HIWIN®

Motion Control & Systems

Positioning Systems

Linear Axes and Axis Systems HX

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Note:
The technical data in this catalogue may
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Positioning Systems

Linear axes and axis systems HX

Linear axes and axis systems are used in many industrial areas, e.g. to transport or position components. HIWIN offers linear axes with toothed belt drive for applications requiring high dynamic responses and speeds. The HIWIN modular system is a flexible solution for combining belt axes into twin and multi-axis systems, depending on the application. HIWIN linear axes with ballscrew drive are available for applications requiring high feed forces and precision. HIWIN linear axes with linear motor drive fulfil the highest demands on dynamics, accuracy and synchronism. Due to their compact design and low moving mass the HIWIN cantilever axes are particularly suitable for vertical applications.

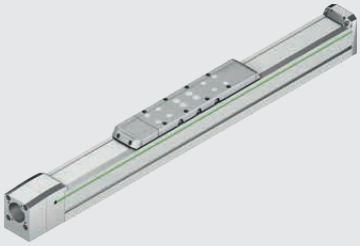
Contents

1. Product overview

Linear modules HM-B with toothed belt drive

Page 20

- High speed
- High acceleration
- Large stroke lengths



Linear modules HM-S with ballscrew drive

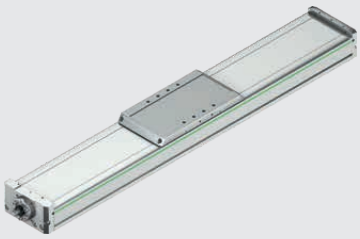
Page 30

- High positioning accuracy
- High feed force
- High drive rigidity

Linear tables HT-B with toothed belt drive

Page 40

- High speed
- High acceleration
- High rigidity and torque loading capacity due to double guide



Linear tables HT-S with ballscrew drive

Page 50

- High positioning accuracy
- High feed force
- High rigidity and torque loading capacity due to double guide

Linear tables HT-L with linear motor

Page 60

- Highest positioning accuracy
- Highest dynamics
- Wear-free drive

Cantilever axes HC with toothed belt drive

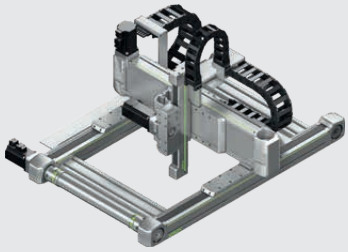
Page 68

- Compact design
- Low moving mass
- High dynamics

Double axes HD

Page 78

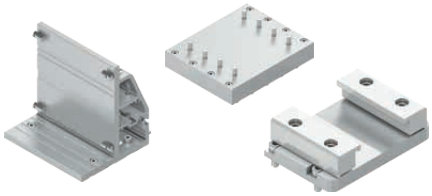
- Two belt axes HM-B connected by synchronous shaft
- Fully assembled unit
- For custom assemblies



Multi-axis systems HS

Page 84

- XY or XYZ systems with belt axes
- Individual stroke length
- Complete system ready for installation



Adapters for cross tables and multi-axis systems

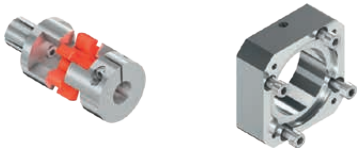
Page 110

- Flexible connection of two or more axes
- Components for the construction of complete, individual systems
- Secure positioning due to force and form closure

Adapters for robot axes

Page 120

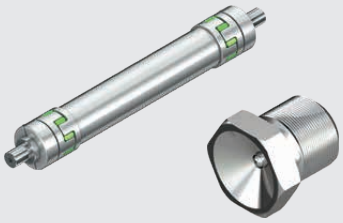
- For mounting lightweight robots on the HT linear axes.
- Secure and fast connection
- Sets including fastening material



Drive adapter

Page 124

- Adapter for flexible motor connection
- Gearbox/belt drive
- Energy supply



Accessories

Page 165

- Fasteners and adapters
- Sensors and cables
- Lubricating accessories

2. General information

2.1 Properties of the linear modules HM

HIWIN linear axes HM are compact positioning systems that are available with toothed belt drive or ballscrew drive. They are based on a heavy duty, low wear linear guideway combined with a lightweight, robust aluminium profile. A stroke that can be adjusted in millimetre increments and a large number of options (e.g. steel cover strip, limit switches, distance measuring system, and additional carriages in various sizes) mean that these axes can be adapted optimally to the application requirements.

Advantages of the linear modules HM

- Aluminium profile with generously sized grooves for stable linear axis connections to the machine frame
- Stable and reproducible securing of load capacities on carriages with threaded holes and additional counter bores with narrow tolerances
- Easy relubrication in all installation positions through grease nipples on both sides
- Limit switches can be fixed directly in a profile groove at any position
- Options available for the standard version, e.g. cover strip, flexible drive attachment, adapters for all conventional motor types, distance measuring system

2.2 Properties of the linear tables HT

HIWIN linear tables HT are compact positioning systems featuring an integrated double guide. This configuration not only creates outstanding rigidity, but also ensures a high torque loading capacity around the X-axis. There are three types of drive mechanism available to suit a range of application needs: toothed belts for dynamic applications, ballscrew drives for cases involving high feed forces and linear motor drives for applications with highly demanding speed and precision criteria. In all three, the stroke can be adjusted in millimetre increments to whichever length is required.

Advantages of the linear tables HT

- Outstanding rigidity and high torque loading capacity around the X-axis
- Integrated HIWIN double guide
- Extremely quiet thanks to SynchMotion™ technology
- Durable steel cover strip included as standard

2.3 Properties of the cantilever axes HC

HIWIN cantilever axes HC are flexible linear units with an Omega belt drive. The compact drive block with motor and gearbox is stationary while the light cantilever beam moves. Due to the sophisticated structure of the aluminium profile, the beam has a high torsional rigidity despite its low weight and is therefore suitable for dynamic applications, especially for vertical installations. The stroke is freely selectable in millimetre increments.

Advantages of the cantilever axes HC

- Compact design
- High rigidity of beam
- Low moving mass

2.4 Properties of the double axes HD

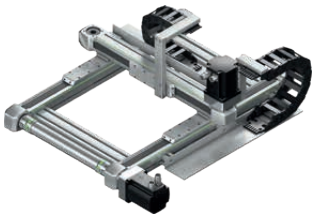
HIWIN double axes HD are positioning modules featuring two HM-B series belt axes connected to each other via a synchronous shaft. The stroke and the distance between the two axes can be adjusted in millimetre steps. HIWIN double axes are ideal for applications requiring a wide bolting surface or an additional carriage for Y-axis support. They are also ideal as a basis for multi-axis systems.

Advantages of the double axes HD

- Very little set-up work needed thanks to standardised units that offer flexible configuration options
- Ready to install systems for less assembly work
- Options like cover strips, flexible drive attachments, adapters for all conventional motor types, and distance measuring system available as standard

2.5 Properties of the two-axis systems HS2

HIWIN two-axis systems HS2 are flexible units for positioning along the X- and Y-axes. The X-axis is based on a HIWIN double axis HD. Along the Y-axis either a HIWIN belt axis HM-B (module) or HT-B (table) safeguards dynamic positioning.
HIWIN two-axis systems are suitable for 2D handling.

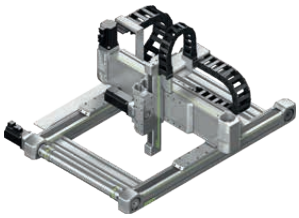


Advantages of the two-axis systems HS2

- The stroke along both axes can be adjusted in millimetre increments
- Complete, ready to install systems for less assembly work
- Options include drive adapter and energy chains

2.6 Properties of the three-axis systems HS3

HIWIN three-axis systems HS3 are flexible units for positioning along the X-, Y- and Z-axes. The X-axis is based on a HIWIN double axis HD. Along the Y-axis a HIWIN linear table HT-B with toothed belt drive safeguards dynamic positioning.
The HC cantilever axis with an Omega belt drive and a particularly light cantilever ensures quick and precise positioning in the Z direction.

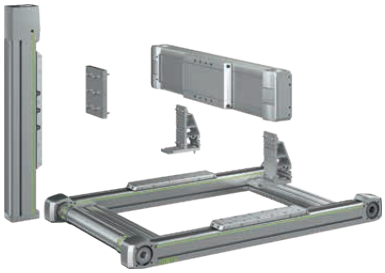


Advantages of the three-axis systems HS3

- The stroke along all three axes can be adjusted in millimetre increments
- Complete, ready to install systems for less assembly work
- Options include drive adapter and energy chains

2.7 Properties of the adapters for cross tables and multi-axis systems

With the HIWIN adapters for cross tables and multi-axis systems, two or more axes can be flexibly combined with each other. This way individual multi-axis systems can be designed quickly and easily. Forces and torques are safely transmitted due to force and form closure. Centering sleeves ensure an exact and reproducible connection.



Advantages of the adapters

- Quick and easy assembly of individual multi-axis systems
- Rigid and safe power transmission
- Low construction effort due to standardised sets including fixing material

2.8 Properties of the adapters for robot axes

The HIWIN adapters for robot axes allow you to combine a lightweight robot and a HIWIN HT linear axis. This allows a 7th axis system to be designed quickly and easily. The adapters are designed in such a way that the robots can rotate freely in the lower axis even with axes that have an energy chain attached. Centering sleeves ensure an exact and reproducible connection.

Advantages of the adapters

- Quick and easy assembly of the robots
- Low construction effort due to standardized sets
- Including mounting material

2.9 Glossary

Positioning accuracy
The positioning accuracy describes the maximum difference between the actual and nominal position.
With HM-B, HT-B and HC-B toothed belt axes, the positioning accuracy depends on the manufacturing accuracy of the toothed belt (tooth pitch) and the belt pre-tension. Since this deviation is largely linear, it can be easily measured and compensated for via a correction factor. The correction factor is determined as a target/actual deviation, multiplied by the feed constant of the axis and stored accordingly in the control unit. Please contact HIWIN for more information.

Repeatability
Repeatability is the value of how precise the carriage is positioned when it approaches a position several times from the same direction. It specifies the maximum position error between the reached positions.

Static load rating C_0
The static load rating C_0 equals the static load that causes a plastic deformation of 0.0001 × ball diameter at the contact point under the heaviest load. This is a fundamental quantity in calculations for static applications.

Dynamic load rating C_{dyn}
The dynamic load rating C_{dyn} equals the load under which 90 % of identical linear guideways reach the life expectancy of 50 km. This is a fundamental quantity in calculations for dynamic applications.

Typical load capacity
The typical load capacity enables the user to preselect the optimum axis size based on empirical values, also regarding combined loads.

Feed constant
The feed constant corresponds to the distance in mm that the carriage travels during one drive rotation.

Flatness
Measurement indicating the vertical straightness of a movement on the X-axis in the X and Y directions. Any deviation from the absolute flatness represents a shift on the Z-axis during movement on the X-axis.

Straightness
Measurement of the horizontal straightness of a movement on the X-axis. Any deviation from the absolute straightness represents a shift on the Y-axis during movement on the X-axis.

Continuous force F_c
The continuous force or nominal force that the linear motor of the HT-L axes is able to produce during continuous operation (duty cycle = 100 %).

Peak force F_p
The peak force is the maximum force that a linear motor is able to produce for approximately one second while the peak current I_p is being applied.

Peak current I_p
Briefly applied in the case of linear axes with a linear motor, in order to generate the peak force. The maximum permitted peak current duration is one second. Following this, the linear motor must cool down to the nominal temperature before the peak current can be applied again.

Stroke
Stroke is the distance the carriage must travel between the two end points of the limit switches.

Reserve stroke
The reserve stroke L_r equals the distance that can be travelled in addition to the stroke on both sides of the end positions (stroke 0, stroke max) before the carriage reaches the mechanical end position (mechanical 0) L_{mech0} at the installed buffer stops. The reserve stroke is defined for each axis size at the factory.
The reserve stroke for each axis size can be found in the "Dimensions and specifications" sections of each axis type.

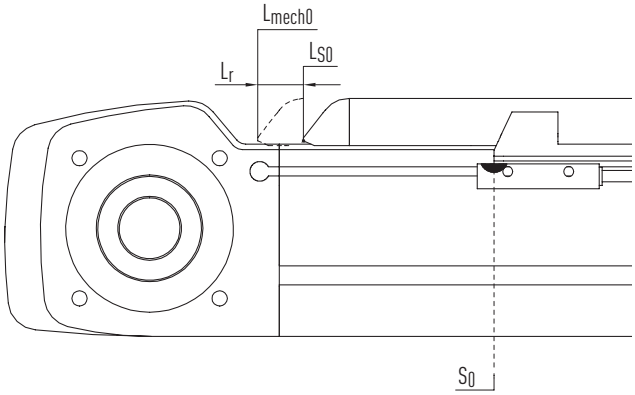


Fig. 2.1 **Illustration of the reserve stroke (example: linear module HM-B)**

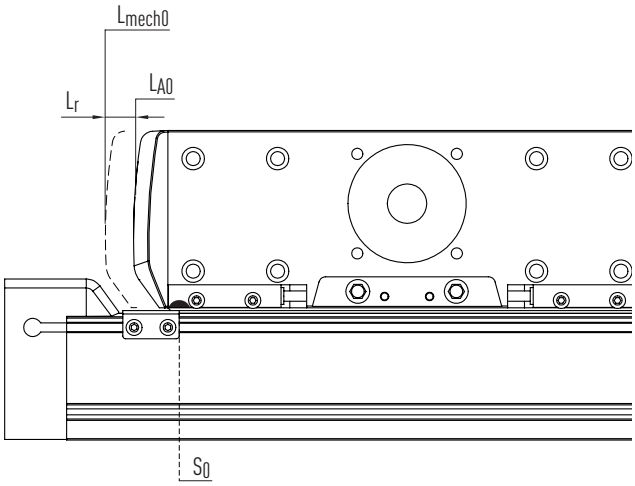


Fig. 2.2 **Illustration of the reserve stroke (example: cantilever axis HC)**

L_{mech0}	Carriage position at mechanical 0 (buffer stop)
L_{S0}	Carriage position at stroke 0 (sensor switching point)
S_0	Sensor switching point at stroke 0
L_{A0}	Position of drive unit at stroke 0 (sensor switching point)

2.10 Requirements at the installation site

- Temperature range: +5 °C to +40 °C
- Dry environment
- Not explosive
- No vacuum

3. Bases of calculations

3.1 Calculating the required drive torque for HM-B, HM-S, HT-B, HT-S and HC

The maximum drive torque of the HM-B, HM-S, HT-B, HT-S and HC axes is based on the technical data of the drive elements (toothed belt or ballscrew). The motors and gears selected must be dimensioned so that the maximum drive torque is not exceeded during operations. The required drive torque is calculated according to formula F 3.1. In principle, all individual movements that the axis goes through in one cycle should be calculated and be compared with the limit values of the axis. Simplified, for pre-selecting the axis the required drive torque M_A can be calculated from the movement with the highest load and be compared with the maximum drive torque of the axis.

F 3.1

$$M_A = M_{dyn} + M_{stat} + M_{idle}$$

MA Required drive torque [Nm]
M_{dyn} Dynamic drive torque [cm] (see Formula F 3.2)
M_{stat} Static drive torque [Nm] (see Formula F 3.5)
M_{idle} Idle torque [Nm]
(see the axis' technical data)

The dynamic drive torque M_{dyn} is calculated from the axis' rotatory moment of inertia and the translationally moved mass.

F 3.2

$$M_{dyn} = \frac{J_{rot} \times a}{10 \times r} + \frac{F_{x\_dyn} \times r}{1{,}000}$$

J_{rot} Rotatory moment of inertia of axis [kgcm²]
(see technical details of the axis,
for HM-S/HT-S: J_{rot} = J_{rot} at 0 stroke + J_{rot} stroke)
a Max. acceleration [m/s²]
r Effective radius [mm] (see Formula F 3.4)
F_{x_dyn} Dynamic feed force [N] (see Formula F 3.3)

F 3.3

$$F_{x\_dyn} = (m_{load} + m_{carriage}) \times a$$

m_{load} Externally moved mass [kg]
$m_{carriage}$ Moved carriage mass [kg]
(see the axis' technical data)

F 3.4

$$r = \frac{P}{2 \times \pi}$$

P Feed constant (HM-B/HT-B) [mm];
spindle lead (HM-S/HT-S) [mm]

The static drive torque M_{stat} takes into account the required drive torque to hold the load in a non-horizontal axis position.

F 3.5

$$M_{stat} = \frac{F_{x\_stat} \times r}{1{,}000}$$

F_{x_stat} Gravitational force [N] (see Formula F 3.6)
Is exerted by the moving mass on the drive element in a non-horizontal arrangement

F 3.6

$$F_{x\_stat} = (m_{load} + m_{carriage}) \times g \sin(A)$$

g Acceleration of gravity [m/s²]
A Angle by which the linear axis deviates in travel direction to the horizontal (see Fig. 3.1)

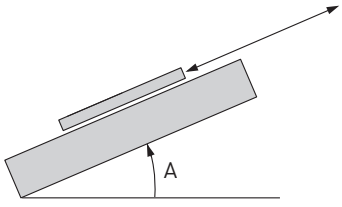


Fig. 3.1 **Angle A**

3.2 Calculating the required feed force for HT-L

The required feed force Fv for applications with linear tables HT-L with linear motor is calculated according to formula F 3.7. For the exact technical configuration, the driving profile is to be captured as a whole. The individual movements as well as the resulting effective force, which occurs over the entire cycle time, must be calculated. This effective force must not exceed the continuous force stated in chapter 9. In addition, it must be taken into account that the peak force must not be exceeded during the entire cycle and for thermal reasons must not be generated for more than 1 second. To preselect the axis for an application, the required maximum feed force must be matched with the maximum peak force of the motor.

F 3.7

$$F_v = F_{x\_dyn} + F_{x\_stat} + F_l$$

F_v Required feed force [N]
F_{x_dyn} Dynamic feed force [N] (see Formula F 3.8)
F_{x_stat} Gravitational force [N] (see Formula F 3.9)
Is exerted by the moving mass on the drive element in a non-horizontal arrangement
F_l Displacement force of carriage [N]
(see the axis' technical data)

F 3.8

$$F_{x\_dyn} = (m_{load} + m_{carriage}) \times a$$

m_{load} Externally moved mass [kg]
$m_{carriage}$ Moved carriage mass [kg]
(see the axis' technical data)
a Max. acceleration [m/s²]

F 3.9

$$F_{x\_stat} = (m_{load} + m_{carriage}) \times g \sin(A)$$

g Acceleration of gravity [m/s²]
A Angle by which the linear axis deviates in travel direction to the horizontal (see Fig. 3.1)

3.3 Calculating the service life

The service life is defined as the total kilometre reading of the axis before the first signs of material fatigue on its components (excluding wearing parts).
In the case of HS multi-axis systems, the service life must be calculated separately for each axis.

3.3.1 Loading point

The specified dynamic forces and torques are based on the carriage of the linear axis. The loading point is defined as the centre point of the carriage surface.

3.3.2 Forces and torques on the linear axis

The maximum dynamic forces and torques specified for each axis type may not be exceeded during operations.

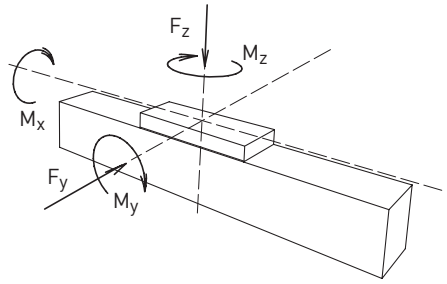


Fig. 3.2 **Illustration of forces and torques on the linear axes HM and HT**

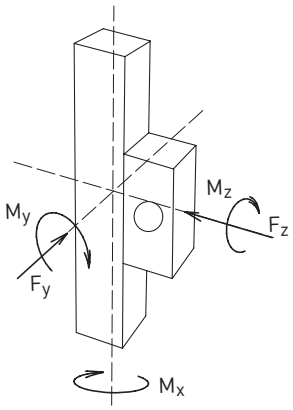


Fig. 3.3 **Illustration of forces and torques on the linear axis HC**

3.3.3 Reference service life and comparable load factor

In the case of combined loads from multiple forces and torques, the comparable load factor f_v is first calculated with the formula F 3.10. The comparable load factor can be used to determine the service life specific to the application from the diagrams (Fig. 3.4 to Fig. 3.11). When $f_v = 1$, the predefined reference service life is reached.

F 3.10

$$f_v = \frac{|F_y|}{F_{ydynmax}} + \frac{|F_z|}{F_{zdynmax}} + \frac{|M_x|}{M_{xdynmax}} + \frac{|M_y|}{M_{ydynmax}} + \frac{|M_z|}{M_{zdynmax}}$$

f_v	Comparable load factor
F_y	Force acting along the Y-axis [N]
F_z	Force acting along the Z-axis [N]
L	Guiding service life [km]
M_x	Torque acting around the X-axis [Nm]
M_y	Torque acting around the Y-axis [Nm]
M_z	Torque acting around the Z-axis [Nm]
$F_{ydynmax}$	Maximum dynamic force along the Y-axis [N]
$F_{zdynmax}$	Maximum dynamic force along the Z-axis [N]
$M_{xdynmax}$	Maximum dynamic torque acting around the X-axis [Nm]
$M_{ydynmax}$	Maximum dynamic torque acting around the Y-axis [Nm]
$M_{zdynmax}$	Maximum dynamic torque acting around the Z-axis [Nm]

3.3.4 Characteristic service life curve for linear axes with toothed belt drive HM-B, HT-B, HC and the linear axes with linear motor HT-L

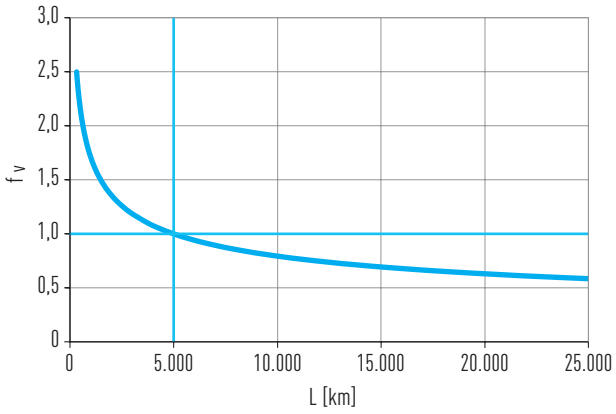


Fig. 3.4 **Characteristic service life curve for HC025B**

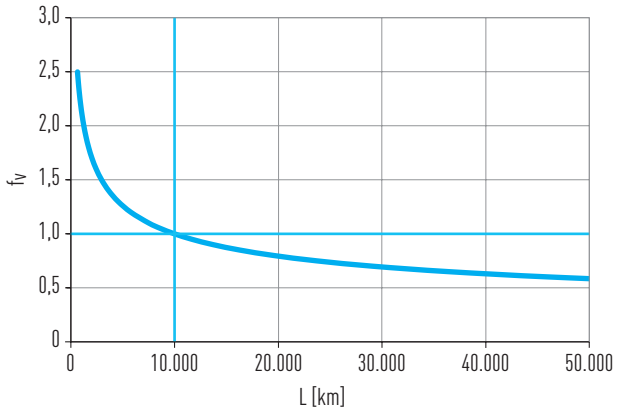


Fig. 3.5 **Characteristic service life curve for HC040B**

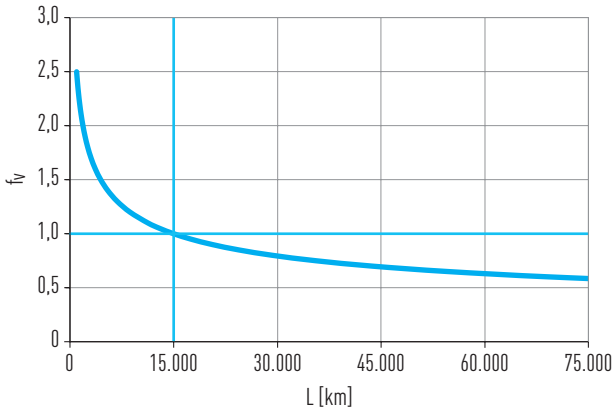


Fig. 3.6 **Characteristic service life curve for HC060B, HC080B**

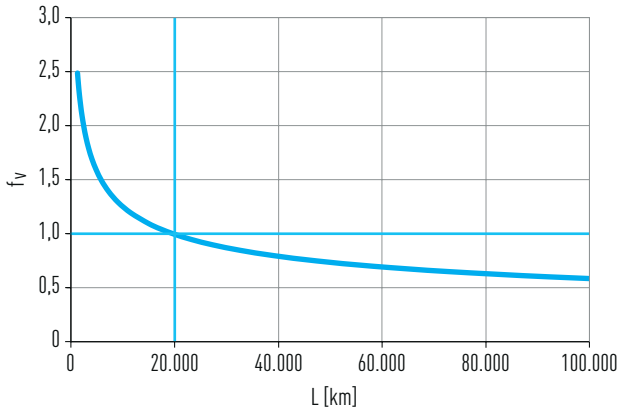


Fig. 3.7 **Characteristic service life curve for HM-B, HT-B, HT-L**

When $f_v = 1$, the predefined reference service life is reached.
For more information, please contact HIWIN.

3.3.5 Characteristic service life curves for linear axes with ballscrew drive HM-S and HT-S

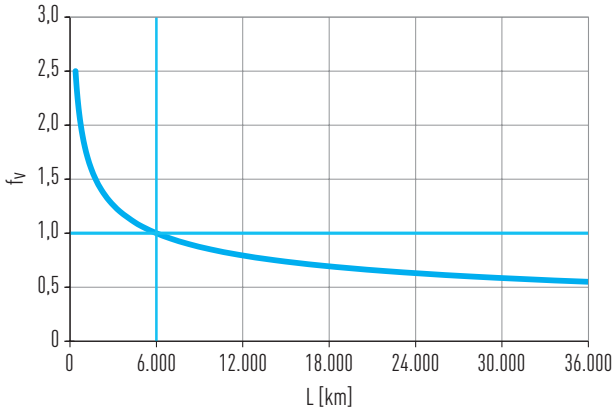


Fig. 3.8 **Characteristic service life curve for HM040S, HT100S**

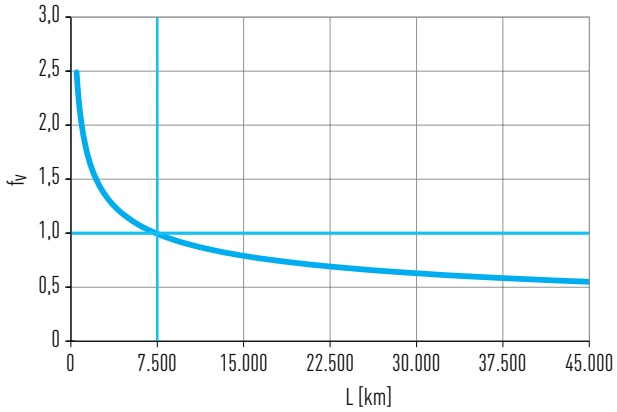


Fig. 3.9 **Characteristic service life curve for HM060S, HM080S, HT150S**

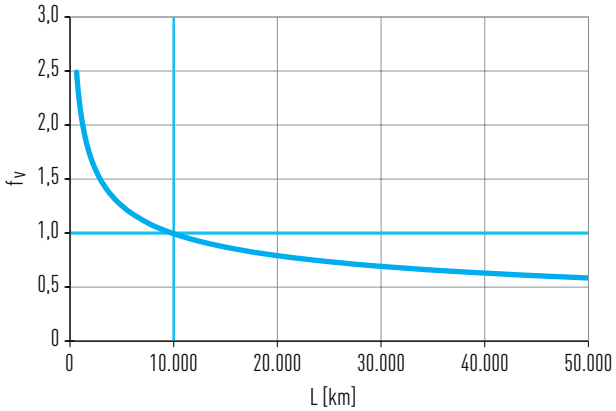


Fig. 3.10 **Characteristic service life curve for HM120S, HT200S**

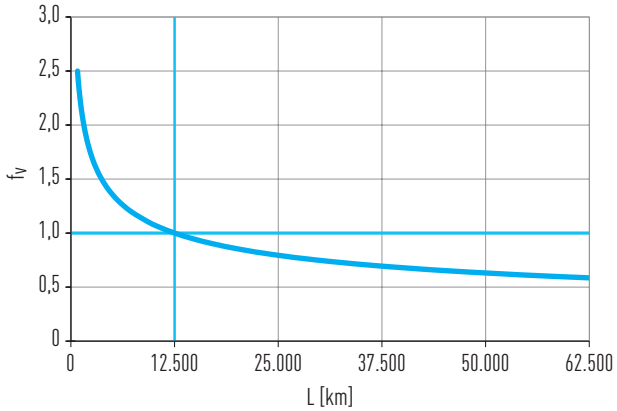


Fig. 3.11 **Characteristic service life curve for HT250S**

When $f_v = 1$, the predefined reference service life is reached.
For more information, please contact HIWIN.

3.4 Calculating the support spacing

Ideally, linear axes should be mounted on a consistent, stable and even surface. If it is not possible to do so and a self-supporting installation method is being used, the permitted support spacing L as indicated in the diagrams below must be taken into account. The support spacing is a function of the F_y and F_z loads. For more information about mounting the linear axis, refer to the assembly instructions at www.hiwin.de.

3.4.1 Maximum support spacing for linear modules with toothed belt drive HM-B in self-supporting applications

Horizontal axis position:

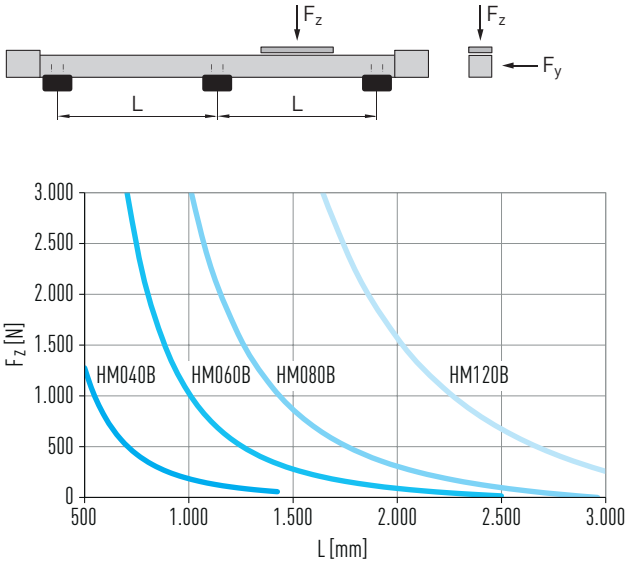


Fig. 3.12 **HM-B: Maximum support spacing as a function of the force F_z**

Vertical axis position:

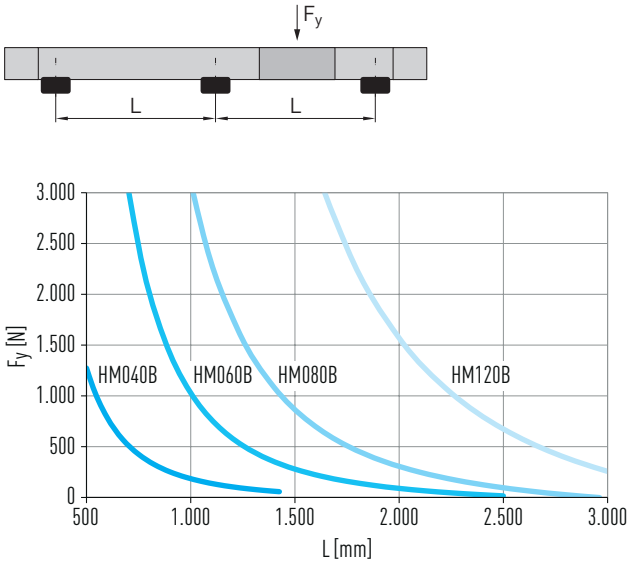


Fig. 3.13 **HM-B: Maximum support spacing as a function of the force F_y**

3.4.2 Maximum support spacing for linear modules with ballscrew drive HM-S in self-supporting applications

Horizontal axis position:

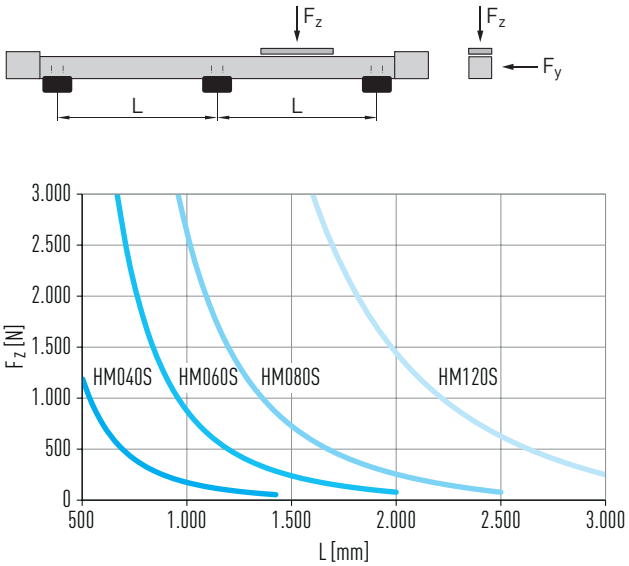


Fig. 3.14 **HM-S: Maximum support spacing as a function of the force F_z**

Vertical axis position:

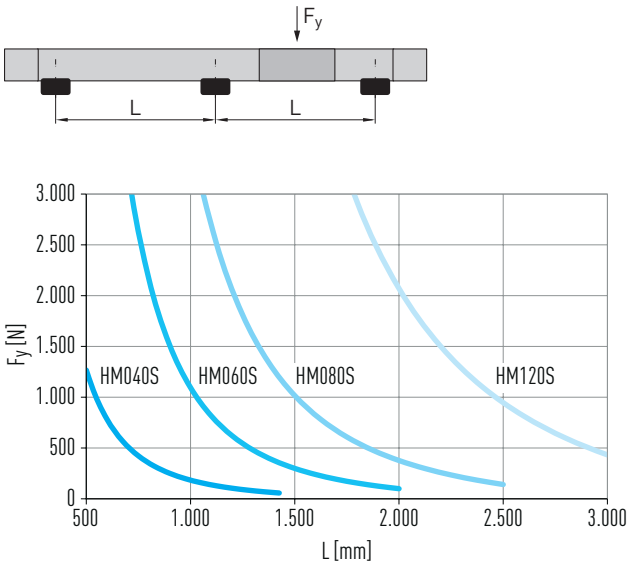
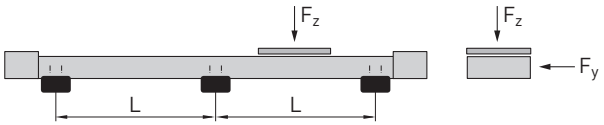


Fig. 3.15 **HM-S: Maximum support spacing as a function of the force F_y**

3.4.3 Maximum support spacing for linear tables HT-B, HT-S and HT-L in self-supporting applications

Horizontal axis position:



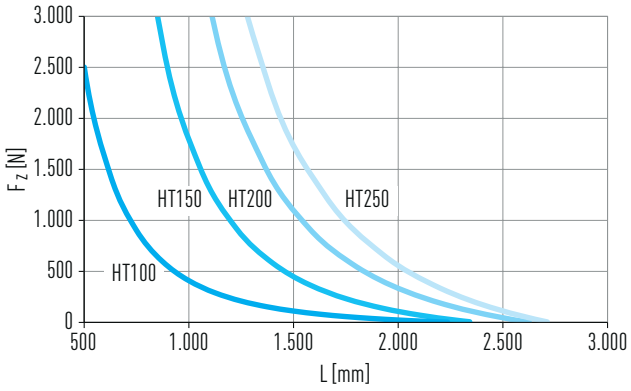
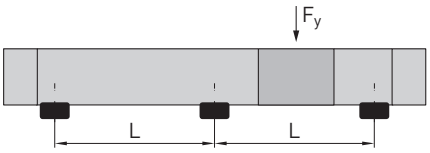


Fig. 3.16 **HT: Maximum support spacing as a function of the force F_z**

Vertical axis position:



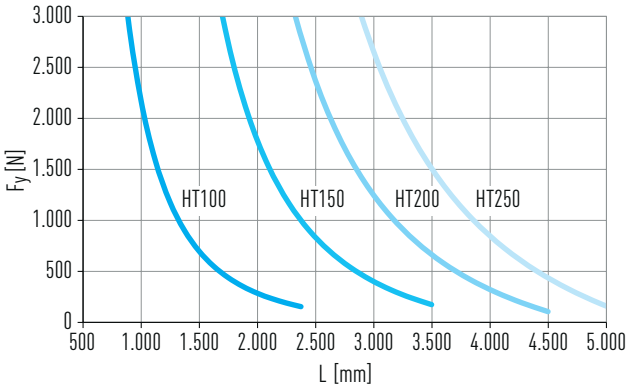


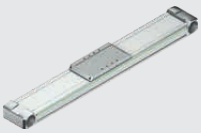
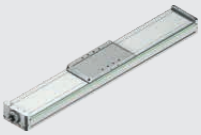
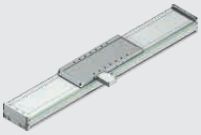
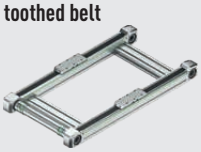
Fig. 3.17 **HT: Maximum support spacing as a function of the force F_y**

4. Product selection

4.1 Linear axes

Linear axes for positioning along the one axis.

Table 4.1 **Product selection diagram**

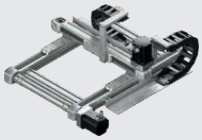
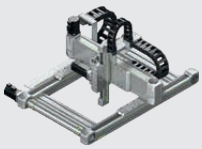
Drive element	Typical properties	Typical load capacity [kg]	Max feed force [N]	Max moment M_x [Nm]	Max travel speed [m/s]	Max. standard stroke [1] [mm]	Repeatability [2] [mm]	Axis	Page
Module with toothed belt 	○ High speed ○ High acceleration ○ Large stroke lengths	10	300	8	3.0	3,000	± 0.05	**HM040B**	Page 22
		25	882	21	5.0	5,500	± 0.05	**HM060B**	Page 24
		60	1,235	48	5.0	5,500	± 0.05	**HM080B**	Page 26
		120	4,000	123	5.0	5,500	± 0.05	**HM120B**	Page 28
Module with ballscrew 	○ High positioning accuracy ○ High feed force ○ High drive rigidity	10	976	12	0.5	1,200	± 0.02	**HM040S**	Page 32
		25	2,320	28	0.8	2,500	± 0.02	**HM060S**	Page 34
		60	3,020	67	1.0	2,800	± 0.02	**HM080S**	Page 36
		120	6,113	155	1.6	4,000	± 0.02	**HM120S**	Page 38
Table with toothed belt 	○ High speed ○ High acceleration ○ Large stroke lengths ○ High torque loading capacity	40	813	93	5.0	5,500	± 0.05	**HT100B**	Page 42
		80	1,300	246	5.0	5,500	± 0.05	**HT150B**	Page 44
		150	3,000	655	5.0	5,500	± 0.05	**HT200B**	Page 46
		250	4,500	1,135	5.0	5,500	± 0.05	**HT250B**	Page 48
Table with ballscrew 	○ High positioning accuracy ○ High feed force ○ High drive rigidity ○ High torque loading capacity	40	2,044	139	0.8	2,600	± 0.02	**HT100S**	Page 52
		80	3,186	341	1.0	3,000	± 0.02	**HT150S**	Page 54
		150	3,517	826	1.25	3,500	± 0.02	**HT200S**	Page 56
		250	5,300	1,327	1.6	3,800	± 0.02	**HT250S**	Page 58
Table with linear motor 	○ Highest positioning accuracy ○ Highest dynamics ○ Wear-free drive ○ Large stroke lengths	80	868 [3]	201	5.0	5,300	± 0.005	**HT150L**	Page 62
		150	1,535 [3]	524	5.0	5,300	± 0.005	**HT200L**	Page 64
		250	2,469 [3]	888	5.0	5,300 [4]	± 0.005	**HT250L**	Page 66
Cantilever axis 	○ High speed ○ Compact design ○ Low moving mass	2	241	3	3.0	300 [5]	± 0.05	**HC025B**	Page 70
		8	404	10	3.0	500 [5]	± 0.05	**HC040B**	Page 72
		16	983	33	5.0	800 [5]	± 0.05	**HC060B**	Page 74
		30	1,310	66	5.0	1,200 [5]	± 0.05	**HC080B**	Page 76
Double axis with toothed belt 	○ High torque loading capacity ○ Wide bolting surface ○ Synchronous axis movement	25	450	–	3.0	3,000	± 0.10	**HD1**	Page 80
		63	1,323	–	5.0	5,500	± 0.10	**HD2**	Page 81
		150	1,852	–	5.0	5,500	± 0.10	**HD3**	Page 82
		300	4,385	–	5.0	5,500	± 0.10	**HD4**	Page 83

[1] May be restricted by the energy chain and/or distance measuring system. Longer strokes on request
[2] Repeatability depends on the selected distance measuring system (see Chapter 16 on Page 121 ff.)
[3] Peek force of the drive
[4] HT250LA33C : 5,200 mm
[5] Valid for vertical mounting position; max. stroke for horizontal mounting see Chapter 10

4.2 Multi-axis systems

Axis systems for positioning along two or three axes.

Table 4.2 **Product selection diagram**

System	Typical properties	Typical load capacity [kg]	Maximum travel speed [m/s]	Basis	Working space [mm]	Axis	Page
Two-axis system 	○ Two-dimensional movements ○ Compact system ○ Large working space	5	3.0	X: HD1 Y: HM040B	X: 3,000 Y: 1,300	**HS21-D-M**	Page 86
		20	X: 3.0 Y: 5.0	X: HD1 Y: HT100B	X: 3,000 Y: 1,300	**HS21-D-T**	Page 98
		12	5.0	X: HD2 Y: HM060B	X: 5,000 Y: 1,700	**HS22-D-M**	Page 90
		40	5.0	X: HD2 Y: HT150B	X: 5,000 Y: 1,700	**HS22-D-T**	Page 92
		30	5.0	X: HD3 Y: HM080B	X: 5,000 Y: 1,600	**HS23-D-M**	Page 94
		80	5.0	X: HD3 Y: HT200B	X: 5,000 Y: 1,600	**HS23-D-T**	Page 96
		130	5.0	X: HD4 Y: HT250B	X: 5,000 Y: 1,400	**HS24-D-T**	Page 98
Three-axis system 	○ Three-dimensional movements ○ Compact system ○ Large working space	2	X: 3.0 Y: 5.0 Z: 3.0	X: HD1 Y: HT100B Z: HC025B	X: 3,000 Y: 1,300 Z: 300	**HS31-D-T-C**	Page 102
		8	X: 5.0 Y: 5.0 Z: 3.0	X: HD2 Y: HT150B Z: HC040B	X: 5,000 Y: 1,650 Z: 500	**HS32-D-T-C**	Page 104
		16	5.0	X: HD3 Y: HT200B Z: HC060B	X: 5,000 Y: 1,550 Z: 800	**HS33-D-T-C**	Page 106
		30	5.0	X: HD4 Y: HT250B Z: HC080B	X: 5,000 Y: 1,400 Z: 1,200	**HS34-D-T-C**	Page 108

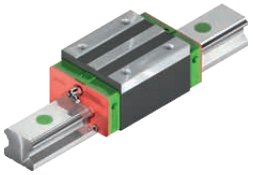
5. Linear modules HM-B

5.1 Properties of linear modules HM-B with toothed belt drive

HIWIN linear axes with toothed belt drive are compact, flexible positioning modules. They are specifically ideal for applications requiring high dynamic responses and high speeds. In addition, with these linear axes large travel distances can be realised.

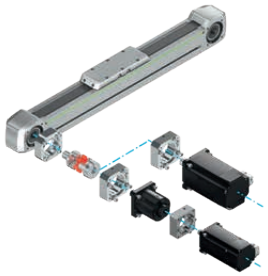
Linear guideway

High quality HIWIN linear guideways transfer forces and torques reliably from the carriage into the axis profile. Each carriage comes with two blocks that are guided over a high precision rail. The SynchMotion™ technology with ball chain also ensures a high level of synchronism and quiet running for the sizes HM060B, HM080B, and HM120B.



Drive connections

The symmetrical design of the HIWIN toothed belt axes allows the attachment of motors and gears at all four sides of the drive blocks.
Additional input and output drives can be positioned at any place with additional journals available as accessories (see Page 171).

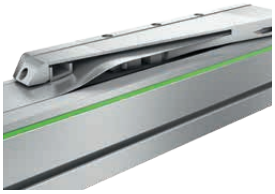


Toothed belt

The toothed belt with modern, high performance profiles (HTD form) and reinforced steel tie beams can transfer high forces under a high skipping resistance.

Cover strip

The steel cover strip protects the inside of the axis against dust and dirt. Also, when fitted with the cover strip, the axes can be used in areas with coarse, sharp edged, or hot foreign bodies. The magnetic strips integrated in the axis profile keep the strip securely in place and increase the sealing effects.

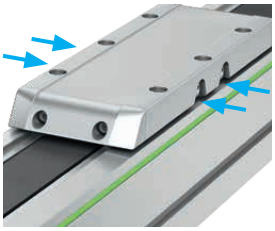


Carriages

HIWIN toothed belt modules are available with three different carriage lengths, depending on the size and dimensions of the load that has to be carried. Around each threaded hole is an additional locating hole that can be used with centring sleeves to secure the load capacity. This allows an ideal, reproducible attachment of the connecting structure. The matching centring sleeves can be found in the accessories on Page 166.

Lubrication

The linear axis can be lubricated easily thanks to the grease nipples at the left and right hand side of each lube point on the carriage. There is therefore optimal relubrication access even on difficult installation types.



