torque $M_{A\text{max}}$ [Nm]	87.9
Typical load capacity [kg]	150
Maximum total length ¹⁾ [mm]	6,000
Area moment of inertia of profile cross section I_x [mm⁴]	2,071,928
Area moment of inertia of profile cross section I_y [mm⁴]	19,658,810

¹⁾ Long axes on request

Table 7.16 Guide

Type of carriage	QHH20CA × 4
Static load rating C_0 [N]	33,860 × 4
Dynamic load rating C_{dyn} 50 km [N]	30,000 × 4

Table 7.17 Drive

Drive element	B50HTD8
Feed constant [mm/U]	184
Toothed belt effective diameter [mm]	58,57

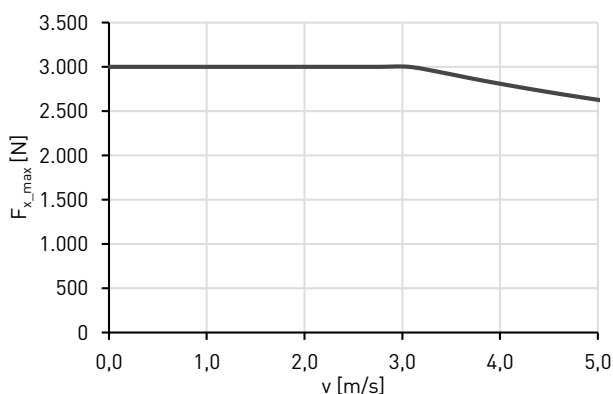


Fig. 7.5 Max. feed force $F_{x\text{max}}$ as a function of axis speed v

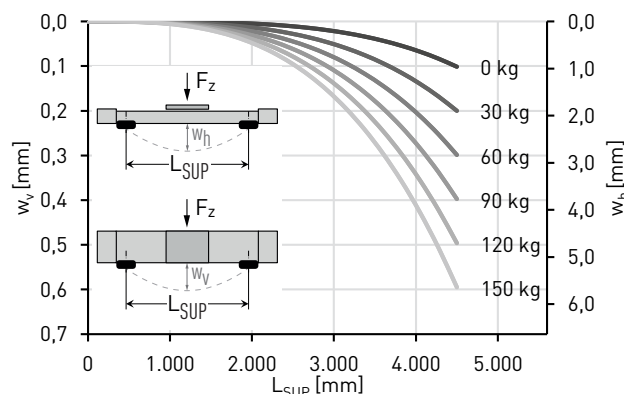


Fig. 7.6 Deflection w over unsupported axis length L_{SUP} under load capacity F_z