5.2 Order code for linear modules HM-B

HM	060	B	155	N	0755	S	000

HIWIN linear module

Size (profile width):
040: 40 mm
060: 60 mm
080: 80 mm
120: 120 mm

Drive type:
B: Toothed belt drive

Feed constant [mm/rotation]:
111: HM040B
155: HM060B
190: HM080B
288: HM120B

Clearance between two carriages [mm]:
(000: One carriage only)

Carriage length:
E: Extra short[6]
S: Short
M: Medium
L: Long

Stroke length [mm]

Cover strip:
N: Without cover strip
C: With steel cover strip

Order code for linear modules HM-B (continuation)

A	N	N	R	BR07	G0605

Axis limit switches:[5]:
N: Without limit switches
A: 2 × NC, 100 mm cable, plug
B: 2 × NO, 100 mm cable, plug
C: 2 × NC, 4 m open cable end
D: 2 × NO, 5 m open cable end

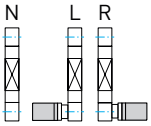
Toothed belt:
N: Standard belt

Optional distance measuring system[1]:
N: Without distance measuring system
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
D: HIWIN MAGIC, digital signal, TTL 5 V

Gearbox[4]

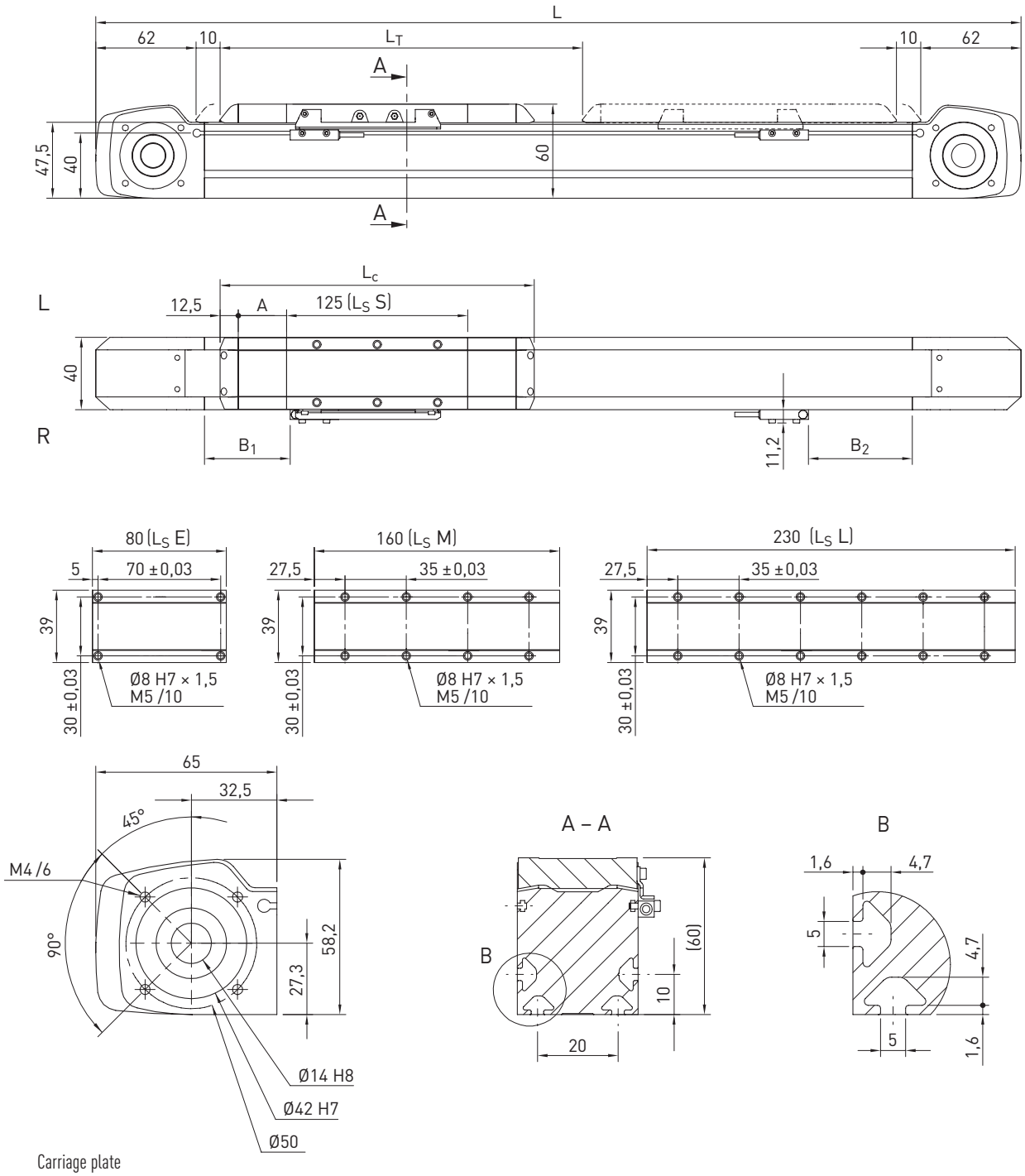
Flange type[3]

Drive interface[2]:
N: None
L: Left
R: Right



[1] Detailed information in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[2] If no drive interface is selected, the order code ends at this position
[3] All flange types can be found in Table 17.1 on Page 125 ff. If no gear box is selected, the order code ends at this position
[4] Suitable gearboxes for HIWIN axes can be found in Section 17.1.4.5 on Page 145 ff.
[5] Further reference switches on request
[6] Only available for HM040B

5.3 Dimensions and specifications of HM040B



L_S Carriage plate
L_T Stroke

Table 5.1 **Dimensions of HM040B**

	Variant without cover				Variant with cover		
	Carriage type E	**Carriage type S**	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Total carriage length L_c [mm]	105	150	185	255	230	265	335
Length of cover strip deflection A [mm]	–	–	–	–	40	40	40
Switch position B_1 [mm]	23	24	24	24	64	64	64
Switch position B_2 [mm]	23	9	44	114	49	84	154
Total length L [mm]	$L = L_T + 249$	$L = L_T + 294$	$L = L_T + 329$	$L = L_T + 399$	$L = L_T + 374$	$L = L_T + 409$	$L = L_T + 479$

Table 5.2 **Load data**

	Carriage type			
	E	**S**	**M**	**L**
$F_{ydynmax}$ [1] [N]	665	963		
$F_{zdynmax}$ [1] [N]	665	963		
$M_{xdynmax}$ [Nm]	5	8		
$M_{ydynmax}$ [Nm]	4	35	52	85
$M_{zdynmax}$ [Nm]	4	35	52	85
z [2] [mm]	34.1			

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

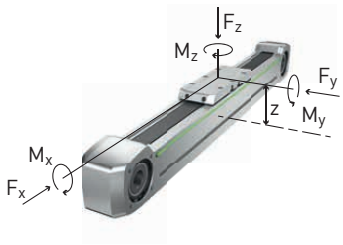


Table 5.3 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	300
Max speed [m/s]	3
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	5
Typical load capacity [kg]	10 [1]
Max total length [mm]	3,480
Area moment of inertia of profile cross-section I_x [mm⁴]	117,795
Area moment of inertia of profile cross-section I_y [mm⁴]	122,922

[1] Carriage type E: 4 kg

Table 5.4 **Guiding**

	Carriage type E	Carriage type S/M/L
Guiding type	MGN15H	MGN15C
Static load rating C_0 [N]	9.110	5,590
Dynamic load rating C_{dyn} [N]	6.370	4,610

Table 5.5 **Drive**

Drive element	B15HTD3
Feed constant [mm/rotation]	111
Effective diameter of toothed belt pulley [mm]	35.33

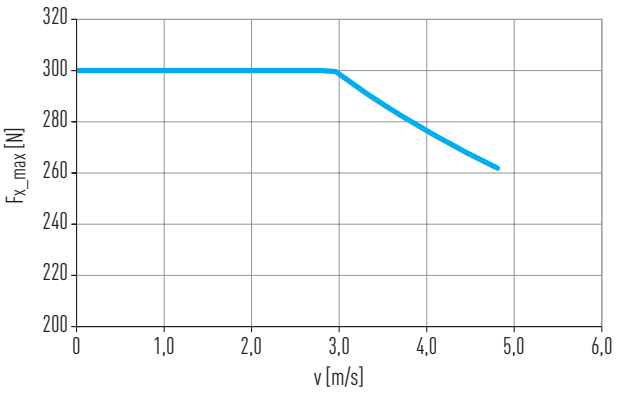


Fig. 5.1 **Max feed force F_{x_max} as a function of axis speed v**

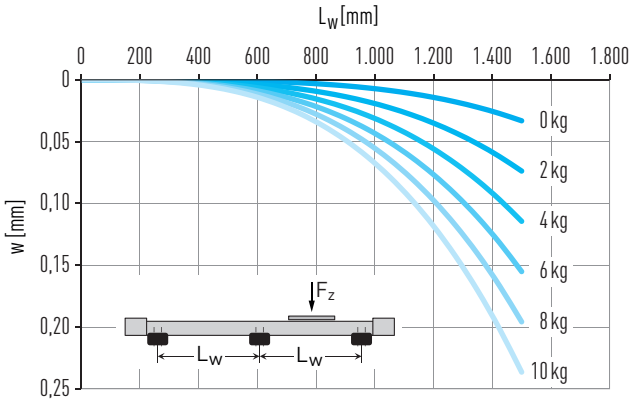


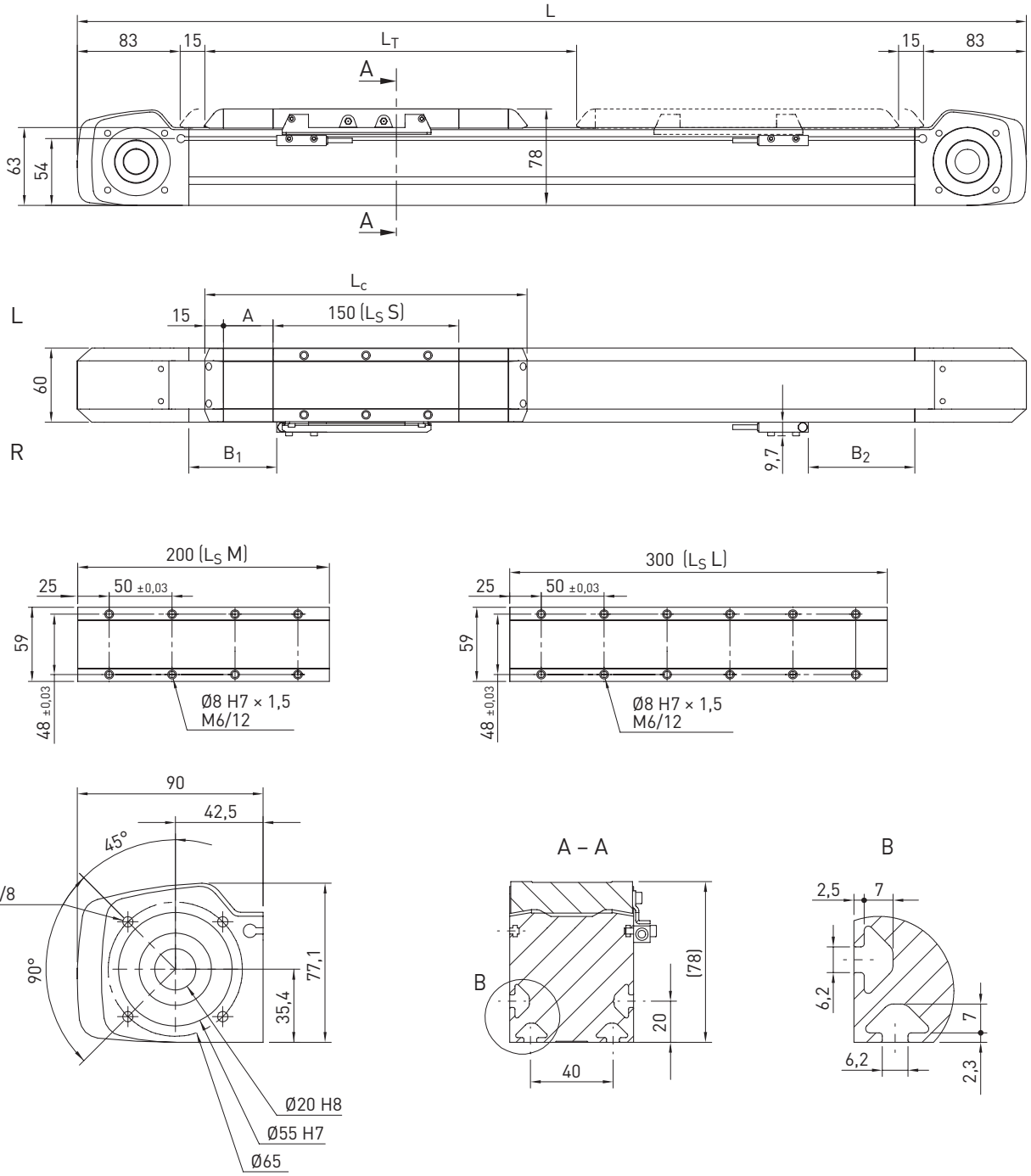
Fig. 5.2 **Deflection w over unsupported axis length L_w under payload F_z**

Table 5.6 **Mechanical properties**

	Variant without cover				Variant with cover		
	Carriage type E	**Carriage type S**	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	0.23	0.33	0.38	0.50	0.37	0.43	0.54
Mass at 0 stroke [kg]	1.16	1.40	1.56	1.89	1.69	1.85	2.18
Mass per 1 m stroke [kg/m]	3.02				3.04		
$J_{rot.}$ [1] [kgcm²]	0.34				0.34		
Idle torque at 0 stroke [Nm]	0.15	0.18			0.25		

[1] Rotatory moment of inertia

5.4 Dimensions and specifications of HM060B



L_S Carriage plate
L_T Stroke

Table 5.7 **Dimensions of HM060B**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Total carriage length L_c [mm]	180	230	330	260	310	410
Length of cover strip deflection A [mm]	–	–	–	40	40	40
Switch position B_1 [mm]	25	25	25	65	65	65
Switch position B_2 [mm]	40	90	190	80	130	230
Total length L [mm]	$L = L_T + 376$	$L = L_T + 426$	$L = L_T + 526$	$L = L_T + 456$	$L = L_T + 506$	$L = L_T + 606$

Table 5.8 **Load data**

	Carriage type S	Carriage type M	Carriage type L
$F_{ydynmax}$ [1] [N]	2,152		
$F_{zdynmax}$ [1] [N]	2,616		
$M_{xdynmax}$ [Nm]	21		
$M_{ydynmax}$ [Nm]	98	164	294
$M_{zdynmax}$ [Nm]	81	135	242
z [2] [mm]	45.6		

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

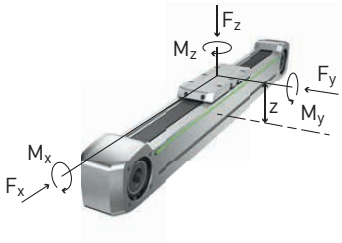


Table 5.9 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	882
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	22
Typical load capacity [kg]	25
Max total length [1] [mm]	6,080
Area moment of inertia of profile cross-section I_x [mm⁴]	507,521
Area moment of inertia of profile cross-section I_y [mm⁴]	625,920

[1] Longer axes upon request

Table 5.10 **Guiding**

Guiding type	QEH15CA
Static load rating C_0 [N]	15,280
Dynamic load rating C_{dyn} [N]	12,530

Table 5.11 **Drive**

Drive element	B25HTD5
Feed constant [mm/rotation]	155
Effective diameter of toothed belt pulley [mm]	49.34

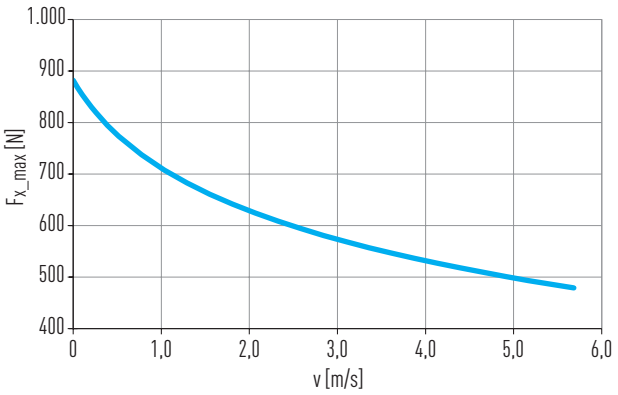


Fig. 5.3 **Max feed force F_{x_max} as a function of axis speed v**

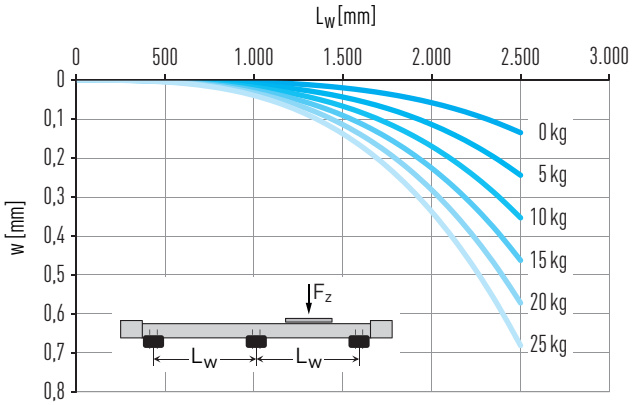


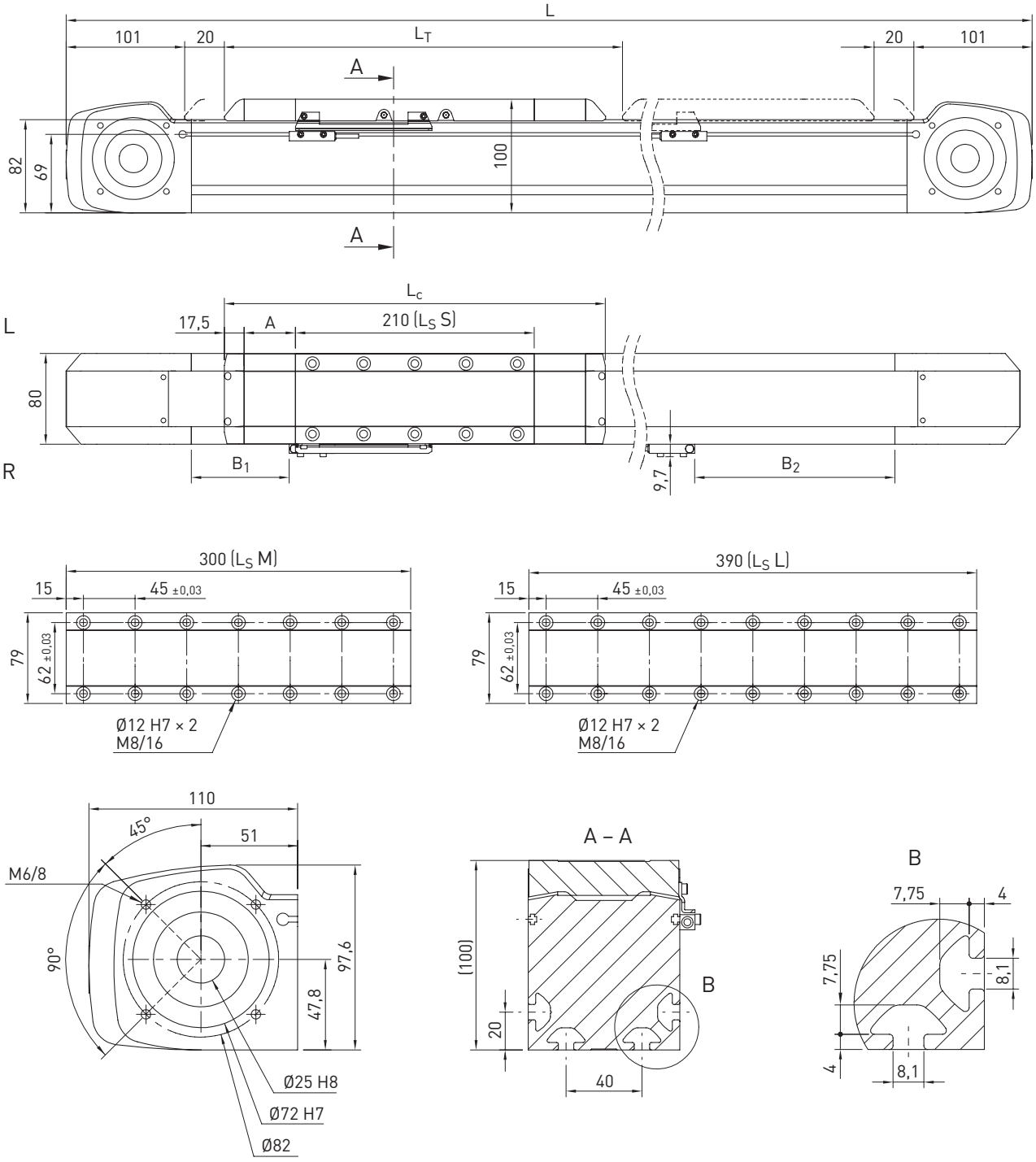
Fig. 5.4 **Deflection w over unsupported axis length L_w under payload F_z**

Table 5.12 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	0.81	0.96	1.25	0.89	1.03	1.32
Mass at 0 stroke [kg]	3.44	3.85	4.69	3.97	4.39	5.23
Mass per 1 m stroke [kg/m]	5.47			5.51		
$J_{rot.}$ [1] [kgcm²]	1.92			1.92		
Idle torque at 0 stroke [Nm]	0.47			1.00		

[1] Rotatory moment of inertia

5.5 Dimensions and specifications of HM080B



L_S Carriage plate
L_T Stroke

Table 5.13 **Dimensions of HM080B**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Total carriage length L_c [mm]	245	335	425	335	425	515
Length of cover strip deflection A [mm]	–	–	–	45	45	45
Switch position B_1 [mm]	23	23	23	68	68	68
Switch position B_2 [mm]	113	203	293	158	248	338
Total length L [mm]	$L = L_T + 487$	$L = L_T + 577$	$L = L_T + 667$	$L = L_T + 577$	$L = L_T + 667$	$L = L_T + 757$

Table 5.14 **Load data**

	Carriage type S	Carriage type M	Carriage type L
$F_{ydynmax}$ [1] [N]	3,855		
$F_{zdynmax}$ [1] [N]	4,819		
$M_{xdynmax}$ [Nm]	48		
$M_{ydynmax}$ [Nm]	275	492	708
$M_{zdynmax}$ [Nm]	220	393	567
z [2] [mm]	53.4		

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

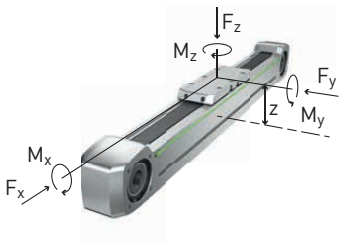


Table 5.15 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	1,235
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	37
Typical load capacity [kg]	60
Max total length [1] [mm]	6,120
Area moment of inertia of profile cross-section I_x [mm⁴]	1,522,057
Area moment of inertia of profile cross-section I_y [mm⁴]	2,081,321

[1] Longer axes upon request

Table 5.16 **Guiding**

Guiding type	QHH20CA
Static load rating C_0 [N]	25,630
Dynamic load rating C_{dyn} [N]	23,080

Table 5.17 **Drive**

Drive element	B35HTD5
Feed constant [mm/rotation]	190
Effective diameter of toothed belt pulley [mm]	60.48

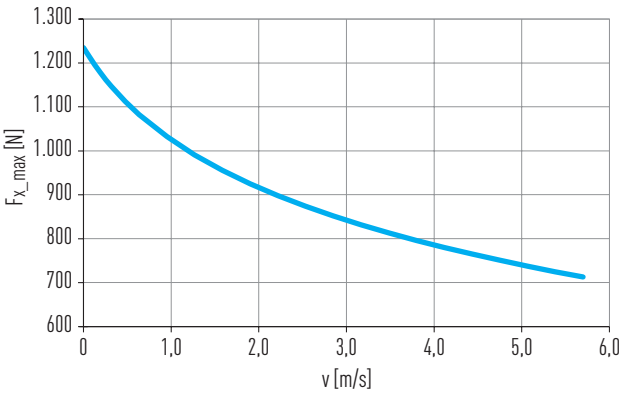


Fig. 5.5 **Max feed force F_{x_max} as a function of axis speed v**

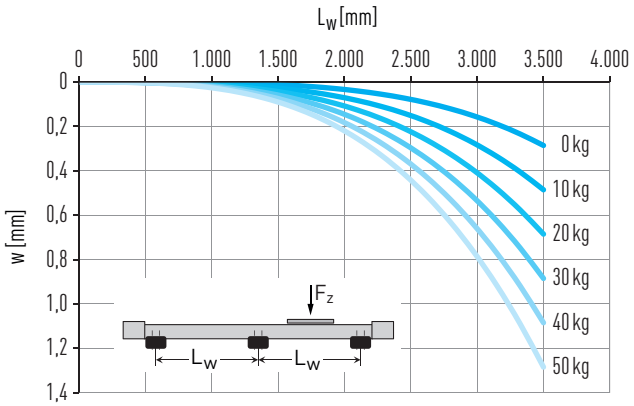


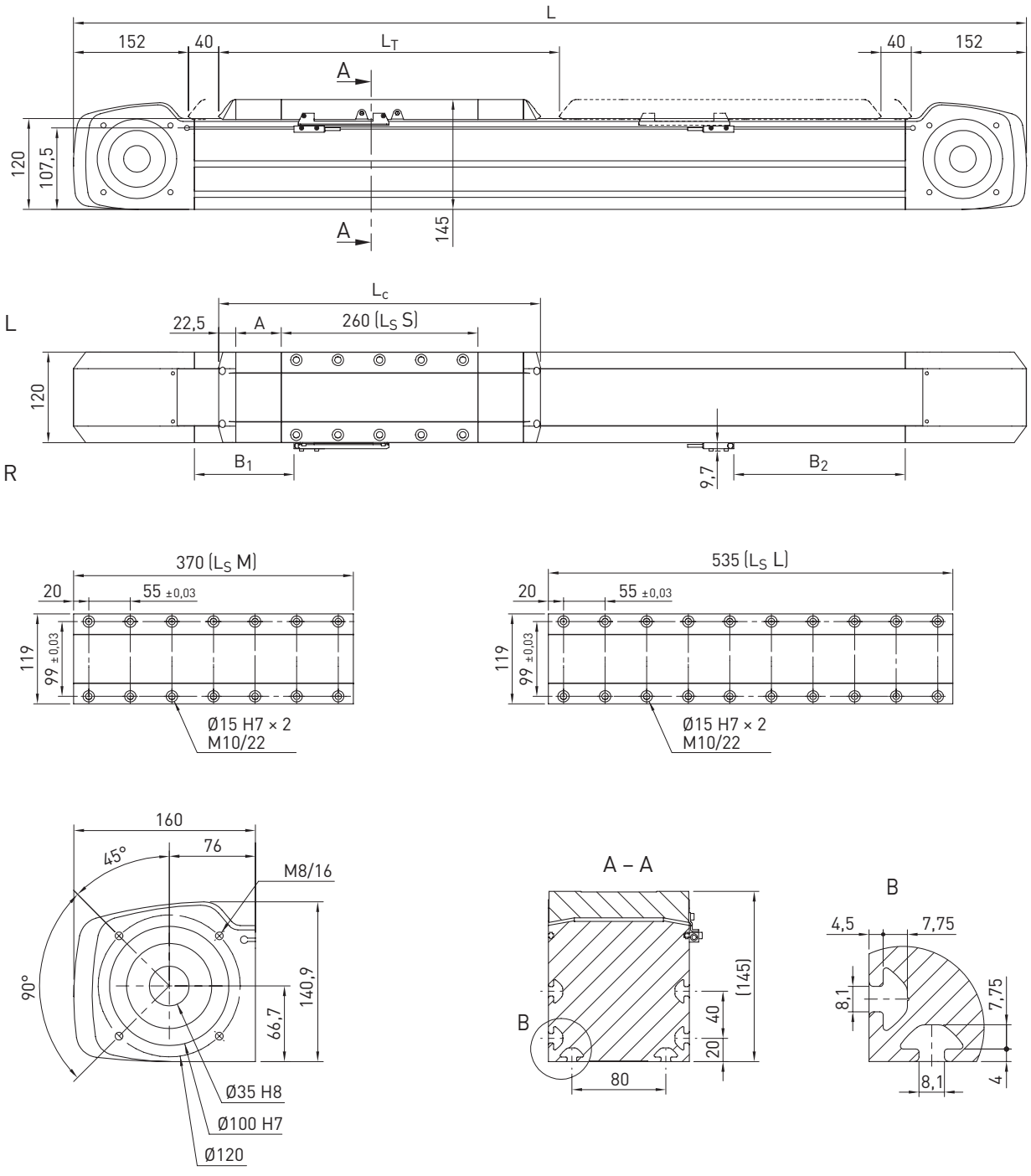
Fig. 5.6 **Deflection w over unsupported axis length L_w under payload F_z**

Table 5.18 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	1.55	1.97	2.38	1.70	2.12	2.54
Mass at 0 stroke [kg]	7.27	8.58	9.88	8.34	9.65	10.96
Mass per 1 m stroke [kg/m]	9.86			9.92		
$J_{rot.}$ [1] [kgcm²]	6.03			6.03		
Idle torque at 0 stroke [Nm]	1.20			1.30		

[1] Rotatory moment of inertia

5.6 Dimensions and specifications of HM120B



L_S Carriage plate
L_T Stroke

Table 5.19 **Dimensions of HM120B**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Total carriage length L_c [mm]	305	415	580	425	535	700
Length of cover strip deflection A [mm]	–	–	–	60	60	60
Switch position B_1 [mm]	71.5	71.5	71.5	131.5	131.5	131.5
Switch position B_2 [mm]	166.5	276.5	441.5	226.5	336.5	501.5
Total length L [mm]	$L = L_T + 689$	$L = L_T + 799$	$L = L_T + 964$	$L = L_T + 809$	$L = L_T + 919$	$L = L_T + 1,084$

Table 5.20 **Load data**

	Carriage type S	Carriage type M	Carriage type L
$F_{ydynmax}$ [1] [N]	9,707		
$F_{zdynmax}$ [1] [N]	9,707		
$M_{xdynmax}$ [Nm]	123		
$M_{ydynmax}$ [Nm]	718	1,252	2,053
$M_{zdynmax}$ [Nm]	718	1,252	2,053
z [2] [mm]	77.1		

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

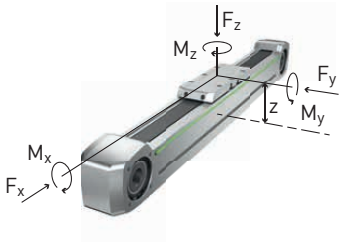


Table 5.21 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	4,000
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	183
Typical load capacity [kg]	120
Max total length [1] [mm]	6,220
Area moment of inertia of profile cross-section I_x [mm⁴]	6,791,541
Area moment of inertia of profile cross-section I_y [mm⁴]	9,553,626

[1] Longer axes upon request

Table 5.22 **Guiding**

Guiding type	QHW30CC
Static load rating C_0 [N]	48,170
Dynamic load rating C_{dyn} [N]	46,490

Table 5.23 **Drive**

Drive element	B60HTD8
Feed constant [mm/rotation]	288
Effective diameter of toothed belt pulley [mm]	91.67

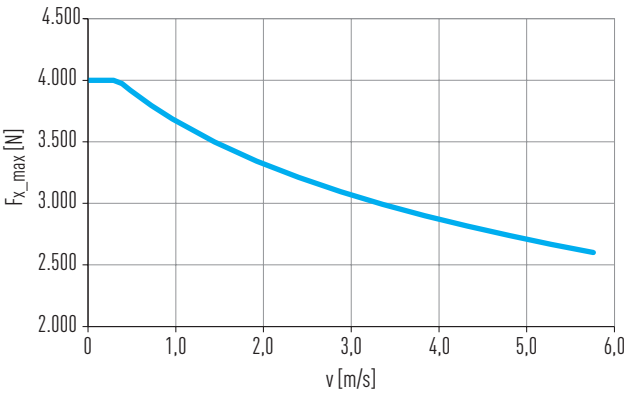


Fig. 5.7 **Max feed force F_{x_max} as a function of axis speed v**

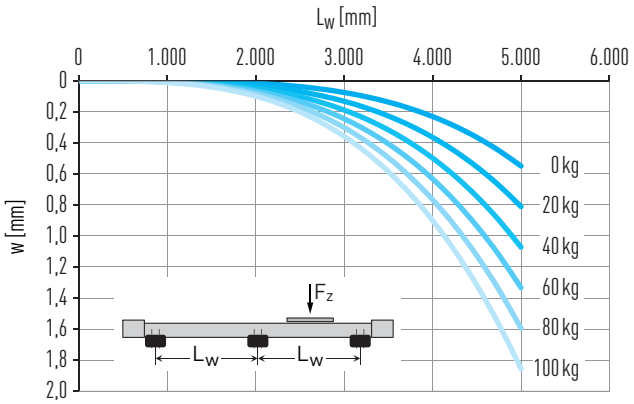


Fig. 5.8 **Deflection w over unsupported axis length L_w under payload F_z**

Table 5.24 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	5.29	6.08	7.79	5.81	6.59	8.30
Mass at 0 stroke [kg]	23.00	26.07	31.21	26.07	29.15	34.30
Mass per 1 m stroke [kg/m]	20.77			20.86		
$J_{rot.}$ [1] [kgcm²]	42.42			42.42		
Idle torque at 0 stroke [Nm]	3.10			3.50		

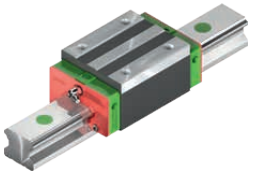
[1] Rotatory moment of inertia

6. Linear modules HM-S

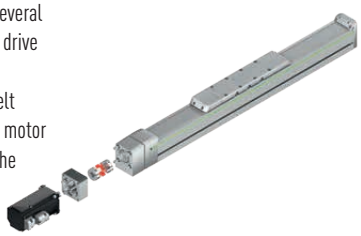
6.1 Properties of linear modules HM-S with ballscrew drive

HIWIN linear axes with ballscrew drive are compact, flexible positioning modules. They are specifically ideal for applications moving high loads to high precision.

Linear guideway
High quality HIWIN linear guideways transfer forces and torques reliably from the carriage into the axis profile. Each carriage comes with two blocks that are guided over a high precision rail. The SynchMotion™ technology with ball chain also ensures a high level of synchronism and quiet running for the sizes HM060S, HM080S, and HM120S.

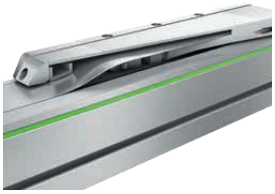


Motor connection and belt drive
The motor adapters are made up of several parts that offer an extremely flexible drive interface for attaching and modifying the drive installation. Optionally, a belt transmission can be used to turn the motor attachment through 180°, reducing the total length to a considerable extent.



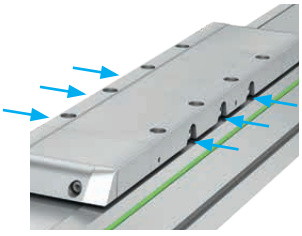
Ballscrew
The integrated HIWIN ballscrews exhibit high lead accuracy and rigidity for precise positioning. Each size comes with various spindle leads for the optimal solution to feed force and dynamic response requirements.

Cover strip
The steel cover strip protects the inside of the axis against dust and dirt. Also, when fitted with the cover strip, the axes can be used in areas with coarse, sharp edged, or hot foreign bodies. The magnetic strips integrated in the axis profile keep the strip securely in place and increase the sealing effects.



Carriage
HIWIN spindle axes are available with two different carriage lengths, depending on the size and dimensions of the load that has to be carried. Around each threaded hole is an additional locating hole that can be used with centring sleeves to secure the load capacity. This allows an ideal, reproducible attachment of the connecting structure. The matching centring sleeves can be found in the accessories on Page 166.

Lubrication
The linear axis can be lubricated easily thanks to the grease nipples at the left and right hand side of each lube point on the carriage. There is therefore optimal relubrication access even on difficult installation types.



Spindle support
In applications involving long travel distances and high speeds, the spindle quickly reaches its critical speed. It must therefore be mounted on adequate supports that prevent the spindle from deflecting. Up to three moving supports can be mounted at each side of the carriage of HIWIN spindle axes. Travel is therefore possible at full speed even over long strokes.

6.2 Order code for linear modules HM-S

HM	060	S	010	C	0755	L	000

HIWIN linear module

Size (profile width):
040: 40 mm
060: 60 mm
080: 80 mm
120: 120 mm

Drive type:
S: Ballscrew

Spindle lead [mm]:
005/010: HM040S
005/010/016: HM060S
005/010/020: HM080S
010/020/032: HM120S

Cover strip:
C: With steel cover strip
N: Without cover strip

Stroke length [mm]

Carriage length:
S: Short
L: Long

Clearance between two carriages [mm]:
(000: One carriage only)

Order code for linear modules HM-S (continuation)

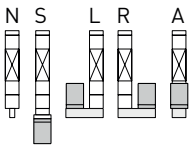
A	N	N	R	B002

Axis limit switches[4]**:**
N: Without limit switches
A: 2 × NC, 100 mm cable, plug
B: 2 × NO, 100 mm cable, plug
C: 2 × NC, 4 m open cable end
D: 2 × NO, 5 m open cable end

Spindle supports:
N: Without spindle supports
1: One spindle support per side (HM060/080/120)
2: Two spindle supports per side (HM060/080/120)
3: Three spindle supports per side (HM060/080/120)
4: Four spindle supports per side (HM120)

Optional distance measuring system[1]**:**
N: Without distance measuring system
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
D: HIWIN MAGIC, digital signal, TTL 5 V

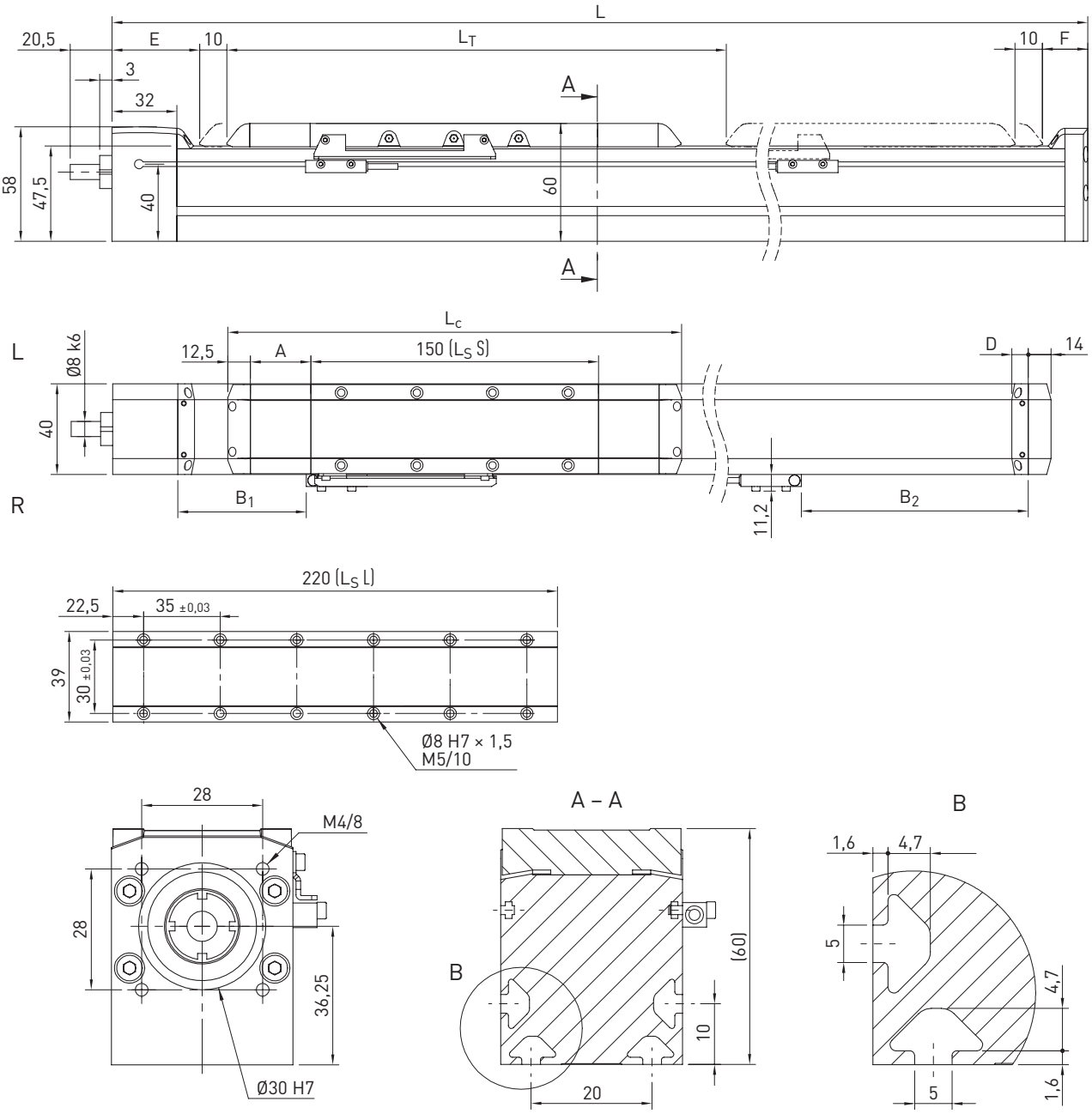
Drive interface[2]**:**
N: None
S: Straight
L: Left
R: Right
A: Top
B: Bottom



Flange type of motor[3]

[1] Detailed information in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[2] If no drive interface is selected, the order code ends at this position
[3] All flange types can be found in Table 17.13 on Page 150 ff. If no gear box is selected, the order code ends at this position
[4] Further reference switches on request

6.3 Dimensions and specifications of HM040S



L_S Carriage plate
L_T Stroke

Table 6.1 **Dimensions of HM040S**

	Variant without cover		Variant with cover	
	Carriage type S	**Carriage type L**	**Carriage type S**	**Carriage type L**
Total carriage length L_c [mm]	175	245	255	325
Length of cover strip deflection A [mm]	–	–	40	40
Switch position B [mm]	33.5	33.5	83.5	83.5
Switch position C [mm]	42.5	112.5	92.5	162.5
Clamp housing length D [mm]	–	–	10	10
End position at mechanical zero E [mm]	38		48	
End position at mechanical zero F [mm]	20		30	
Total length L [mm]	$L = L_T + 253$	$L = L_T + 323$	$L = L_T + 353$	$L = L_T + 423$

Table 6.2 **Load data**

	Carriage type S	Carriage type L
$F_{ydynmax}$ [1] [N]	1,438	
$F_{zdynmax}$ [1] [N]	1,438	
$M_{xdynmax}$ [Nm]	12	
$M_{ydynmax}$ [Nm]	80	130
$M_{zdynmax}$ [Nm]	80	130
z [2] [mm]	39.6	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

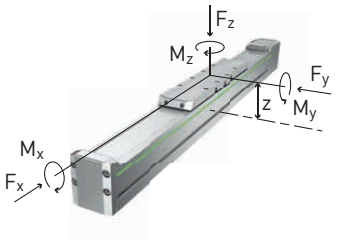


Table 6.3 **General technical data**

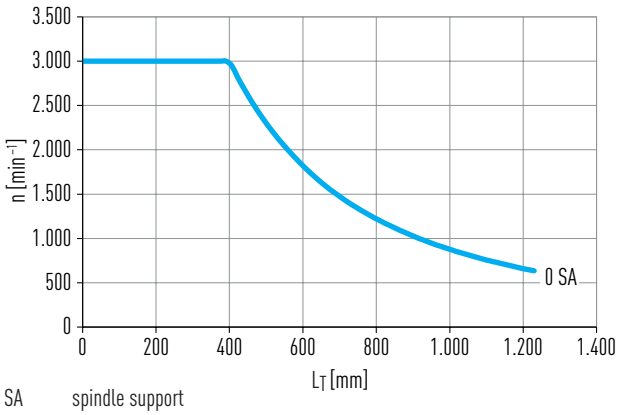
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	10
Max total length [mm]	1,484
Area moment of inertia of profile cross-section I_x [mm⁴]	111,032
Area moment of inertia of profile cross-section I_y [mm⁴]	116,769

Table 6.4 **Guiding**

Guiding type	MGN15C
Static load rating C_0 [N]	5,590
Dynamic load rating C_{dyn} [N]	4,610

Table 6.5 **Drive**

	Spindle lead	
	5 mm	**10 mm**
Spindle diameter [mm]	12	
Axial play [mm]	0.02	
Max feed force F_{x_max} [N]	976	792
Max speed [m/s]	0.25	0.50
Max drive torque M_{A_max} [Nm]	0.98	1.46
Static load rating ballscrew C_0 [N]	8,800	6,500
Dynamic load rating ballscrew C_{dyn} [N]	5,300	4,300



SA spindle support

Fig. 6.1 **Critical speed n over stroke length axis L_T**

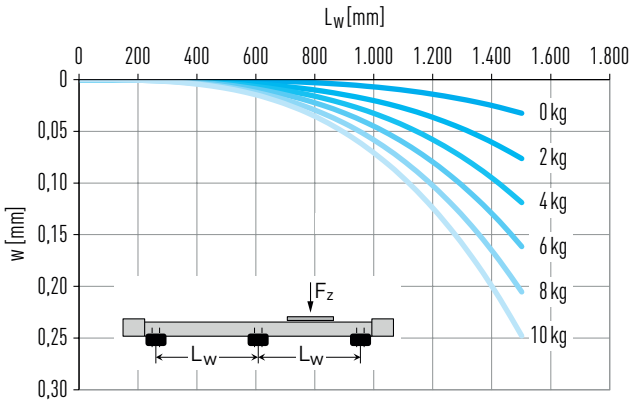


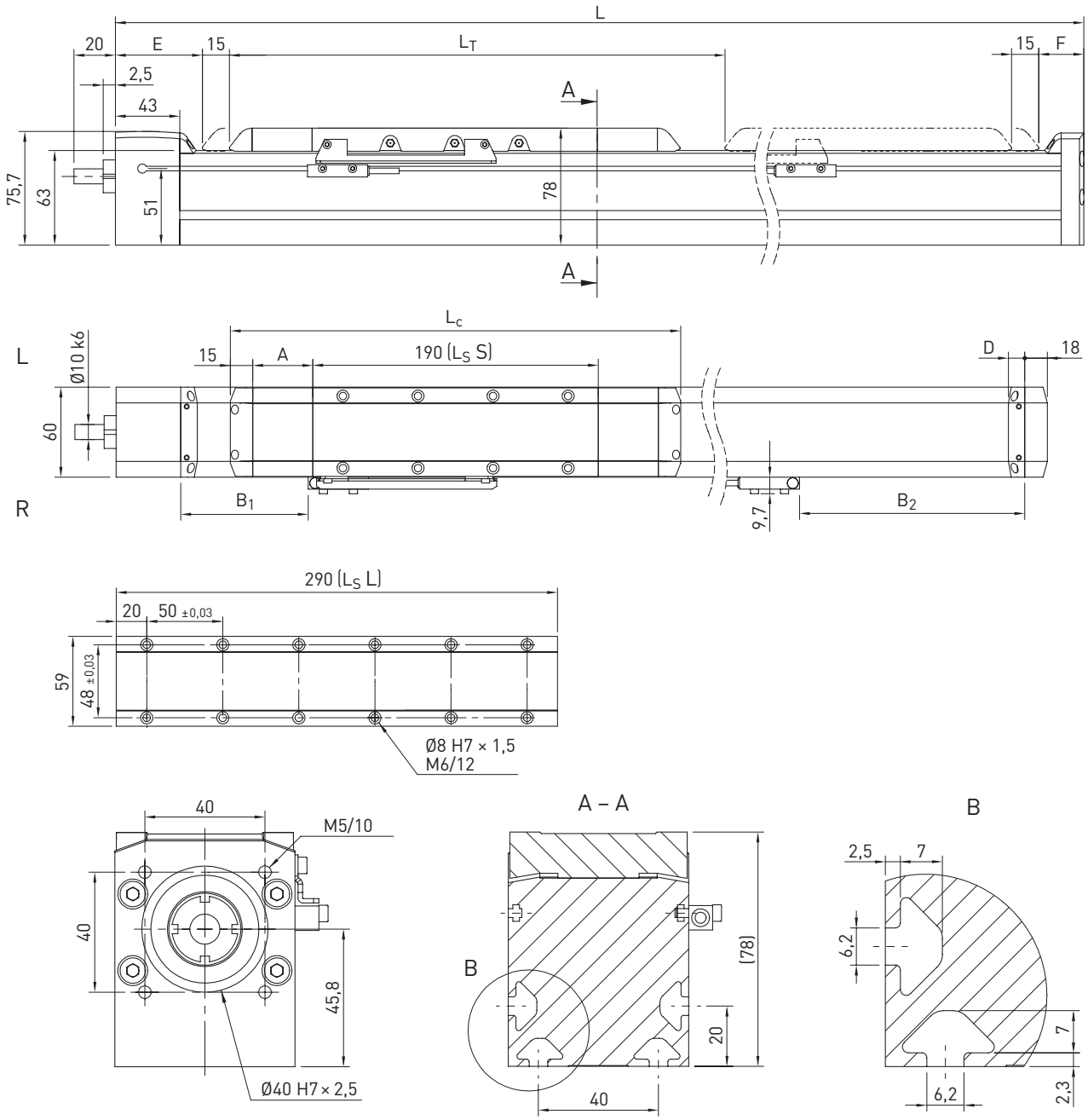
Fig. 6.2 **Deflection w over unsupported axis length L_w under payload F_z**

Table 6.6 **Mechanical properties**

	Variant without cover				Variant with cover			
	Carriage type S		Carriage type L		Carriage type S		Carriage type L	
Spindle lead [mm]	**5**	**10**	**5**	**10**	**5**	**10**	**5**	**10**
Carriage mass [kg]	0.43	0.43	0.55	0.55	0.48	0.48	0.60	0.60
Mass at 0 stroke [kg]	1.49	1.49	1.86	1.86	1.91	1.91	2.28	2.28
Mass per 1 m stroke [kg/m]	3.61				3.63			
$J_{rot.}$ [1] at 0 stroke [kgcm²]	0.07	0.07	0.08	0.08	0.08	0.08	0.09	0.09
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	0.16				0.16			
Idle torque at 0 stroke [Nm]	0.15				0.20			

[1] Rotatory moment of inertia

6.4 Dimensions and specifications of HM060S



L_S Carriage plate
L_T Stroke

Table 6.7 **Dimensions of HM060S**

	Variant without cover		Variant with cover	
	Carriage type S	**Carriage type L**	**Carriage type S**	**Carriage type L**
Total carriage length L_c [mm]	220	320	300	400
Length of cover strip deflection A [mm]	–	–	40	40
Switch position B [mm]	35	35	86	86
Switch position C [mm]	98	198	149	249
Clamp housing length D [mm]	–	–	11	11
End position at mechanical zero E [mm]	50		61	
End position at mechanical zero F [mm]	25		36	
Total length L [mm]	$L = L_T + 325$	$L = L_T + 425$	$L = L_T + 427$	$L = L_T + 527$

Table 6.8 **Load data**

	Carriage type S	Carriage type L
$F_{ydynmax}$ [1] [N]	2,896	
$F_{zdynmax}$ [1] [N]	3,628	
$M_{xdynmax}$ [Nm]	28	
$M_{ydynmax}$ [Nm]	240	421
$M_{zdynmax}$ [Nm]	191	336
z [2] [mm]	57.4	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

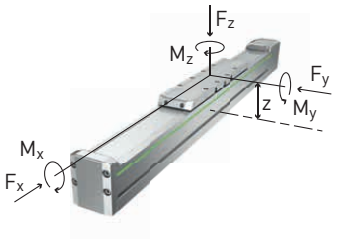


Table 6.9 **General technical data**

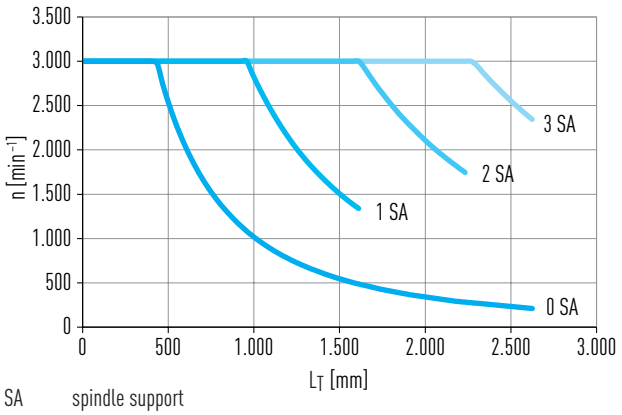
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	25
Max total length [mm]	2,986
Area moment of inertia of profile cross-section I_x [mm⁴]	431,907
Area moment of inertia of profile cross-section I_y [mm⁴]	539,706

Table 6.10 **Guiding**

Guiding type	QEH15CA
Static load rating C_0 [N]	15,280
Dynamic load rating C_{dyn} [N]	12,530

Table 6.11 **Drive**

	Spindle lead		
	5 mm	**10 mm**	**16 mm**
Spindle diameter [mm]	15		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	2,449	1,924	1,924
Max speed [m/s]	0.25	0.50	0.80
Max drive torque M_{A_max} [Nm]	2.22	3.33	5.17
Static load rating ballscrew C_0 [N]	22,167	17,311	17,944
Dynamic load rating ballscrew C_{dyn} [N]	13,300	10,450	10,450



SA spindle support

Fig. 6.3 **Critical speed n over stroke length axis L_T**

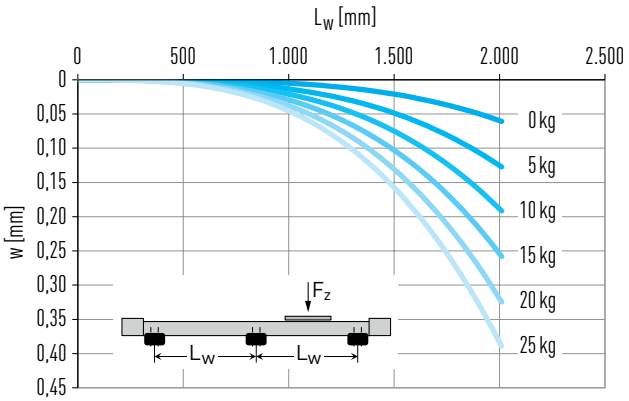


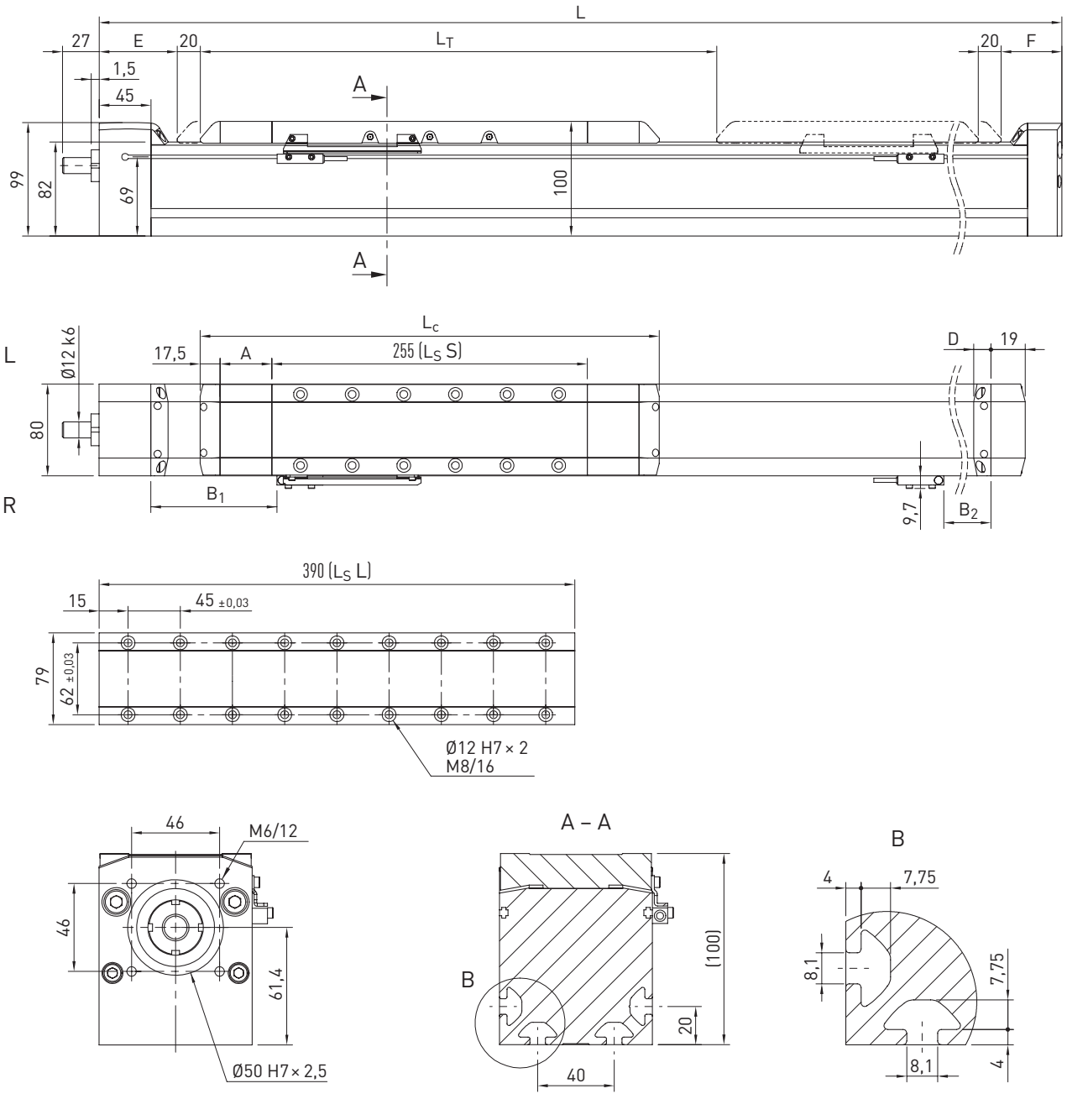
Fig. 6.4 **Deflection w over unsupported axis length L_w under payload F_z**

Table 6.12 **Mechanical properties**

	Variant without cover						Variant with cover					
	Carriage type S			Carriage type L			Carriage type S			Carriage type L		
Spindle lead [mm]	**5**	**10**	**16**	**5**	**10**	**16**	**5**	**10**	**16**	**5**	**10**	**16**
Carriage mass [kg]	1.05	1.15	1.15	1.37	1.47	1.47	1.13	1.23	1.23	1.45	1.55	1.55
Mass at 0 stroke [kg]	3.31	3.41	3.41	4.22	4.32	4.32	4.03	4.13	4.13	4.95	5.05	5.05
Mass per 1 m stroke [kg/m]	5.88						5.93					
$J_{rot.}$ [1] at 0 stroke [kgcm²]	0.19			0.23			0.23			0.27		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	0.39						0.39					
Idle torque at 0 stroke [Nm]	0.27						0.28					

[1] Rotatory moment of inertia

6.5 Dimensions and specifications of HM080S



L_S Carriage plate
L_T Stroke

Table 6.13 **Dimensions of HM080S**

	Variant without cover		Variant with cover	
	Carriage type S	**Carriage type L**	**Carriage type S**	**Carriage type L**
Total carriage length L_c [mm]	290	425	380	515
Length of cover strip deflection A [mm]	–	–	45	45
Switch position B [mm]	40	40	100	100
Switch position C [mm]	175	310	235	370
Clamp housing length D [mm]	–	–	15	15
End position at mechanical zero E [mm]	53		68	
End position at mechanical zero F [mm]	27		42	
Total length L [mm]	$L = L_T + 410$	$L = L_T + 545$	$L = L_T + 530$	$L = L_T + 665$

Table 6.14 **Load data**

	Carriage type S	Carriage type L
$F_{ydynmax}$ [1] [N]	4,000	
$F_{zdynmax}$ [1] [N]	6,683	
$M_{xdynmax}$ [Nm]	67	
$M_{ydynmax}$ [Nm]	589	1,040
$M_{zdynmax}$ [Nm]	353	623
z [2] [mm]	68.5	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

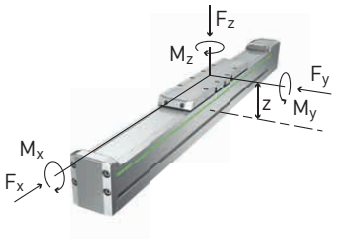


Table 6.15 **General technical data**

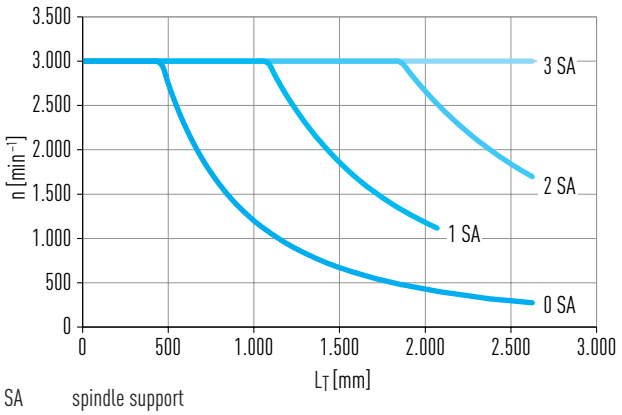
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	60
Max total length [mm]	2,979
Area moment of inertia of profile cross-section I_x [mm⁴]	1,293,796
Area moment of inertia of profile cross-section I_y [mm⁴]	1,759,898

Table 6.16 **Guiding**

Guiding type	QHH20CA
Static load rating C_0 [N]	25,630
Dynamic load rating C_{dyn} [N]	23,080

Table 6.17 **Drive**

	Spindle lead		
	5 mm	**10 mm**	**20 mm**
Spindle diameter [mm]	20		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	3,186	3,057	1,620
Max speed [m/s]	0.25	0.50	1.00
Max drive torque M_{A_max} [Nm]	2.89	5.21	5.51
Static load rating ballscrew C_0 [N]	33,800	31,800	16,000
Dynamic load rating ballscrew C_{dyn} [N]	17,300	16,600	8,800



SA spindle support

Fig. 6.5 **Critical speed n over stroke length axis L_T**

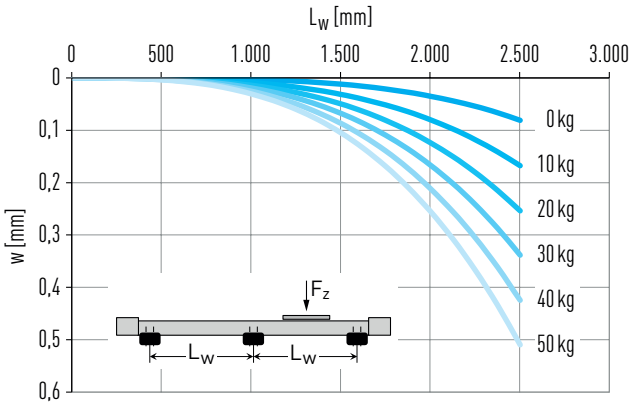


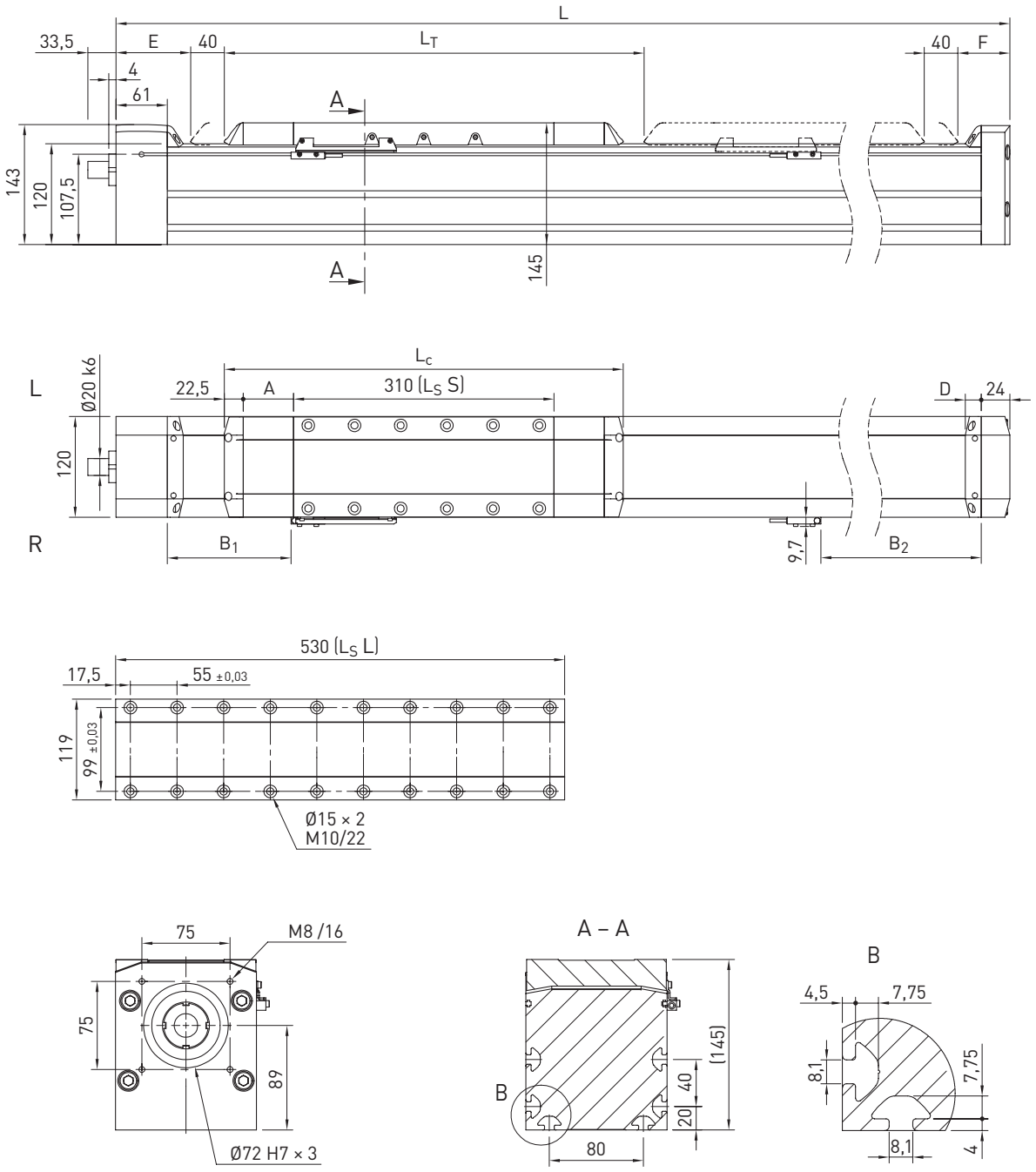
Fig. 6.6 **Deflection w over unsupported axis length L_w under payload F_z**

Table 6.18 **Mechanical properties**

	Variant without cover						Variant with cover					
	Carriage type S			Carriage type L			Carriage type S			Carriage type L		
Spindle lead [mm]	**5**	**10**	**20**	**5**	**10**	**20**	**5**	**10**	**20**	**5**	**10**	**20**
Carriage mass [kg]	1.91	2.11	2.21	2.73	2.93	3.03	2.07	2.27	2.37	2.88	3.08	3.18
Mass at 0 stroke [kg]	6.94	7.14	7.24	9.19	9.39	9.49	8.46	8.66	8.76	10.72	10.92	11.02
Mass per 1 m stroke [kg/m]	10.67						10.72					
$J_{rot.}$ [1] at 0 stroke [kgcm²]	0.82			0.97			0.99			1.14		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	1.23						1.23					
Idle torque at 0 stroke [Nm]	0.35						0.52					

[1] Rotatory moment of inertia

6.6 Dimensions and specifications of HM120S



L_S Carriage plate
L_T Stroke

Table 6.19 **Dimensions of HM120S**

	Variant without cover		Variant with cover	
	Carriage type S	**Carriage type L**	**Carriage type S**	**Carriage type L**
Total carriage length L_c [mm]	355	575	475	695
Length of cover strip deflection A [mm]	–	–	60	60
Switch position B [mm]	68.5	68.5	147.5	147.5
Switch position C [mm]	253.5	473.5	332.5	552.5
Clamp housing length D [mm]	–	–	19	19
End position at mechanical zero E [mm]	70		89	
End position at mechanical zero F [mm]	33		52	
Total length L [mm]	$L = L_T + 538$	$L = L_T + 758$	$L = L_T + 696$	$L = L_T + 916$

Table 6.20 **Load data**

	Carriage type S	Carriage type L
$F_{ydynmax}$ [1] [N]	12,230	
$F_{zdynmax}$ [1] [N]	12,230	
$M_{xdynmax}$ [Nm]	155	
$M_{ydynmax}$ [Nm]	1,296	2,642
$M_{zdynmax}$ [Nm]	1,296	2,642
z [2] [mm]	99.1	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

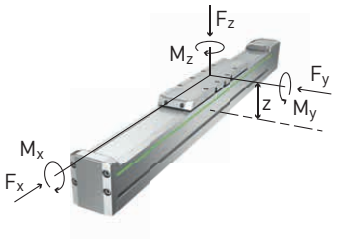


Table 6.21 **General technical data**

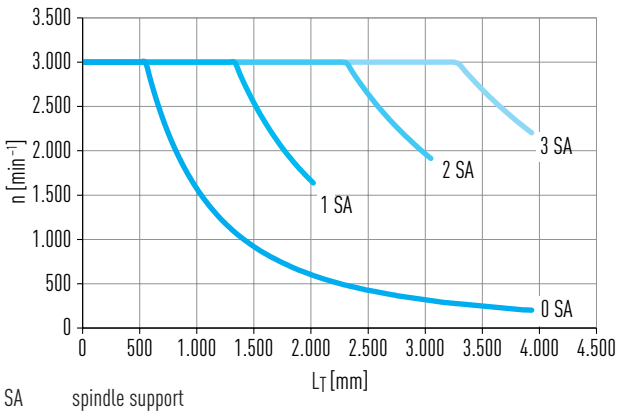
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	120
Max total length [mm]	4,473.5
Area moment of inertia of profile cross-section I_x [mm⁴]	6,235,456
Area moment of inertia of profile cross-section I_y [mm⁴]	8,646,933

Table 6.22 **Guiding**

Guiding type	QHW30CC
Static load rating C_0 [N]	48,170
Dynamic load rating C_{dyn} [N]	46,490

Table 6.23 **Drive**

	Spindle lead		
	10 mm	**20 mm**	**32 mm**
Spindle diameter [mm]	32		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	6,463	4,069	2,744
Max speed [m/s]	0.5	1.0	1.6
Max drive torque M_{A_max} [Nm]	11.14	13.80	14.82
Static load rating ballscrew C_0 [N]	84,400	50,600	32,800
Dynamic load rating ballscrew C_{dyn} [N]	35,100	22,100	14,900



SA spindle support

Fig. 6.7 **Critical speed n over stroke length axis L_T**

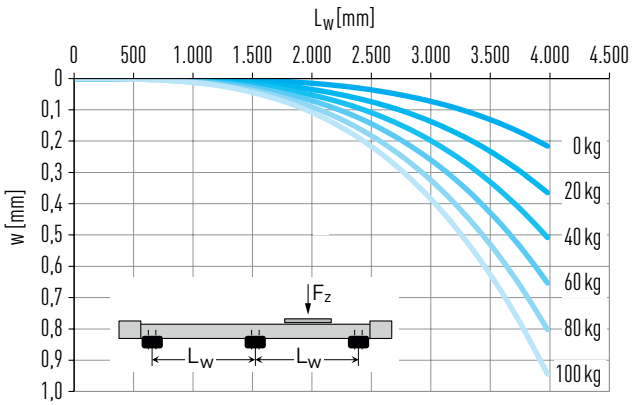


Fig. 6.8 **Deflection w over unsupported axis length L_w under payload F_z**

Table 6.24 **Mechanical properties**

	Variant without cover						Variant with cover					
	Carriage type S			Carriage type L			Carriage type S			Carriage type L		
Spindle lead [mm]	**10**	**20**	**32**	**10**	**20**	**32**	**10**	**20**	**32**	**10**	**20**	**32**
Carriage mass [kg]	6.18	6.08	6.08	8.61	8.51	8.51	6.7	6.6	6.6	9.13	9.03	9.03
Mass at 0 stroke [kg]	20.85	20.75	20.75	28.57	28.47	28.47	25.3	25.2	25.2	33.0	32.9	32.9
Mass per 1 m stroke [kg/m]	24.01						24.10					
$J_{rot.}$ [1] at 0 stroke [kgcm²]	5.77			7.55			7.05			8.83		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	8.08						8.08					
Idle torque at 0 stroke [Nm]	0.85						0.90					

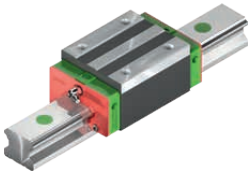
[1] Rotatory moment of inertia

7. Linear tables HT-B

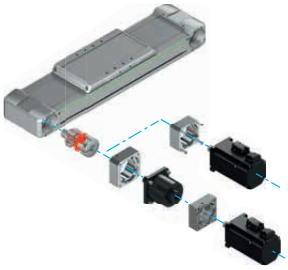
7.1 Properties of linear tables HT-B with toothed belt drive

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

Linear guideway
A high quality HIWIN double guide transfers forces and torques reliably from the carriage into the axis profile. Each carriage comes with four blocks that are guided over two parallel high precision rails. The SynchMotion™ technology with ball chain also ensures a high level of synchronism and quiet running for all sizes.

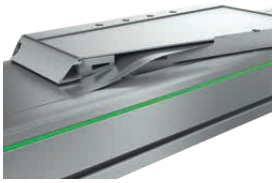


Drive connection
The symmetrical design of the HIWIN linear tables with toothed belt drive allows the attachment of motors and gears at all four sides of the drive blocks. Suitable adapters for all common motors can be found in Section 17.1.2 on Page 129 ff.



Toothed belt
The toothed belt with modern, high performance profiles (HTD form) and reinforced steel tie beams can transfer high forces under a high skipping resistance.

Cover strip
The steel cover strip protects the inside of the axis against dust and dirt. Also, when fitted with the cover strip, the axes can be used in areas with coarse, sharp edged, or hot foreign bodies. The magnetic strips integrated in the axis profile keep the strip securely in place and increase the sealing effects.



Carriages
Around each threaded hole the carriages have an additional locating hole that can be used with centring sleeves to secure the load capacity. This allows an ideal, reproducible attachment of the connecting structure. The matching centring sleeves can be found in the accessories on Page 166. Grease nipples are situated at each lube point on the carriage, making it easier to perform maintenance on the linear axis.

Energy chain
Generously dimensioned energy chains provide space for the reliable carrying of supply cables. At the same time, the energy chains are attached to the axis in a particularly compact and space-saving way. Details on the orientation of the energy chain can be found in Section 17.3 on Page 161 ff..

7.2 Order code for linear tables HT-B

HT	150	B	155	C	1234	S

HIWIN linear table

Size (profile width):
100: 100 mm
150: 150 mm
200: 200 mm
250: 250 mm

Drive type:
B: Toothed belt drive

Carriage length:
S: Short

Stroke length [mm]

Cover strip:
C: With steel cover strip
N: Without cover strip

Feed constant [mm/rotation]:
105: HT100B
155: HT150B
184: HT200B
208: HT250B

Order code for linear tables HT-B (continuation)

A	N	N	R	BR13	G0805

Axis limit switches[5]:
N: Without limit switches
A: 2 × NC, 100 mm cable, plug
B: 2 × NO, 100 mm cable, plug
C: 2 × NC, 4 m open cable end
D: 2 × NO, 5 m open cable end

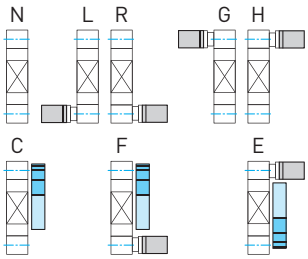
Toothed belt:
N: Standard belt

Optional distance measuring system[1]:
N: Without distance measuring system
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
D: HIWIN MAGIC, digital signal, TTL 5 V

Gearbox[4]

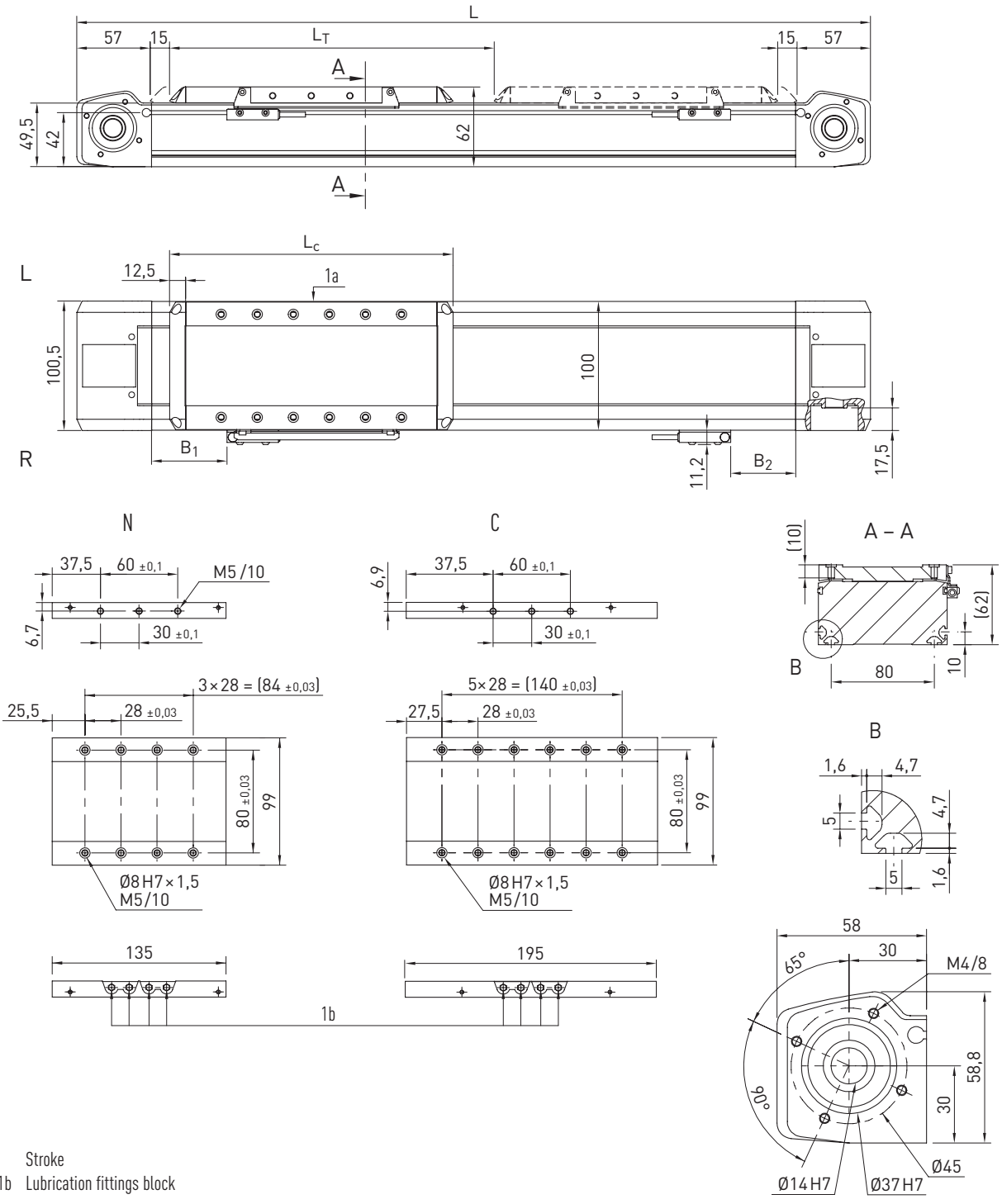
Flange type[3]

Drive interface[2] [6]:
N: None
L: Left front
R: Right front
G: Left back
H: Right back
C: None, energy chain on the right
F: Right front, energy chain on the right
E: Right back, energy chain on the right



[1] Details in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[2] If no drive interface is selected, the order code ends at this position
[3] All flange types can be found in Table 17.2 on Page 129 ff. If no gear box is selected, the order code ends at this position
[4] Suitable gearboxes for HIWIN axes can be found in Section 17.1.4.5 on Page 145 ff.
[5] Further reference switches on request
[6] Dimensions of the drive interface and the energy chain can be found on Page 161

7.3 Dimensions and specifications of HT100B



L_T Stroke
1a + 1b Lubrication fittings block

Table 7.1 **Dimensions of HT100B**

	Variant without cover N	Variant with cover C
Total carriage length L_c [mm]	160	220
Switch position B [mm]	28.5	58.5
Switch position C [mm]	20.5	50.5
Total length L [mm]	$L = L_T + 304$	$L = L_T + 364$

Table 7.2 **Load data**

	Variant without cover	Variant with cover
$F_{ydynmax}$ [1] [N]	3,350	
$F_{zdynmax}$ [1] [N]	3,575	
$M_{xdynmax}$ [Nm]	92.9	
$M_{ydynmax}$ [Nm]	159.1	205,5
$M_{zdynmax}$ [Nm]	149.1	192,6
z [2] [mm]	38.6	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

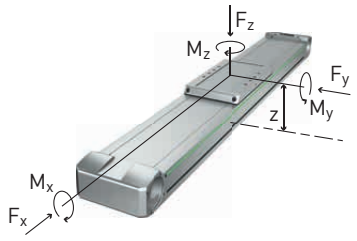


Table 7.3 **General technical data**

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
Max 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 **Guiding**

Guiding type	QEH15CA
Static load rating C_0 [N]	15,280
Dynamic load rating C_{dyn} [N]	12,530

Table 7.5 **Drive**

Drive element	B25HTD5
Feed constant [mm/rotation]	105
Effective diameter of toothed belt pulley [mm]	33.42

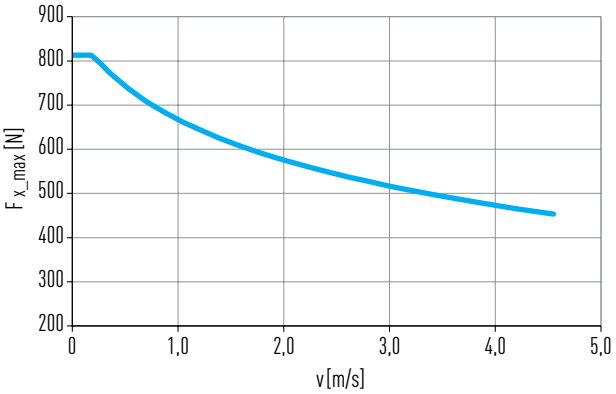


Fig. 7.1 **Max feed force F_x as a function of axis speed v**

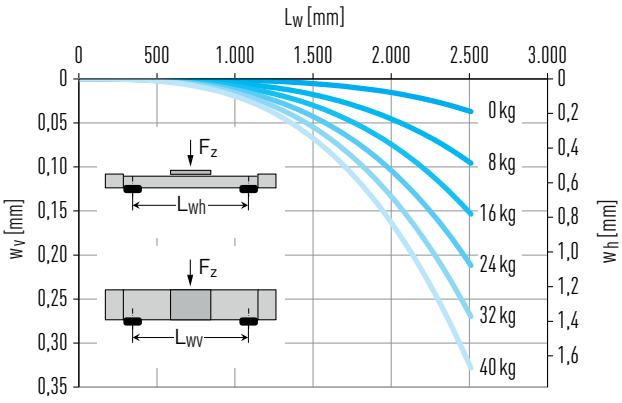


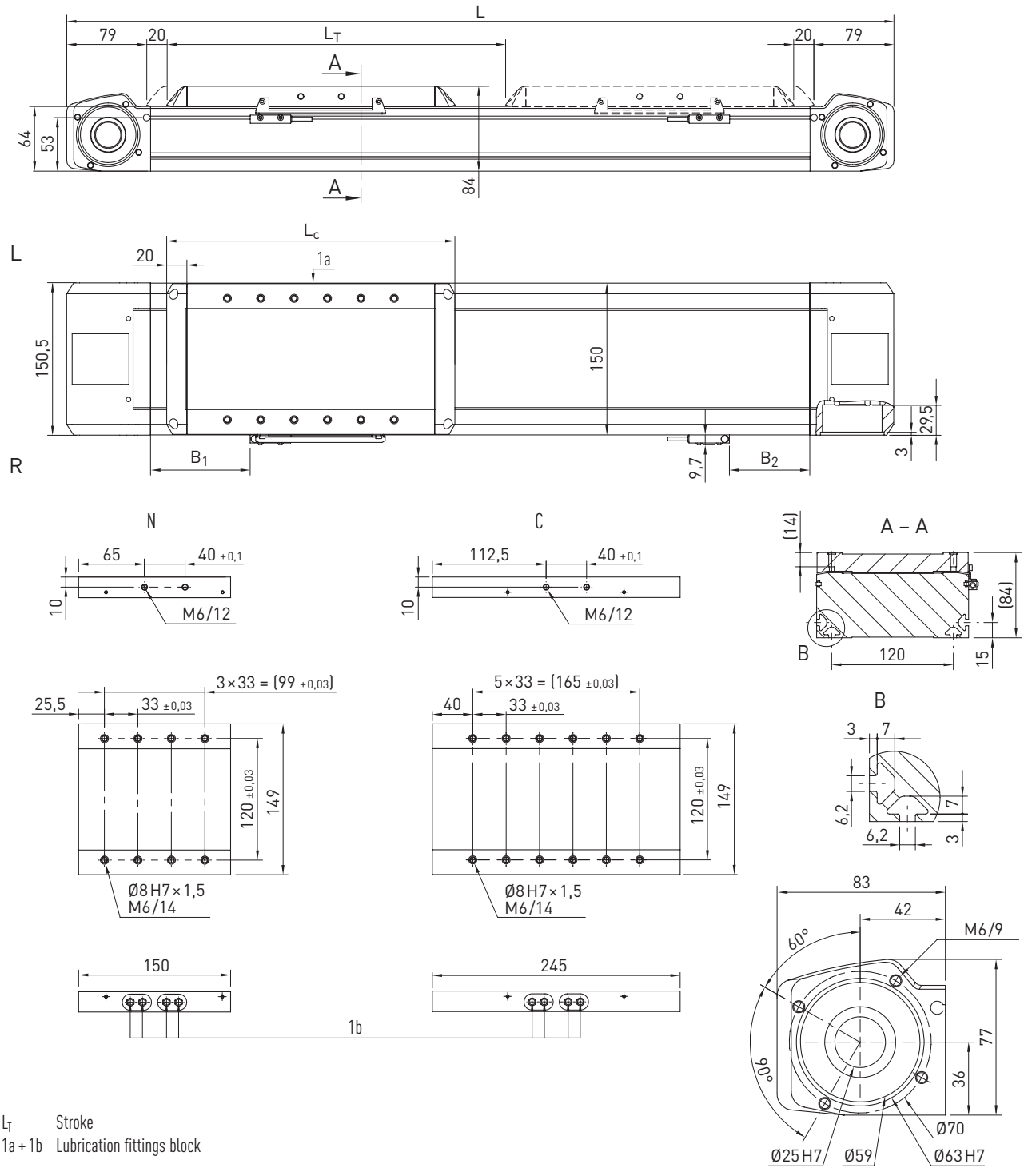
Fig. 7.2 **Deflection w over unsupported axis length L_w under payload F_z**

Table 7.6 **Mechanical properties**

	Variant without cover N	Variant with cover C
Carriage mass [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] Rotatory moment of inertia

7.4 Dimensions and specifications of HT150B



L_T Stroke
1a + 1b Lubrication fittings block

Table 7.7 **Dimensions of HT150B**

	Variant without cover N	Variant with cover C
Total carriage length L_c [mm]	190	285
Switch position B [mm]	51	98.5
Switch position C [mm]	32	79.5
Total length L [mm]	$L = L_T + 388$	$L = L_T + 483$

Table 7.8 **Load data**

	Variant without cover	Variant with cover
$F_{ydynmax}$ [1] [N]	3,350	
$F_{zdynmax}$ [1] [N]	5,233	
$M_{xdynmax}$ [Nm]	245.9	
$M_{ydynmax}$ [Nm]	245.9	345,3
$M_{zdynmax}$ [Nm]	157.5	221,1
z [2] [mm]	51.48	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

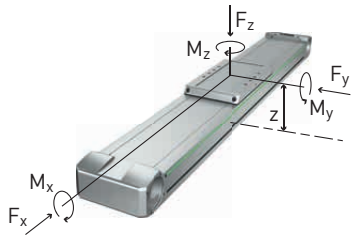


Table 7.9 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	1,300
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	32
Typical load capacity [kg]	80
Max 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] Longer axes upon request

Table 7.10 **Guiding**

Guiding type	QEH15CA
Static load rating C_0 [N]	15,280
Dynamic load rating C_{dyn} [N]	12,530

Table 7.11 **Drive**

Drive element	B40HTD5
Feed constant [mm/rotation]	155
Effective diameter of toothed belt pulley [mm]	49.34

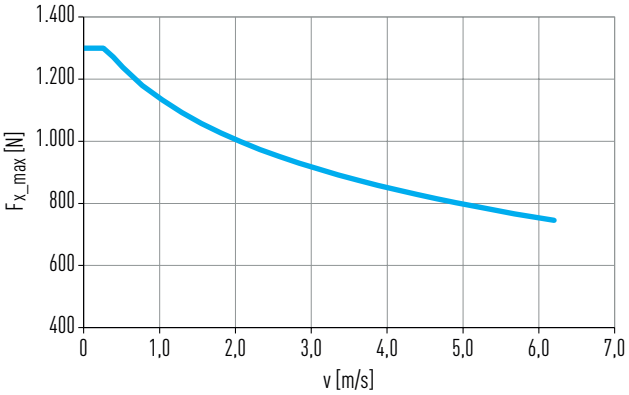


Fig. 7.3 **Max feed force F_x as a function of axis speed v**

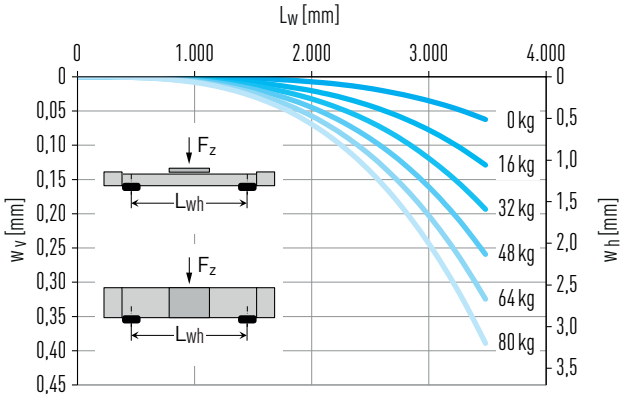


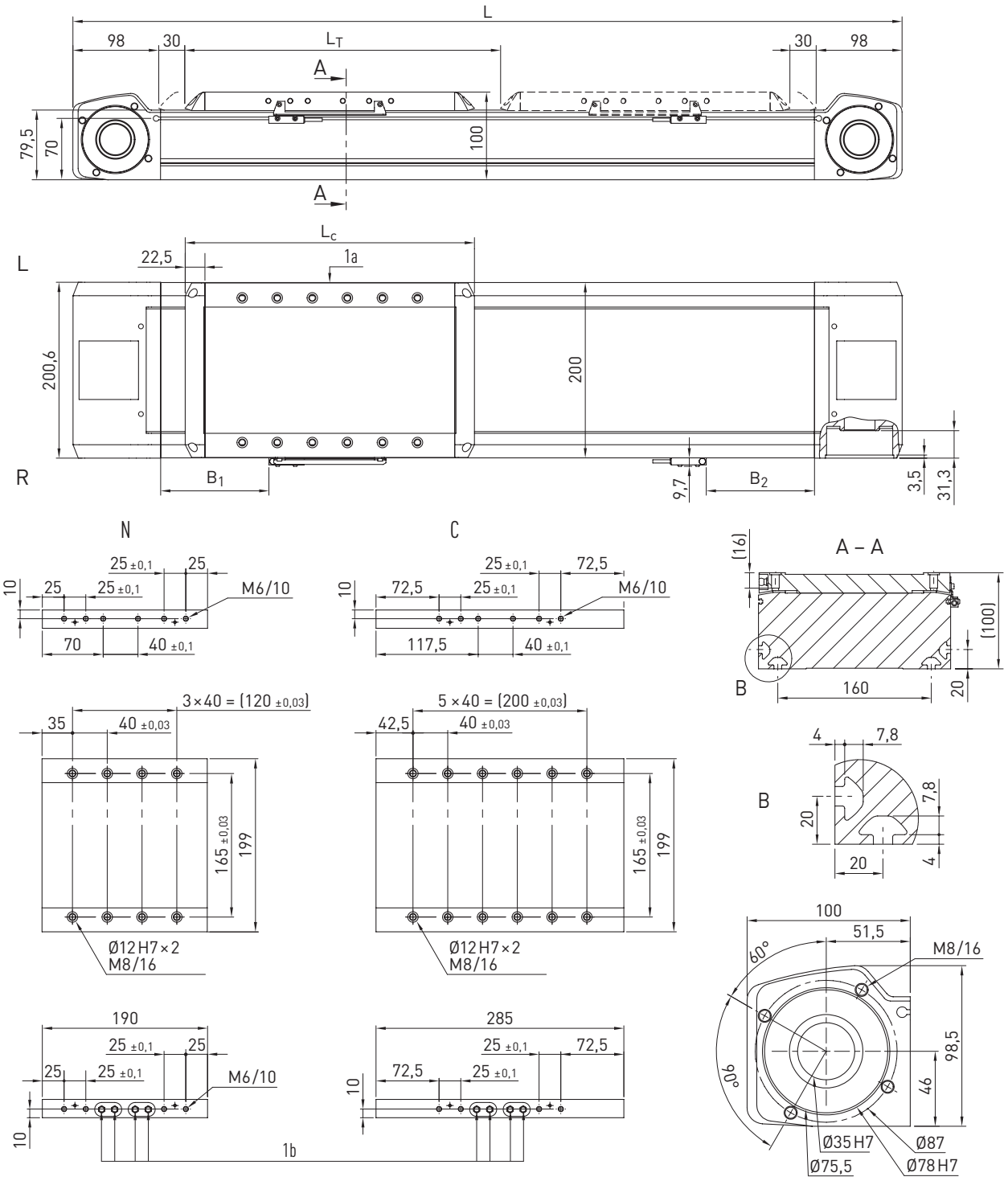
Fig. 7.4 **Deflection w over unsupported axis length L_w under payload F_z**

Table 7.12 **Mechanical properties**

	Variant without cover N	Variant with cover C
Carriage mass [kg]	2.33	2.94
Mass at 0 stroke [kg]	8.33	10.03
Mass per 1 m stroke [kg/m]	10.87	11.16
$J_{rot.}$ [1] [kgcm²]	5.09	5.09
Idle torque at 0 stroke [Nm]	1.00	1.50

[1] Rotatory moment of inertia

7.5 Dimensions and specifications of HT200B



L_T Stroke
1a + 1b Lubrication fittings block

Table 7.13 **Dimensions of HT200B**

	Variant without cover N	Variant with cover C
Total carriage length L_c [mm]	235	330
Switch position B [mm]	76	123.5
Switch position C [mm]	76	123.5
Total length L [mm]	$L = L_T + 491$	$L = L_T + 586$

Table 7.14 **Load data**

	Variant without cover	Variant with cover
$F_{ydynmax}$ [1] [N]	7,800	
$F_{zdynmax}$ [1] [N]	9,638	
$M_{xdynmax}$ [Nm]	655.4	
$M_{ydynmax}$ [Nm]	544.6	771,1
$M_{zdynmax}$ [Nm]	440.7	624,0
z [2] [mm]	58.48	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

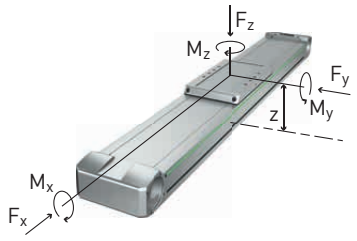


Table 7.15 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	3,000
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	88
Typical load capacity [kg]	150
Max 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] Longer axes upon request

Table 7.16 **Guiding**

Guiding type	QHH20CA
Static load rating C_0 [N]	25,630
Dynamic load rating C_{dyn} [N]	23,080

Table 7.17 **Drive**

Drive element	B50HTD8
Feed constant [mm/rotation]	184
Effective diameter of toothed belt pulley [mm]	58.57

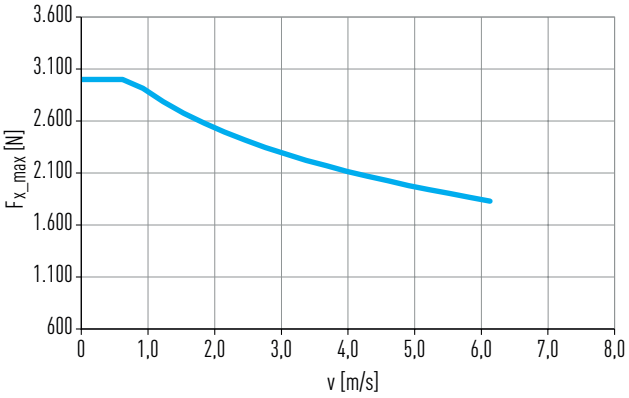


Fig. 7.5 **Max feed force F_x as a function of axis speed v**

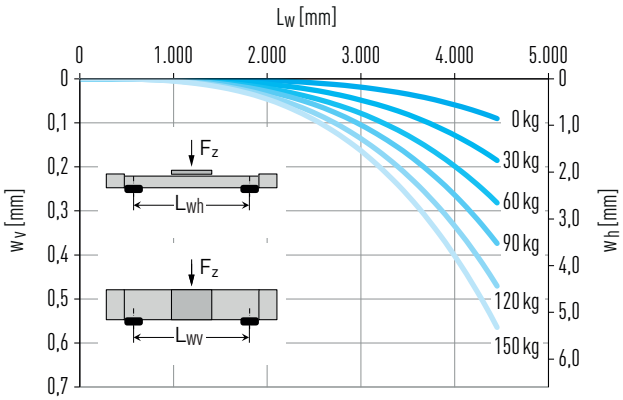


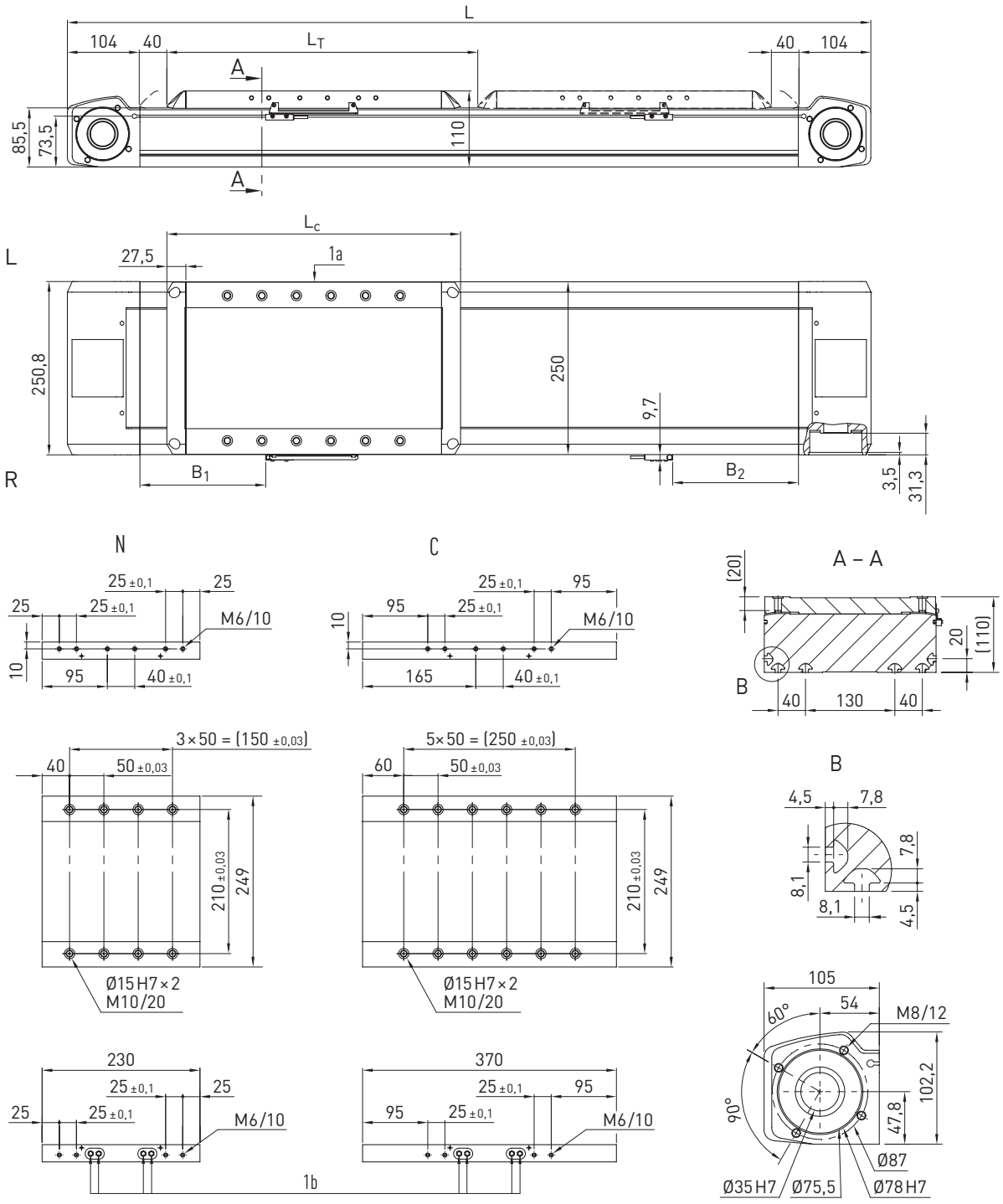
Fig. 7.6 **Deflection w over unsupported axis length L_w under payload F_z**

Table 7.18 **Mechanical properties**

	Variant without cover N	Variant with cover C
Carriage mass [kg]	4.40	5.19
Mass at 0 stroke [kg]	17.15	19.65
Mass per 1 m stroke [kg/m]	17.25	17.57
$J_{rot.}$ [1] [kgcm²]	18.37	18.37
Idle torque at 0 stroke [Nm]	2.00	2.50

[1] Rotatory moment of inertia

7.6 Dimensions and specifications of HT250B



L_T Stroke

1a + 1b Lubrication fittings block

Table 7.19 **Dimensions of HT250B**

	Variant without cover N	Variant with cover C
Total carriage length L_c [mm]	285	425
Switch position B [mm]	112	182
Switch position C [mm]	112	182
Total length L [mm]	$L = L_T + 573$	$L = L_T + 713$

Table 7.20 **Load data**

	Variant without cover	Variant with cover
$F_{ydynmax}$ [1] [N]	11,600	
$F_{zdynmax}$ [1] [N]	13,271	
$M_{xdynmax}$ [Nm]	1,134.7	
$M_{ydynmax}$ [Nm]	1,028.5	1,294.0
$M_{zdynmax}$ [Nm]	899	624.0
z [2] [mm]	68.07	

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

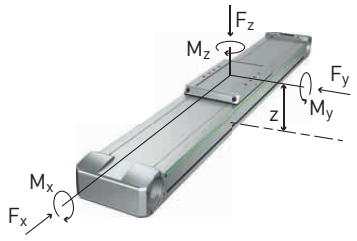


Table 7.21 **General technical data**

Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	4,500
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	149
Typical load capacity [kg]	250
Max 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] Longer axes upon request

Table 7.22 **Guiding**

Guiding type	QHH25CA
Static load rating C_0 [N]	33,680
Dynamic load rating C_{dyn} [N]	31,780

Table 7.23 **Drive**

Drive element	B75HTD8
Feed constant [mm/rotation]	208
Effective diameter of toothed belt pulley [mm]	66.21

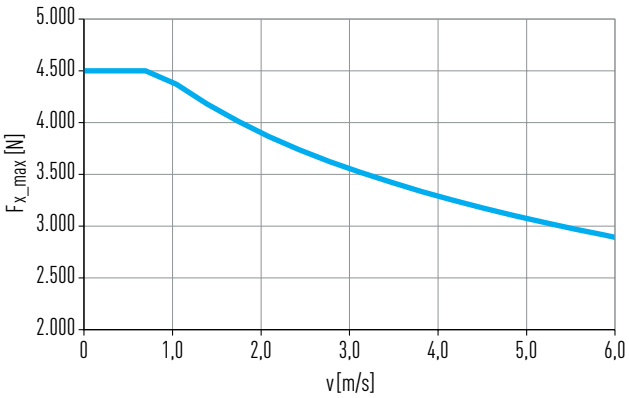


Fig. 7.7 **Max feed force F_x as a function of axis speed v**

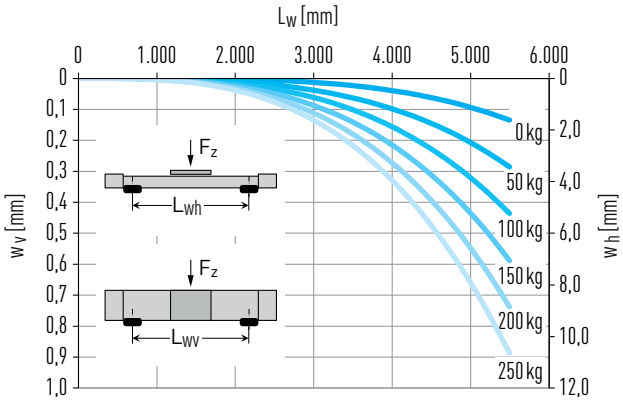


Fig. 7.8 **Deflection w over unsupported axis length L_w under payload F_z**

Table 7.24 **Mechanical properties**

	Variant without cover N	Variant with cover C
Carriage mass [kg]	7.93	9.67
Mass at 0 stroke [kg]	28.71	33.69
Mass per 1 m stroke [kg/m]	22.48	22.87
$J_{rot.}$ [1] [kgcm²]	36.38	36.38
Idle torque at 0 stroke [Nm]	4.00	4.50

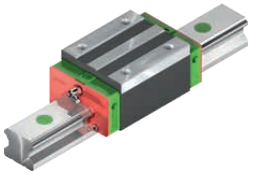
[1] Rotatory moment of inertia

8. Linear tables HT-S

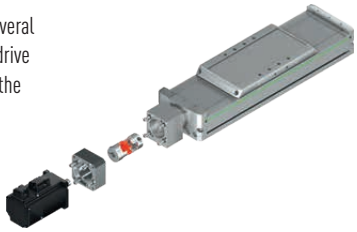
8.1 Properties of linear tables HT-S with ballscrew drive

HIWIN linear tables with ballscrew drive are flexible positioning modules with integrated HIWIN double guide. They are specifically ideal for applications moving high loads to high precision.

Linear guideway
A high quality HIWIN double guide transfers forces and torques reliably from the carriage into the axis profile. Each carriage comes with four blocks that are guided over two parallel high precision rails. The SynchMotion™ technology with ball chain also ensures a high level of synchronism and quiet running for all sizes.

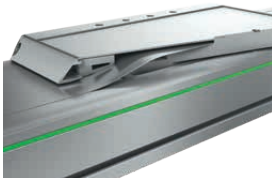


Motor connections and belt drive
The motor adapters are made up of several parts that offer an extremely flexible drive interface for attaching and modifying the drive installation.