Table 7.18 Mechanical properties

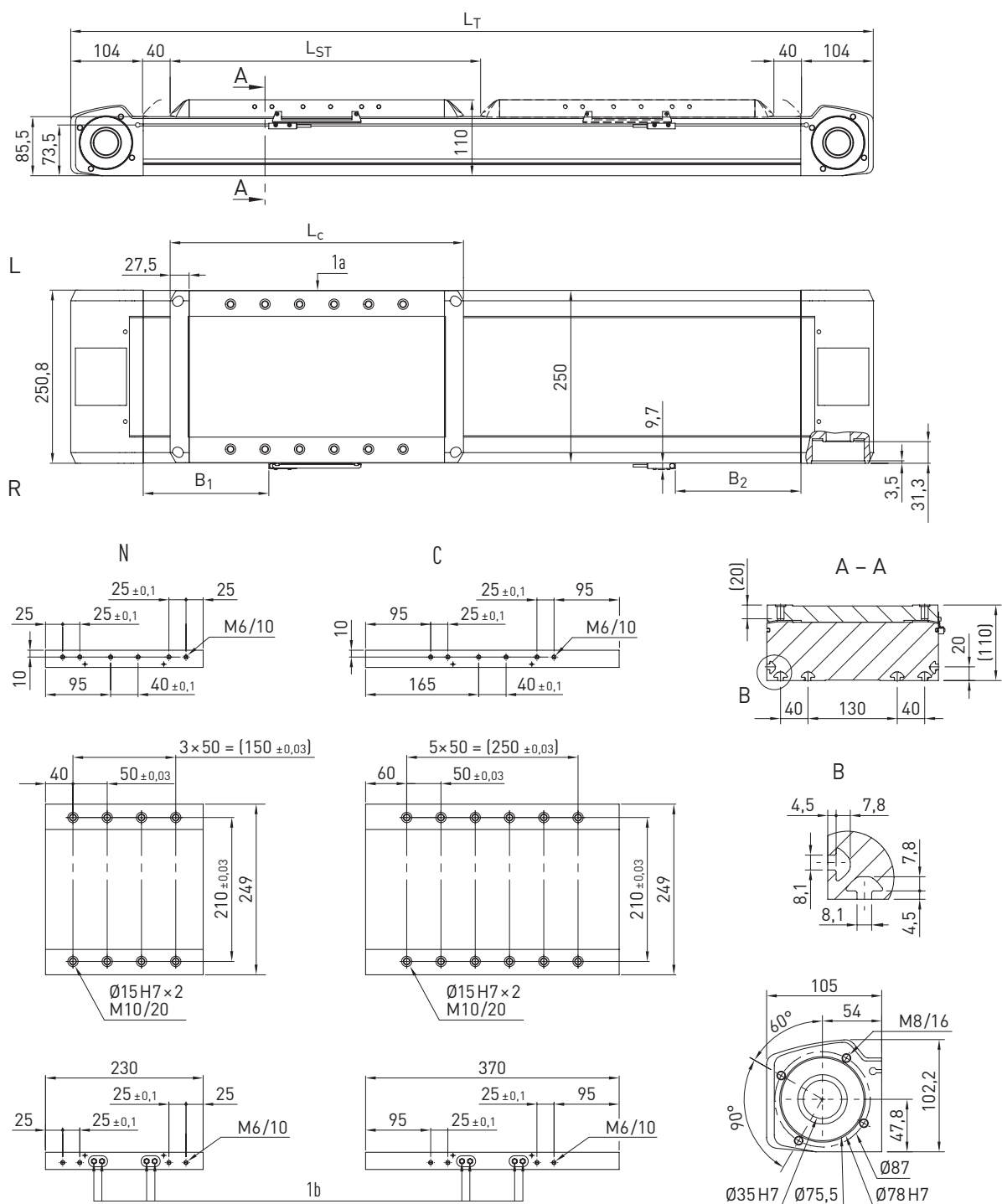
	Variant without cover N	Variant with cover C
Mass of the carriage [kg]	4.40	5.19
Mass at 0-stroke [kg]	16.97	19.54
Mass per 1 m stroke [kg/m]	17.27	17.75
$J_{\text{rot.}}^{1)}$ [kgcm²]	18.37	18.37
Idle torque at 0-stroke [Nm]	2.00	2.50

¹⁾ Rotational moment of inertia

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7.6 Dimensions and specifications of HT250B



L Left
R Right
1a + 1b Block lubrication connectors

Table 7.19 HT250B dimensions

	Variant without cover N	Variant with cover C
Total carriage length L_c [mm]	285	425
Switch distance B_1 [mm]	112	182
Switch distance B_2 [mm]	112	182
Max. stroke length L_{ST} [mm]	5,397	5,397
Total length L_T [mm]	$L_T = L_{ST} + 573$	$L_T = L_{ST} + 713$

Table 7.20 Load data

	Permissible load data		Theoretical load data	
Lifetime reference value	20,000 km		100 km	
	Version without cover	Version with cover	Version without cover	Version with cover
$F_{y\text{dynmax}}^{1)}$ [N]	11,600	11,600	133,024	133,024
$F_{z\text{dynmax}}^{1)}$ [N]	17,498	17,498	133,024	133,024
$M_{x\text{dynmax}}$ [Nm]	1,496	1,496	11,374	11,374
$M_{y\text{dynmax}}$ [Nm]	1,356	1,706	10,309	12,970
$M_{z\text{dynmax}}$ [Nm]	899	1,131	10,309	12,970
Load distance z [mm]	68.01	68.01	68.01	68.01