Ballscrew
The integrated HIWIN ballscrews exhibit high lead accuracy and rigidity for precise positioning. Each size comes with various spindle leads for the optimal solution to feed force and dynamic response requirements.

Cover strip
The steel cover strip protects the inside of the axis against dust and dirt. Also, when fitted with the cover strip, the axes can be used in areas with coarse, sharp edged, or hot foreign bodies. The magnetic strips integrated in the axis profile keep the strip securely in place and increase the sealing effects.



Carriages
Around each threaded hole the carriages have an additional locating hole that can be used with centring sleeves to secure the load capacity. This allows an ideal, reproducible attachment of the connecting structure. The matching centring sleeves can be found in the accessories on Page 166. Grease nipples are situated at each lube point on the carriage, making it easier to perform maintenance on the linear axis.

Energy chain
Generously dimensioned energy chains provide space for the reliable carrying of supply cables. At the same time, the energy chains are attached to the axis in a particularly compact and space-saving way. Details on the orientation of the energy chain can be found in Section 17.3 on Page 161 ff..

Spindle support
In applications involving long travel distances and high speeds, the spindle quickly reaches its critical speed. It must therefore be mounted on adequate supports that prevent the spindle from deflecting. Up to four moving supports can be mounted at each side of the carriage of HIWIN spindle axes. Travel is therefore possible at full speed even over long strokes.

8.2 Order code for linear tables HT-S

HT	150	S	010	C	1234	S

HIWIN linear table

Size (profile width):
100: 100 mm
150: 150 mm
200: 200 mm
250: 250 mm

Drive type:
S: Ballscrew

Carriage length:
S: Short

Stroke length [mm]

Cover strip:
C: With steel cover strip
N: Without cover strip

Spindle lead [mm]:
005/010/016: HT100S
005/010/020: HT150S
005/010/025: HT200S
010/020/032: HT250S

Order code for linear tables HT-S (continuation)

A	N	N	S	BR04

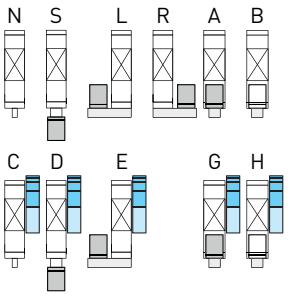
Axis limit switches[4]:
N: Without limit switches
A: 2 × NC, 100 mm cable, plug
B: 2 × NO, 100 mm cable, plug
C: 2 × NC, 4 m open cable end
D: 2 × NO, 5 m open cable end

Spindle supports:
N: Without spindle supports
1: One spindle support per side
2: Two spindle supports per side
3: Three spindle supports per side
4: Four spindle supports per side

Optional distance measuring system[1]:
N: Without distance measuring system
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
D: HIWIN MAGIC, digital signal, TTL 5 V

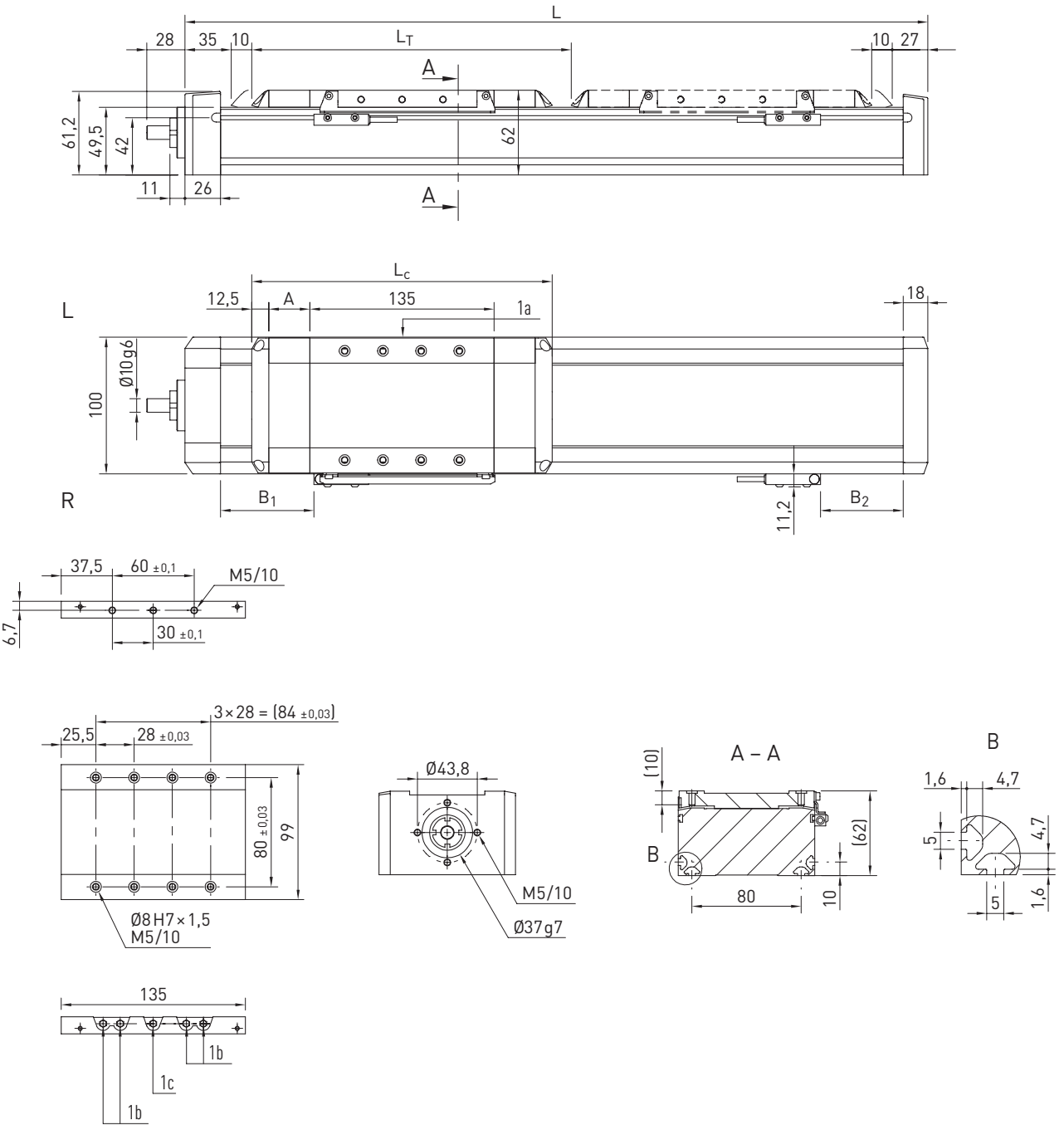
Flange type of motor[3]

Drive interface[2] [5]:
N: None
S: Straight
L: Left
R: Right
A: Top
B: Bottom
C: None, energy chain on the right
D: Straight, energy chain on the right
E: Left, energy chain on the right
G: Top, energy chain on the right
H: Bottom, energy chain on the right



[1] Detailed information in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[2] If no drive interface is selected, the order code ends at this position
[3] All flange types can be found in Table 17.13 on Page 150 ff. If no motor is selected, the order code ends at this position
[4] Further reference switches on request
[5] Dimensions of the drive interface and the energy chain can be found on Page 161

8.3 Dimensions and specifications of HT100S



L_T Stroke
1a + 1b Lubrication fittings block
1c Lubrication fittings ball screw

Table 8.1 **Dimensions of HT100S**

	Variant without cover	Variant with cover
Total carriage length L_c [mm]	160	220
Length of cover strip deflection A [mm]	–	30
Switch position B [mm]	33.5	63.5
Switch position C [mm]	25.5	55.5
Total length L [mm]	$L = L_T + 242$	$L = L_T + 302$

Table 8.2 **Load data**

$F_{ydynmax}$ [1] [N]	3,350
$F_{zdynmax}$ [1] [N]	5,340
$M_{xdynmax}$ [Nm]	139
$M_{ydynmax}$ [Nm]	280
$M_{zdynmax}$ [Nm]	176
z [2] [mm]	36.6

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

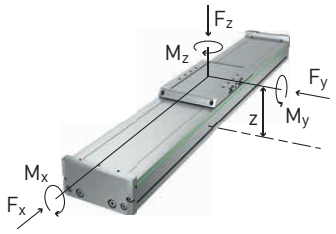


Table 8.3 **General technical data**

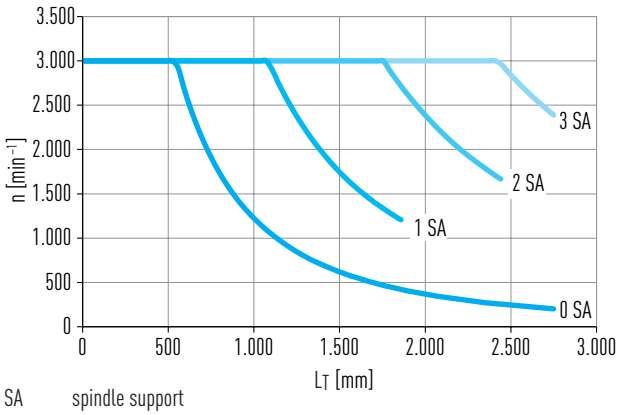
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	40
Max total length [mm]	2,978
Area moment of inertia of profile cross-section I_x [mm⁴]	299,377
Area moment of inertia of profile cross-section I_y [mm⁴]	1,516,426

Table 8.4 **Guiding**

Guiding type	QEH15SA
Static load rating C_0 [N]	8,790
Dynamic load rating C_{dyn} [N]	8,560

Table 8.5 **Drive**

	Spindle lead		
	5 mm	**10 mm**	**16 mm**
Spindle diameter [mm]	15		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	2,449	1,924	1,924
Max speed [m/s]	0.25	0.50	0.80
Max drive torque M_{A_max} [Nm]	2.35	3.46	5.30
Static load rating ballscrew C_0 [N]	22,167	17,311	17,944
Dynamic load rating ballscrew C_{dyn} [N]	13,300	10,450	10,450



SA spindle support

Fig. 8.1 **Critical speed n over stroke length axis L_T**

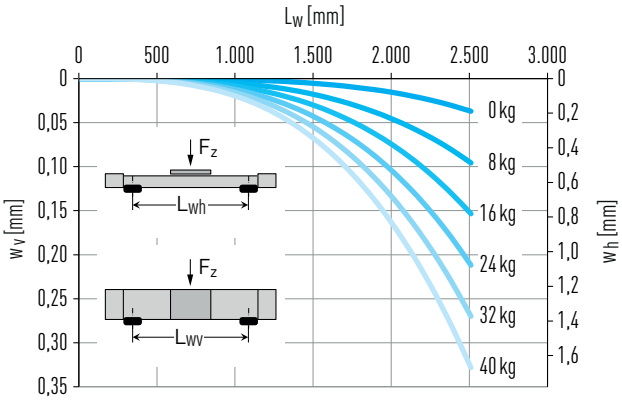


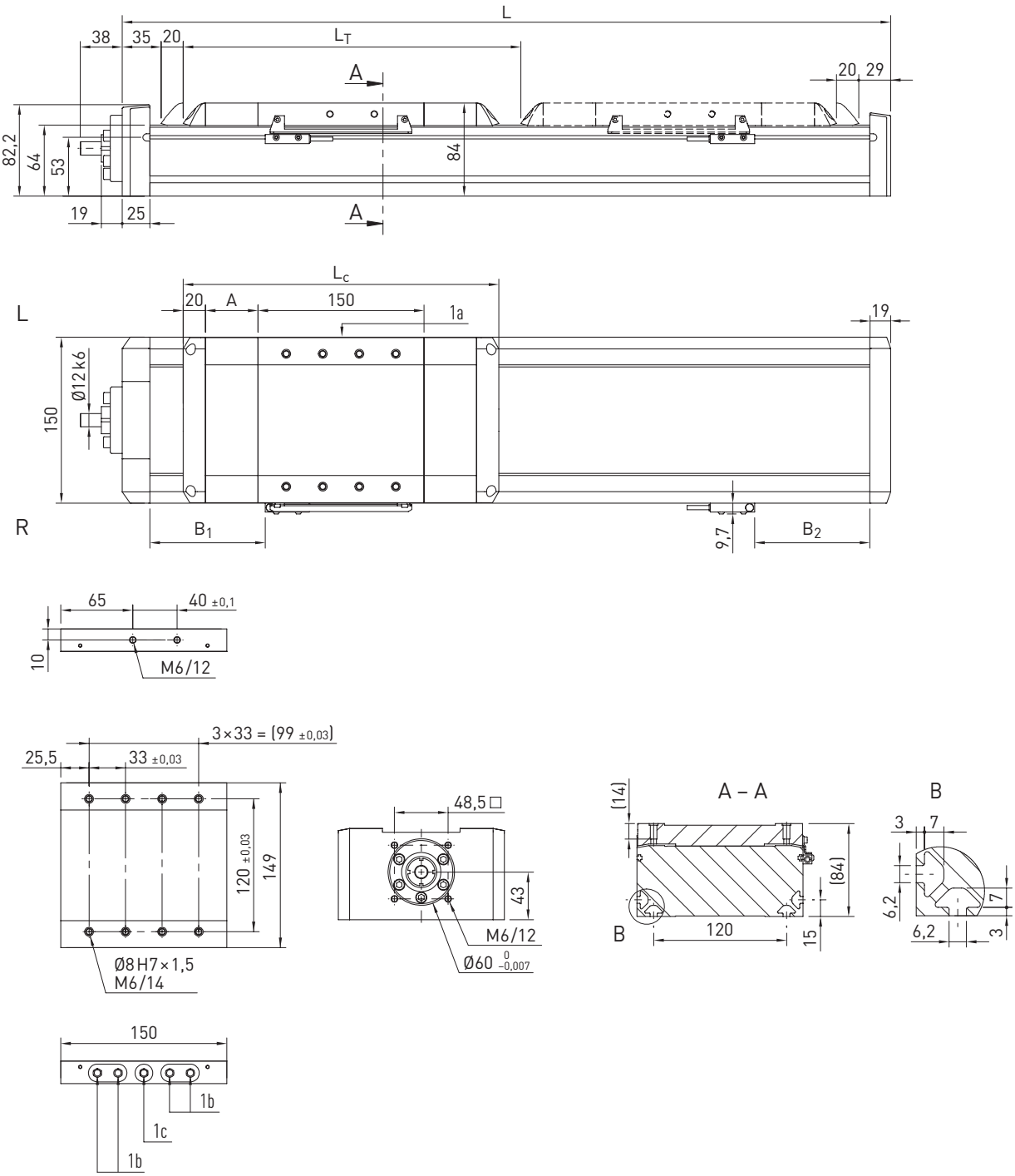
Fig. 8.2 **Deflection w over unsupported axis length L_w under payload F_z**

Table 8.6 **Mechanical properties**

	Variant without cover			Variant with cover		
Spindle lead [mm]	**5**	**10**	**16**	**5**	**10**	**16**
Carriage mass [kg]	1.15	1.14	1.22	1.28	1.28	1.35
Mass at 0 stroke [kg]	3.79	3.79	3.86	4.26	4.25	4.33
Mass per 1 m stroke [kg/m]	7.67			7.85		
$J_{rot.}$ [1] at 0 stroke [kgcm²]	0.16			0.19		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	0.39			0.39		
Idle torque at 0 stroke [Nm]	0.4			0.5		

[1] Rotatory moment of inertia

8.4 Dimensions and specifications of HT150S



L_T Stroke
1a + 1b Lubrication fittings block
1c Lubrication fittings ball screw

Table 8.7 **Dimensions of HT150S**

	Variant without cover	Variant with cover
Total carriage length L_c [mm]	190	285
Length of cover strip deflection A [mm]	–	47.5
Switch position B [mm]	55.5	103
Switch position C [mm]	55.5	103
Total length L [mm]	$L = L_T + 294$	$L = L_T + 389$

Table 8.8 **Load data**	
$F_{ydynmax}$ [1] [N]	3,350
$F_{zdynmax}$ [1] [N]	7,256
$M_{xdynmax}$ [Nm]	341
$M_{ydynmax}$ [Nm]	337
$M_{zdynmax}$ [Nm]	156
z [2] [mm]	54.5

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

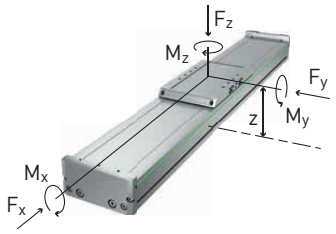
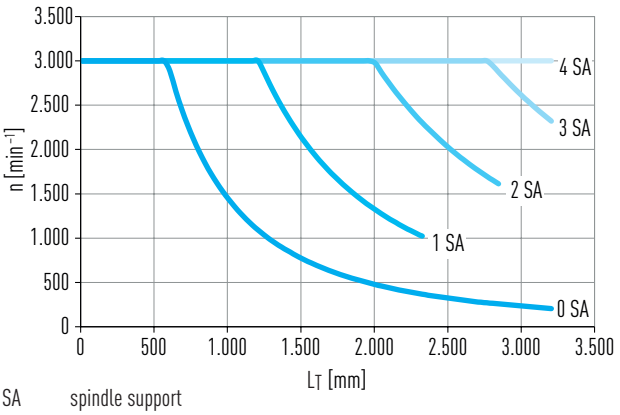


Table 8.9 **General technical data**	
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	80
Max total length [mm]	3,468
Area moment of inertia of profile cross-section I_x [mm⁴]	907,754
Area moment of inertia of profile cross-section I_y [mm⁴]	7,417,610

Table 8.10 **Guiding**	
Guiding type	QEH15CA
Static load rating C_0 [N]	15,280
Dynamic load rating C_{dyn} [N]	12,530

Table 8.11 **Drive**			
	Spindle lead		
	5 mm	**10 mm**	**20 mm**
Spindle diameter [mm]	20		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	3,186	3,057	1,620
Max speed [m/s]	0.25	0.50	1.00
Max drive torque M_{A_max} [Nm]	3.14	5.46	5.76
Static load rating ballscrew C_0 [N]	33,800	31,800	16,000
Dynamic load rating ballscrew C_{dyn} [N]	17,300	16,600	8,800



SA spindle support

Fig. 8.3 **Critical speed n over stroke length axis L_T**

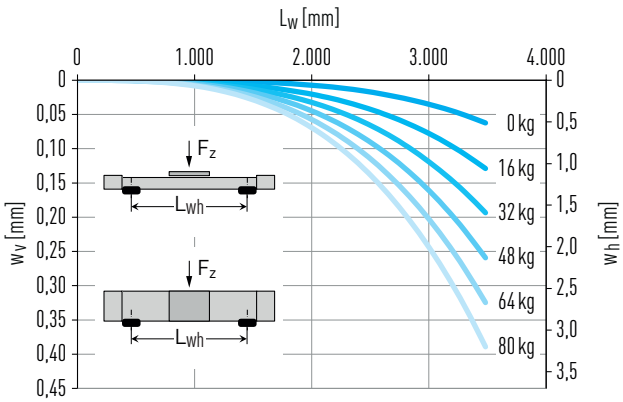
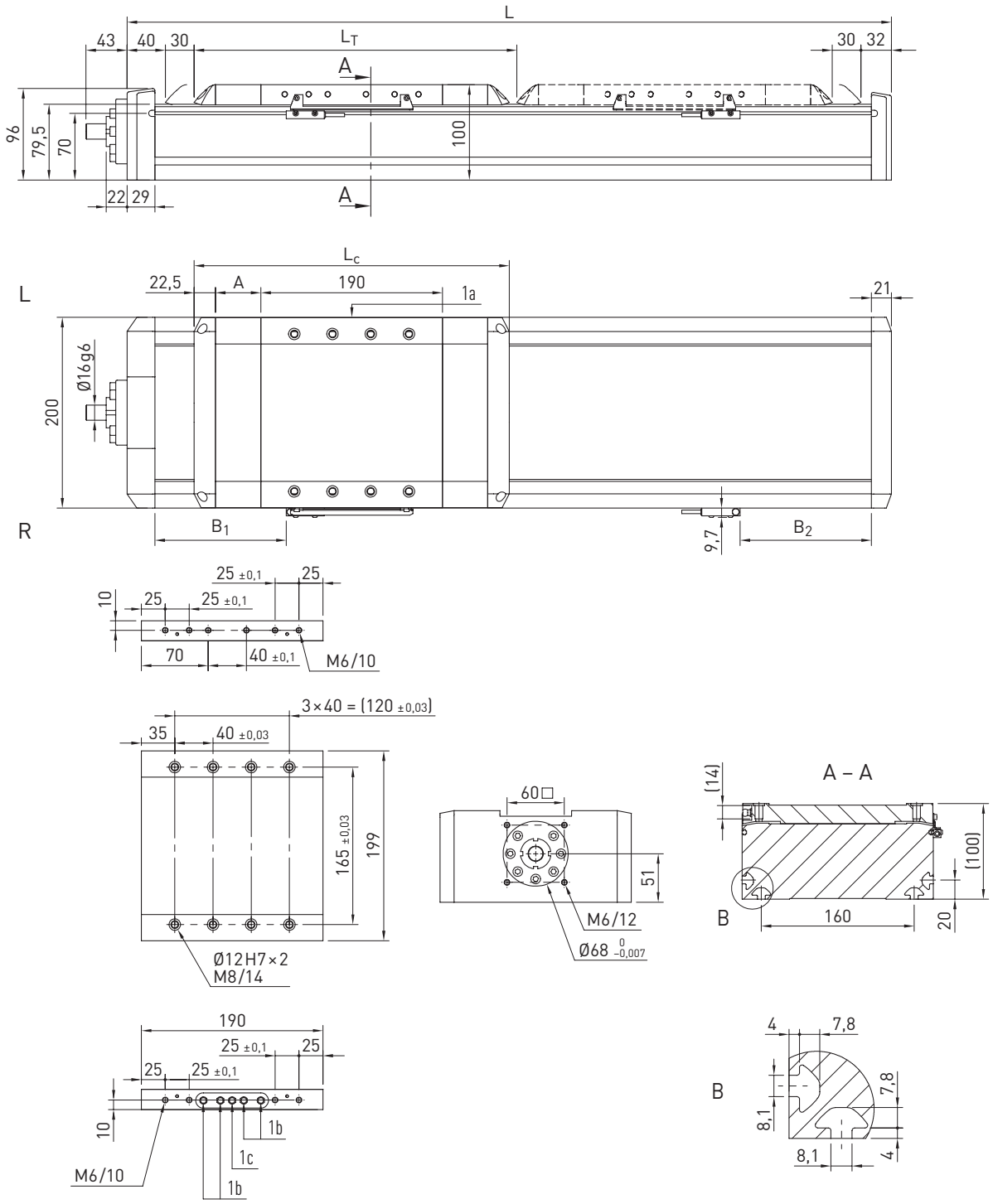


Fig. 8.4 **Deflection w over unsupported axis length L_w under payload F_z**

Table 8.12 **Mechanical properties**						
	Variant without cover			Variant with cover		
Spindle lead [mm]	**5**	**10**	**20**	**5**	**10**	**20**
Carriage mass [kg]	2.26	2.40	2.49	2.73	2.88	2.96
Mass at 0 stroke [kg]	7.66	7.80	7.88	9.29	9.43	9.52
Mass per 1 m stroke [kg/m]	12.89			13.17		
$J_{rot.}$ [1] at 0 stroke [kgcm²]	0.69			0.81		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	1.23			1.23		
Idle torque at 0 stroke [Nm]	0.60			0.70		

[1] Rotatory moment of inertia

8.5 Dimensions and specifications of HT200S



L_T Stroke
1a + 1b Lubrication fittings block
1c Lubrication fittings ball screw

Table 8.13 **Dimensions of HT200S**

	Variant without cover	Variant with cover
Total carriage length L_c [mm]	235	330
Length of cover strip deflection A [mm]	–	47.5
Switch position B [mm]	89	136.5
Switch position C [mm]	89	136.5
Total length L [mm]	$L = L_T + 367$	$L = L_T + 462$

Table 8.14 **Load data**

$F_{ydynmax}$ [1] [N]	7,800
$F_{zdynmax}$ [1] [N]	12,143
$M_{xdynmax}$ [Nm]	826
$M_{ydynmax}$ [Nm]	686
$M_{zdynmax}$ [Nm]	441
z [2] [mm]	58

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

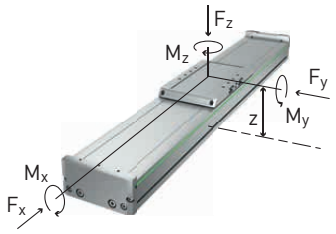


Table 8.15 **General technical data**

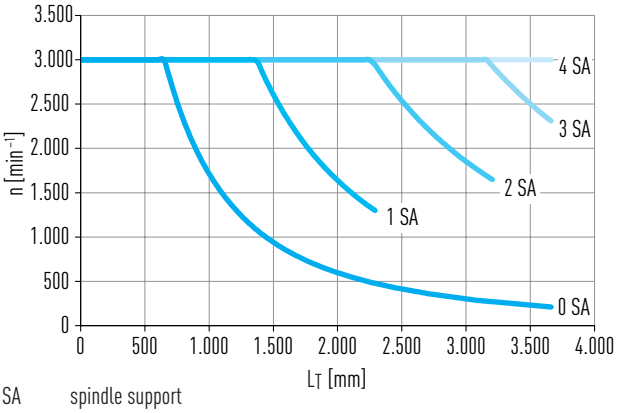
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	150
Max total length [mm]	3,965
Area moment of inertia of profile cross-section I_x [mm⁴]	2,071,928
Area moment of inertia of profile cross-section I_y [mm⁴]	19,658,810

Table 8.16 **Guiding**

Guiding type	QHH20CA
Static load rating C_0 [N]	25,630
Dynamic load rating C_{dyn} [N]	23,080

Table 8.17 **Drive**

	Spindle lead		
	5 mm	**10 mm**	**25 mm**
Spindle diameter [mm]	25		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	3,517	3,517	1,786
Max speed [m/s]	0.25	0.50	1.25
Max drive torque M_{A_max} [Nm]	3.60	6.40	7.91
Static load rating ballscrew C_0 [N]	43,000	42,600	20,200
Dynamic load rating ballscrew C_{dyn} [N]	19,100	19,100	9,700



SA spindle support

Fig. 8.5 **Critical speed n over stroke length axis L_T**

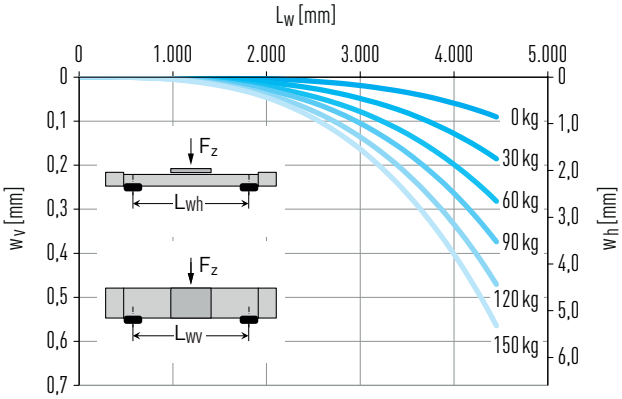


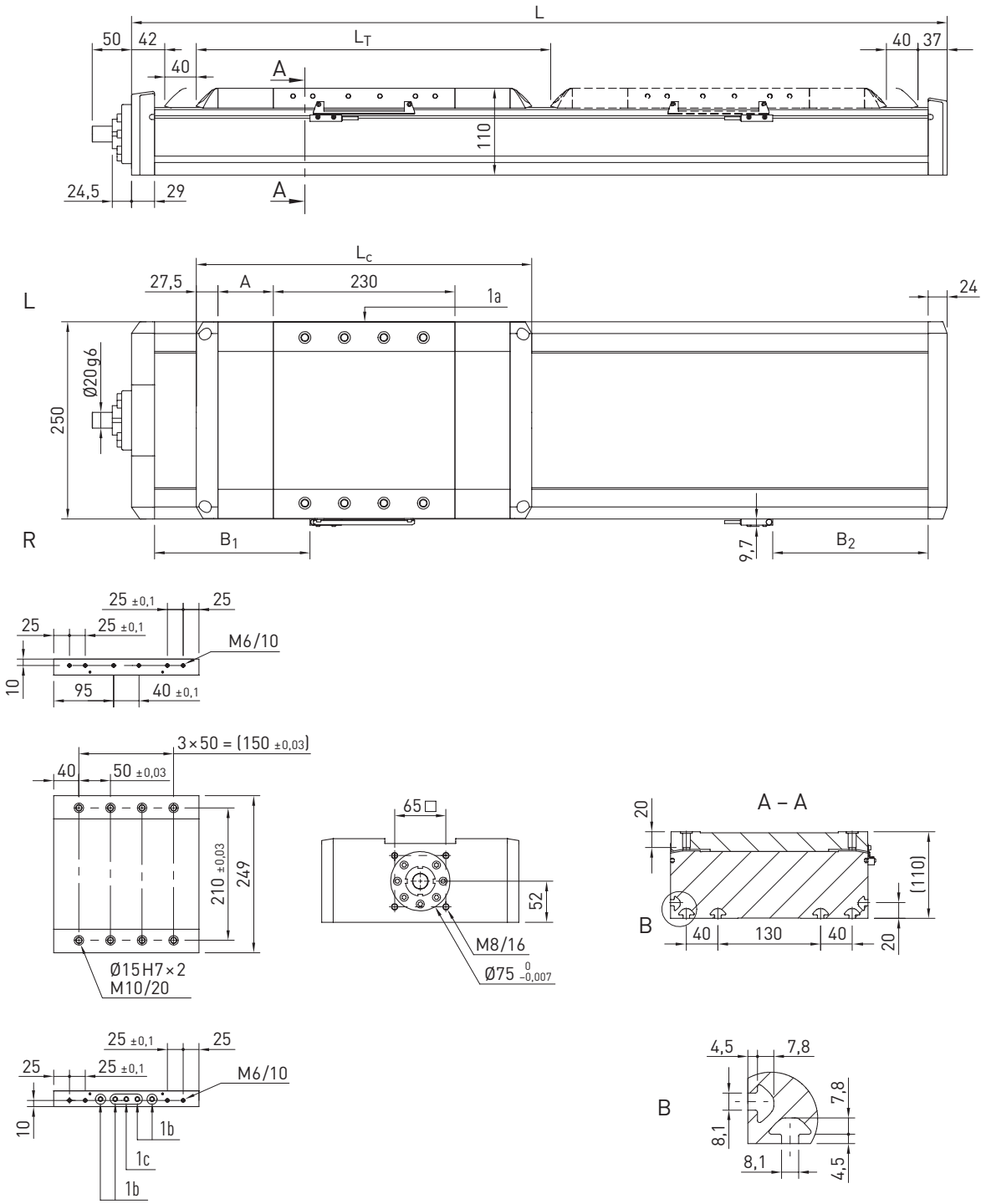
Fig. 8.6 **Deflection w over unsupported axis length L_w under payload F_z**

Table 8.18 **Mechanical properties**

	Variant without cover			Variant with cover		
Spindle lead [mm]	**5**	**10**	**25**	**5**	**10**	**25**
Carriage mass [kg]	4.40	4.50	4.63	5.00	5.09	5.22
Mass at 0 stroke [kg]	14.24	14.33	14.46	16.90	16.99	17.12
Mass per 1 m stroke [kg/m]	20.30			20.61		
$J_{rot.}$ [1] at 0 stroke [kgcm²]	2.01			2.30		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	3.01			3.01		
Idle torque at 0 stroke [Nm]	0.80			1.00		

[1] Rotatory moment of inertia

8.6 Dimensions and specifications of HT250S



L_T Stroke
1a + 1b Lubrication fittings block
1c Lubrication fittings ball screw

Table 8.19 **Dimensions of HT250S**

	Variant without cover	Variant with cover
Total carriage length L_c [mm]	285	425
Length of cover strip deflection A [mm]	–	70
Switch position B [mm]	126	196
Switch position C [mm]	126	196
Total length L [mm]	$L = L_T + 444$	$L = L_T + 584$

Table 8.20 **Load data**	
$F_{ydynmax}$ [1] [N]	11,600
$F_{zdynmax}$ [1] [N]	15,522
$M_{xdynmax}$ [Nm]	1,327
$M_{ydynmax}$ [Nm]	1,149
$M_{zdynmax}$ [Nm]	858
z [2] [mm]	68

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

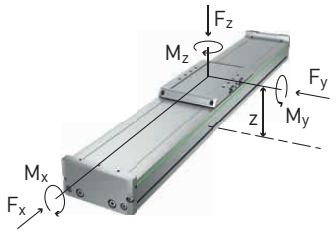
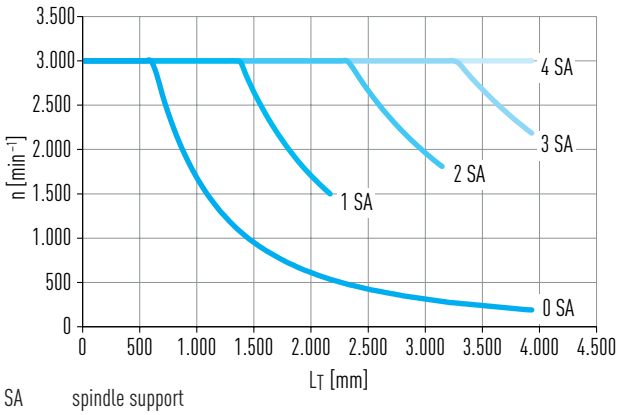


Table 8.21 **General technical data**	
Repeatability [mm]	± 0.02
Max acceleration [m/s²]	15
Typical load capacity [kg]	250
Max total length [mm]	4,457
Area moment of inertia of profile cross-section I_x [mm⁴]	3,265,771
Area moment of inertia of profile cross-section I_y [mm⁴]	39,262,043

Table 8.22 **Guiding**	
Guiding type	QHH25CA
Static load rating C_0 [N]	33,680
Dynamic load rating C_{dyn} [N]	31,780

Table 8.23 **Drive**			
	Spindle lead		
	10 mm	**20 mm**	**32 mm**
Spindle diameter [mm]	32		
Axial play [mm]	0.02		
Max feed force F_{x_max} [N]	5,300	4,069	2,744
Max speed [m/s]	0.50	1.00	1.60
Max drive torque M_{A_max} [Nm]	11.79	14.45	15.47
Static load rating ballscrew C_0 [N]	84,400	50,600	32,800
Dynamic load rating ballscrew C_{dyn} [N]	35,100	22,100	14,900



SA spindle support

Fig. 8.8 **Critical speed n over stroke length axis L_T**

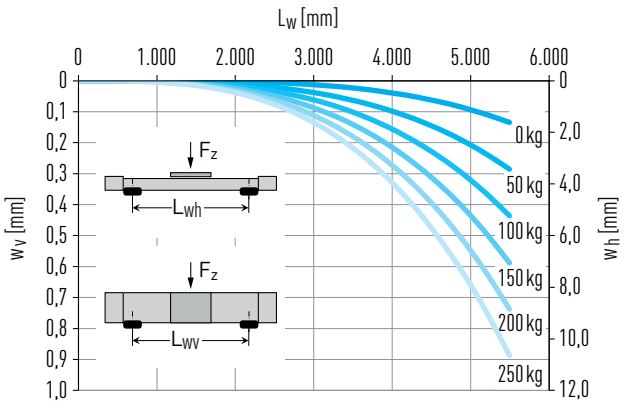


Fig. 8.7 **Deflection w over unsupported axis length L_w under payload F_z**

Table 8.24 **Mechanical properties**						
	Variant without cover			Variant with cover		
Spindle lead [mm]	**10**	**20**	**32**	**10**	**20**	**32**
Carriage mass [kg]	8.16	8.30	8.32	9.55	9.69	9.71
Mass at 0 stroke [kg]	23.86	24.00	24.02	29.49	29.63	29.64
Mass per 1 m stroke [kg/m]	27.73			28.12		
$J_{rot.}$ [1] at 0 stroke [kgcm²]	5.15			6.28		
$J_{rot.}$ [1] per 1 m stroke [kgcm²/m]	8.08			8.08		
Idle torque at 0 stroke [Nm]	1.50			1.80		

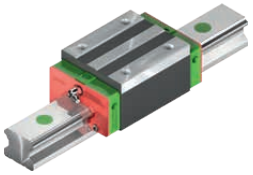
[1] Rotatory moment of inertia

9. Linear tables HT-L

9.1 Properties of linear tables HT-S with linear motor

HIWIN linear tables with linear motor are flexible positioning modules with integrated HIWIN double guide. They are specifically ideal for precise positioning at high speed and with high dynamics.

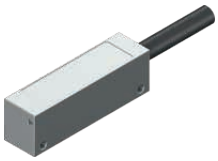
Linear guideway
A high quality HIWIN double guide transfers forces and torques reliably from the carriage into the axis profile. Each carriage comes with four blocks that are guided over two parallel high precision rails. The SynchMotion™ technology with ball chain also ensures a high level of synchronism and quiet running for all sizes.



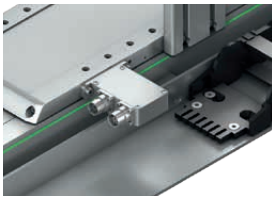
Linear motor
The integrated HIWIN linear motors ensure dynamic and precise positioning. Two motor sizes are available for each size, in order to optimally meet the requirements for the required feed force.

Carriages
Around each threaded hole the carriages have an additional locating hole that can be used with centring sleeves to secure the load capacity. This allows an ideal, reproducible attachment of the connecting structure. The matching centring sleeves can be found in the accessories on Page 166. Grease nipples are situated at each lube point on the carriage, making it easier to perform maintenance on the linear axis.

Distance measuring systems
The distance measuring system, that is integrated into the interior of the axis in order to save space, determines the repeatability. Various measuring systems are available, depending on the requirements for measuring method, interface and resolution. See Page 121 for more information.

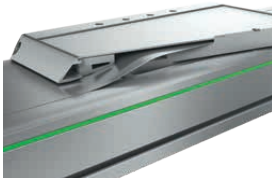


Electrical interface
The self-locking quick fasteners provide a fast and easy way of connecting motor and encoder cables at the side of the carriage – without the need for tools. There are two different options for the connector configuration to suit the installation conditions and how the cables need to be routed.



Energy chain
Generously dimensioned energy chains provide space for the reliable carrying of supply cables. At the same time, the energy chains are attached to the axis in a particularly compact and space-saving way. Details on the orientation of the energy chain can be found in Section 17.4 on Page 163 ff..

Cover strip
The steel cover strip protects the inside of the axis against dust and dirt. Also, when fitted with the cover strip, the axes can be used in areas with coarse, sharp edged, or hot foreign bodies. The magnetic strips integrated in the axis profile keep the strip securely in place and increase the sealing effects.



9.2 Order code for linear tables HT-L

HT	150	L	A12	C	1234	S

HIWIN linear table

Size (profile width):
150: 150 mm
200: 200 mm
250: 250 mm

Drive type:
L: Linear motor

Carriage length:
S: Short

Stroke length [mm]

Cover strip:
C: With steel cover strip
N: Without cover strip

Motor size:
A12/A13: HT150L
A22/A23: HT200L
A32/A33: HT250L

Order code for linear tables HT-L (continuation)

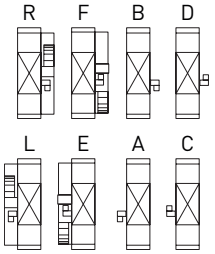
A	N	A	R

Axis limit switches[3]**:**
N: Without limit switches
A: 2 × NC, 100 mm cable, plug
B: 2 × NO, 100 mm cable, plug
C: 2 × NC, 4 m open cable end
D: 2 × NO, 5 m open cable end

Stator:
N: Standard

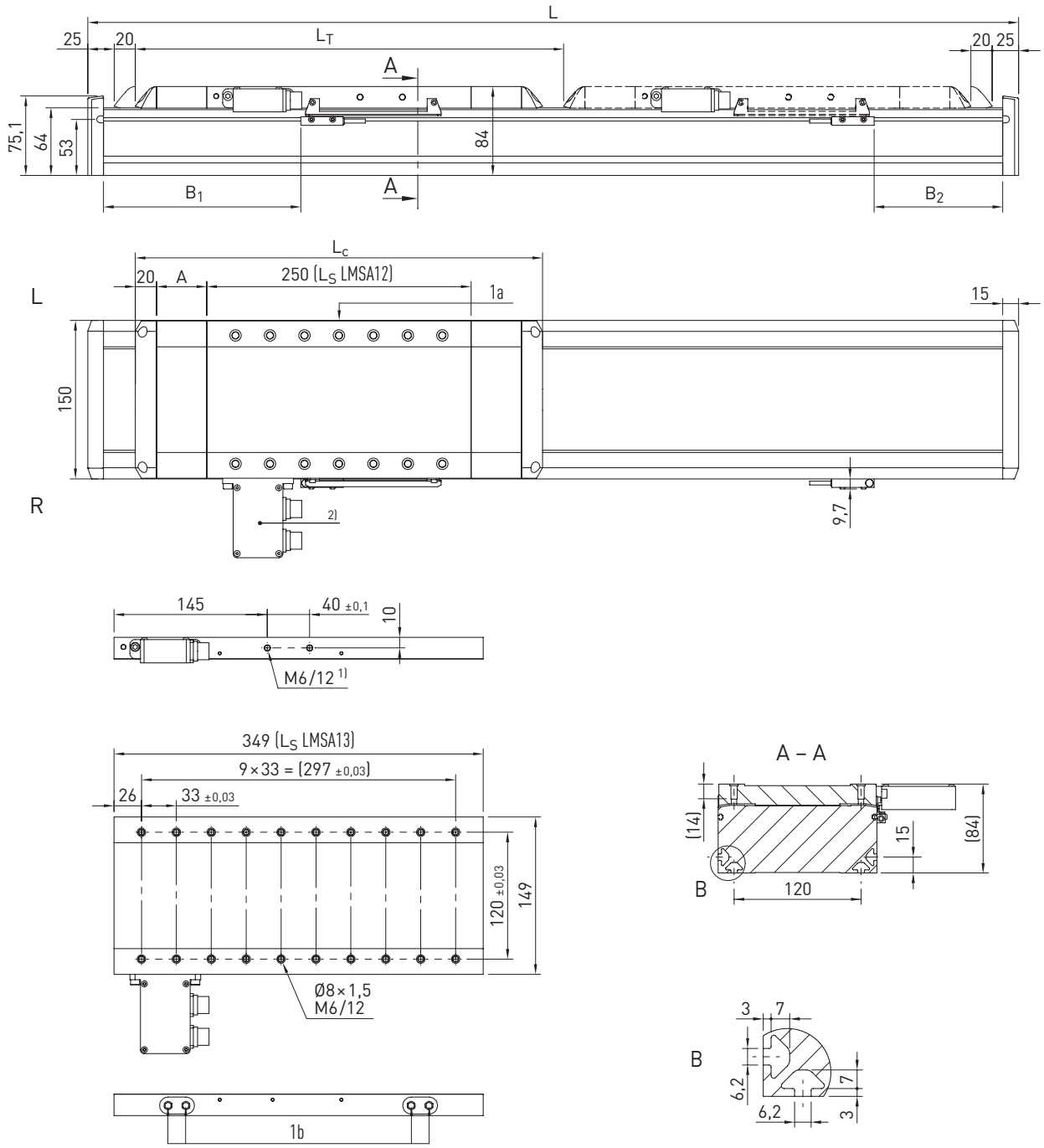
Optional distance measuring system[1]**:**
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
B: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos and digital Hall sensor
D: HIWIN MAGIC, digital signal, TTL 5 V
E: HIWIN MAGIC, digital signal, TTL 5 V and digital Hall sensor
H: LIC 211, absolute, EnDat 2.2[4] [7]
R: BML-S1G0, absolute, BiSS-C, 1 V_{PP} sin/cos[5]
S: BML-S1G0, absolute, SSI[5]
T: TTK70, absolute, HIPERFACE, 1 V_{PP} sin/cos[4]

Connection interface[2]**:**
R: With energy chain, connector right/front[6]
F: With energy chain, connector right/rear[6]
B: Without energy chain, connector right/front
D: Without energy chain, connector right/rear
L: With energy chain, connector left/front[6]
E: With energy chain, connector left/rear[6]
A: Without energy chain, connector left/front
C: Without energy chain, connector left/rear



[1] Detailed information in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[2] For details of the connector configuration and the position of the energy chain, refer to Section 17.4 on Page 163 ff.
[3] Further reference switches on request
[4] Maximum stroke may be restricted; see Table 16.1 on Page 121
[5] The distance measuring system has a safety-related, analogue, incremental real-time signal
[6] Maximum possible stroke: 5,000 mm
[7] In horizontal mounting position, the axis must be installed so that the distance measuring system is at the top

9.3 Dimensions and specifications of HT150L



L_S Carriage plate
L_T Stroke
1a + 1b Lubrication fittings block

[1] Does not apply to version with energy chain [2] Drive interface shown: "D" option; for other versions, see Section 17.4 on Page 163 ff.

Table 9.1 **Dimensions of HT150L**

	Variant without cover		Variant with cover	
Motor size	**A12**	**A13**	**A12**	**A13**
Total carriage length L_c [mm]	290	389	385	484
Length of cover strip deflection A [mm]	–	–	47.5	47.5
Switch position B [mm]	138	138	185.5	185.5
Switch position C [mm]	73	172	120.5	219.5
Total length L [mm]	$L = L_T + 380$	$L = L_T + 479$	$L = L_T + 475$	$L = L_T + 574$

Table 9.2 **Load data**

	Motor size A12	Motor size A13
$F_{ydynmax}$ [1] [N]	3,350	3,350
$F_{zdynmax}$ [1] [N]	4,270	3,789
$M_{xdynmax}$ [Nm]	201	178
$M_{ydynmax}$ [Nm]	414	555
$M_{zdynmax}$ [Nm]	325	491
z [2] [mm]	51.5	51.5

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

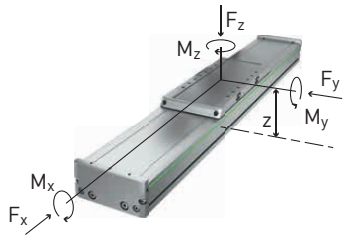


Table 9.3 **General technical data**

Repeatability [2] [mm]	± 0.005
Max speed [m/s]	5
Max acceleration [m/s²]	50
Typical load capacity [kg]	80
Max total length [2] [3] [mm]	5,930
Flatness [1] (mm/300 mm)	± 0.03
Straightness [1] (mm/300 mm)	± 0.03
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] Values apply to bolting surfaces or mounting plates with appropriate specifications
[2] Depending on distance measuring system (Chapter 16) and energy chain (Section 17.4)
[3] Longer axes lengths on request

Table 9.4 **Guiding**

Guiding type	QEH15CA
Static load rating C_0 [N]	15,280
Dynamic load rating C_{dyn} [N]	12,530

Table 9.5 **Drive**

	Motor size A12	Motor size A13
Motor type	LMSA12	LMSA13
Continuous force [N]	205	308
Peak force [N]	579	868

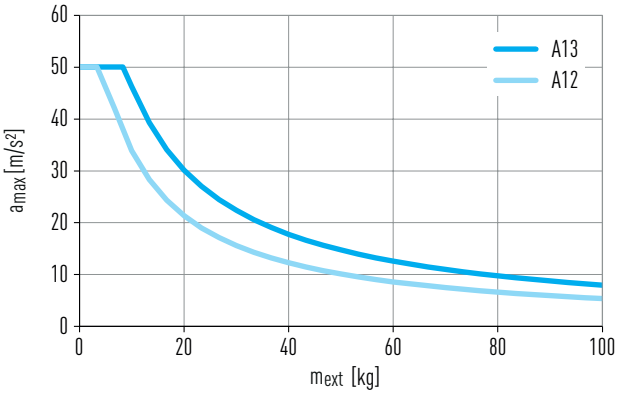


Fig. 9.1 **Max acceleration a_{max} as a function of load capacity m_{ext}.**

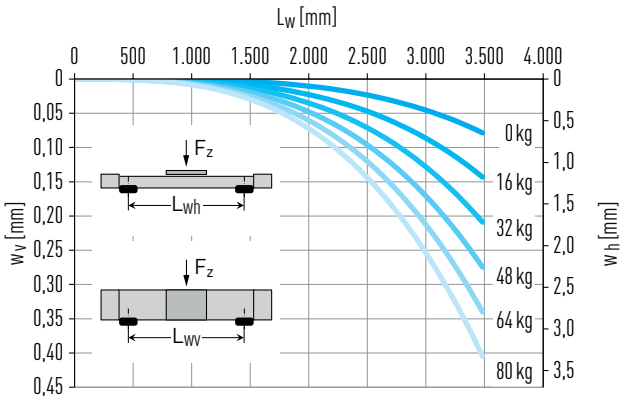
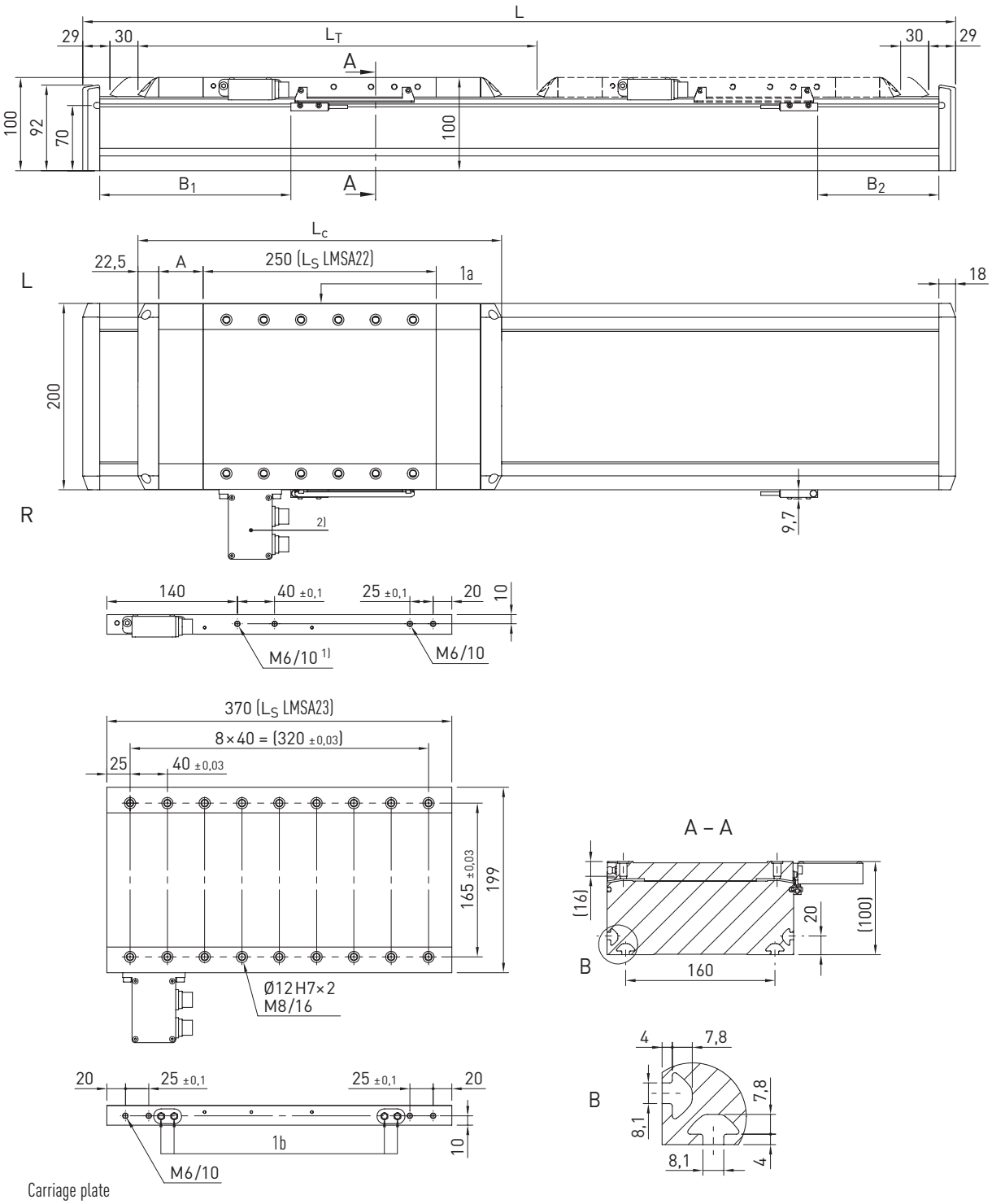


Fig. 9.2 **Deflection w over unsupported axis length L_w under payload F_z**

Table 9.6 **Mechanical properties**

	Variant without cover		Variant with cover	
	Motor size A12	**Motor size A13**	**Motor size A12**	**Motor size A13**
Carriage mass [kg]	4.33	5.97	4.80	6.45
Mass at 0 stroke [kg]	9.80	12.77	11.56	14.57
Mass per 1 m stroke [kg/m]	13.31		13.59	
Displacement force carriage F_t [N]	1.20		1.70	

9.4 Dimensions and specifications of HT200L



L_S Carriage plate
L_T Stroke
1a + 1b Lubrication fittings block

[1] Does not apply to version with energy chain [2] Drive interface shown: "D" option; for other versions, see Section 17.4 on Page 163 ff.

Table 9.7 **Dimensions of HT200L**

	Variant without cover		Variant with cover	
Motor size	**A22**	**A23**	**A22**	**A23**
Total carriage length L_c [mm]	295	415	390	510
Length of cover strip deflection A [mm]	–	–	47.5	47.5
Switch position B [mm]	156.5	156.5	204	204
Switch position C [mm]	81.5	201.5	129	249
Total length L [mm]	L = stroke + 413	L = stroke + 533	L = stroke + 508	L = stroke + 628

Table 9.8 **Load data**

	Motor size A22	Motor size A23
$F_{ydynmax}$ [1] [N]	7,712	6,750
$F_{zdynmax}$ [1] [N]	7,712	6,750
$M_{xdynmax}$ [Nm]	524	459
$M_{ydynmax}$ [Nm]	733	1,046
$M_{zdynmax}$ [Nm]	733	1,046
z [2] [mm]	58.48	58.48

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

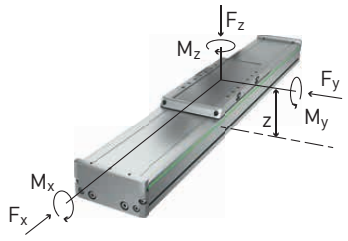


Table 9.9 **General technical data**

Repeatability [2] [mm]	± 0.005
Max speed [m/s]	5
Max acceleration [m/s²]	50
Typical load capacity [kg]	150
Max total length [2] [3] [mm]	5,936
Flatness [1] (mm/300 mm)	± 0.03
Straightness [1] (mm/300 mm)	± 0.03
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] Values apply to bolting surfaces or mounting plates with appropriate specifications
[2] Depending on distance measuring system (Chapter 16) and energy chain (Section 17.4)
[3] Longer axes lengths on request

Table 9.10 **Guiding**

Guiding type	QHH20CA
Static load rating C_0 [N]	25,630
Dynamic load rating C_{dyn} [N]	23,080

Table 9.11 **Drive**

	Motor size A22	Motor size A23
Motor type	LMSA22	LMSA23
Continuous force [N]	362	544
Peak force [N]	1,023	1,535

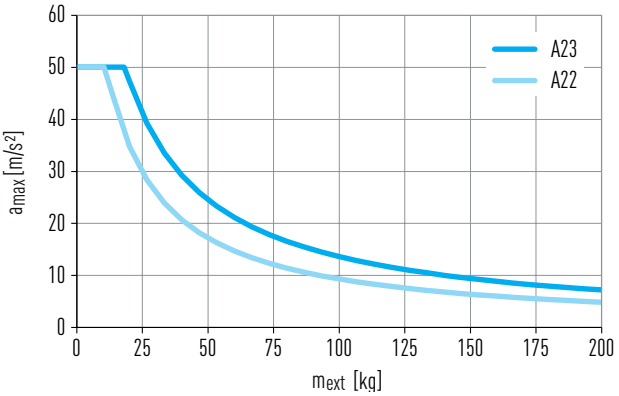


Fig. 9.3 **Max acceleration a_{max} as a function of load capacity $m_{ext.}$**

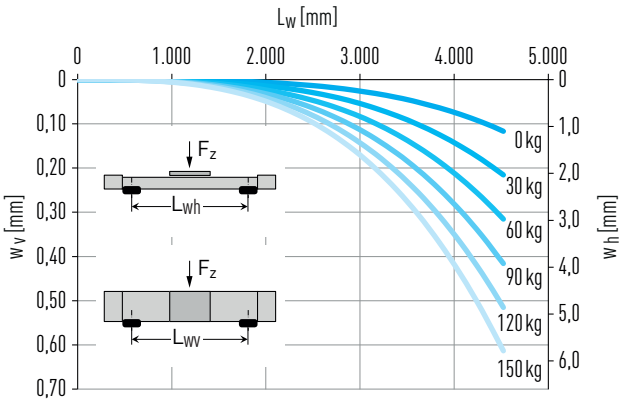
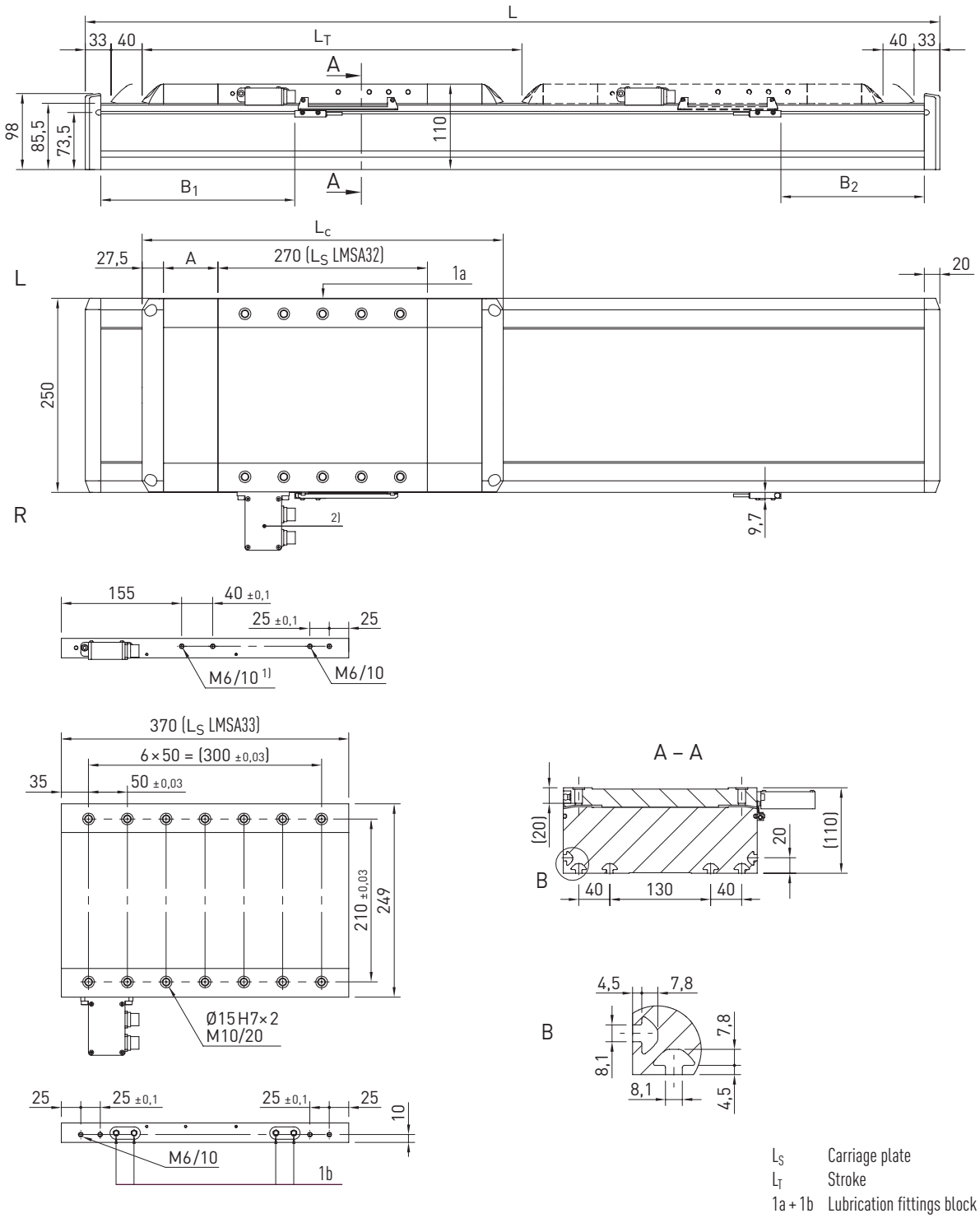


Fig. 9.4 **Deflection w over unsupported axis length L_w under payload F_z**

Table 9.12 **Mechanical properties**

	Variant without cover		Variant with cover	
	Motor size A22	**Motor size A23**	**Motor size A22**	**Motor size A23**
Carriage mass [kg]	6.80	9.64	7.39	10.24
Mass at 0 stroke [kg]	16.33	21.71	18.85	24.28
Mass per 1 m stroke [kg/m]	21.49		21.81	
Displacement force carriage F_t [N]	2.00		2.50	

9.5 Dimensions and specifications of HT250L



L_S Carriage plate
L_T Stroke
1a + 1b Lubrication fittings block

[1] Does not apply to version with energy chain [2] Drive interface shown: "D" option; for other versions, see Section 17.4 on Page 163 ff.

Table 9.13 **Dimensions of HT250L**

	Variant without cover		Variant with cover	
Motor size	**A32**	**A33**	**A32**	**A33**
Total carriage length L_c [mm]	325	425	465	565
Length of cover strip deflection A [mm]	–	–	70	70
Switch position B [mm]	178.5	178.5	248.5	248.5
Switch position C [mm]	113.5	213.5	183.5	283.5
Total length L [mm]	L = stroke + 471	L = stroke + 571	L = stroke + 611	L = stroke + 711

Table 9.14 **Load data**

	Motor size A32	Motor size A33
$F_{ydynmax}$ [1] [N]	10,383	8,938
$F_{zdynmax}$ [1] [N]	10,383	8,938
$M_{xdynmax}$ [Nm]	888	764
$M_{ydynmax}$ [Nm]	1,012	1,318
$M_{zdynmax}$ [Nm]	1,012	1,318
z [2] [mm]	68.07	68.07

[1] Force may act only without torque
[2] Upper carriage edge to guiding centre
See Section 3.3.3 on Page 14 (reference service life)

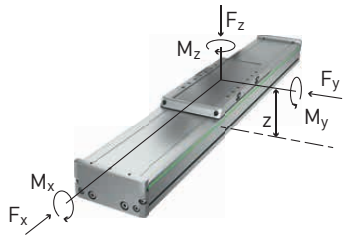


Table 9.15 **General technical data**

Repeatability [2] [mm]	± 0.005
Max speed [m/s]	5
Max acceleration [m/s²]	50
Typical load capacity [kg]	250
Max total length [2] [3] [mm]	5,940
Flatness [1] (mm/300 mm)	± 0.03
Straightness [1] (mm/300 mm)	± 0.03
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] Values apply to bolting surfaces or mounting plates with appropriate specifications
[2] Depending on distance measuring system (Chapter 16) and energy chain (Section 17.4)
[3] Longer axes lengths on request

Table 9.16 **Guiding**

Guiding type	QHH25CA
Static load rating C_0 [N]	33,680
Dynamic load rating C_{dyn} [N]	31,780

Table 9.17 **Drive**

	Motor size A32	Motor size A33
Motor type	LMSA32	LMSA33
Continuous force [N]	583	875
Peak force [N]	1,646	2,469

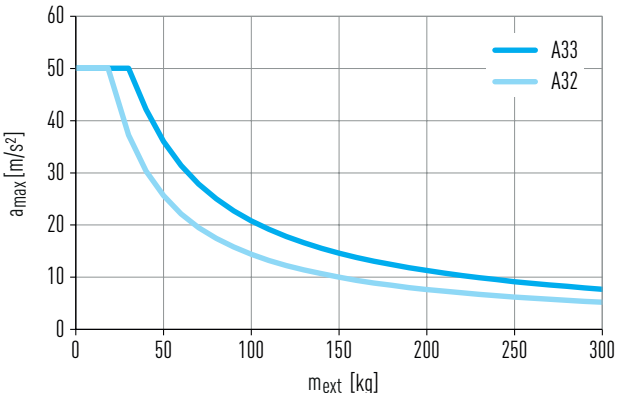


Fig. 9.5 **Max acceleration a_{max} as a function of load capacity $m_{ext.}$**

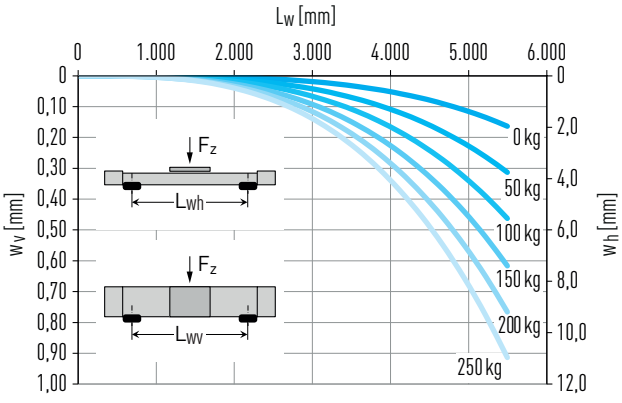


Fig. 9.6 **Deflection w over unsupported axis length L_w under payload F_z**

Table 9.18 **Mechanical properties**

	Variant without cover		Variant with cover	
	Motor size A32	**Motor size A33**	**Motor size A32**	**Motor size A33**
Carriage mass [kg]	11.58	15.77	12.98	17.17
Mass at 0 stroke [kg]	26.35	33.57	31.58	38.85
Mass per 1 m stroke [kg/m]	30.15		30.54	
Displacement force carriage F_t [N]	3.00		3.50	

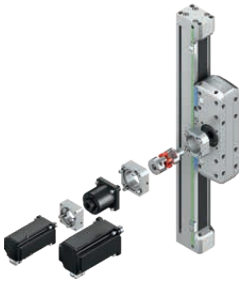
10. Cantilever axes HC-B

10.1 Properties of cantilever axes HC-B with toothed belt drive

The HIWIN cantilever axes with toothed belt drive are flexible linear units in which the drive block is stationary while the lightweight beam moves. They are particularly suitable for vertical applications where high dynamics and high speeds are required.

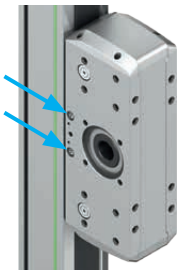
Linear guideway
High quality HIWIN linear guideways with two blocks transfer forces and torques reliably from the beam into the drive block.
The CG guideway with O-arrangement of the ball track additionally ensures increased rigidity and high torque loading capacity for sizes HC060B and HC080B.

Drive connections
The symmetrical design of the HIWIN cantilever axes allows the attachment of motors and gears at both sides of the drive block. Additional input and output drives can be mounted with additional journals available as accessories (see Page 171).



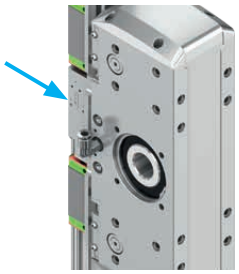
Toothed belt
The toothed belt with modern, high performance profiles (HTD form) and reinforced steel tie beams can transfer high forces under a high skipping resistance.

Lubrication
The linear axis can be lubricated easily thanks to the grease nipples at the left and right hand side of each lube point on the drive block. There is therefore optimal relubrication access even on difficult installation types.



Attachment
The drive block and the mounting interfaces for fastening the payload on both sides of the beam have additional locating holes on each threaded hole. This ensures an ideal, reproducible attachment of the connecting structure. The matching centring sleeves can be found in the accessories on Page 166.

Clamping and braking element
The clamping or braking element can be accessed via a pneumatic connection on the drive block. Clamping on the profile rail is fail-safe as soon as compressed air is no longer applied to the connection. Particularly in vertical applications, a clamping may be required to securely fix the axis at standstill.



10.2 Order code for cantilever axes HC-B

HC	060	B	155	N	0123	S

HIWIN cantilever axis

Size (profile width):
025: 25 mm
040: 40 mm
060: 60 mm
080: 80 mm

Drive type:
B: Toothed belt drive

Carriage length:
S: Short

Stroke length [mm]

Cover strip:
N: Without cover strip

Feed constant [mm/rotation]:
081: HC025B
123: HC040B
170: HC060B
200: HC080B

Order code for cantilever axes HC-B (continuation)

A	N	N	R	BR07	G0608

Axis limit switches[6]**:**
N: Without limit switches
A: 2 × NC, 100 mm cable, plug[1]
B: 2 × NO, 100 mm cable, plug[1]
C: 2 × NC, 4 m open cable end[1]
D: 2 × NO, 5 m open cable end[1]

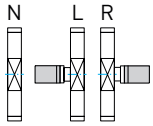
Clamping element:
N: Without clamping element
B: With pneumatic braking element (HC060B/HC080B)
C: With pneumatic clamping element (HC060B/HC080B)[7]

Optional distance measuring system[2]**:**
N: Without distance measuring system
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
D: HIWIN MAGIC, digital signal, TTL 5 V

Gear box[5]

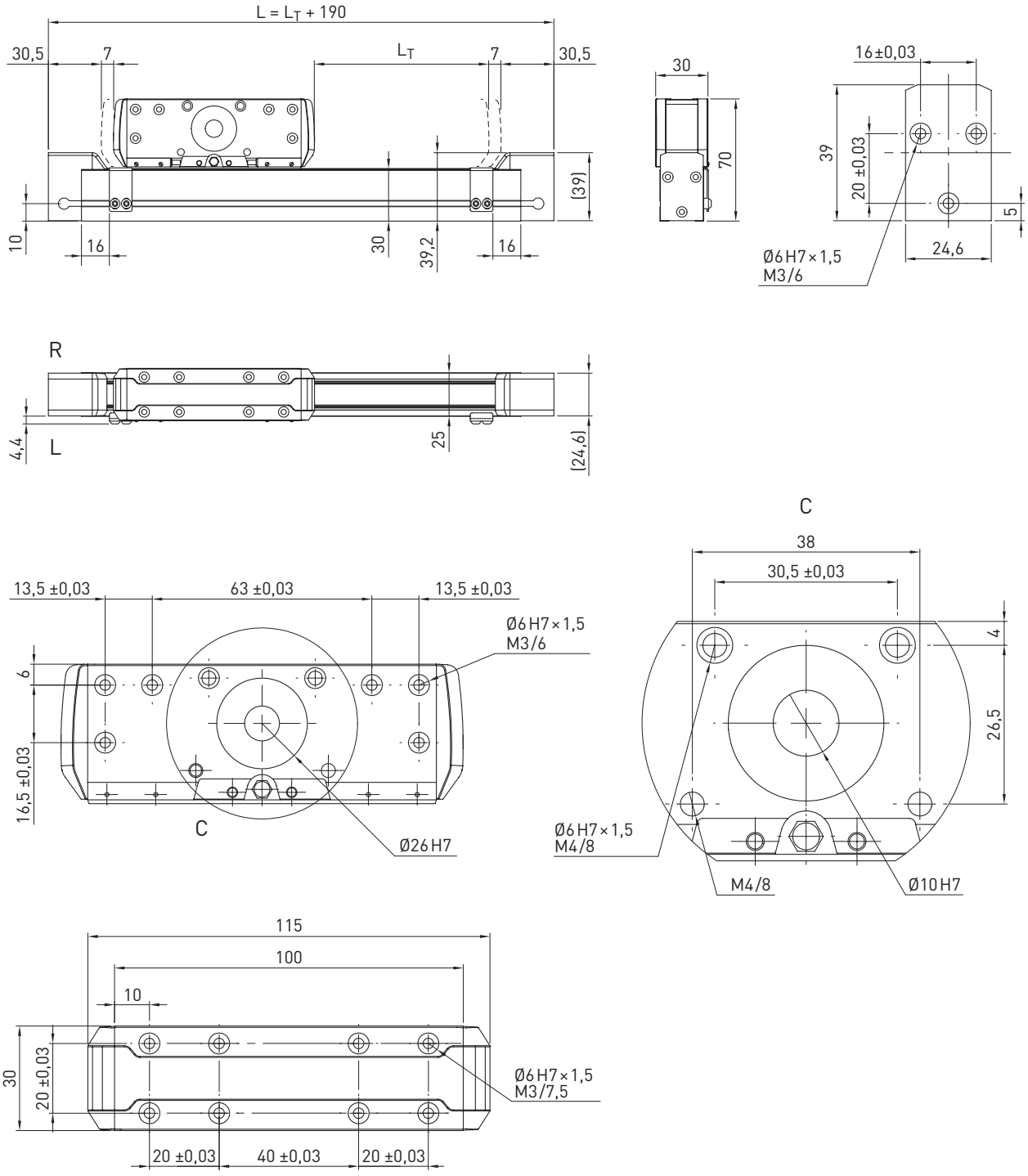
Flange type[4]

Drive interface[3]**:**
N: None
L: Left
R: Right



[1] HC025B: A: 2 × NC, 200 mm cable, plug; C: 2 × NC, 2 m open cable end; B and D: not available
[2] Detailed information in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[3] If no drive interface is selected, the order code ends at this position
[4] All flange types can be found in Table 17.1 on Page 125 ff. If no gear box is selected, the order code ends at this position
[5] Suitable gearboxes for HIWIN axes can be found in Section 17.1.4.5 on Page 145 ff.
[6] Further reference switches on request
[7] The clamping element may only be used when the axis is at standstill and not as a brake

10.3 Dimensions and specifications of HC025B



L_T Stroke

Table 10.1 **Load data**	
$F_{ydynmax}$ [1] [N]	616
$F_{zdynmax}$ [1] [N]	616
$M_{xdynmax}$ [Nm]	2.65
$M_{ydynmax}$ [Nm]	20.65
$M_{zdynmax}$ [Nm]	20.65

[1] Force may act only without torque
See Section 3.3.3 on Page 14 (reference service life)

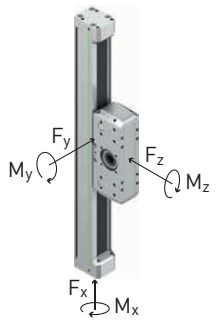


Table 10.2 **General technical data**	
Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	241
Max speed [m/s]	3
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	3.1
Typical load capacity [kg]	2
Maximum stroke length vertical [mm]	300
Maximum stroke length vertical horizontal [mm]	200
Area moment of inertia of profile cross-section I_x [mm⁴]	18,706
Area moment of inertia of profile cross-section I_y [mm⁴]	19,299

Table 10.3 **Guiding**	
Guiding type	MGN09C
Static load rating C_0 [N]	2,550
Dynamic load rating C_{dyn} [N]	1,860

Table 10.4 **Drive**	
Drive element	B12HTD3
Feed constant [mm/rotation]	81
Effective diameter of toothed belt pulley [mm]	25.78

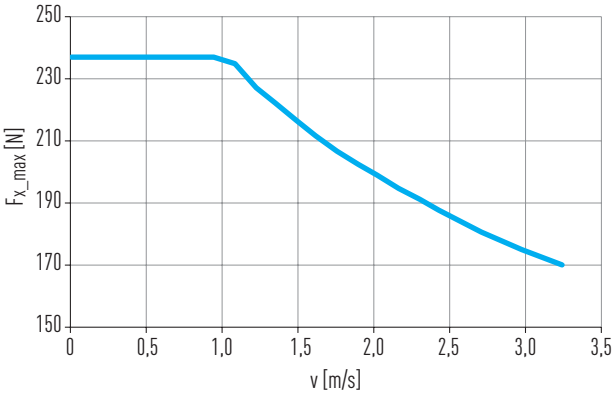


Fig. 10.1 **Max feed force F_{x_max} as a function of axis speed v**

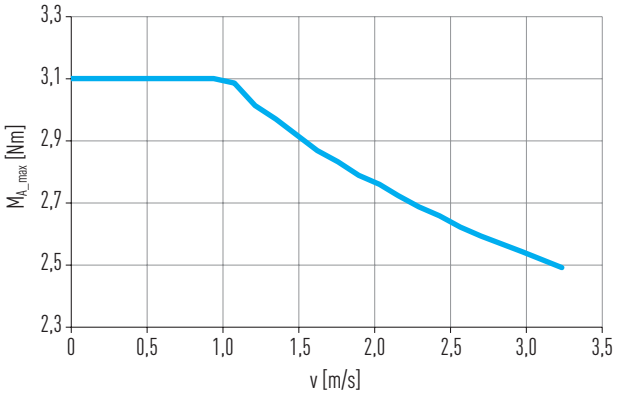
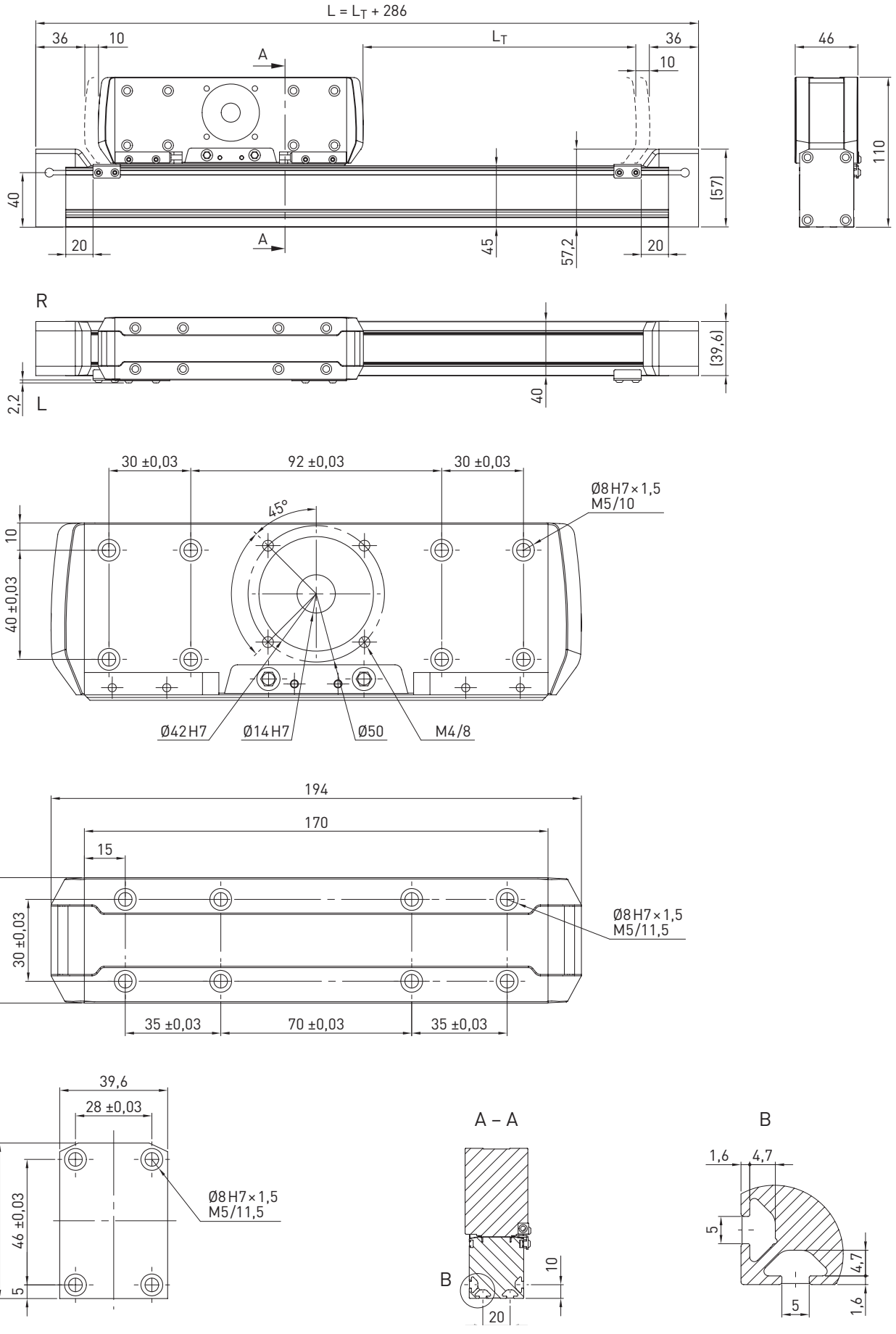


Fig. 10.2 **Max drive torque M_{A_max} as a function of axis speed v**

Table 10.5 **Mechanical properties**	
Mass at 0 stroke [kg]	0.63
Mass per 100 mm stroke [kg/100 mm]	0.13
Mass of beam at 0 stroke [kg]	0.30
Mass of beam per 100 mm stroke [kg/100 mm]	0.13
$J_{rot.}$ [1] [kgcm²]	0.056
Idle torque at 0 stroke [Nm]	0.15

[1] Rotatory moment of inertia

10.4 Dimensions and specifications of HC040B



L_T Stroke

Table 10.6 **Load data**	
$F_{ydynmax}$ [1] [N]	1,213
$F_{zdynmax}$ [1] [N]	1,213
$M_{xdynmax}$ [Nm]	10
$M_{ydynmax}$ [Nm]	78
$M_{zdynmax}$ [Nm]	78

[1] Force may act only without torque
See Section 3.3.3 on Page 14 (reference service life)

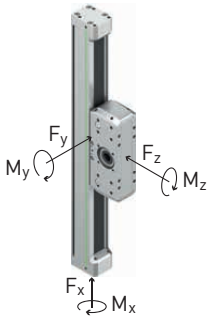


Table 10.7 **General technical data**	
Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	404
Max speed [m/s]	3
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	7.9
Typical load capacity [kg]	8
Maximum stroke length vertical [mm]	500
Maximum stroke length vertical horizontal [mm]	400
Area moment of inertia of profile cross-section I_x [mm⁴]	94,400
Area moment of inertia of profile cross-section I_y [mm⁴]	102,030

Table 10.8 **Guiding**	
Guiding type	MGN15C
Static load rating C_0 [N]	5,590
Dynamic load rating C_{dyn} [N]	4,610

Table 10.9 **Drive**	
Drive element	B20HTD3
Feed constant [mm/rotation]	123
Effective diameter of toothed belt pulley [mm]	39.15

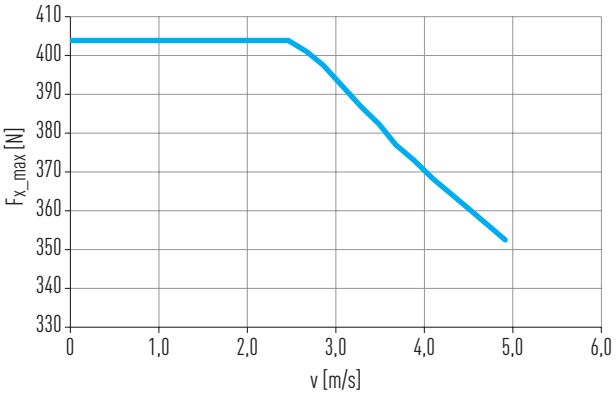


Fig. 10.3 **Max feed force F_{x_max} as a function of axis speed v**

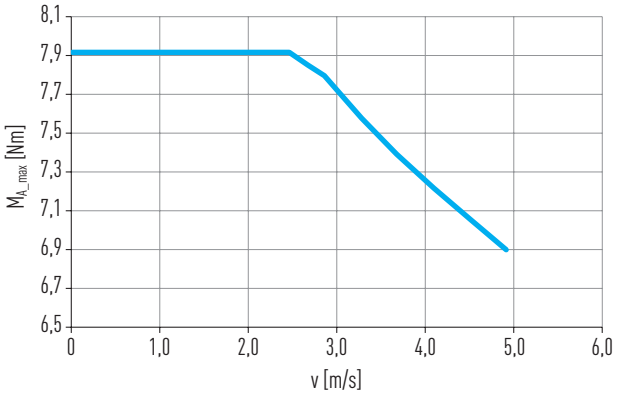
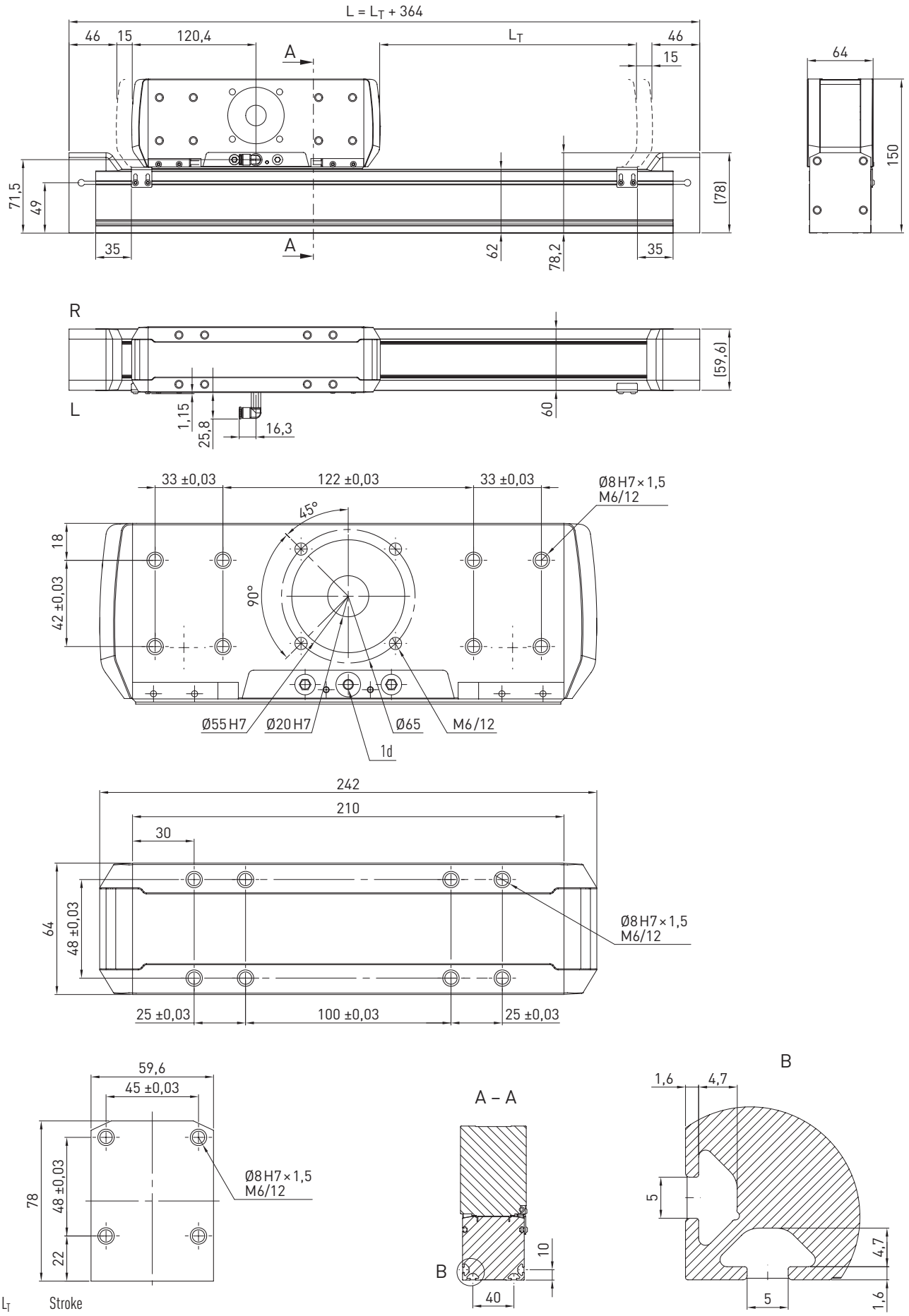


Fig. 10.4 **Max drive torque M_{A_max} as a function of axis speed v**

Table 10.10 **Mechanical properties**	
Mass at 0 stroke [kg]	2.18
Mass per 100 mm stroke [kg/100 mm]	0.28
Mass of beam at 0 stroke [kg]	0.92
Mass of beam per 100 mm stroke [kg/100 mm]	0.28
$J_{rot.}$ [1] [kgcm²]	0.32
Idle torque at 0 stroke [Nm]	0.20

[1] Rotatory moment of inertia

10.5 Dimensions and specifications of HC060B



L_T Stroke

1d Compressed air connection for clamping/braking element M5

Table 10.11 **Load data**	
$F_{ydynmax}$ [1] [N]	2,152
$F_{zdynmax}$ [1] [N]	3,378
$M_{xdynmax}$ [Nm]	33
$M_{ydynmax}$ [Nm]	243
$M_{zdynmax}$ [Nm]	155

[1] Force may act only without torque
See Section 3.3.3 on Page 14 (reference service life)

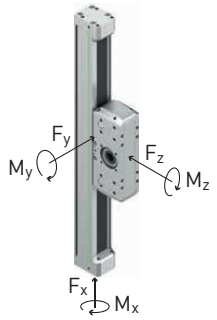


Table 10.12 **General technical data**	
Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	983
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	26.6
Typical load capacity [kg]	16
Maximum stroke length vertical [mm]	800
Maximum stroke length vertical horizontal [mm]	600
Area moment of inertia of profile cross-section I_x [mm⁴]	431,271
Area moment of inertia of profile cross-section I_y [mm⁴]	536,119

Table 10.13 **Guiding**	
Guiding type	CGL15CA
Static load rating C_0 [N]	19,520
Dynamic load rating C_{dyn} [N]	14,700

Table 10.14 **Drive**	
Drive element	B30HTD5
Feed constant [mm/rotation]	170
Effective diameter of toothed belt pulley [mm]	54.11

Table 10.15 **Clamping/braking element [1]**	
Holding force [N]	400
Operating pressure [bar]	5.5–6.5

[1] The clamping element may only be used when the axis is at a standstill and not as a brake.

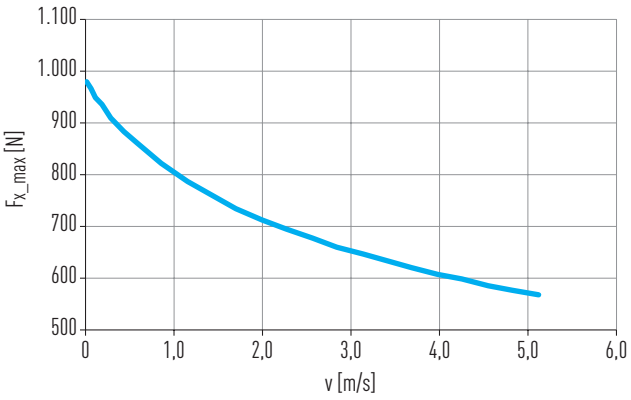


Fig. 10.5 **Max feed force F_{x_max} as a function of axis speed v**

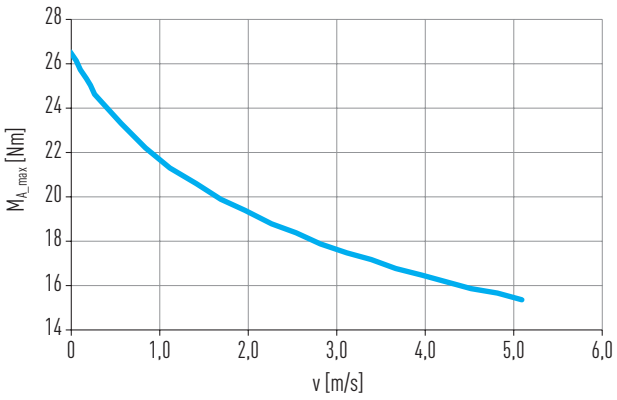
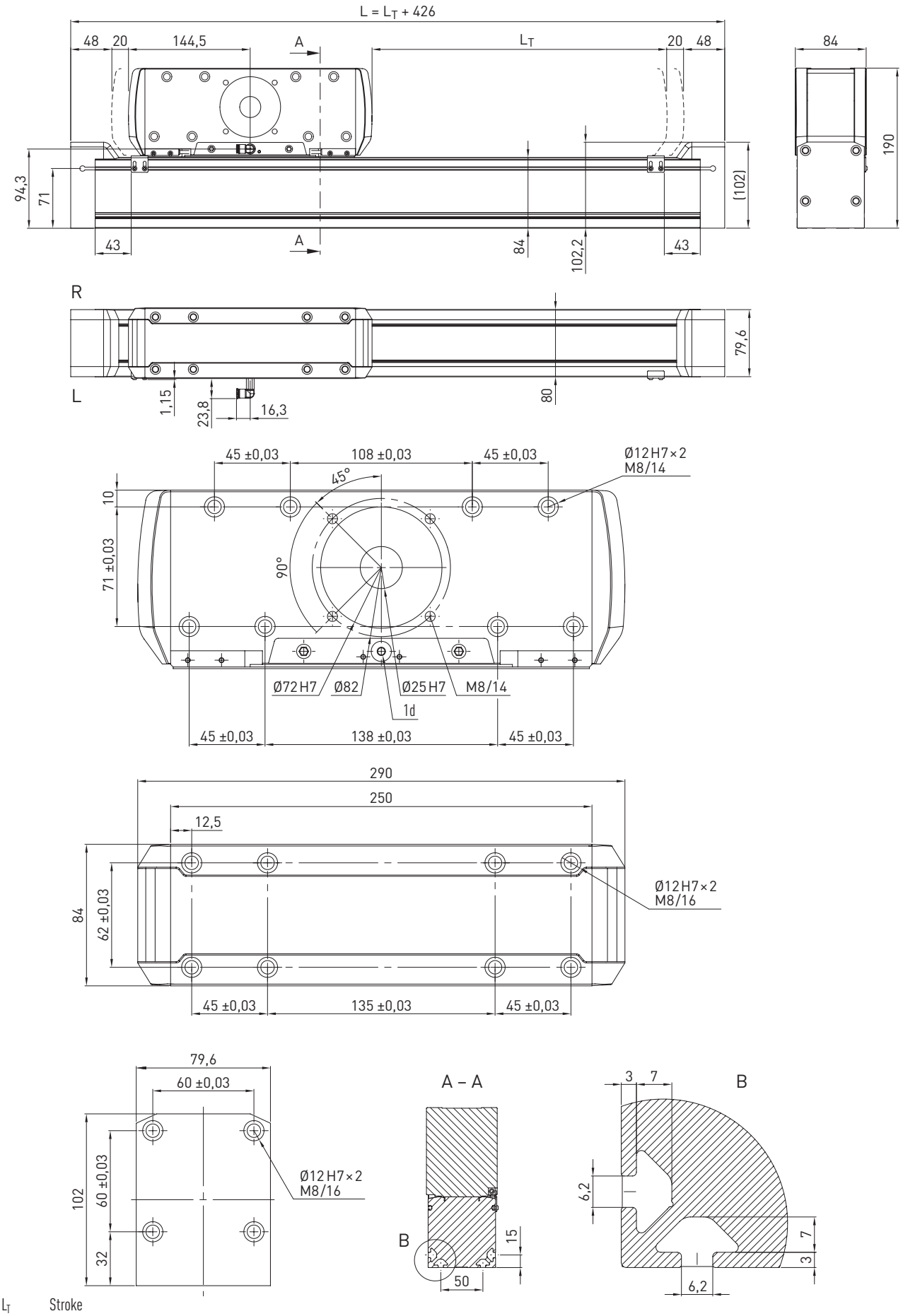


Fig. 10.6 **Max drive torque M_{A_max} as a function of axis speed v**

Table 10.16 **Mechanical properties**	
Mass at 0 stroke [kg]	5.13
Mass per 100 mm stroke [kg/100 mm]	0.52
Mass of beam at 0 stroke [kg]	2.24
Mass of beam per 100 mm stroke [kg/100 mm]	0.52
$J_{rot.}$ [1] [kgcm²]	1.57
Idle torque at 0 stroke [Nm]	0.60

[1] Rotatory moment of inertia

10.6 Dimensions and specifications of HC080B



L_T Stroke

1d Compressed air connection for clamping/braking element M5

Table 10.17 **Load data**	
$F_{ydynmax}$ [1] [N]	3,855
$F_{zdynmax}$ [1] [N]	5,447
$M_{xdynmax}$ [Nm]	66
$M_{ydynmax}$ [Nm]	444
$M_{zdynmax}$ [Nm]	314

[1] Force may act only without torque
See Section 3.3.3 on Page 14 (reference service life)

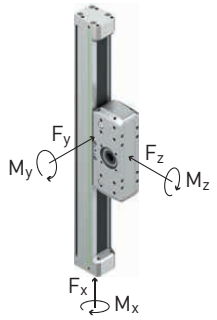


Table 10.18 **General technical data**	
Repeatability [mm]	± 0.05
Max feed force F_{x_max} [N]	1,310
Max speed [m/s]	5
Max acceleration [m/s²]	30
Max drive torque M_{A_max} [Nm]	41.7
Typical load capacity [kg]	30
Maximum stroke length vertical [mm]	1,200
Maximum stroke length vertical horizontal [mm]	800
Area moment of inertia of profile cross-section I_x [mm⁴]	1,394,922
Area moment of inertia of profile cross-section I_y [mm⁴]	1,758,779

Table 10.19 **Guiding**	
Guiding type	CGH20CA
Static load rating C_0 [N]	30,510
Dynamic load rating C_{dyn} [N]	23,700

Table 10.20 **Drive**	
Drive element	B40HTD5
Feed constant [mm/rotation]	200
Effective diameter of toothed belt pulley [mm]	63.66

Table 10.21 **Clamping/braking element** [1]	
Holding force [N]	650
Operating pressure [bar]	5.5–6.5

[1] The clamping element may only be used when the axis is at a standstill and not as a brake.

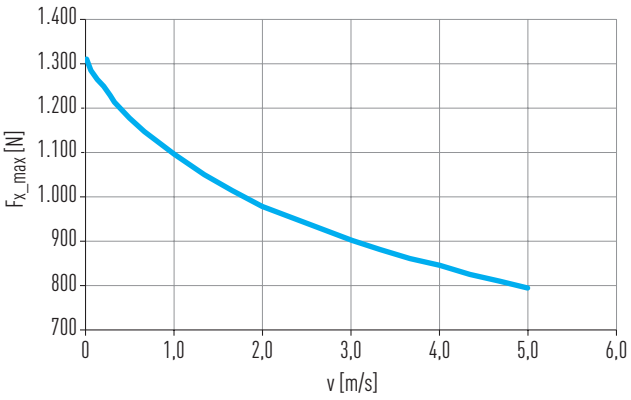


Fig. 10.7 **Max feed force F_{x_max} as a function of axis speed v**

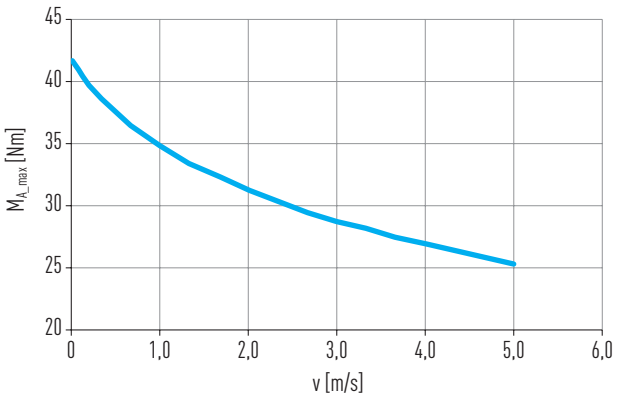


Fig. 10.8 **Max drive torque M_{A_max} as a function of axis speed v**

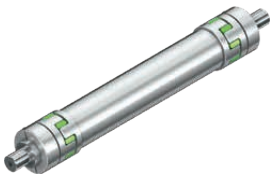
Table 10.22 **Mechanical properties**	
Mass at 0 stroke [kg]	9.72
Mass per 100 mm stroke [kg/100 mm]	0.90
Mass of beam at 0 stroke [kg]	4.51
Mass of beam per 100 mm stroke [kg/100 mm]	0.90
$J_{rot.}$ [1] [kgcm²]	4.41
Idle torque at 0 stroke [Nm]	1.40

[1] Rotatory moment of inertia

11. Double axes HD

11.1 Properties of the double axes HD with toothed belt drive

The HIWIN double axes HD are flexible linear modules consisting of two HM-B belt axes connected to each other via a synchronous shaft. They are used primarily in applications where a single axis is inadequate owing to the torques exerted by or the size of the transported loads. HIWIN double axes HD are also ideal as a basis for multi-axis systems.



Synchronous shaft

The synchronous shaft safeguards a reliable, undeflecting transfer of forces to the parallel movements of both axes. With a generously dimensioned diameter, the synchronous shaft is particularly stable under torque, so it does not need additional bearings even at greater speeds and with larger distances between axes.

Critical speed of the synchronous shaft

The critical speed is a function of the synchronous shaft's length and diameter, and may not be exceeded during operation. A function of the size and speed of the HIWIN double axes, the resulting maximum distance between axes can be taken from Fig. 11.1.

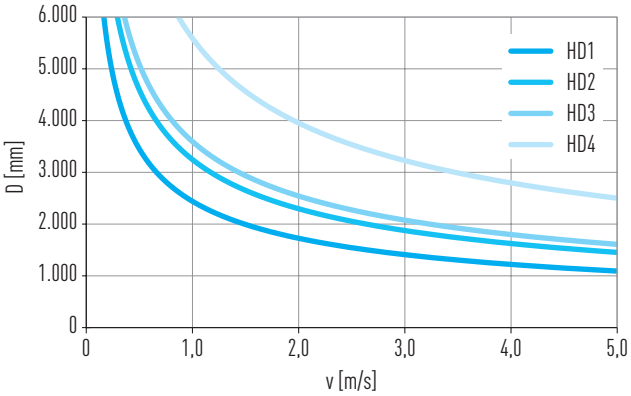


Fig. 11.1 **Maximum distance between axes D as a function of axis speed v**

11.2 Order code for double axes HD

HD	2	N	1234	S	000

HIWIN double axis

Size (profile width of the individual axes):
1: 40 mm
2: 60 mm
3: 80 mm
4: 120 mm

Cover strip:
N: Without cover strip
C: With steel cover strip

Clearance between two carriages [mm]:
(000: One carriage only)

Carriage length:
S: Short
M: Medium
L: Long

Stroke length [mm]

Order code for double axes HD (continuation)

A	N	1234	R	BE04	G0608

Axis limit switches:
N: Without limit switches
A: 2 × NC, 100 mm cable, plug
B: 2 × NO, 100 mm cable, plug
C: 2 × NC, 4 m open cable end
D: 2 × NO, 5 m open cable end

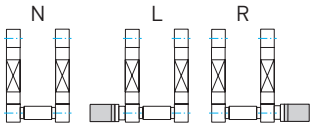
Optional distance measuring system [1]:
N: Without distance measuring system
A: HIWIN MAGIC, analogue signal, 1 V_{PP} sin/cos
D: HIWIN MAGIC, digital signal, TTL 5 V

Distance between axes D [mm]

Gearbox [4]

Flange type [3]

Drive interface [2]:
N: None
L: Left
R: Right



[1] Detailed information in Chapter 16 on Page 121 ff. or in the assembly instructions "HIWIN MAGIC Distance Measuring Systems"
[2] If no drive interface is selected, the order code ends at this position
[3] All flange types can be found in Table 17.1 on Page 125 ff. If no gear box is selected, the order code ends at this position
[4] Suitable gearboxes can be found in Section 17.1.4.5 on Page 145 ff.