¹⁾ Force must only act free of torque

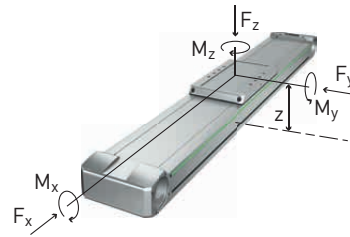


Table 7.21 General technical data

Repeatability [mm]	± 0.05
Max. feed force $F_{x\text{max}}$ [N]	4,500
Max. speed [m/s]	5
Max. acceleration [m/s²]	30
Max. drive torque $M_{A\text{max}}$ [Nm]	149
Typical load capacity [kg]	250
Maximum total length ¹⁾ [mm]	6,110
Area moment of inertia of profile cross section I_x [mm⁴]	3,265,771
Area moment of inertia of profile cross section I_y [mm⁴]	39,262,043

¹⁾ Long axes on request

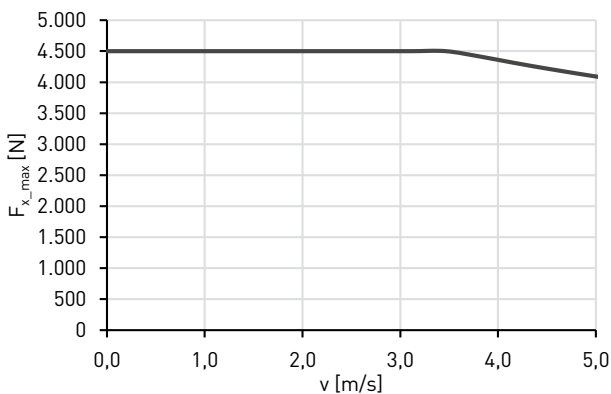


Fig. 7.7 Max. feed force $F_{x\text{max}}$ as a function of axis speed v

Table 7.22 Guide

Type of carriage	QHH25CA × 4
Static load rating C_0 [N]	48,750 × 4
Dynamic load rating C_{dyn} 50 km [N]	41,900 × 4

Table 7.23 Drive

Drive element	B75HTD8
Feed constant [mm/U]	208
Toothed belt effective diameter [mm]	66.21

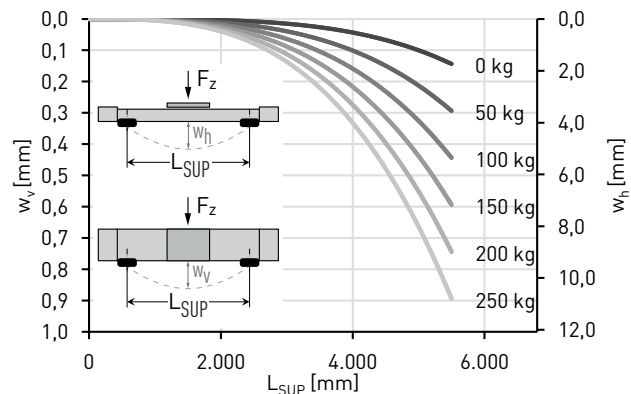


Fig. 7.8 Deflection w over unsupported axis length L_{SUP} under load capacity F_z

Table 7.24 Mechanical properties

	Variant without cover N	Variant with cover C
Mass of the carriage [kg]	7.93	9.67
Mass at 0-stroke [kg]	28.42	33.47
Mass per 1 m stroke [kg/m]	22.50	23.09
$J_{\text{rot.}}^{1)}$ [kgcm²]	36.38	36.38
Idle torque at 0-stroke [Nm]	4.00	4.50

¹⁾ Rotational moment of inertia