11.3 Dimensions and specifications of HD1

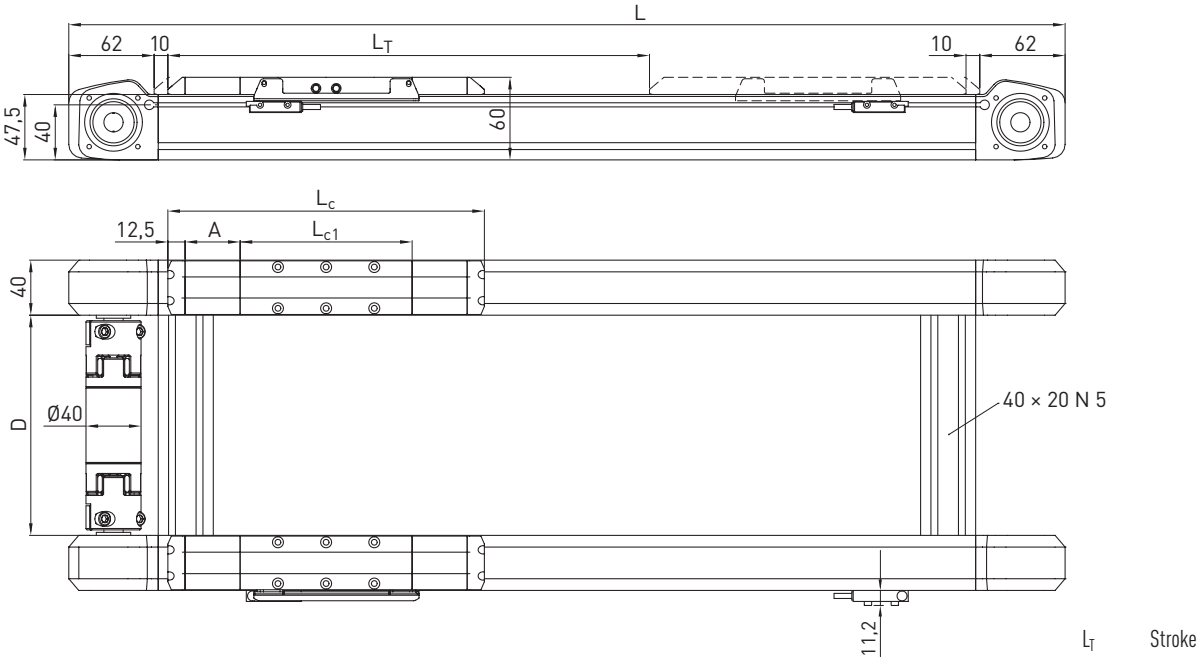


Table 11.1 **Dimensions of HD1**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage section length L_{c1} [mm]	125	160	230	125	160	230
Total carriage length L_c [mm]	150	185	255	230	265	335
Length of cover strip deflection A [mm]	–	–	–	40	40	40
Total length L [mm]	$L = L_T + 294$	$L = L_T + 329$	$L = L_T + 399$	$L = L_T + 374$	$L = L_T + 409$	$L = L_T + 479$
Min distance between axes D [mm]	160	160	160	160	160	160
Max distance between axes D [mm]	1,500	1,500	1,500	1,500	1,500	1,500

Table 11.2 **General technical data**

Max feed force F_{x_max} [N]	450
Max speed [m/s]	3
Max drive torque M_{A_max} [Nm]	8
Typical load capacity [1] [kg]	25
Single axis	HM040B

[1] When load distributed evenly over both axes

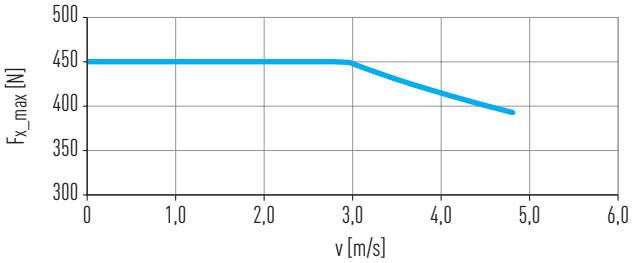


Fig. 11.2 **Max feed force F_{x_max} as a function of axis speed v**

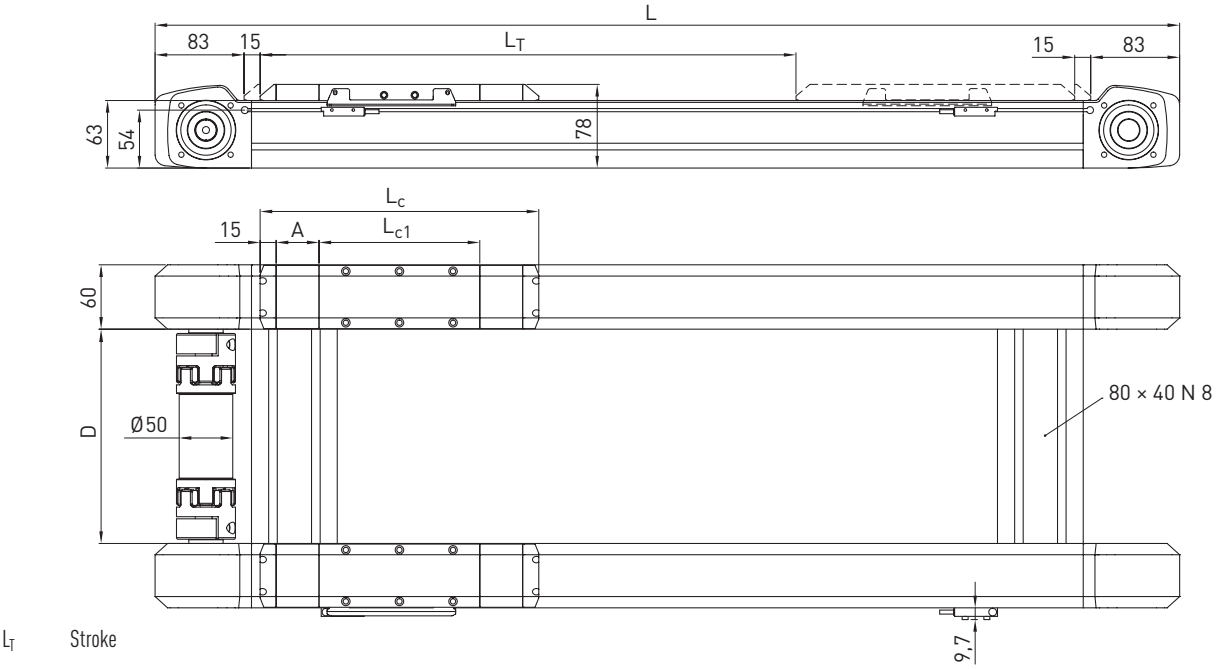
Table 11.3 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	0.66	0.76	1.00	0.74	0.86	1.08
Mass at 0 stroke + distance between axes D = 0 [kg]	3.28	3.61	4.26	3.37	4.20	4.86
Mass per 1 m stroke [kg/m]	6.04			6.09		
Mass per 1 m of distance between axes D [kg/m]	2.74			2.74		
$J_{rot.}$ [1] at 0 stroke + distance between axes D = 0 [kgcm²]	1.40			1.40		
$J_{rot.}$ [1] per 1 m of distance between axes [kgcm²/m]	3.24			3.24		
Idle torque at 0 stroke [Nm]	0.35			0.50		

[1] Rotatory moment of inertia

Note: Further sizes and details of the HM040B belt axis can be found on Page 22.

11.4 Dimensions and specifications of HD2



L_T Stroke

Table 11.4 **Dimensions of HD2**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage section length L_{c1} [mm]	150	200	300	150	200	300
Total carriage length L_c [mm]	180	230	330	260	310	410
Length of cover strip deflection A [mm]	–	–	–	40	40	40
Total length L [mm]	$L = L_T + 376$	$L = L_T + 426$	$L = L_T + 526$	$L = L_T + 456$	$L = L_T + 506$	$L = L_T + 606$
Min distance between axes D [mm]	186	186	186	186	186	186
Max distance between axes D [mm]	2,000	2,000	2,000	2,000	2,000	2,000

Table 11.5 **General technical data**

Max feed force F_{x_max} [N]	1,323
Max speed [m/s]	5
Max drive torque M_{A_max} [Nm]	33
Typical load capacity [1] [kg]	63
Single axis	HM060B

[1] When load distributed evenly over both axes

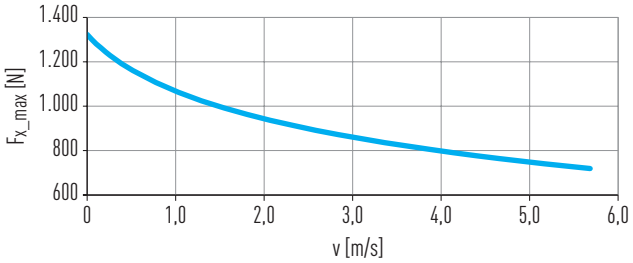


Fig. 11.3 **Max feed force F_{x_max} as a function of axis speed v**

Table 11.6 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	1.62	1.92	2.50	1.78	2.06	2.64
Mass at 0 stroke + distance between axes D = 0 [kg]	8.07	8.90	10.57	9.13	9.97	11.65
Mass per 1 m stroke [kg/m]	10.93			11.02		
Mass per 1 m of distance between axes D [kg/m]	10.26			10.26		
$J_{rot.}$ [1] at 0 stroke + distance between axes D = 0 [kgcm²]	6.53			6.53		
$J_{rot.}$ [1] per 1 m of distance between axes [kgcm²/m]	6.63			6.63		
Idle torque at 0 stroke [Nm]	0.94			2.00		

[1] Rotatory moment of inertia

Note: Further sizes and details of the HM060B belt axis can be found on Page 24.

11.5 Dimensions and specifications of HD3

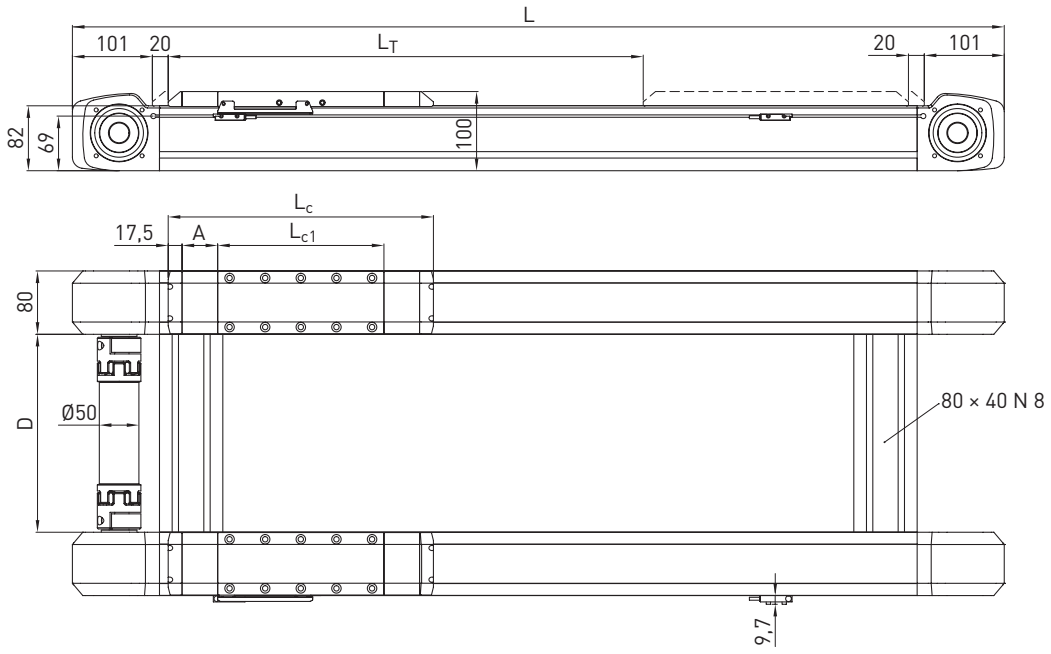


Table 11.7 **Dimensions of HD3**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage section length L_{c1} [mm]	210	300	390	210	300	390
Total carriage length L_c [mm]	245	335	425	335	425	515
Length of cover strip deflection A [mm]	–	–	–	45	45	45
Total length L [mm]	$L = L_T + 487$	$L = L_T + 577$	$L = L_T + 667$	$L = L_T + 577$	$L = L_T + 667$	$L = L_T + 757$
Min distance between axes D [mm]	200	200	200	200	200	200
Max distance between axes D [mm]	2,400	2,400	2,400	2,400	2,400	2,400

Table 11.8 **General technical data**

Max feed force F_{x_max} [N]	1,852
Max speed [m/s]	5
Max drive torque M_{A_max} [Nm]	56
Typical load capacity [1] [kg]	150
Single axis	HM080B

[1] When load distributed evenly over both axes

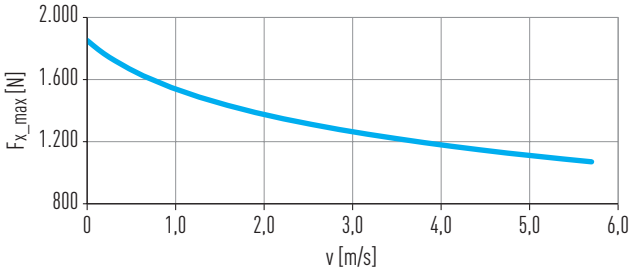


Fig. 11.4 **Max feed force F_{x_max} as a function of axis speed v**

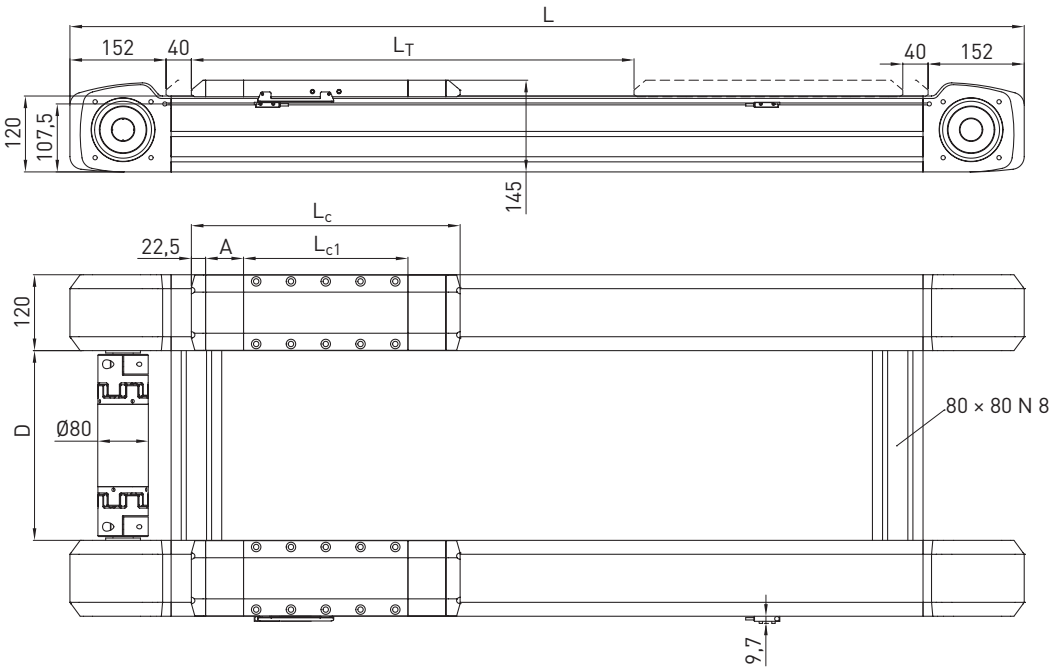
Table 11.9 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	3.50	4.34	5.16	3.80	4.64	5.48
Mass at 0 stroke + distance between axes D = 0 [kg]	15.87	18.48	21.09	18.01	20.63	23.25
Mass per 1 m stroke [kg/m]	19.73			19.84		
Mass per 1 m of distance between axes D [kg/m]	10.26			10.26		
$J_{rot.}$ [1] at 0 stroke + distance between axes D = 0 [kgcm²]	15.00			15.00		
$J_{rot.}$ [1] per 1 m of distance between axes [kgcm²/m]	6.63			6.63		
Idle torque at 0 stroke [Nm]	2.40			2.60		

[1] Rotatory moment of inertia

Note: Further sizes and details of the HM080B belt axis can be found on Page 26.

11.6 Dimensions and specifications of HD4



L_T Stroke

Table 11.10 **Dimensions of HD4**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage section length L_{c1} [mm]	260	370	535	260	370	535
Total carriage length L_c [mm]	305	415	580	425	535	700
Length of cover strip deflection A [mm]	–	–	–	60	60	60
Total length L [mm]	$L = L_T + 689$	$L = L_T + 799$	$L = L_T + 964$	$L = L_T + 809$	$L = L_T + 919$	$L = L_T + 1,084$
Min distance between axes D [mm]	256	256	256	256	256	256
Max distance between axes D [mm]	3,000	3,000	3,000	3,000	3,000	3,000

Table 11.11 **General technical data**

Max feed force F_{x_max} [N]	4,385
Max speed [m/s]	5
Max drive torque M_{A_max} [Nm]	201
Typical load capacity [1] [kg]	300
Single axis	HM120B

[1] When load distributed evenly over both axes

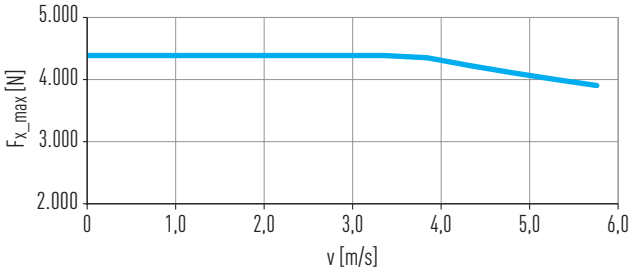


Fig. 11.5 **Max feed force F_{x_max} as a function of axis speed v**

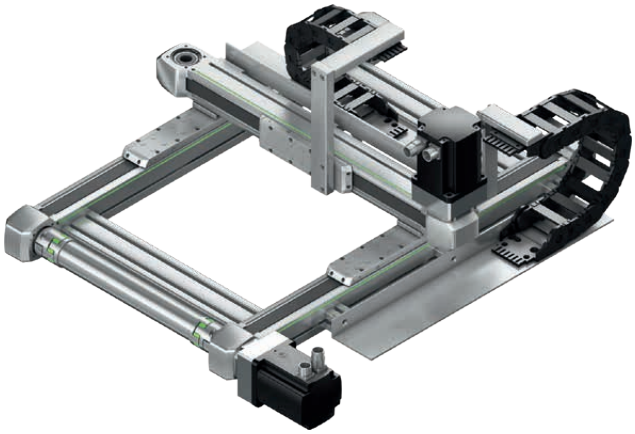
Table 11.12 **Mechanical properties**

	Variant without cover			Variant with cover		
	Carriage type S	**Carriage type M**	**Carriage type L**	**Carriage type S**	**Carriage type M**	**Carriage type L**
Carriage mass [kg]	10.58	12.16	15.58	11.62	13.59	16.60
Mass at 0 stroke + distance between axes D = 0 [kg]	49.44	55.57	65.85	55.53	61.73	72.04
Mass per 1 m stroke [kg/m]	41.54			41.72		
Mass per 1 m of distance between axes D [kg/m]	18.42			18.42		
$J_{rot.}$ [1] at 0 stroke + distance between axes D = 0 [kgcm²]	104.30			104.30		
$J_{rot.}$ [1] per 1 m of distance between axes [kgcm²/m]	44.90			44.90		
Idle torque at 0 stroke [Nm]	6.20			9.00		

[1] Rotatory moment of inertia

Note: Further sizes and details of the HM120B belt axis can be found on Page 28.

12. Two-axis systems HS2



12.1 Properties of the two-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 along the X-axis and a HIWIN HM-B or HT-B belt axis along the Y-axis. HIWIN two-axis systems HS2 have been designed specifically for 2D or single-plane movements and form the basis for three-axis systems.

Energy chain

Generously dimensioned energy chains provide space for the reliable carrying of supply cables. At the same time, the energy chains are particularly compact and space-saving solutions when integrated in the complete system.

Maximum X-axis speed

The maximum X-axis speed is a function of the size and the distance between axes presented by the Y-axis stroke of the two-axis system HS2. The maximum axis speed versus Y-axis stroke length can be taken from Fig. 12.1

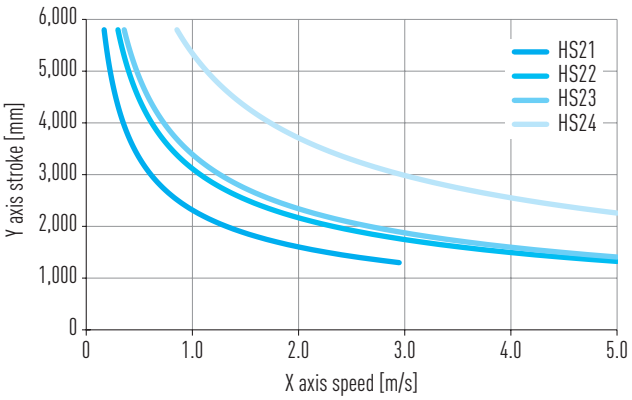


Fig. 12.1 **Max X-axis speed as a function of Y-axis stroke**

12.2 Order code for two-axis systems HS2

HS	2	2	X	D2	Y	M2 –

HIWIN axis system

Number of axes:
2

Size (profile width of X-axis):
1: 40 mm
2: 60 mm
3: 80 mm
4: 120 mm

Axis 1 identifier:
X

Type and size of axis 2:
M1: HM040B
M2: HM060B
M3: HM080B
T1: HT100B
T2: HT150B
T3: HT200B
T4: HT250B

Axis 2 identifier:
Y

Type and size of axis 1:
D1: Double axis HD1
D2: Double axis HD2
D3: Double axis HD3
D4: Double axis HD4

Order code for two-axis systems HS2 (continuation)

1000 –	0800	A	2	R	BR04	G0803 –	BE04	G0608

Stroke length of axis 1 [mm]

Stroke length of axis 2 [mm]

Axis limit switches:
N: Without limit switches
A: 2 × NC, 100 mm cable, plug

Energy chain:
N: Without energy chain
1: Energy chain on X-axis
2: Energy chain on X-axis and on Y-axis

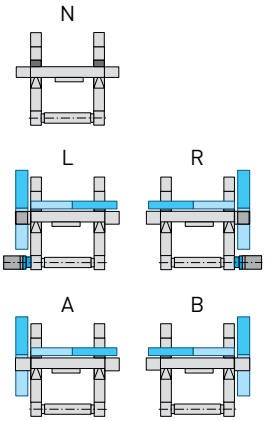
Gearbox, axis 2 [3]

Flange type of motor, axis 2 [4]

Gearbox, axis 1 [3]

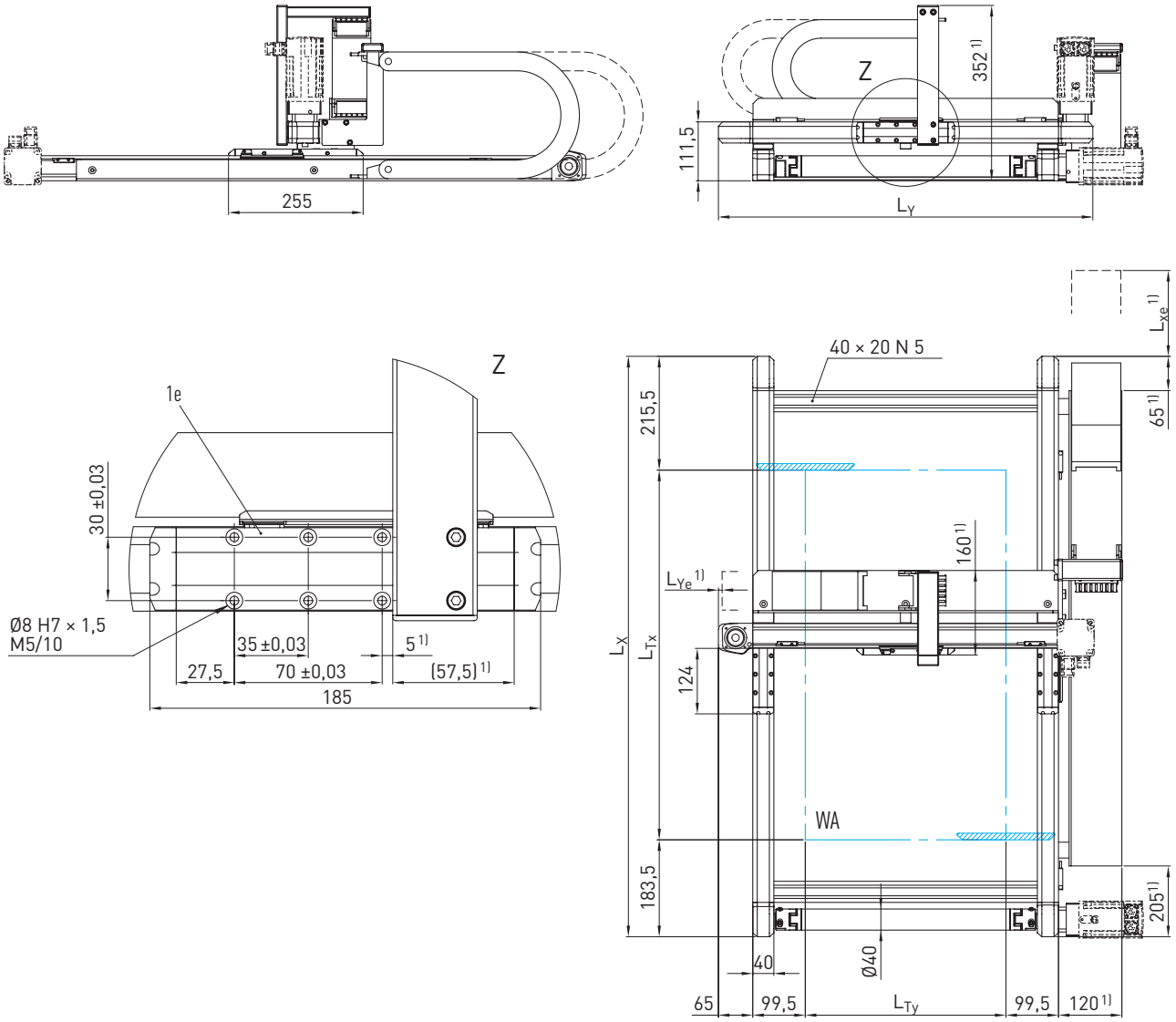
Flange type of motor, axis 1 [2]

Drive interface [1]
N: Without drive adapter/without energy chain
L: Drive adapter on left hand side
R: Drive adapter on right hand side
A: Without drive adapter, drive interface on left hand side
B: Without drive adapter, drive interface on right hand side



[1] If no drive interface is selected, the order code ends after this position
[2] All flange types can be found in Table 17.1 on Page 125 ff. "Gearbox, Axis 1" is applicable only when a flange type has been selected
[3] Suitable gearboxes can be found in Section 17.1.4.5 on Page 145 ff.
[4] All flange types for linear modules HM-B can be found in Table 17.1 on Page 125 ff., for linear tables HT-B in Table 17.2 on Page 129 ff.
If no gear box is selected, the order code ends after this position

12.3 Dimensions and specifications of HS21-D-M



1) Not applicable when variant without energy chain

L_T Stroke
WA Working space
1e Application interface

Table 12.1 **Dimensions of HS21-D-M**	
Total length X-axis L_X [mm]	$L_X = L_T + 399$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 329$

Table 12.2 **Energy chain**		
	X-axis	Y-axis
Internal cross section W × H [mm]	77 × 25	57 × 25
Bending radius [mm]	100	75
End position at electrical zero [mm]	L_{Xe} = 190.5	L_{Ye} = 7.0
End position at mechanical zero [mm]	L_{Xe} = 195.5	L_{Ye} = 2.0

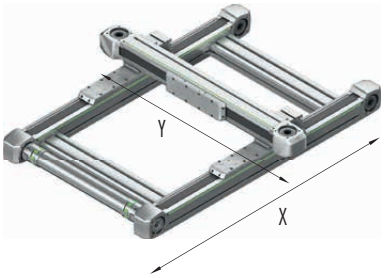


Table 12.3 **General technical data**

	X-axis	Y-axis
Axis type	HD1N	HM040B-N
Carriage type	L	M
Max feed force F_{x_max} [N]	450	300
Max speed [1] [m/s]	3	
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	8	5
Max stroke [mm]	3,000	1,300
Typical load capacity [kg]	5	

[1] Restrictions in version with energy chain possible, depending on stroke
Note: Dimensions and specifications of HD1 double axes can be found in Section 11.3 on Page 80
Dimensions and specifications of HM040B single axes can be found in Section 5.3 on Page 22

Table 12.4 **Drive**

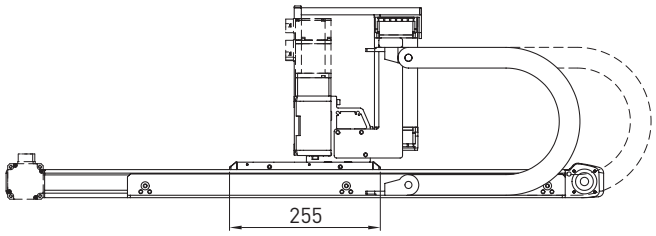
	X-axis	Y-axis
Toothed belt drive element	B15HTD3	
Feed constant [mm/rotation]	111	
Effective diameter of toothed belt pulley [mm]	35.33	

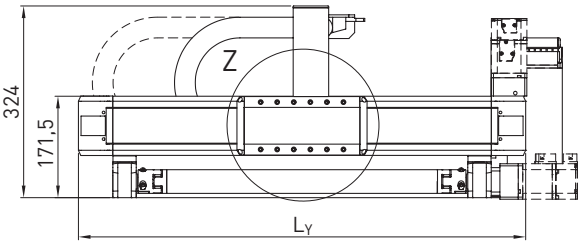
Table 12.5 **Mechanical properties**

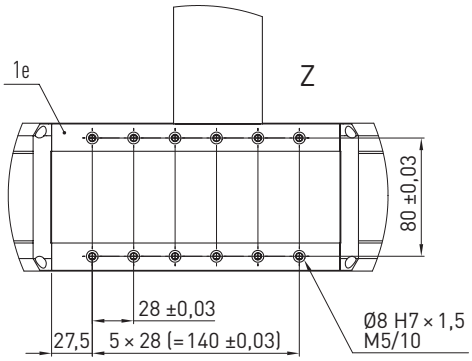
Moving mass on Y-axis [kg]	0.41
Moving mass on X-axis at 0 stroke Y-axis [kg]	2.92
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	3.02
Mass of complete system at 0 stroke X-and Y axes [kg]	6.93
Mass of complete system per 1 m of stroke X-axis [kg/m]	6.04
Mass of complete system per 1 m of stroke Y-axis [kg/m]	5.36

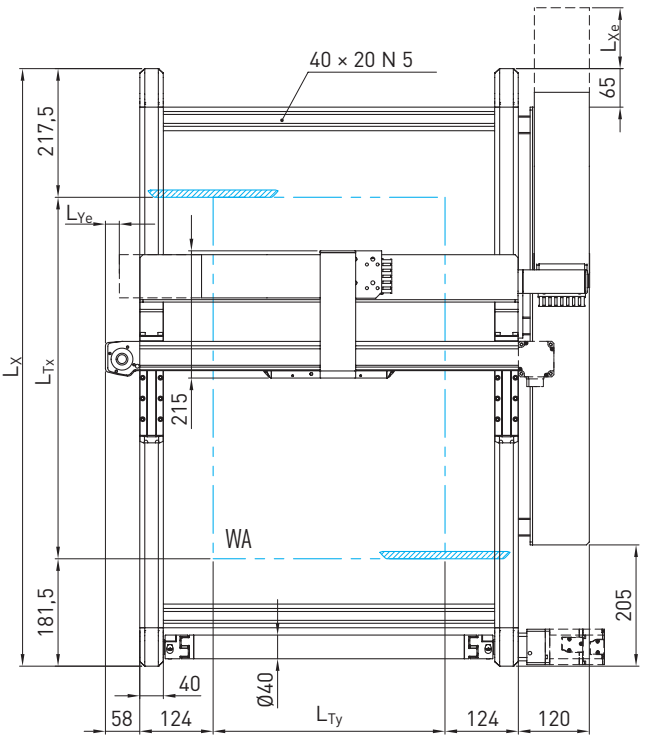
Note: All values without energy chain and without drive

12.4 Dimensions and specifications of HS21-D-T









L_T Stroke
WA Working space
1e Application interface

Table 12.6 **Dimensions of HS21-D-T**	
Total length X-axis L_X [mm]	$L_X = L_T + 399$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 364$

Table 12.7 **Energy chain**		
	X-axis	Y-axis
Internal cross section W × H [mm]	77 × 25	57 × 25
Bending radius [mm]	100	75
End position at electrical zero [mm]	L_{Xe} = 190.5	L_{Ye} = 23.5
End position at mechanical zero [mm]	L_{Xe} = 195.5	L_{Ye} = 11.0

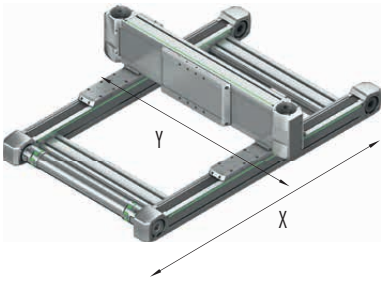


Table 12.8 **General technical data**

	X-axis	Y-axis
Axis type	HD1N	HT100B-C
Carriage type	L	S
Max feed force F_{x_max} [N]	450	813
Max speed [1] [m/s]	3	5
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	8	14
Max stroke [mm]	3,000	1,300
Typical load capacity [kg]	20	

[1] Restrictions in version with energy chain possible, depending on stroke
Note: Dimensions and specifications of HD1 double axes can be found in Section 11.3 on Page 80
Dimensions and specifications of the HT100B linear table can be found in Section 7.3 on Page 42

Table 12.9 **Drive**

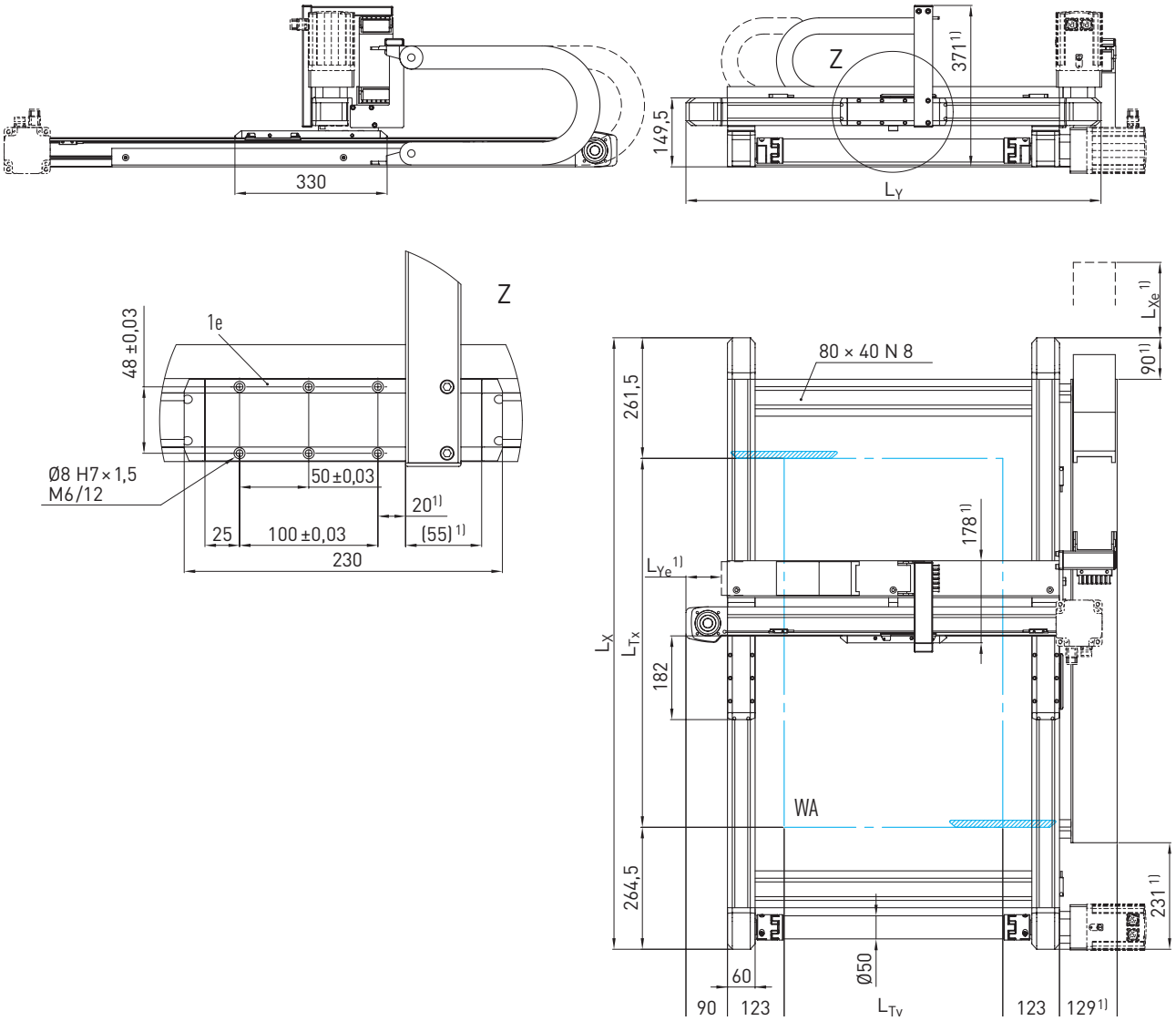
	X-axis	Y-axis
Toothed belt drive element	B15HTD3	B25HTD5
Feed constant [mm/rotation]	111	105
Effective diameter of toothed belt pulley [mm]	35.33	33.42

Table 12.10 **Mechanical properties**

Moving mass on Y-axis [kg]	1.59
Moving mass on X-axis at 0 stroke Y-axis [kg]	5.72
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	6.71
Mass of complete system at 0 stroke X and Y axes [kg]	9.98
Mass of complete system per 1 m of stroke X-axis [kg/m]	6.04
Mass of complete system per 1 m of stroke Y-axis [kg/m]	9.10

Note: All values without energy chain and without drive

12.5 Dimensions and specifications of HS22-D-M



1) Not applicable when variant without energy chain

L_T Stroke
WA Working space
1e Application interface

Table 12.11 **Dimensions of HS22-D-M**	
Total length X-axis L_X [mm]	$L_X = L_T + 526$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 426$

Table 12.12 **Energy chain**		
	X-axis	Y-axis
Internal cross section W × H [mm]	75 × 35	57 × 25
Bending radius [mm]	100	75
End position at electrical zero [mm]	L_{Xe} = 199.0	L_{Ye} = 45.5
End position at mechanical zero [mm]	L_{Xe} = 206.5	L_{Ye} = 38.0

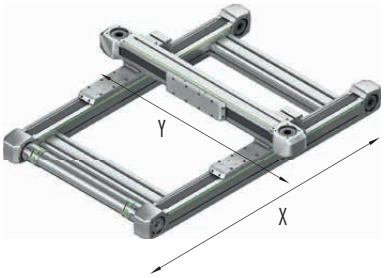


Table 12.13 **General technical data**

	X-axis	Y-axis
Axis type	HD2N	HM060B-N
Carriage type	L	M
Max feed force F_{x_max} [N]	1,323	882
Max speed [1] [m/s]	5	
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	33	22
Max stroke [mm]	5,000	1,700
Typical load capacity [kg]	12	

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD2 double axes can be found in Section 11.4 on Page 81
Dimensions and specifications of HM060B single axes can be found in Section 5.4 on Page 24

Table 12.14 **Drive**

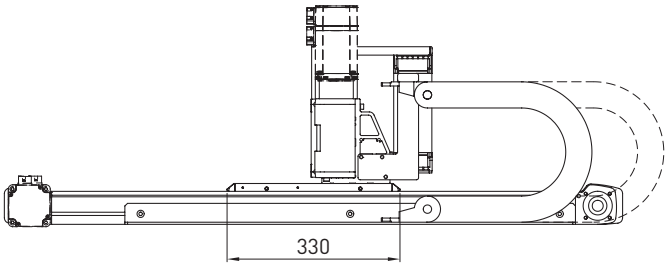
	X-axis	Y-axis
Toothed belt drive element	B25HTD5	
Feed constant [mm/rotation]	155	
Effective diameter of toothed belt pulley [mm]	49.34	

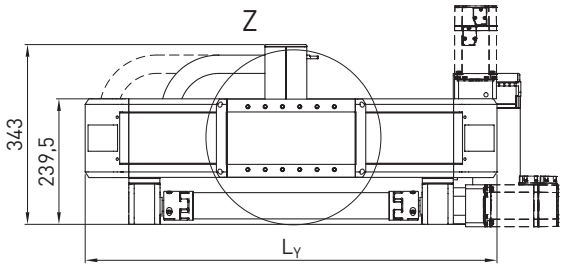
Table 12.15 **Mechanical properties**

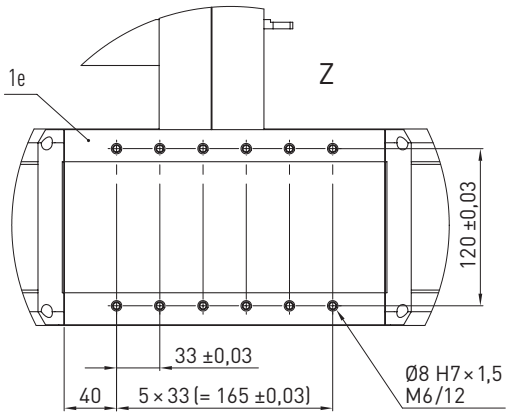
Moving mass on Y-axis [kg]	1.02
Moving mass on X-axis at 0 stroke Y-axis [kg]	7.04
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	5.47
Mass of complete system at 0 stroke X-and Y axes [kg]	17.23
Mass of complete system per 1 m of stroke X-axis [kg/m]	10.93
Mass of complete system per 1 m of stroke Y-axis [kg/m]	15.70

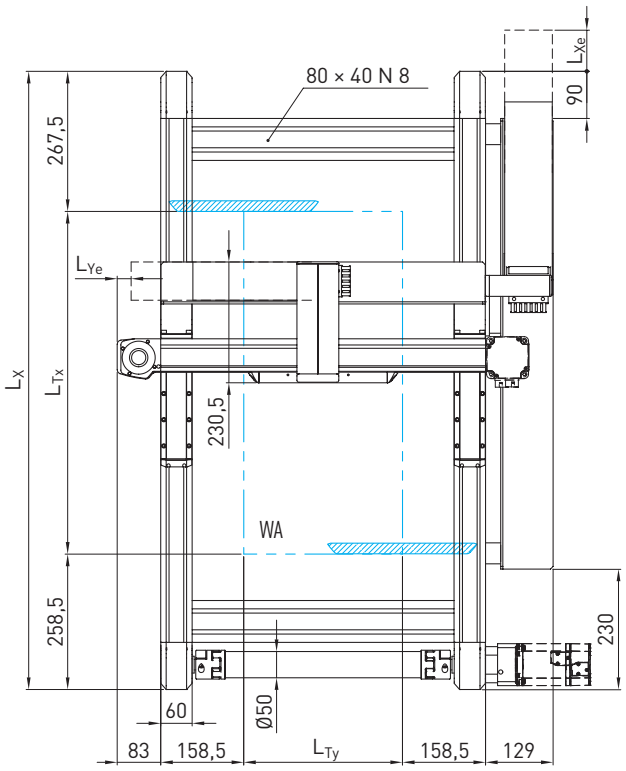
Note: All values without energy chain and without drive

12.6 Dimensions and specifications of HS22-D-T









L_T Stroke
WA Working space
1e Application interface

Table 12.16 **Dimensions of HS22-D-T**	
Total length X-axis L_X [mm]	$L_X = L_T + 526$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 483$

Table 12.17 **Energy chain**		
	X-axis	Y-axis
Internal cross section W × H [mm]	75 × 35	57 × 25
Bending radius [mm]	100	75
End position at electrical zero [mm]	L_{Xe} = 199.0	L_{Ye} = 26.5
End position at mechanical zero [mm]	L_{Xe} = 206.5	L_{Ye} = 16.5

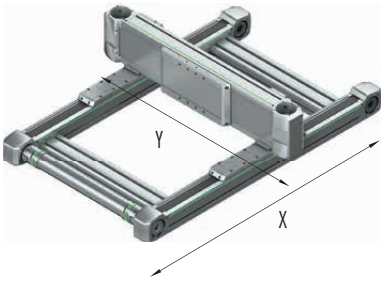


Table 12.18 **General technical data**

	X-axis	Y-axis
Axis type	HD2N	HT150B-C
Carriage type	L	S
Max feed force F_{x_max} [N]	1,323	1,300
Max speed [1] [m/s]	5	
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	33	32
Max stroke [mm]	5,000	1,650
Typical load capacity [kg]	40	

[1] Restrictions in version with energy chain possible, depending on stroke
Note: Dimensions and specifications of HD2 double axes can be found in Section 11.4 on Page 81
Dimensions and specifications of the HT150B linear table can be found in Section 7.4 on Page 44

Table 12.19 **Drive**

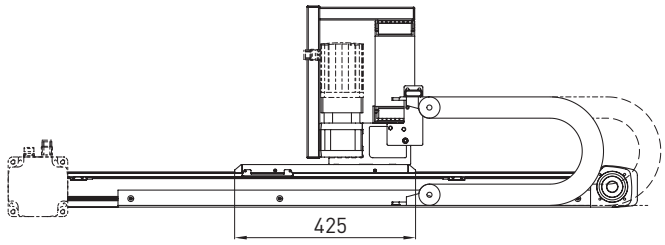
	X-axis	Y-axis
Toothed belt drive element	B25HTD5	B40HTD5
Feed constant [mm/rotation]	155	
Effective diameter of toothed belt pulley [mm]	49.34	

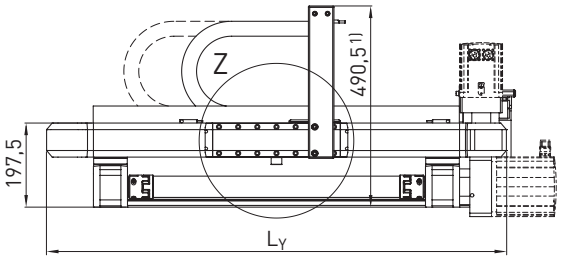
Table 12.20 **Mechanical properties**

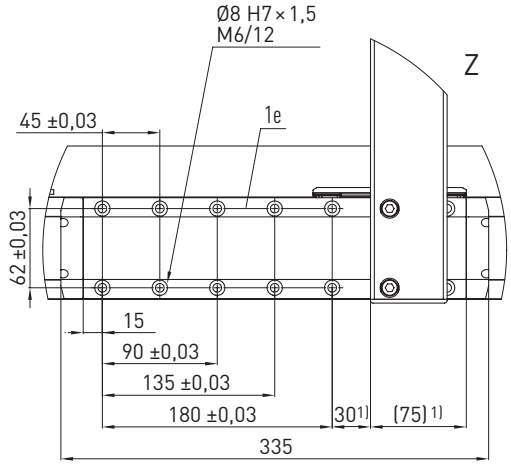
Moving mass on Y-axis [kg]	3.08
Moving mass on X-axis at 0 stroke Y-axis [kg]	12.87
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	11.16
Mass of complete system at 0 stroke X and Y axes [kg]	24.09
Mass of complete system per 1 m of stroke X-axis [kg/m]	10.93
Mass of complete system per 1 m of stroke Y-axis [kg/m]	21.48

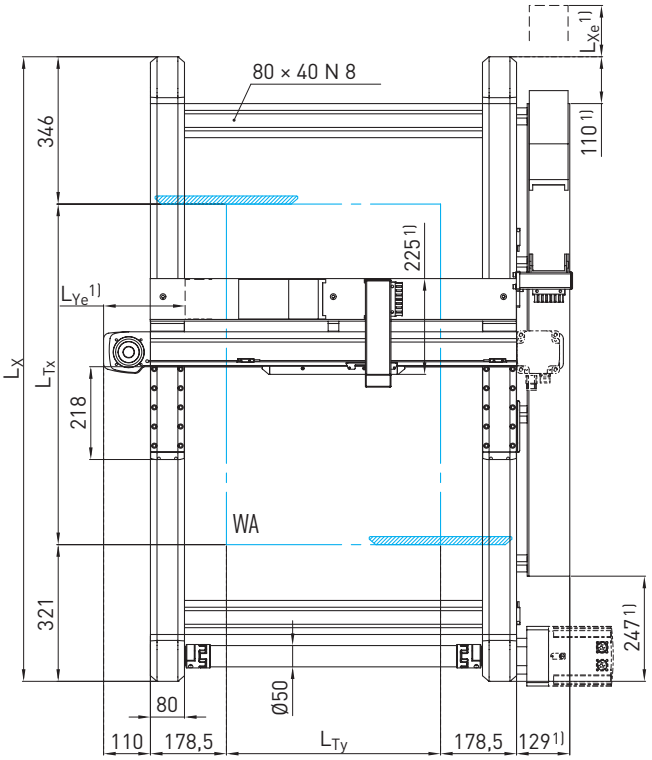
Note: All values without energy chain and without drive

12.7 Dimensions and specifications of HS23-D-M









1) Not applicable when variant without energy chain

L_T Stroke
WA Working space
1e Application interface

Table 12.21 **Dimensions of HS23-D-M**

Total length X-axis L_X [mm]	$L_X = L_T + 667$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 577$

Table 12.22 **Energy chain**

	X-axis	Y-axis
Internal cross section W × H [mm]	75 × 35	77 × 25
Bending radius [mm]	100	100
End position at electrical zero [mm]	L_{Xe} = 159.5	L_{Ye} = 158.5
End position at mechanical zero [mm]	L_{Xe} = 169.5	L_{Ye} = 148.5

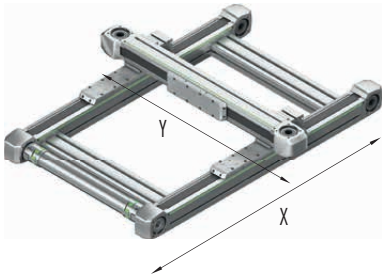


Table 12.23 **General technical data**

	X-axis	Y-axis
Axis type	HD3N	HM080B-N
Carriage type	L	M
Max feed force F_{x_max} [N]	1,852	1,235
Max speed [1] [m/s]	5	
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	56	37
Max stroke [mm]	5,000	1,600
Typical load capacity [kg]	30	

[1] Restrictions in version with energy chain possible, depending on stroke
Note: Dimensions and specifications of HD3 double axes can be found in Section 11.5 on Page 82
Dimensions and specifications of HM080B single axes can be found in Section 5.5 on Page 26

Table 12.24 **Drive**

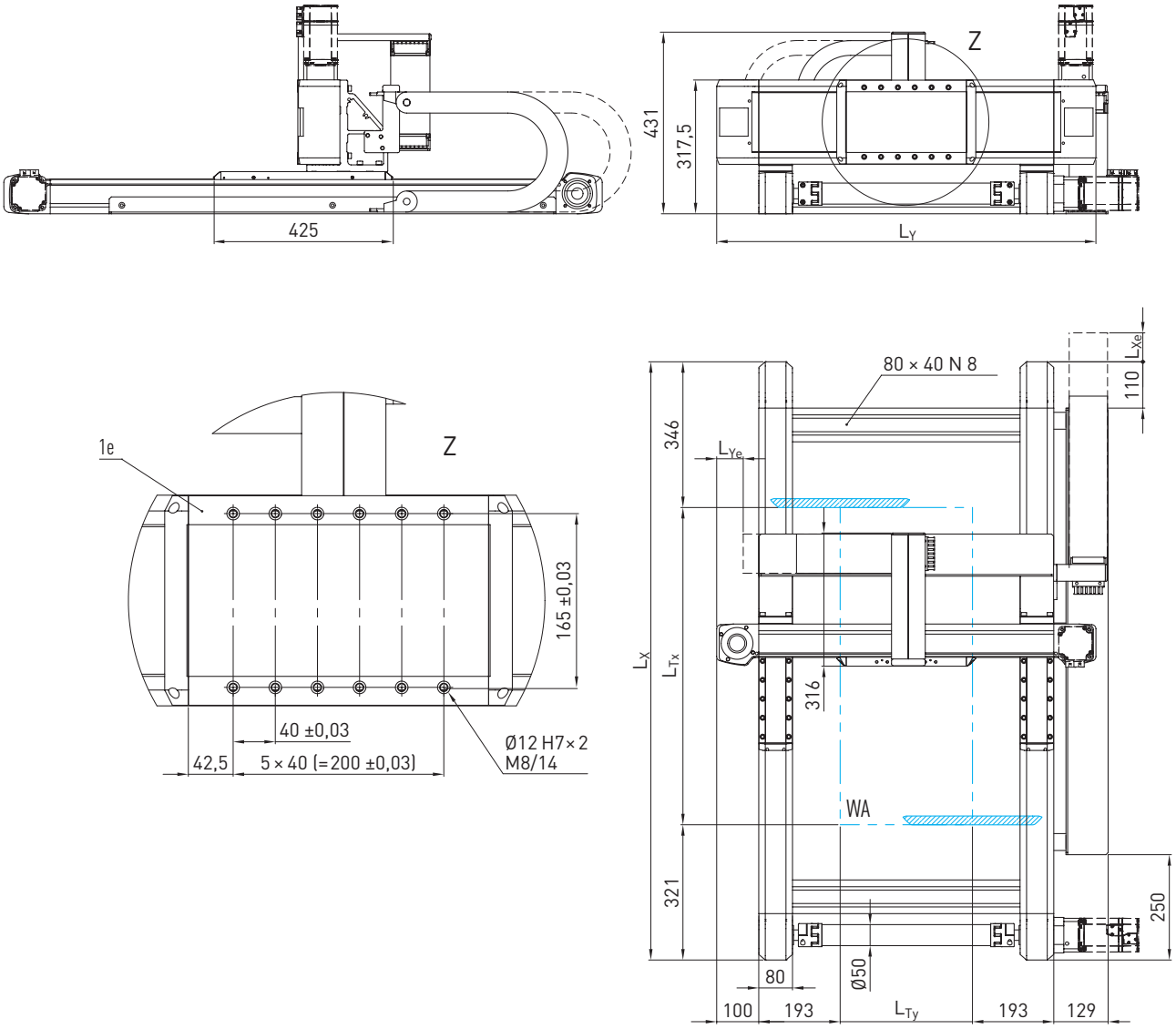
	X-axis	Y-axis
Toothed belt drive element	B35HTD5	
Feed constant [mm/rotation]	190	
Effective diameter of toothed belt pulley [mm]	60.48	

Table 12.25 **Mechanical properties**

Moving mass on Y-axis [kg]	2.09
Moving mass on X-axis at 0 stroke Y-axis [kg]	15.12
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	9.86
Mass of complete system at 0 stroke X-and Y axes [kg]	35.39
Mass of complete system per 1 m of stroke X-axis [kg/m]	19.73
Mass of complete system per 1 m of stroke Y-axis [kg/m]	20.27

Note: All values without energy chain and without drive

12.8 Dimensions and specifications of HS23-D-T



L_T Stroke
WA Working space
1e Application interface

Table 12.26 **Dimensions of HS23-D-T**

Total length X-axis L_X [mm]	$L_X = L_T + 667$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 586$

Table 12.27 **Energy chain**

	X-axis	Y-axis
Internal cross section W × H [mm]	75 × 35	77 × 25
Bending radius [mm]	100	100
End position at electrical zero [mm]	L_{Xe} = 159.5	L_{Ye} = 63.0
End position at mechanical zero [mm]	L_{Xe} = 169.5	L_{Ye} = 48.0

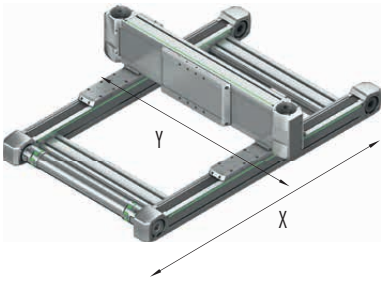


Table 12.28 **General technical data**

	X-axis	Y-axis
Axis type	HD3N	HT200B-C
Carriage type	L	S
Max feed force F_{x_max} [N]	1,852	3,000
Max speed [1] [m/s]	5	
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	56	88
Max stroke [mm]	5,000	1,550
Typical load capacity [kg]	80	

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD3 double axes can be found in Section 11.5 on Page 82
Dimensions and specifications of the HT200B linear table can be found in Section 7.5 on Page 46

Table 12.29 **Drive**

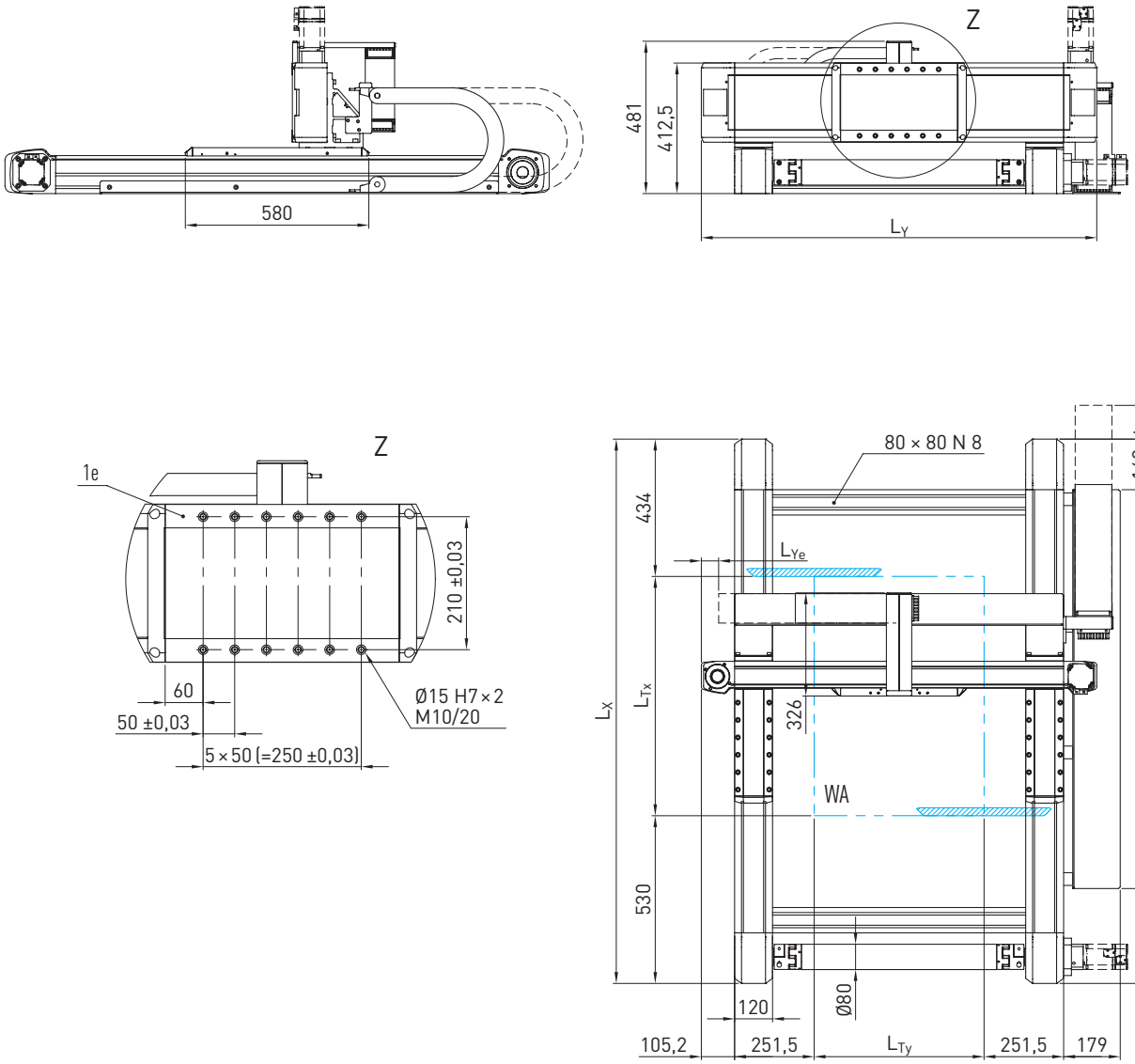
	X-axis	Y-axis
Toothed belt drive element	B35HTD5	B50HTD8
Feed constant [mm/rotation]	190	184
Effective diameter of toothed belt pulley [mm]	60.48	58.57

Table 12.30 **Mechanical properties**

Moving mass on Y-axis [kg]	5.52
Moving mass on X-axis at 0 stroke Y-axis [kg]	25.46
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	17.57
Mass of complete system at 0 stroke X and Y axes [kg]	46.78
Mass of complete system per 1 m of stroke X-axis [kg/m]	19.73
Mass of complete system per 1 m of stroke Y-axis [kg/m]	28.01

Note: All values without energy chain and without drive

12.9 Dimensions and specifications of HS24-D-T



L_T Stroke
WA Working space
1e Application interface

Table 12.31 **Dimensions of HS24-D-T**	
Total length X-axis L_X [mm]	$L_X = L_T + 964$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 713$

Table 12.32 **Energy chain**		
	X-axis	Y-axis
Internal cross section W × H [mm]	100 × 35	77 × 25
Bending radius [mm]	125	100
End position at electrical zero [mm]	$L_{Xe} = 116.5$	$L_{Ye} = 111.5$
End position at mechanical zero [mm]	$L_{Xe} = 136.5$	$L_{Ye} = 91.5$

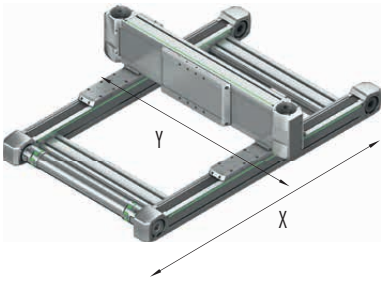


Table 12.33 **General technical data**

	X-axis	Y-axis
Axis type	HD4N	HT250B-C
Carriage type	L	S
Max feed force F_{x_max} [N]	4,385	4,500
Max speed [1] [m/s]	5	
Max acceleration [1] [m/s²]	30	
Max drive torque M_{A_max} [Nm]	201	149
Max stroke [mm]	5,000	1,400
Typical load capacity [kg]	130	

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD4 double axes can be found in Section 11.6 on Page 83
Dimensions and specifications of the HT250B linear table can be found in Section 7.6 on Page 48

Table 12.34 **Drive**

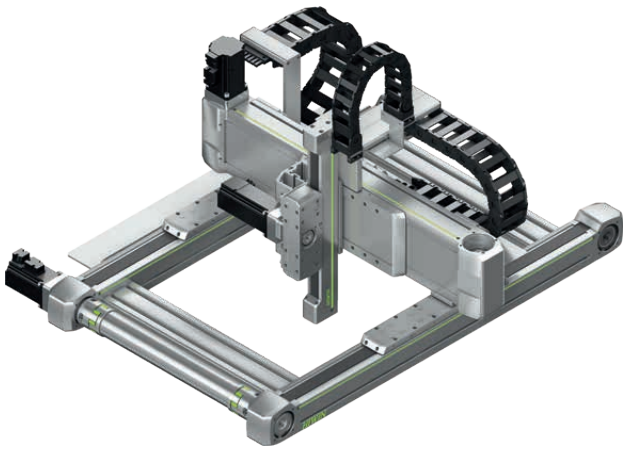
	X-axis	Y-axis
Toothed belt drive element	B60HTD8	B75HTD8
Feed constant [mm/rotation]	288	208
Effective diameter of toothed belt pulley [mm]	91.67	66.21

Table 12.35 **Mechanical properties**

Moving mass on Y-axis [kg]	10.27
Moving mass on X-axis at 0 stroke Y-axis [kg]	51.29
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	22.87
Mass of complete system at 0 stroke X and Y axes [kg]	111.64
Mass of complete system per 1 m of stroke X-axis [kg/m]	41.54
Mass of complete system per 1 m of stroke Y-axis [kg/m]	39.62

Note: All values without energy chain and without drive

13. Three-axis systems HS3



13.1 Properties of the three-axis systems HS3

HIWIN three-axis systems HS3 are flexible units for positioning along the X-, Y- and Z-axes. They consist of a HIWIN double axis HD along the X-axis, a HIWIN HT-B belt axis along the Y-axis and a HIWIN cantilever axis along the Z-axis. HIWIN three-axis systems HS3 have been designed specifically for 3D movements.

Energy chain

Generously dimensioned energy chains provide space for the reliable carrying of supply cables. At the same time, the energy chains are particularly compact and space saving solutions when integrated in the complete system.

Maximum X-axis speed

The maximum X-axis speed is a function of the size and the distance between axes presented by the Y-axis stroke of the three-axis system HS3. The maximum axis speed versus Y-axis stroke length can be taken from Fig. 13.1

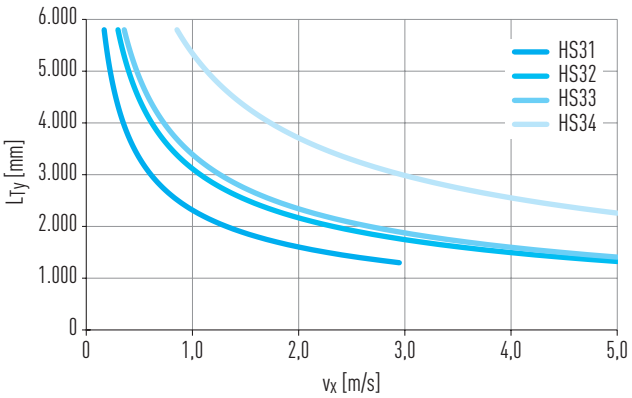


Fig. 13.1 **Max X-axis speed as a function of Y-axis stroke**

13.2 Order code for three-axis systems HS3

HS	3	2	X	D2	Y	T2	Z	C1 –

HIWIN axis system

Number of axes:
3

Size (profile width of X-axis):
1: 40 mm
2: 60 mm
3: 80 mm
4: 120 mm

Axis 1 identifier:
X

Type and size of axis 1:
D1: Double axis HD1
D2: Double axis HD2
D3: Double axis HD3
D4: Double axis HD4

Type and size of axis 3:
C0: HC025B
C1: HC040B
C2: HC060B
C3: HC080B

Axis 3 identifier:
Z

Type and size of axis 2:
T1: HT100B
T2: HT150B
T3: HT200B
T4: HT250B

Axis 2 identifier:
Y

Order code for three-axis systems HS32 (continuation)

1000 –	0800 –	0600	A	3	R	BR04	G0803 –	BE04	G0608 –	B002	G0405

Stroke length of axis 1 [mm]

Stroke length of axis 2 [mm]

Stroke length of axis 3 [mm]

Axis limit switches:
N: Without limit switches
A: 2 × NC, 100 mm cable, plug

Energy chain:
N: Without energy chain
1: Energy chain on X-axis
2: Energy chain on X-axis and on Y-axis
3: Energy chain on X-axis, on Y-axis and on Z-axis

Gearbox, axis 3 [3]

Flange type of motor, axis 3 [5]

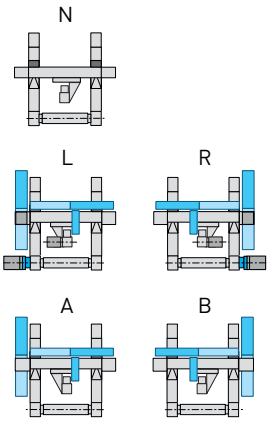
Gearbox, axis 2 [3]

Flange type of motor, axis 2 [4]

Gearbox, axis 1 [3]

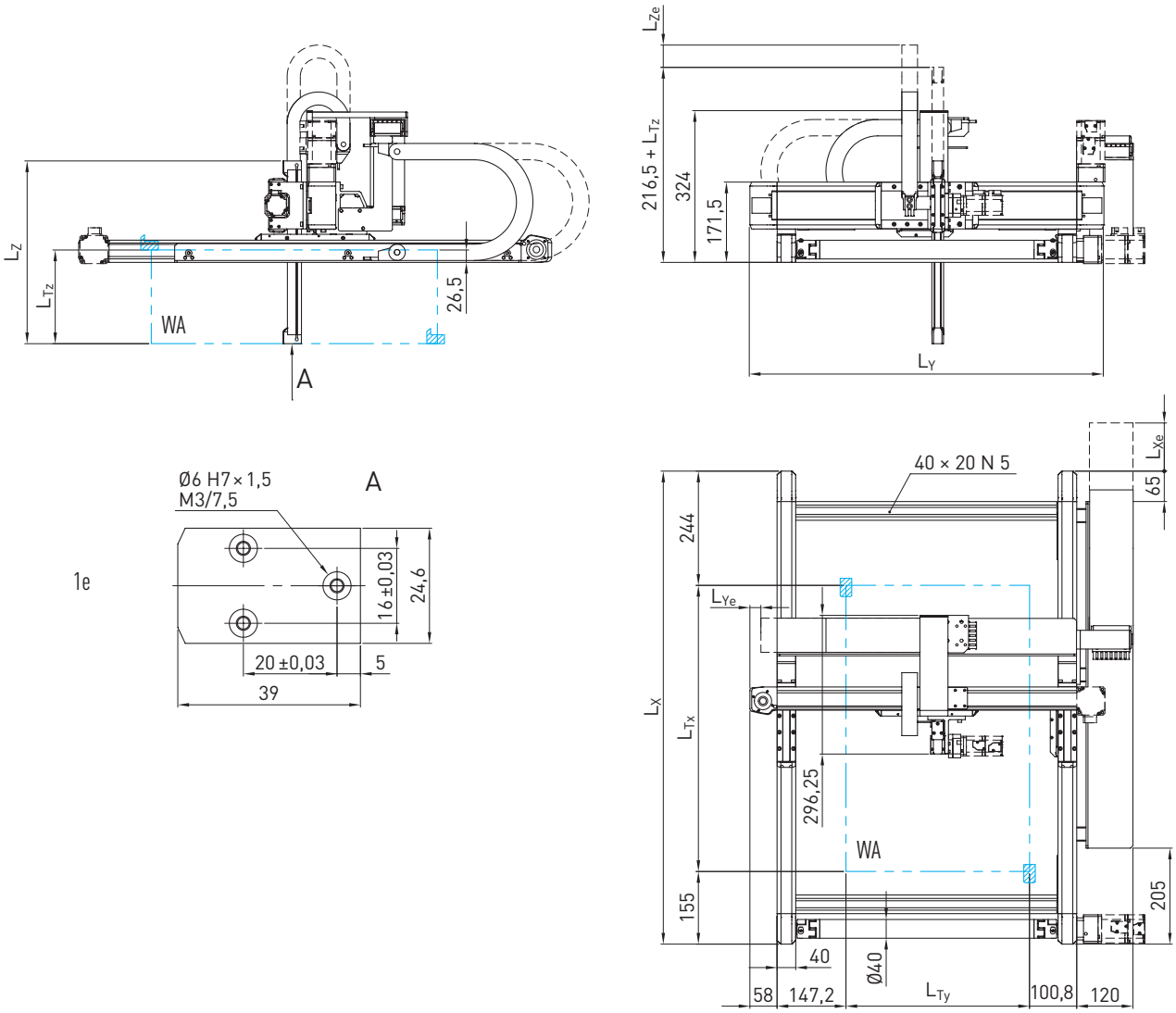
Flange type of motor, axis 1 [2]

Drive interface [1]:
N: Without drive adapter/ without energy chain
L: Drive adapter on the left
R: Drive adapter on the right
A: Without drive adapter, drive interface on the left
B: Without drive adapter, drive interface on the right



[1] If no drive interface is selected, the order code ends after this position
[2] All flange types can be found in Table 17.1 on Page 125 ff. "Gearbox, axis 1" is applicable only when a flange type has been selected
[3] Suitable gearboxes can be found in Section 17.1.4.5 on Page 145 ff.
[4] All flange types can be found in Table 17.2 on Page 129 ff. "Gearbox, axis 2" is applicable only when a flange type has been selected
[5] All flange types can be found in Table 17.3 on Page 133 ff. If no gear box is selected, the order code ends after this position

13.3 Dimensions and specifications of HS31-D-T-C



L_T Stroke
WA Working space
1e Application interface

Table 13.1 **Dimensions of HS31-D-T-C**	
Total length X-axis L_X [mm]	$L_X = L_T + 399$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 364$
Total length Z-axis L_Z [mm]	$L_Z = L_T + 190$

Table 13.2 **Energy chain**			
	X-axis	Y-axis	Z-axis
Internal cross section B × H [mm]	77 × 25	57 × 25	20 × 21
Bending radius [mm]	100	75	48
End position at electrical zero [mm]	$L_{Xe} = 190.5$	$L_{Ye} = 23.5$	$L_{Ze} = 151.0 - L_T/2$
End position at mechanical zero [mm]	$L_{Xe} = 195.5$	$L_{Ye} = 11.0$	$L_{Ze} = 147.5 - L_T/2$

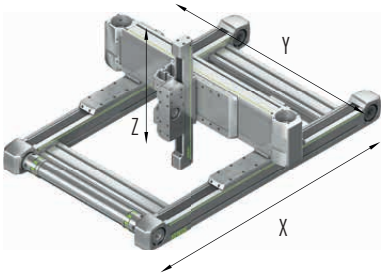


Table 13.3 **General technical data**

	X-axis	Y-axis	Z-axis
Axis type	HD1N	HT100B-C	HC025B
Carriage type	L	S	
Max. feed force F_{x_max} [N]	450	813	241
Max. speed [1] [m/s]	3	5	3
Max. acceleration [1] [m/s²]	30		
Max. drive torque M_{A_max} [Nm]	8	14	3
Max. stroke [mm]	3,000	1,300	300
Typical load capacity [kg]	2		

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD1 double axes can be found in Section 11.3 on Page 80
Dimensions and specifications of HT100B single axes can be found in Section 7.3 on Page 42
Dimensions and specifications of HC025B single axes can be found in Section 10.3 on Page 70

Table 13.4 **Drive**

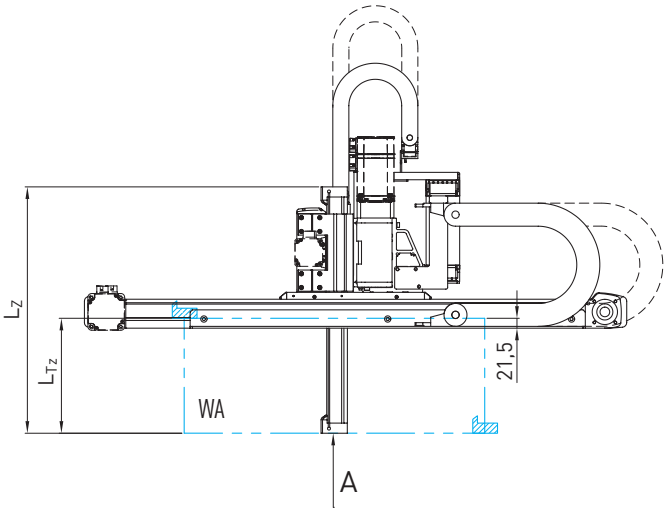
	X-axis	Y-axis	Z-axis
Toothed belt drive element	B15HTD3	B25HTD5	B12HTD3
Feed constant [mm/rotation]	111	105	81
Effective diameter of toothed belt pulley [mm]	35.33	33.42	25.78

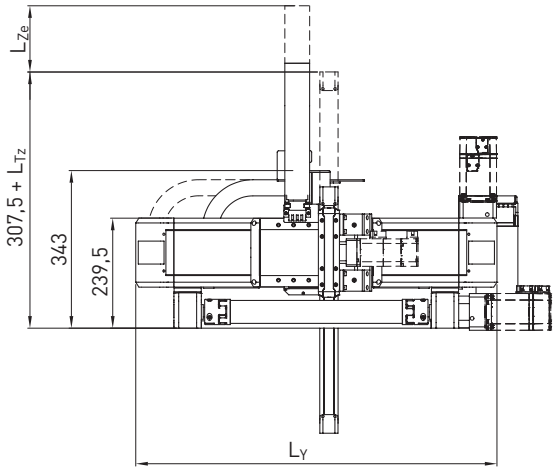
Table 13.5 **Mechanical properties**

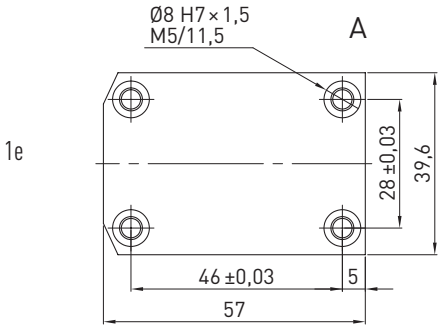
Moving mass on Z-axis at 0 stroke [kg]	0.30
Moving mass on Z-axis per 1 m of stroke [kg/m]	1.27
Moving mass on Y-axis at 0 stroke Z-axis [kg]	2.32
Moving mass on X-axis at 0 stroke Y- and Z-axes [kg]	6.45
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	6.71
Mass of complete system at 0 stroke X-, Y- and Z-axes [kg]	10.71
Mass of complete system per 1 m of stroke X-axis [kg/m]	6.04
Mass of complete system per 1 m of stroke Y-axis [kg/m]	9.10
Mass of complete system per 1 m of stroke Z-axis [kg/m]	1.27

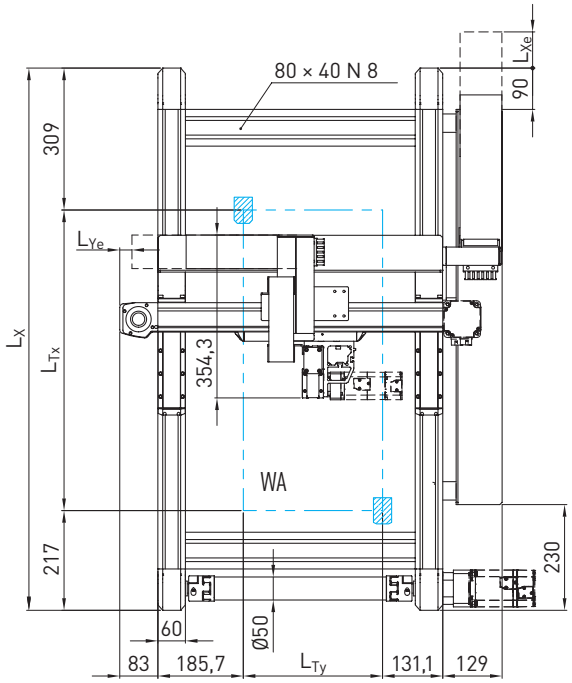
Note: All values without energy chain and without drive

13.4 Dimensions and specifications of HS32-D-T-C









L_T Stroke
WA Working space
1e Application interface

Table 13.6 **Dimensions of HS32-D-T-C**	
Total length X-axis L_X [mm]	$L_X = L_T + 526$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 483$
Total length Z-axis L_Z [mm]	$L_Z = L_T + 286$

Table 13.7 **Energy chain**			
	X-axis	Y-axis	Z-axis
Internal cross section B × H [mm]	75 × 35	57 × 25	38 × 25
Bending radius [mm]	100	75	75
End position at electrical zero [mm]	$L_{Xe} = 199.0$	$L_{Ye} = 26.5$	$L_{Ze} = 274.0 - L_T/2$
End position at mechanical zero [mm]	$L_{Xe} = 206.5$	$L_{Ye} = 16.5$	$L_{Ze} = 269.0 - L_T/2$

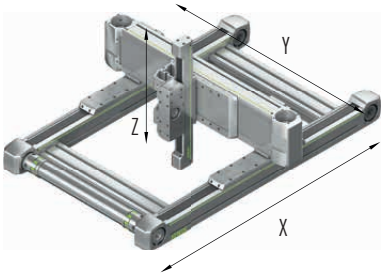


Table 13.8 **General technical data**

	X-axis	Y-axis	Z-axis
Axis type	HD2N	HT150B-C	HC040B
Carriage type	L	S	
Max. feed force F_{x_max} [N]	1,323	1,300	404
Max. speed [1] [m/s]	5		3
Max. acceleration [1] [m/s²]	30		
Max. drive torque M_{A_max} [Nm]	33	32	8
Max. stroke [mm]	5,000	1,650	500
Typical load capacity [kg]	8		

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD2 double axes can be found in Section 11.4 on Page 81
Dimensions and specifications of HT150B single axes can be found in Section 7.4 on Page 44
Dimensions and specifications of HC040B single axes can be found in Section 10.4 on Page 72

Table 13.9 **Drive**

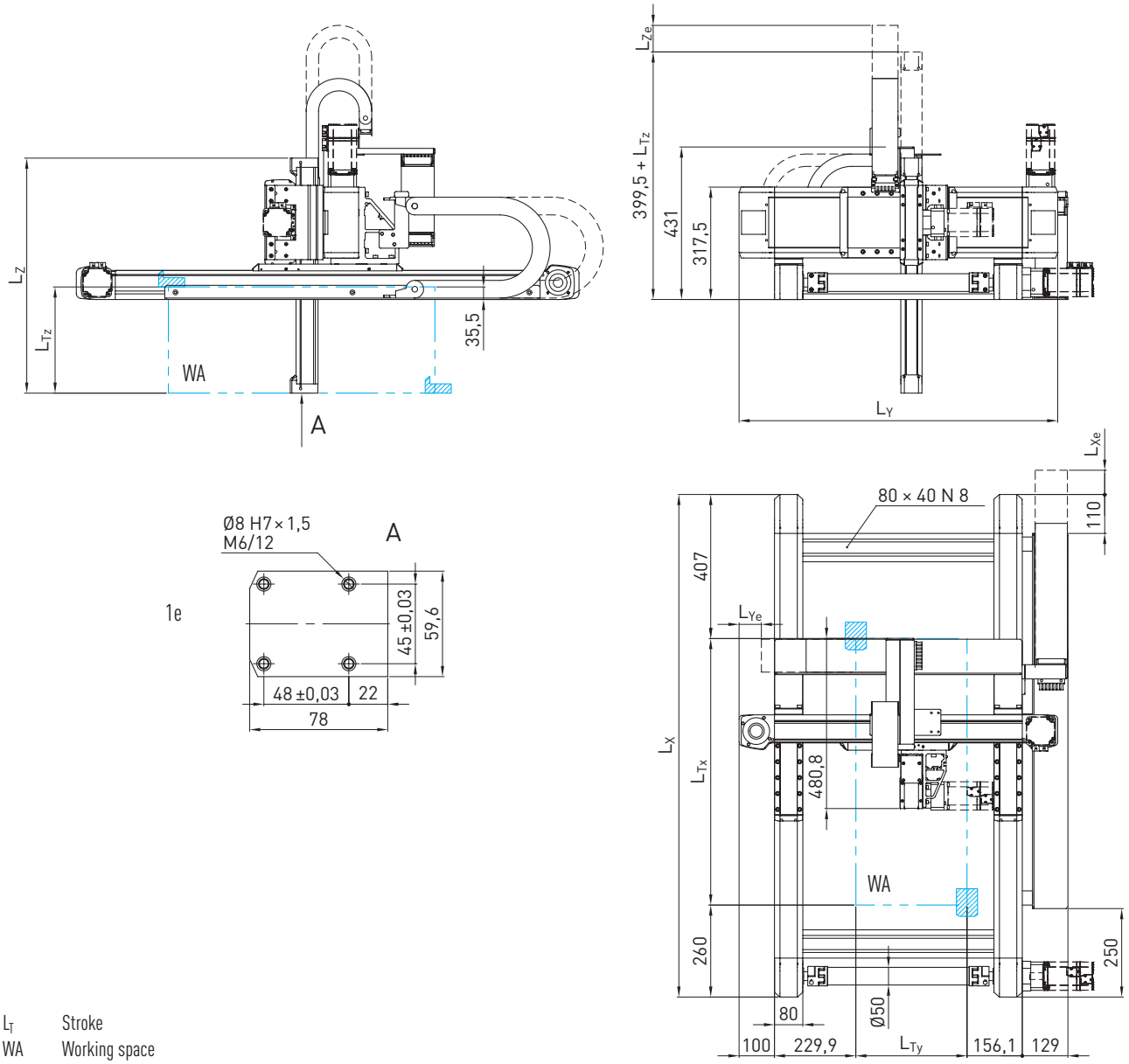
	X-axis	Y-axis	Z-axis
Toothed belt drive element	B25HTD5	B40HTD5	B20HDT3
Feed constant [mm/rotation]	155		123
Effective diameter of toothed belt pulley [mm]	49.34		39.15

Table 13.10 **Mechanical properties**

Moving mass on Z-axis at 0 stroke [kg]	0.92
Moving mass on Z-axis per 1 m of stroke [kg/m]	2.76
Moving mass on Y-axis at 0 stroke Z-axis [kg]	6.52
Moving mass on X-axis at 0 stroke Y- and Z-axes [kg]	16.31
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	11.16
Mass of complete system at 0 stroke X-, Y- and Z-axes [kg]	27.53
Mass of complete system per 1 m of stroke X-axis [kg/m]	10.93
Mass of complete system per 1 m of stroke Y-axis [kg/m]	21.48
Mass of complete system per 1 m of stroke Z-axis [kg/m]	2.76

Note: All values without energy chain and without drive

13.5 Dimensions and specifications of HS33-D-T-C



L_T Stroke
WA Working space
1e Application interface

Table 13.11 **Dimensions of HS33-D-T-C**	
Total length X-axis L_X [mm]	$L_X = L_T + 667$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 586$
Total length Z-axis L_Z [mm]	$L_Z = L_T + 364$

Table 13.12 **Energy chain**			
	X-axis	Y-axis	Z-axis
Internal cross section B × H [mm]	75 × 35	77 × 25	57 × 25
Bending radius [mm]	100	100	75
End position at electrical zero [mm]	$L_{Xe} = 159.5$	$L_{Ye} = 63.0$	$L_{Ze} = 282.5 - L_T/2$
End position at mechanical zero [mm]	$L_{Xe} = 169.5$	$L_{Ye} = 48.0$	$L_{Ze} = 275.0 - L_T/2$

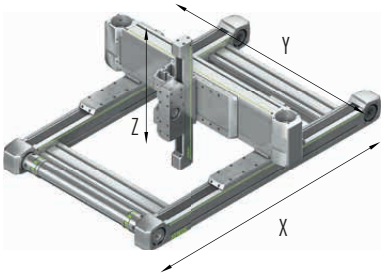


Table 13.13 **General technical data**

	X-axis	Y-axis	Z-axis
Axis type	HD3N	HT200B-C	HC060B
Carriage type	L	S	
Max. feed force F_{x_max} [N]	1,852	3,000	983
Max. speed [1] [m/s]	5		
Max. acceleration [1] [m/s²]	30		
Max. drive torque M_{A_max} [Nm]	56	88	27
Max. stroke [mm]	5,000	1,550	800
Typical load capacity [kg]	16		

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD3 double axes can be found in Section 11.5 on Page 82
Dimensions and specifications of HT200B single axes can be found in Section 7.5 on Page 46
Dimensions and specifications of HC060B single axes can be found in Section 10.5 on Page 74

Table 13.14 **Drive**

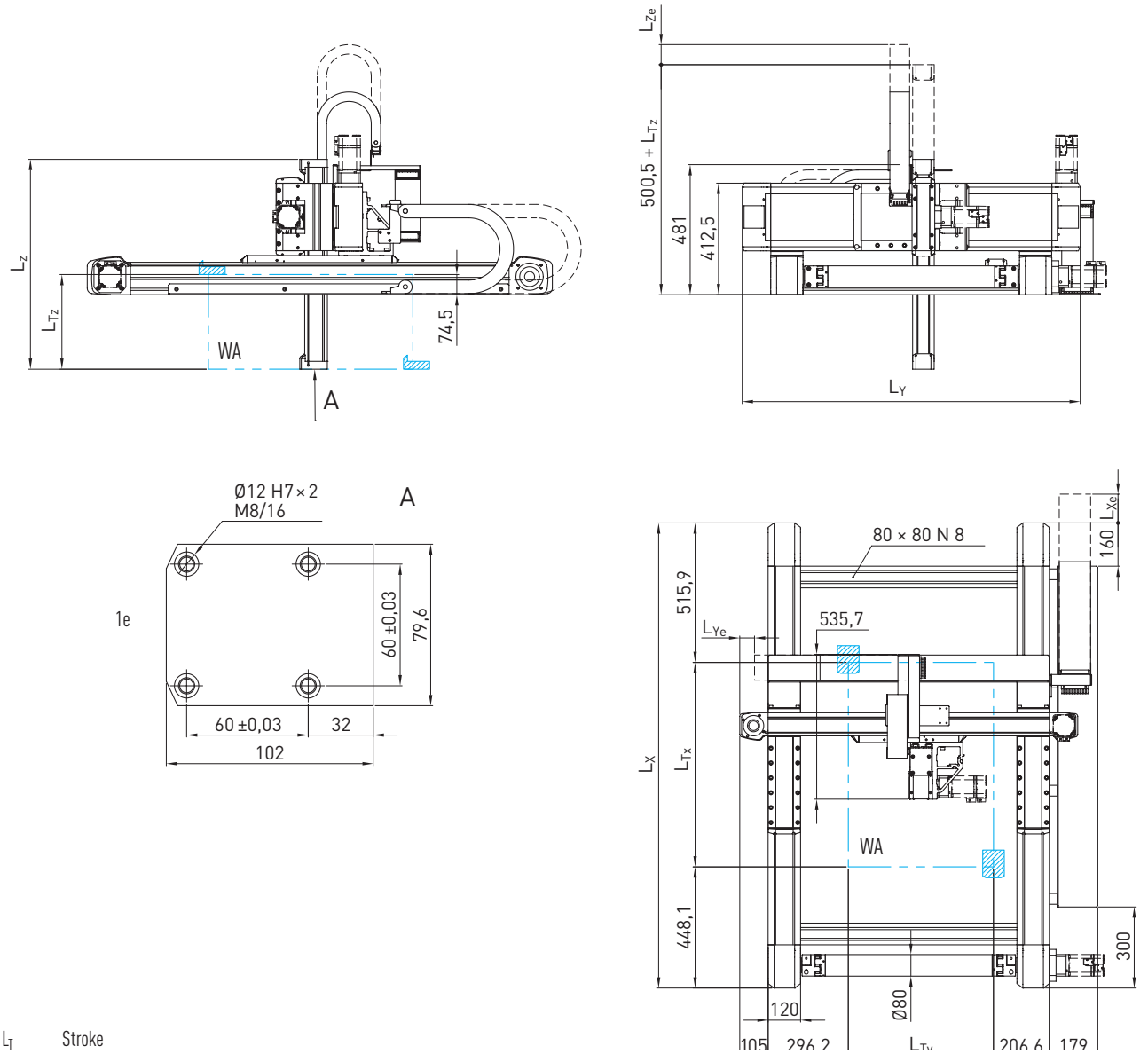
	X-axis	Y-axis	Z-axis
Toothed belt drive element	B35HTD5	B50HTD8	B30HTD5
Feed constant [mm/rotation]	190	184	170
Effective diameter of toothed belt pulley [mm]	60.48	58.57	54.11

Table 13.15 **Mechanical properties**

Moving mass on Z-axis at 0 stroke [kg]	2.24
Moving mass on Z-axis per 1 m of stroke [kg/m]	5.17
Moving mass on Y-axis at 0 stroke Z-axis [kg]	12.71
Moving mass on X-axis at 0 stroke Y- and Z-axes [kg]	32.64
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	17.57
Mass of complete system at 0 stroke X-, Y- and Z-axes [kg]	53.96
Mass of complete system per 1 m of stroke X-axis [kg/m]	19.73
Mass of complete system per 1 m of stroke Y-axis [kg/m]	28.01
Mass of complete system per 1 m of stroke Z-axis [kg/m]	5.17

Note: All values without energy chain and without drive

13.6 Dimensions and specifications of HS34-D-T-C



L_T Stroke
WA Working space
1e Application interface

Table 13.16 **Dimensions of HS34-D-T-C**

Total length X-axis L_X [mm]	$L_X = L_T + 964$
Total length Y-axis L_Y [mm]	$L_Y = L_T + 713$
Total length Z-axis L_Z [mm]	$L_Z = L_T + 426$

Table 13.17 **Energy chain**

	X-axis	Y-axis	Z-axis
Internal cross section B × H [mm]	100 × 35	77 × 25	57 × 25
Bending radius [mm]	125	100	100
End position at electrical zero [mm]	$L_{Xe} = 116.5$	$L_{Ye} = 111.5$	$L_{Ze} = 259.0 - L_T/2$
End position at mechanical zero [mm]	$L_{Xe} = 136.5$	$L_{Ye} = 91.5$	$L_{Ze} = 249.0 - L_T/2$

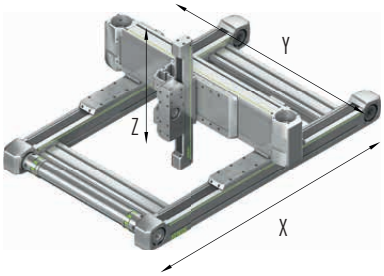


Table 13.18 **General technical data**

	X-axis	Y-axis	Z-axis
Axis type	HD4N	HT250B-C	HC080B
Carriage type	L	S	
Max. feed force F_{x_max} [N]	4,385	4,500	1,310
Max. speed [1] [m/s]	5		
Max. acceleration [1] [m/s²]	30		
Max. drive torque M_{a_max} [Nm]	201	149	42
Max. stroke [mm]	5,000	1,400	1,200
Typical load capacity [kg]	30		

[1] Restrictions in version with energy chain possible, depending on stroke

Note: Dimensions and specifications of HD4 double axes can be found in Section 11.6 on Page 83
Dimensions and specifications of HT250B single axes can be found in Section 7.6 on Page 48
Dimensions and specifications of HC080B single axes can be found in Section 10.6 on Page 76

Table 13.19 **Drive**

	X-axis	Y-axis	Z-axis
Toothed belt drive element	B60HTD8	B75HTD8	B40HTD5
Feed constant [mm/rotation]	288	208	200
Effective diameter of toothed belt pulley [mm]	91.67	66.21	63.66

Table 13.20 **Mechanical properties**

Moving mass on Z-axis at 0 stroke [kg]	4.51
Moving mass on Z-axis per 1 m of stroke [kg/m]	8.99
Moving mass on Y-axis at 0 stroke Z-axis [kg]	25.43
Moving mass on X-axis at 0 stroke Y- and Z-axes [kg]	66.45
Moving mass on X-axis per 1 m of stroke Y-axis [kg/m]	22.87
Mass of complete system at 0 stroke X-, Y- and Z-axes [kg]	126.80
Mass of complete system per 1 m of stroke X-axis [kg/m]	41.54
Mass of complete system per 1 m of stroke Y-axis [kg/m]	39.62
Mass of complete system per 1 m of stroke Z-axis [kg/m]	8.99

Note: All values without energy chain and without drive

14. Adapters for cross tables and multi-axis systems

With the HIWIN adapters for cross tables and multi-axis systems, two or more axes can be flexibly combined with each other. This way individual multi-axis systems can be designed quickly and easily. Forces and torques are safely transmitted due to force and form closure. Centering sleeves ensure an exact and reproducible connection. All adapters are supplied ready for installation including fixing material.
Depending on the desired alignment of the axes to be connected, four basic adapter types are available:

CPN: Adapter for connecting the axis profile of the upper axis with the carriage of the lower axis. Both carriages point in the same direction.
CPR: Adapter for connecting the axis profile of the upper axis with the carriage of the lower axis, whereby the two carriages are rotated 90° to each other.
CCN: Adapter for connecting the carriage of the upper axis with the carriage of the lower axis.
CCR: Adapter for connecting the drive block of the upper axis with the carriage of the lower axis, whereby the carriage and the drive block are rotated 90° to each other.

14.1 Product selection

14.1.1 Axis combinations depending on size

Table 14.1 **Overview of possible combinations depending on size**

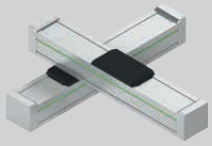
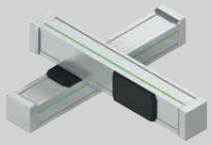
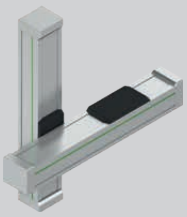
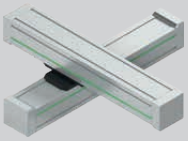
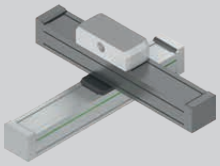
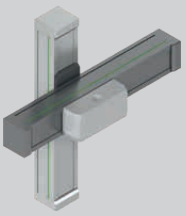
			Y-axis																	
			HM				HT				HC				KK					
			040	060	080	120	100	150	200	250	25	40	60	80	30	40	50	60	86	100
X-axis	HM	040	●[1] ■[1]				●[1] ■[1]								●▲	●▲				
		060	●[1]	●[1] ■[1]			●[1]	●[1] ■[1]								●▲	●▲			
		080		●[1]	●[1] ■[1]			●[1]	●[1] ■[1]								●▲	●▲		
		120			●[1]	●[1]			●[1]	●[1] ■[1]										
	HT	100	●■▲				●■▲				✸	▲					●▲	●▲		
		150	●■▲	●■▲			●■▲	●■▲				✸▲	▲					●▲	●▲	
		200		●■▲	●■▲			●■▲	●■▲				✸▲	▲					●▲	●▲
		250			●■▲	●■▲			●■▲	●■▲				✸▲						

● CPN; ■ CPR; ▲ CCN; ✸ CCR
[1] In the X-axis two single axes HM or one double axis HD are required

14.1.2 Cross table

Cross table combinations consisting of two single axes.

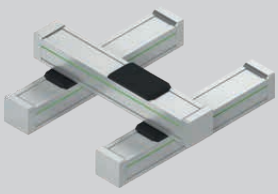
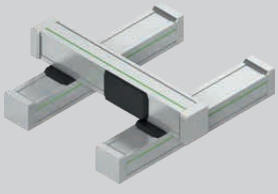
Table 14.2 **Product selection diagram**

Connection	X-Y	X-Z	Z-X	Page
CPN adapter ● carriage – profile				Page 113
CPR adapter ■ carriage – profile (rotated 90°)				Page 115
CCN adapter ▲ carriage – carriage				Page 117
CCR adapter ✸ carriage – drive block				Page 119

14.1.3 Two-axis system

Two-axis systems with two single axes or one double axis as base.

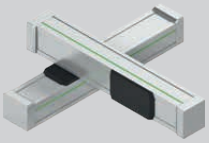
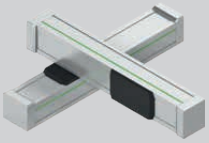
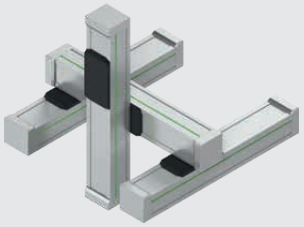
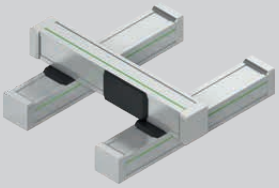
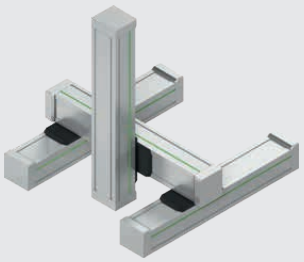
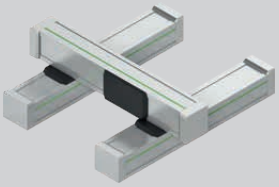
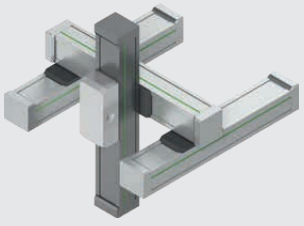
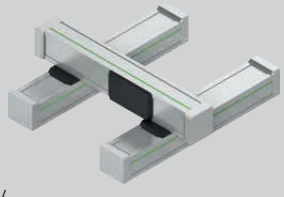
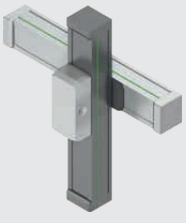
Table 14.3 **Product selection diagram**

Connection	X-Y	X-Z	Z-X	Page
CPN adapter ● carriage – profile				Page 114
CPR adapter ■ carriage – profile (rotated 90°)				Page 116

14.1.4 Three-axis and multi-axis system

By combining several adapters from Table 14.2 and Table 14.3, flexible three-axis and multi-axis systems can be designed individually. Below are some examples.

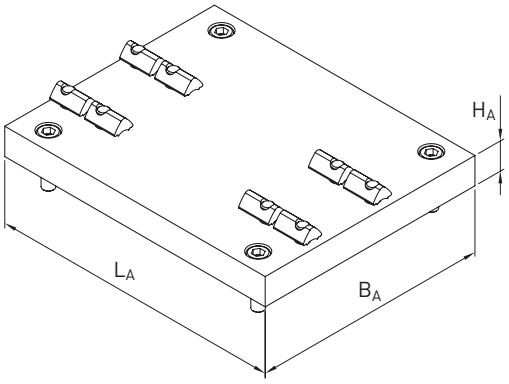
Table 14.4 **Examples of multi-axis systems**

Complete system X-Y-Z	Adapter X-Y	Adapter Y-Z
	 Page 115	 Page 117
	 Page 115	 Page 119
	 Page 116	 Page 113
	 Page 116	 Page 117
	 Page 116	 Page 119

14.2 CPN adapter

14.2.1 CPN adapter for single axes

HIWIN adapter for the combination of two single axes (axis 1: HM/HT; axis 2: HM/HT/KK) via a carriage-profile connection.



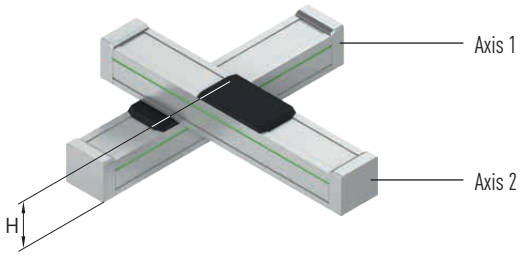
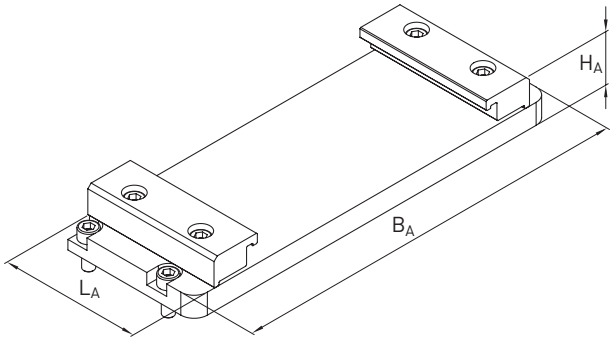


Table 14.5 **Specifications of CPN adapter for single axes**

Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**						
HM	040	**KK**	30	59	79	12	95.0	0.159	25-001622
	040		40	70	79	12	102.0	0.187	25-001623
	060		40	76	114	12	120.0	0.291	25-001626
	060		50	92	114	12	128.5	0.366	25-001627
	080		50	98	107	12	150.5	0.376	25-001630
	080		60	114	104	15	159.5	0.513	25-001631
HT	100	**HM**	040	99	72	12	134.0	0.266	25-001608
	150		040	79	149	12	156.0	0.417	25-001609
	150		060	149	120	15	177.0	0.792	25-001610
	200		060	199	102	15	193.0	0.907	25-001611
	200		080	199	142	15	215.0	1.287	25-001612
	250		080	249	126	20	230.0	1.858	25-001613
	250		120	249	180	20	275.0	2.558	25-001614
	100	**HT**	100	158	100	12	136.0	0.548	25-001615
	150		100	210	100	15	161.0	0.882	25-001616
	150		150	222	150	15	183.0	1.420	25-001617
	200		150	274	150	15	199.0	1.756	25-001618
	200		200	294	200	15	215.0	2.519	25-001619
	250		200	348	200	20	230.0	3.919	25-001620
	250		250	296	250	20	240.0	4.146	25-001621
	100	**KK**	50	100	99	12	112.5	0.326	25-001624
	100		60	108	99	12	118.5	0.371	25-001625
	150		60	149	118	15	143.5	0.724	25-001628
	150		86	149	118	15	163.0	0.732	25-001629
	200		86	199	142	15	179.0	1.170	25-001632
	200		100	199	142	15	187.0	1.193	25-001633

14.2.2 CPN adapter for double axes

HIWIN adapter for combining two single axes HM or a double HD axis with a single axis HM/HT via a carriage-profile connection.



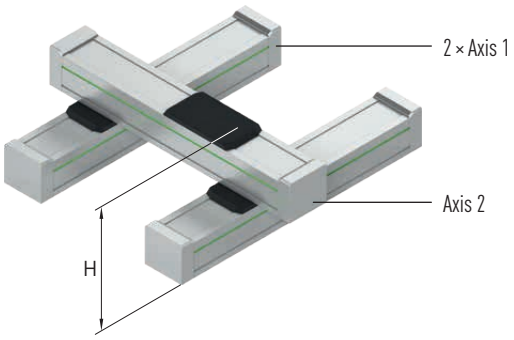


Table 14.6 **Specifications of CPN adapter for double axes**

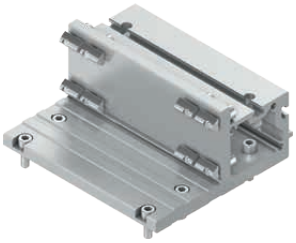
Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**						
HM (2 ×) [1]	040	**HM**	040	76	82	12	132	0.540	25-001594
	060		040	76	114	12	150	0.706	25-001595
	060		060	76	114	12	168	0.932	25-001596
	080		060	79	150	15	193	1.362	25-001597
	080		080	79	150	15	215	1.444	25-001598
	120		080	119	185	20	265	2.850	25-001599
	120		120	119	240	20	310	3.808	25-001600
	040 [2]	**HT**	100	76	151	12	134	0.876	25-001601
	060 [3]		100	76	164	12	152	0.944	25-001602
	060 [2]		150	76	214	12	174	1.324	25-001603
	080 [3]		150	79	244	12	196	1.568	25-001604
	080 [3]		200	110	287	15	215	3.188	25-001605
	120 [3]		200	119	296	20	265	4.498	25-001606
	120 [3]		250	119	351	20	275	5.180	25-001607

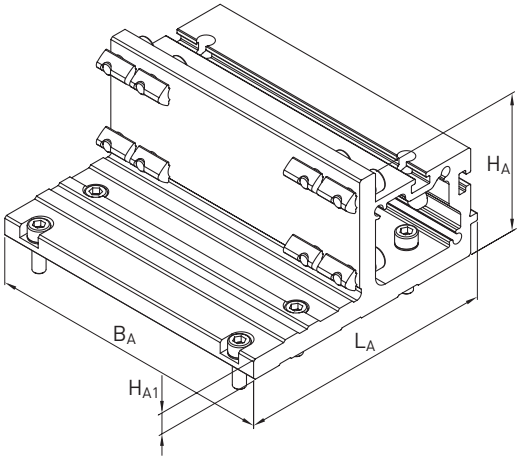
[1] Alternatively: double axis HD
[2] HM axis with carriage length L required
[3] HM axis with carriage length M or L required

14.3 CPR adapter

14.3.1 CPR adapter for single axes (rotated 90°)

HIWIN adapter for the combination of two single axes (axis 1: HT; axis 2: HM/HT) via a carriage-profile connection (axis 2 rotated 90°).





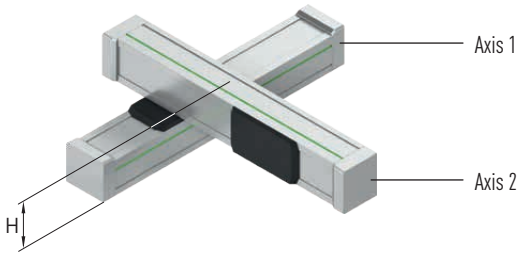
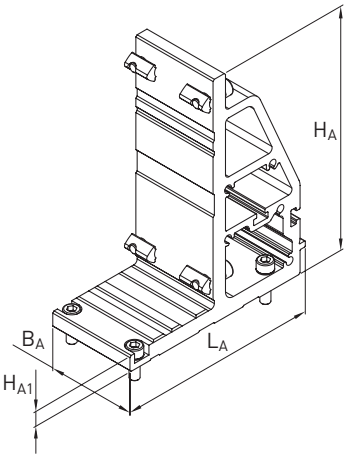


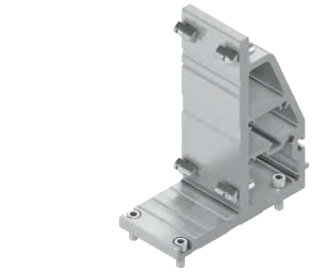
Table 14.7 **Specifications of CPR adapter for single axes**

Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H_{A1} [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**							
HT	100	**HM**	040	122	99	56.0	11.5	118.0	0.685	25-001568
	150		040	110	149	56.0	11.5	140.0	0.956	25-001569
	150		060	134	149	71.5	11.5	155.5	1.173	25-001570
	200		060	134	199	71.5	11.5	171.5	1.520	25-001571
	200		080	183	199	97.5	17.5	197.5	3.570	25-001572
	250		080	196	249	97.5	17.5	207.5	4.657	25-001573
	250		120	206	249	137.5	17.5	247.5	5.279	25-001574
	100	**HT**	100	122	99	111.5	11.5	173.5	0.962	25-001575
	150		100	111	149	111.5	11.5	195.5	1.375	25-001576
	150		150	134	149	161.5	11.5	245.5	1.871	25-001577
	200		150	190	199	167.5	17.5	267.5	4.115	25-001578
	200		200	190	199	217.5	17.5	317.5	5.462	25-001579
	250		200	196	249	217.5	17.5	327.5	6.946	25-001580
	250		250	206	249	236.0	17.5	377.5	7.257	25-001581

14.3.2 CPR adapter for double axes (rotated 90°)

HIWIN adapter for combining two single axes HM or a double axis HD with a single axis HM/HT (axis 2 rotated 90°) via a carriage-profile connection.





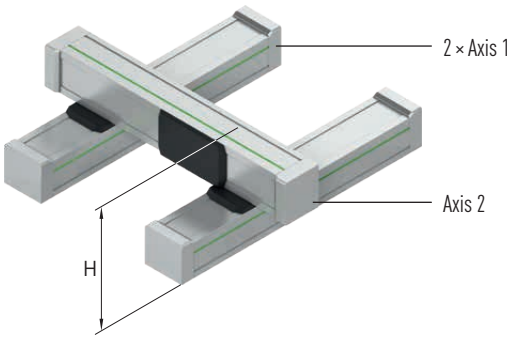


Table 14.8 **Specifications of CPR adapter for double axes**

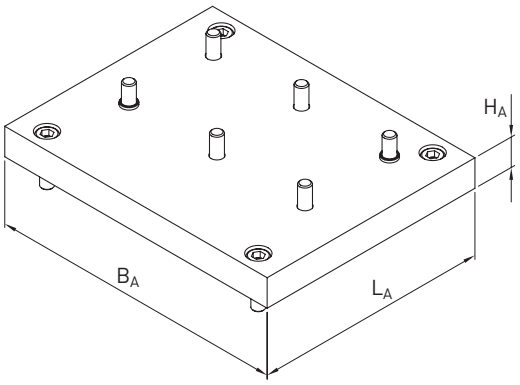
Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H_{A1} [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**							
HM (2 ×)[1)]	040	**HM**	040	112	39	56.0	11.5	116.0	0.546	25-001561
	060		060	134	59	71.5	11.5	149.5	0.972	25-001562
	080		080	197	79	97.5	17.5	197.5	3.098	25-001563
	040	**HT**	100	112	39	111.5	11.5	171.5	0.764	25-001564
	060		150	134	59	161.5	11.5	239.5	1.534	25-001565
	080		200	197	79	217.0	17.5	317.5	4.282	25-001566
	120		250	207	119	236.0	17.5	412.5	7.206	25-001567

[1)] Alternatively: double axis HD

14.4 CCN adapter

14.4.1 CCN adapter for single axes

HIWIN adapter for the combination of two single axes (axis 1: HM/HT; axis 2: HM/HT/KK) via a carriage-carriage connection.



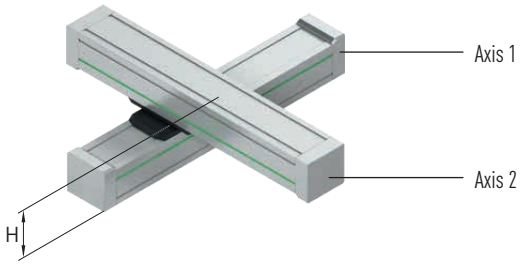


Table 14.9 **Specifications of CCN adapter for single axes**

Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**						
HM	040	**KK**	30	39	79	12	87	0.105	25-001634
	040		40	39	79	12	92	0.110	25-001635
	060		40	59	112	15	113	0.256	25-001638
	060		50	59	112	15	119	0.287	25-001639
	080		50	79	112	15	141	0.345	25-001642
	080		60	79	112	15	148	0.372	25-001643
HT	100	**HM**	040	97	99	12	134	0.335	25-001582
	150		040	79	149	12	156	0.409	25-001583
	150		060	118	149	15	177	0.783	25-001584
	200		060	102	199	15	193	0.876	25-001585
	200		080	142	199	15	215	1.246	25-001586
	250		080	249	180	20	230	2.547	25-001587
	250		120	249	180	20	275	2.605	25-001646
	100	**HT**	100	99	134	12	148	0.894	25-001588
	150		100	149	142	15	176	1.758	25-001589
	150		150	149	182	15	198	2.257	25-001590
	200		150	199	194	15	214	3.196	25-001591
	200		200	199	240	15	230	3.958	25-001592
	250		200	249	249	20	250	6.803	25-001593
	250		250	249	296	20	260	8.109	25-001647
	100	**HC**	040	97	99	12	134	0,335	25-001582
	150		040	79	149	12	156	0,409	25-001583
	150		060	118	149	15	177	0,783	25-001584
	200		060	102	199	15	193	0,876	25-001585
	200		080	142	199	15	215	1,246	25-001586
	250		080	249	180	20	230	2,547	25-001587

Table 14.9 **Specifications of CCN adapter for single axes**

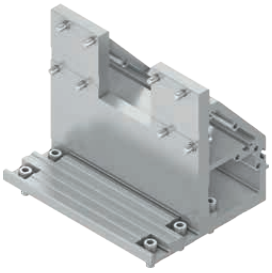
Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**						
HT	100	**KK**[1)]	50	98	104	12	100	0.339	25-001636
	100		60	98	113	12	107	0.369	25-001637
	150		60	116	149	15	132	0.675	25-001640
	150		86	114	168	15	145	0.808	25-001641
	200		86	140	199	15	161	1.164	25-001644
	200		100	140	199	15	170	1.206	25-001645

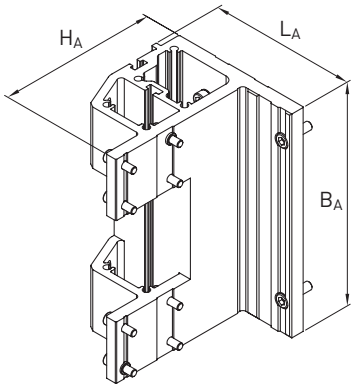
[1)] KK axis with two carriages required

14.5 CCR adapter

14.5.1 CCR adapter for single axes

HIWIN adapter for combining linear tables HT with cantilever axes HC. The connection is made between the carriage of the linear table HT and the drive block of the cantilever axis HC.





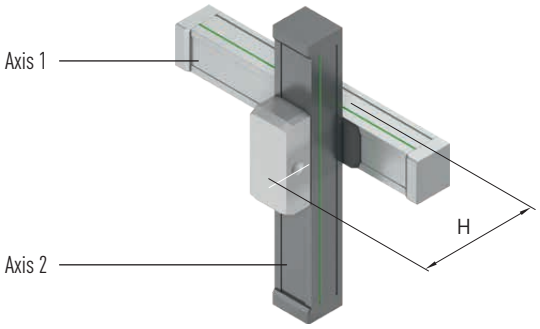


Table 14.10 **Specifications of CCR adapter for single axes**

Axis 1		Axis 2		L_A [mm]	B_A [mm]	H_A [mm]	H [mm]	Weight [kg]	Article number
Axis type	**Size (profile width)**	**Axis type**	**Size (profile width)**						
HT	100	**HC**	025	80	100	79.8	143.25	1.260	25-002359
	150		040	112	168	120.8	207.3	1.336	25-002360
	200		060	131	210	161.3	264.8	2.185	25-002361
	250		080	198	249	209.7	319.7	5.779	25-002362

15. Adapters for robot axes

The HIWIN adapters for robot axes allow you to combine a lightweight robot and a HIWIN HT linear axis. This allows a 7th axis system to be designed quickly and easily. The adapters are designed in such a way that the robots can rotate freely in the lower axis even with axes that have an energy chain attached. The linear axes HT with robot adapters are optimised for horizontal installation. Axes for vertical use on request. All adapters are delivered ready for installation:

- Including fixing material to mount the adapter on the carriage of the axis
- Including fixing material to mount the robot on the adapter

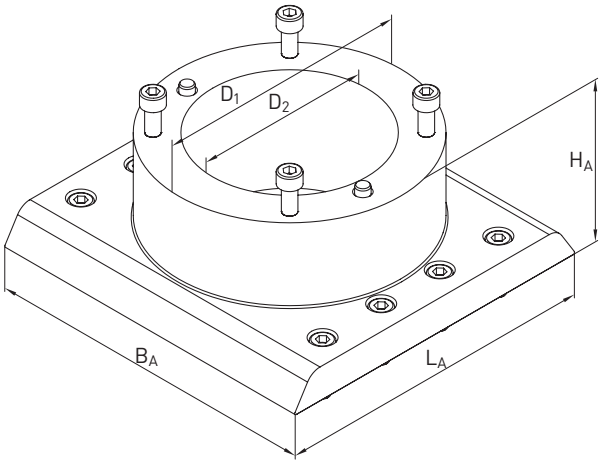


Table 15.1 **Specifications of adapters for robot axes**

Robot		Axis		L_A [mm]	B_A [mm]	H_A [mm]	Ø D_1 [mm]	Ø D_2 [mm]	Weight [kg]	Article number adapter set
Manufacturer	**Size**	**Type**	**Size**							
Universal Robots	UR03	HTB, HTS	200	191	199	70	128	90	2.528	25-002658
	UR05			191	199	70	151	105	2.873	25-002657
	UR10 + UR16		250	231	249	60	190	95	5.100	25-002659
Techman	TM5-700 + TM5-900	HTB, HTS	200	190	199	90	177	120	4.242	25-002661
	TM12 + TM14		250	230	249	75	203	130	5.391	25-002664

16. Distance measuring system

If the accuracy of the linear axis, delivered through the drive element, is not high enough for the application, a distance measuring system can be used to increase positioning accuracy and repeatability for spindle and belt axes. In the case of linear axes HM-B, HM-S, HT-B, HT-S and HC-B, the distance measuring system is an external component located on the side of the carriage; see Fig. 16.1, Fig. 16.2 and Fig. 16.3. Linear motor axes HT-L are supplied with the distance measuring system as standard; it is integrated inside the axis in order to save space. A range of measuring systems are available to suit various measuring principle, interface and signal period requirements; see Table 16.1. To enable motionless commutation of the linear motor axes HT-L, it is also possible to combine the distance measuring system HIWIN MAGIC with the digital Hall sensor available from HIWIN.

Table 16.1 **Distance measuring system selection**

Order code	Name	Repeatability [mm]			Signal period [mm]	Resolution [µm]	Interface		Measurement principle	Max stroke [mm]
		H_B	H_S	H_L						
A	MAGIC	± 0.02	± 0.01	± 0.005	1	1	Incremental	1 V_{PP} (analogue) [1]	Magnetic	–
B [2]	MAGIC	–	–	± 0.005	1	1	Incremental	1 V_{PP} (analogue) [1]	Magnetic	–
D	MAGIC	± 0.02	± 0.01	± 0.005	–	1	Incremental	TTL (digital) [1]	Magnetic	–
E [2]	MAGIC	–	–	± 0.005	–	1	Incremental	TTL (digital) [1]	Magnetic	–
H	LIC 211	–	–	± 0.005	–	0.1	Absolute, EnDat 2.2	EnDat 22	Optical	5,200 [3]
R [4]	BML-S1G0	–	–	± 0.005	2	1	Absolute, 32-bit	BiSS-C, 1 V_{PP}	Magnetic	–
S [4]	BML-S1G0	–	–	± 0.005	2	1	Absolute, 26-bit	SSI	Magnetic	–
T	TTK70	–	–	± 0.005	1	31.25	Absolute, 17-bit	HIPERFACE	Magnetic	3,600 [5]

Other distance measuring systems available on request

[1] Compatible with all standard drive amplifiers and with HIWIN drive amplifier D1-N
For more information about HIWIN drive amplifiers, consult the "Drives and Servo Motors" catalogue or visit www.hiwin.de

[2] With digital Hall sensor for motionless commutation

[3] Depending on size and options up to 5,550 mm available on request

[4] The distance measuring system has a safety-related, analogue, incremental real-time signal

[5] Depending on size and options up to 3,841 mm available on request

16.1 External distance measuring system HIWIN MAGIC for linear axes HM-B, HM-S, HT-B, HT-S and HC

In the case of linear modules HM-B and HM-S, linear tables HT-B and HT-S, as well as cantilever axes HC-B, the distance measuring system HIWIN MAGIC is located on the side of the carriage. Refer to Fig. 16.1, Fig. 16.2, Fig. 16.3 and Table 16.2 for the dimensions. For the linear modules HM-B and HM-S and for the linear tables HT-B and HT-S, the distance measuring system is located on the opposite side to the drive adapter and the limit switches. In the case of linear axes without adapters or limit switches, the distance measuring system is located on the left-hand side as standard. In the case of the cantilever axes HC, the distance measuring system, like the limit switches in the standard version, is always mounted on the left-hand side. Other configurations are available on request.

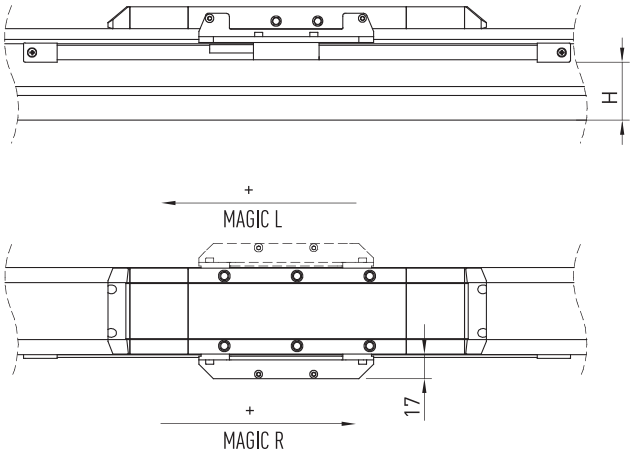


Fig. 16.1 **Distance measuring system MAGIC – linear axes HM-B and HM-S**

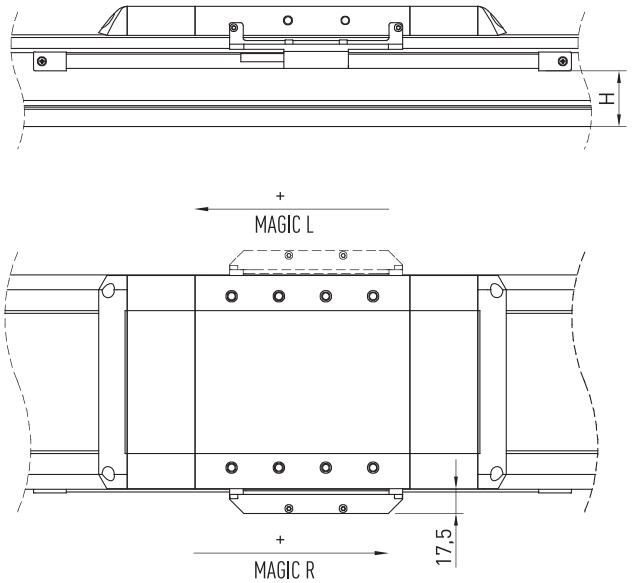


Fig. 16.2 **Distance measuring system MAGIC – linear axes HT-B and HT-S**

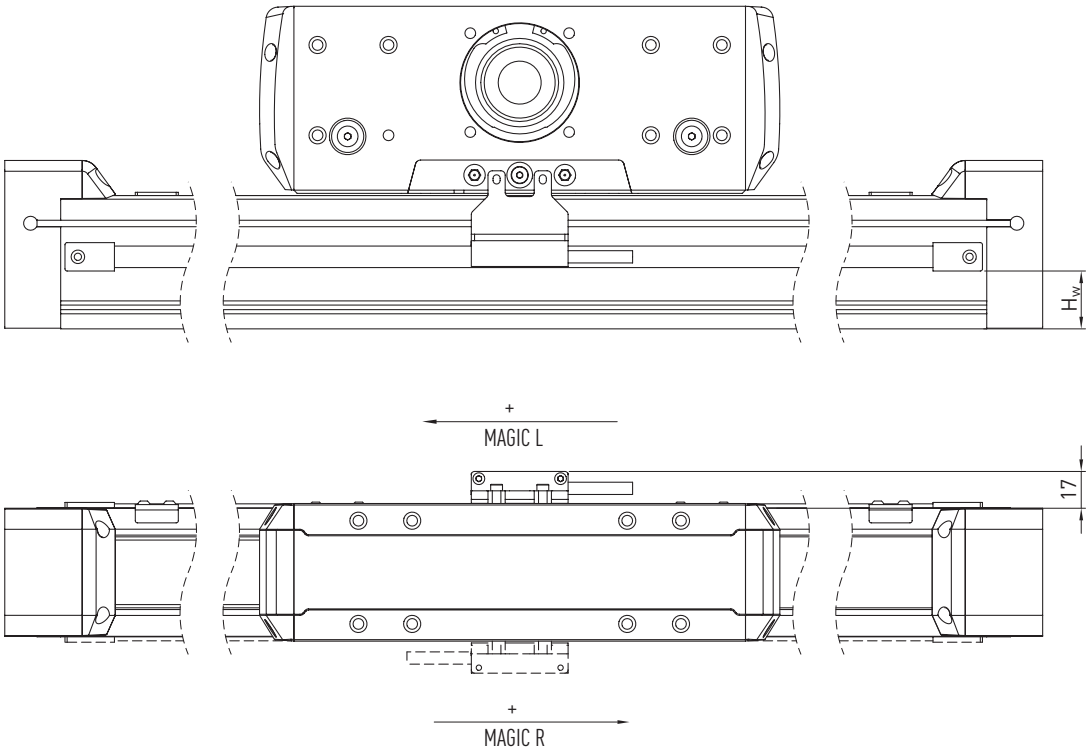


Fig. 16.3 **Distance measuring system MAGIC – cantilever axis HC**

Table 16.2 **Dimensions of distance measuring system MAGIC for linear axes HM, HT and HC**

Linear axis	Spacing H_w [mm]	Linear axis	Spacing H_w [mm]	Linear axis	Spacing H_w [mm]
HM040	25	**HT100**	27	**HC025B**	12
HM060	36	**HT150**	38	**HC040B**	22
HM080	54	**HT200**	55	**HC060B**	27
HM120	93	**HT250**	59	**HC080B**	49

16.2 Internal distance measuring system for linear axes HT-L

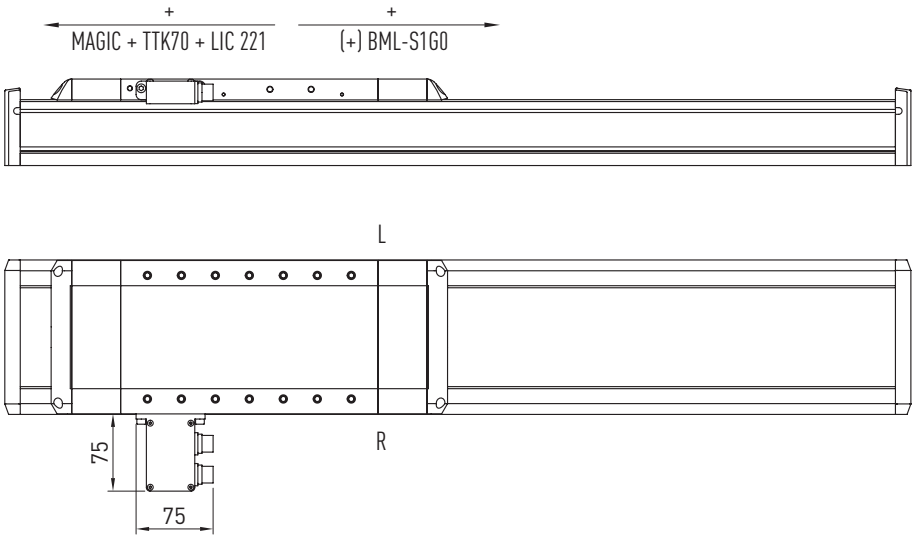


Fig. 16.4 **Linear axis HT-L: connection interface "D" – connector right/rear**

17. Drive adapter

17.1 Drive adapter for linear modules HM-B, linear tables HT-B, cantilever axes HC and double axes HD

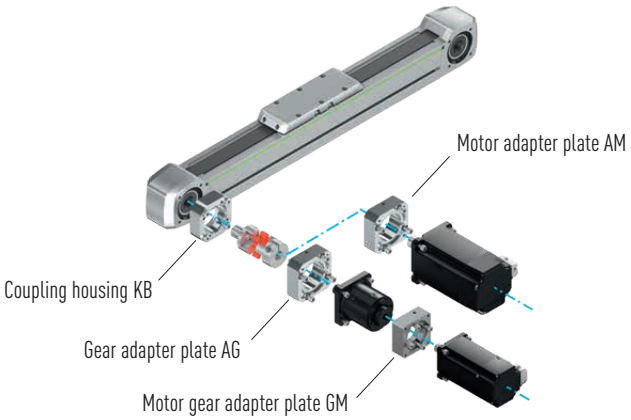
17.1.1 Motor adapter for linear modules HM-B and double axes HD

The adaption to the linear axis is a multi-part structure that simplifies the process of flange-mounting any standard motor or gear.
The flange type set consists of the following components:

- Coupling housing KB
- Coupling components
- Motor adapter plate AM or gear adapter plate AG and motor gear adapter plate GM (not applicable to NG01–NG07)

The dimensions of the coupling housing, motor adapter plate and gear adapter plate can be found in Section 17.1.4 on Page 137 ff.

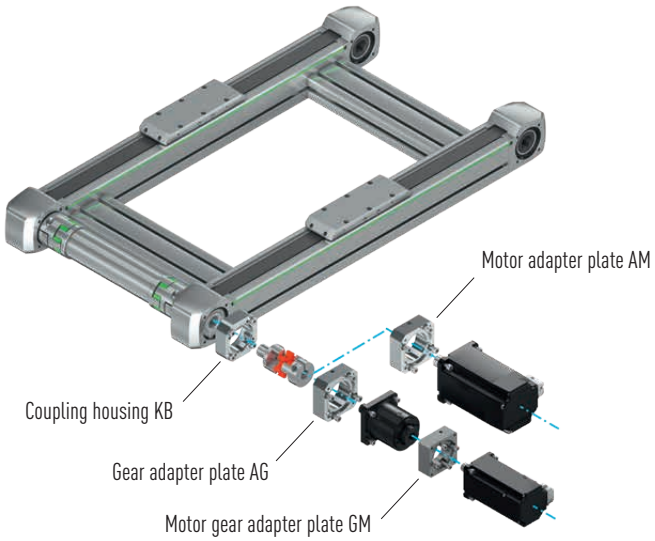
Motor adapter for linear modules with toothed belt drive (HM-B)



Gear adapter plate AG: axis–gear adapter
Motor gear adapter plate GM: gear–motor adapter
Motor adapter plate AM: axis–motor adapter

Fig. 17.1 **Motor adapter for linear modules HM-B**

Motor adapter for double axes (HD)



Gear adapter plate AG: axis–gear adapter
Motor gear adapter plate GM: gear–motor adapter
Motor adapter plate AM: axis–motor adapter

Fig. 17.2 **Motor adapter for double axes HD**

Motor adapter for multi-axis systems (HS)

The appropriate motor adapters for HIWIN multi-axis systems HS must be selected separately for each axis.

Table 17.1 **Order code for flange type [1] – linear modules HM-B and double axes HD**

Drive Manufacturer/type		HM040B/HD1			HM060B/HD2			HM080B/HD3			HM120B/HD4	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120
Gear adapter			NG01	NG02		NG03	NG04		NG05	NG06		NG07
HIWIN	EM1-C-M-20-2	HW03		HW03		HW05	HW05		HW10			
	EM1-C-M-40-2	HW03		HW03		HW05	HW05		HW10			
	EM1-C-M-75-2				HW06		HW06		HW08			
	EM1-A-M-1K-2									HW13		HW14
B&R	8LSA24		BR02	BR02		BR07						
	8LSA25	BR02	BR02	BR02		BR07						
	8LSA33	BR03 [2]		BR03 [2]		BR04	BR04		BR13			
	8LSA34	BR03 [2]		BR03 [2]	BR04	BR04	BR04		BR13			
	8LSA35	BR03 [2]		BR03 [2]	BR04	BR04	BR04		BR13			
	8LSA43				BR05			BR10				
	8LSA44				BR05			BR10				
	8LSA45				BR05			BR10				
	8LSA46				BR05			BR10				
	8LSA53							BR12 [2]				
	8LSA54							BR12 [2]				
	8LSA55							BR12 [2]				
	8LSA56							BR12 [2]				
	8LSA57							BR12 [2]			BR14	
	8LSA64										BR15	
	8LSA65										BR15	
	8LSA66										BR15	
	8LSN43				BR06 [2]			BR11				
	8LSN44				BR06 [2]			BR11				
	8LSN45				BR06 [2]			BR11				
	8LSN46				BR06 [2]			BR11				
	8LSN54							BR12 [2]			BR14	
	8LSN55							BR12 [2]			BR14	
	8LSN56							BR12 [2]			BR14	
	8LSN57										BR14	
Beckhoff	AM8022	BE01	BE01	BE01		BE04						
	AM8023	BE01	BE01	BE01		BE04						
	AM8031	BE02		BE02		BE05	BE05		BE09			
	AM8032			BE03	BE05	BE05	BE05		BE09			
	AM8033			BE03	BE05	BE05	BE05		BE09			
	AM8531	BE02		BE02	BE05	BE05	BE05	BE09	BE09			
	AM8532			BE03	BE05	BE05	BE05	BE09	BE09			
	AM8533			BE03	BE05	BE05	BE05	BE09	BE09			
	AM8041				BE06		BE06		BE10	BE10		BE18
	AM8042				BE06		BE06	BE10	BE10	BE10		BE18
	AM8043				BE06		BE06	BE10	BE10	BE10		BE18
	AM8541				BE06		BE06	BE10	BE10	BE10		BE18
	AM8542				BE06		BE06	BE10	BE10	BE10		BE18
	AM8543				BE06		BE06	BE10	BE10	BE10		BE18
	AM8051				BE07			BE11		BE11		BE19

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[1] See order code on Page 21 for linear modules HM-B and on Page 79 for double axes HD

[2] Drive not suitable for Y-axis of HIWIN HS multi-axis systems

Table 17.1 **Order code for flange type [1] – linear modules HM-B and double axes HD**

Drive Manufacturer/type		HM040B/HD1			HM060B/HD2			HM080B/HD3			HM120B/HD4	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120
Beckhoff	AM8052				BE07			BE11		BE11		BE19
	AM8053							BE11		BE11		BE19
	AM8551				BE07			BE11		BE11		BE19
	AM8552				BE07			BE11		BE11		BE15
	AM8553							BE11		BE11	BE15	BE15
	AM8061							BE12 [2]				
	AM8062							BE12 [2]			BE16	
	AM8063										BE16	
	AM8561							BE12 [2]			BE16	
	AM8562										BE16	
	AM8563										BE16	
	AM8071										BE17	
	AM8072										BE17	
Bosch	MSK030B	B002	B002	B002		B009						
	MSK030C	B002	B002	B002		B009						
	MSK040B	B003 [2]		B003 [2]	B005	B005	B005		B010			
	MSK040C	B003 [2]		B003 [2]	B005	B005	B005		B010			
	MSK043C			B003 [2]	B005	B005	B005		B010			
	MSK050B				B006		B006	B011	B011	B011		B019
	MSK050C				B006		B006	B011	B011	B011		B019
	MSK060B				B008 [2]			B013		B013		B021
	MSK060C				B008 [2]			B013		B013		B021
	MSK061B				B007 [2]		B007 [2]	B012	B012	B012		B020
	MSK061C				B007 [2]		B007 [2]	B012	B012	B012		B020
	MSK070C							B015 [2]			B018	
	MSK070D							B015 [2]			B018	
	MSK070E							B015 [2]			B018	
	MSK071C							B015 [2]			B018	
	MSK071D							B015 [2]			B018	
	MSK071E										B018	
	MSK075C							B015 [2]			B018	
	MSK075D							B015 [2]			B018	
	MSK075E										B018	
	MSK076C							B014 [2]		B014 [2]	B017	B017
	MSK100A							B014 [2]		B014 [2]	B017	B017
Lenze	MCS06F	LE01		LE01		LE04	LE04		LE11			
	MCS06I	LE01		LE01		LE04	LE04		LE11			
	MCS09D	LE02 [2]		LE02 [2]	LE05	LE05	LE05		LE08			
	MCS09F			LE02 [2]	LE05	LE05	LE05		LE08			
	MCS09H				LE05		LE05	LE08	LE08			
	MCS09L				LE05		LE05	LE08	LE08			
	MCS12D				LE06 [2]		LE06 [2]	LE09	LE09	LE09		LE15
	MCS12H				LE06 [2]		LE06 [2]	LE09	LE09	LE09		LE15
	MCS12L						LE06 [2]	LE09	LE09	LE09		LE15
	MCS14D							LE10 [2]		LE10 [2]		LE13

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[1] See order code on Page 21 for linear modules HM-B and on Page 79 for double axes HD

[2] Drive not suitable for Y-axis of HIWIN HS multi-axis systems

Table 17.1 **Order code for flange type [1] – linear modules HM-B and double axes HD**

Drive Manufacturer/type		HM040B/HD1			HM060B/HD2			HM080B/HD3			HM120B/HD4	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120
Lenze	MCS14H							LE10 [2]		LE10 [2]	LE13	LE13
	MCS14L									LE10 [2]	LE13	LE13
	MCS14P										LE13	
	MCS19F										LE14	
Schneider	BSH0551		SE02	SE02		SE10						
	BSH0552		SE02	SE02		SE10						
	BSH0553		SE02	SE02		SE10						
	BSH0701	SE03		SE03		SE07	SE07		SE16			
	BSH0702	SE03		SE03		SE07	SE07		SE16			
	BSH0703			SE06		SE08	SE08		SE17			
	BSH1001				SE09		SE09		SE13	SE13		SE20
	BSH1002				SE09		SE09	SE13	SE13	SE13		SE20
	BSH1003				SE09		SE09	SE13	SE13	SE13		SE20
	BSH1004									SE14		SE21
	BSH1401							SE15 [2]		SE15 [2]		SE19
	BSH1402							SE15 [2]		SE15 [2]	SE19	SE19
	BSH1403									SE15 [2]	SE19	SE19
	BSH1404										SE19	
	BMH0701	SE03		SE03	SE07	SE07	SE07		SE16			
	BMH0702	SE03		SE03	SE07	SE07	SE07		SE16			
	BMH0703	SE04		SE04	SE08	SE08	SE08		SE12			
	BMH1001				SE09		SE09	SE13	SE13	SE13		SE20
	BMH1002				SE09		SE09	SE13	SE13	SE13		SE20
	BMH1003				SE09		SE09	SE13	SE13	SE13		SE20
	BMH1401							SE15 [2]		SE15 [2]	SE19	SE19
	BMH1402							SE15 [2]		SE15 [2]	SE19	SE19
	BMH1403									SE15 [2]	SE19	SE19
SEW	CMP40S		SW02	SW02		SW06						
	CMP40M	SW02	SW02	SW02		SW06						
	CMP50S	SW03		SW03		SW07	SW07		SW11			
	CMP50M	SW03		SW03	SW07	SW07	SW07		SW11			
	CMP50L			SW03	SW07	SW07	SW07		SW11			
	CMP63S			SW05	SW08	SW08	SW08		SW12			
	CMP63M			SW05	SW08	SW08	SW08	SW12	SW12			
	CMP63L				SW08		SW08	SW12	SW12			
	CMP71S				SW09			SW13		SW13		SW20
	CMP71M				SW09			SW13		SW13		SW20
	CMP71L							SW13		SW13		SW20
	CMP80S							SW14				
	CMP80M							SW14				
	CMP80L										SW18	
	CMP100S										SW19	
	CMP100M										SW19	
	CMP100L										SW19	
	CMPZ71S				SW09 [2]			SW13		SW13		SW17

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[1] See order code on Page 21 for linear modules HM-B and on Page 79 for double axes HD

[2] Drive not suitable for Y-axis of HIWIN HS multi-axis systems

Table 17.1 **Order code for flange type [1] – linear modules HM-B and double axes HD**

Drive Manufacturer/type		HM040B/HD1			HM060B/HD2			HM080B/HD3			HM120B/HD4	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120
SEW	CMPZ71M				SW09 [2]			SW13		SW13		SW17
	CMPZ71L							SW13		SW13	SW17	SW17
	CMPZ80S							SW14 [2]			SW18	
	CMPZ80M							SW14 [2]			SW18	
	CMPZ80L										SW18	
	CMPZ100S										SW19	
	CMPZ100M										SW19	
	CMPZ100L										SW19	
Siemens	1FK7022	SM02	SM02	SM02		SM07						
	1FK7032	SM03		SM03		SM04	SM04		SM11			
	1FK7034	SM03		SM03	SM04	SM04	SM04		SM11			
	1FK7040				SM05		SM05		SM08	SM08		SM15
	1FK7042				SM05		SM05	SM08	SM08	SM08		SM15
	1FK7060				SM06 [2]			SM09		SM09		SM12
	1FK7062				SM06 [2]			SM09		SM09		SM12
	1FK7063				SM06 [2]			SM09		SM09	SM12	SM12
	1FK7080							SM10 [2]			SM13	
	1FK7081							SM10 [2]			SM13	
	1FK7083							SM10 [2]			SM13	
	1FK7084							SM10 [2]			SM13	
	1FK7100										SM14	
	1FK7101										SM14	
	1FK7103										SM14	
	1FK7105										SM14	

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[1] See order code on Page 21 for linear modules HM-B and on Page 79 for double axes HD

[2] Drive not suitable for Y-axis of HIWIN HS multi-axis systems

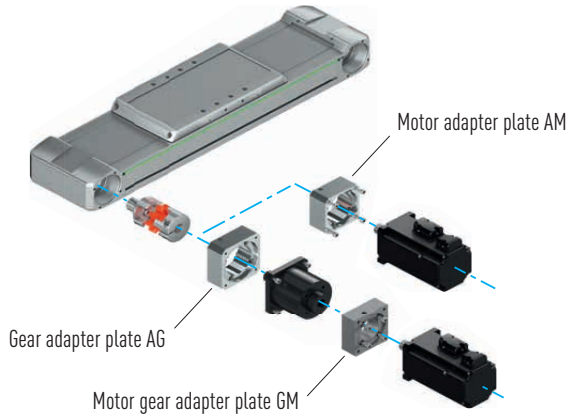
17.1.2 Drive adapter for linear tables HT-B

The drive adapter on the linear table HT-B is a multi-part structure that simplifies the process of flange-mounting any standard motor or gear.
The flange type set consists of the following components:

- Coupling components
- Motor adapter plate AM or gear adapter plate AG and motor gear adapter plate GM (not applicable to NG11–NG15)

The dimensions of the coupling housing, motor adapter plate and gear adapter plate can be found in Section 17.1.4 on Page 137 ff.

Motor adapter for linear tables with toothed belt drive (HT-B)



Gear adapter plate AG: Axis–gear adapter
Motor gear adapter plate GM: Gear–motor adapter
Motor adapter plate AM: Axis–motor adapter

Fig. 17.3 **Motor adapter for linear tables HT-B**

Table 17.2 **Order code for flange type [1] – linear tables HT-B**

Drive Manufacturer/type		HT100B			HT150B			HT200B		HT250B	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120	Motor only	With PLQE120
Gear adapter			NG11	NG12		NG13	NG14		NG15		NG15
HIWIN	**EM1-C-M-20-2**			HW03		HW10					
	EM1-C-M-40-2			HW03		HW10					
	EM1-C-M-75-2				HW08	HW08					
	EM1-A-M-1K-2				HW13		HW13		HW14		HW14
B&R	**8LSA24**		BR02	BR02							
	8LSA25		BR02	BR02							
	8LSA33			BR03		BR13					
	8LSA34			BR03		BR13					
	8LSA35			BR03		BR13					
	8LSA43				BR10						
	8LSA44				BR10						
	8LSA45				BR10						
	8LSA46				BR10						
	8LSA53							BR14		BR14	
	8LSA54							BR14		BR14	
	8LSA55							BR14		BR14	
	8LSA56							BR14		BR14	
	8LSA57							BR14		BR14	
	8LSA63							BR15		BR15	
	8LSA64							BR15		BR15	
	8LSA65							BR15		BR15	

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[1] See order code on Page 41

Table 17.2 **Order code for flange type [1] – linear tables HT-B**

Drive Manufacturer/type		HT100B			HT150B			HT200B		HT250B	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120	Motor only	With PLQE120
B&R	8LSA66							BR15		BR15	
	8LSN43				BR11						
	8LSN44				BR11						
	8LSN45				BR11						
	8LSN46				BR11						
	8LSN54							BR14		BR14	
	8LSN55							BR14		BR14	
	8LSN56							BR14		BR14	
	8LSN57							BR14		BR14	
Beckhoff	AM8022		BE01	BE01							
	AM8023	BE01	BE01	BE01							
	AM8031	BE02		BE02		BE09					
	AM8032			BE02	BE09	BE09					
	AM8033			BE02	BE09	BE09					
	AM8531	BE02		BE02	BE09	BE09					
	AM8532			BE02	BE09	BE09					
	AM8533			BE02	BE09	BE09					
	AM8041				BE10	BE10	BE10		BE18		BE18
	AM8042				BE10	BE10	BE10		BE18		BE18
	AM8043				BE10	BE10	BE10		BE18		BE18
	AM8541				BE10	BE10	BE10		BE18		BE18
	AM8542				BE10	BE10	BE10		BE18		BE18
	AM8543				BE10	BE10	BE10		BE18		BE18
	AM8051				BE11		BE11	BE15	BE15		BE15
	AM8052				BE11		BE11	BE15	BE15	BE15	BE15
	AM8053				BE11		BE11	BE15	BE15	BE15	BE15
	AM8551				BE11		BE11	BE15	BE15		BE15
	AM8552				BE11		BE11	BE15	BE15	BE15	BE15
	AM8553				BE11		BE11	BE15	BE15	BE15	BE15
	AM8061							BE16		BE16	
	AM8062							BE16		BE16	
	AM8063							BE16		BE16	
	AM8561							BE16		BE16	
	AM8562							BE16		BE16	
	AM8563							BE16		BE16	
	AM8071									BE17	
	AM8072									BE17	
	AM8073									BE17	
Bosch	MSK030B		B002	B002							
	MSK030C		B002	B002							
	MSK040B	B003		B003	B010	B010					
	MSK040C	B003		B003	B010	B010					
	MSK043C			B003	B010	B010					
	MSK050B				B011	B011	B011		B019		B019
	MSK050C				B011	B011	B011		B019		B019
	MSK060B				B013		B013		B021		B021

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[1] See order code on Page 41

Table 17.2 **Order code for flange type [1] – linear tables HT-B**

Drive Manufacturer/type		HT100B			HT150B			HT200B		HT250B	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120	Motor only	With PLQE120
Bosch	MSK060C				B013		B013		B021		B021
	MSK061B				B012	B012	B012		B020		B020
	MSK061C				B012	B012	B012		B020		B020
	MSK070C							B018		B018	
	MSK070D							B018		B018	
	MSK070E							B018		B018	
	MSK071C							B018		B018	
	MSK071D							B018		B018	
	MSK071E							B018		B018	
	MSK075C							B018		B018	
	MSK075D							B018		B018	
	MSK075E							B018		B018	
	MSK076C						B014	B017	B017	B017	B017
	MSK100A						B014	B017	B017	B017	B017
Lenze	MCS06F			LE01		LE11					
	MCS06I	LE01		LE01		LE11					
	MCS09D			LE02	LE08	LE08					
	MCS09F			LE02	LE08	LE08					
	MCS09H				LE08	LE08					
	MCS09L				LE08	LE08					
	MCS12D				LE09	LE09	LE09		LE15		LE15
	MCS12H				LE09	LE09	LE09		LE15		LE15
	MCS12L				LE09	LE09	LE09		LE15		LE15
	MCS14D						LE10	LE13	LE13	LE13	LE13
	MCS14H						LE10	LE13	LE13	LE13	LE13
	MCS14L						LE10	LE13	LE13	LE13	LE13
	MCS14P							LE13		LE13	
	MCS19F									LE14	
Schneider	BSH0551		SE02	SE02							
	BSH0552		SE02	SE02							
	BSH0553		SE02	SE02							
	BSH0701			SE03		SE16					
	BSH0702	SE03		SE03		SE16					
	BSH0703			SE06		SE17					
	BSH1001				SE13	SE13	SE13		SE20		SE20
	BSH1002				SE13	SE13	SE13		SE20		SE20
	BSH1003				SE13	SE13	SE13		SE20		SE20
	BSH1004						SE14		SE21		SE21
	BSH1401						SE15	SE19	SE19	SE19	SE19
	BSH1402						SE15	SE19	SE19	SE19	SE19
	BSH1403						SE15	SE19	SE19	SE19	SE19
	BSH1404							SE19		SE19	
	BMH0701			SE03		SE16					
	BMH0702	SE03		SE03		SE16					
	BMH0703	SE04		SE04		SE12					
	BMH1001				SE13	SE13	SE13		SE20		SE20

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[1] See order code on Page 41

Table 17.2 **Order code for flange type [1] – linear tables HT-B**

Drive Manufacturer/type		HT100B			HT150B			HT200B		HT250B	
		Motor only	With PLE40	With PLQE60	Motor only	With PLQE80	With PLQE120	Motor only	With PLQE120	Motor only	With PLQE120
Schneider	BMH1002				SE13	SE13	SE13		SE20		SE20
	BMH1003				SE13	SE13	SE13		SE20		SE20
	BMH1401						SE15	SE19	SE19	SE19	SE19
	BMH1402						SE15	SE19	SE19	SE19	SE19
	BMH1403						SE15	SE19	SE19	SE19	SE19
SEW	CMP40S		SW02	SW02							
	CMP40M		SW02	SW02							
	CMP50S	SW03		SW03		SW11					
	CMP50M	SW03		SW03		SW11					
	CMP50L			SW04	SW11	SW11					
	CMP63S			SW05	SW12	SW12					
	CMP63M			SW05	SW12	SW12					
	CMP63L				SW12	SW12		SW17			
	CMP71S				SW13		SW13	SW17	SW17		SW17
	CMP71M				SW13		SW13	SW17	SW17	SW17	SW17
	CMP71L				SW13		SW13	SW17	SW17	SW17	SW17
	CMP80S							SW18		SW18	
	CMP80M							SW18		SW18	
	CMP80L							SW18		SW18	
	CMP100S							SW19		SW19	
	CMP100M							SW19		SW19	
	CMP100L									SW19	
	CMPZ71S				SW13		SW13	SW17	SW17		SW17
	CMPZ71M				SW13		SW13	SW17	SW17	SW17	SW17
	CMPZ71L				SW13		SW13	SW17	SW17	SW17	SW17
	CMPZ80S							SW18		SW18	
	CMPZ80M							SW18		SW18	
	CMPZ80L							SW18		SW18	
	CMPZ100S							SW19		SW19	
	CMPZ100M							SW19		SW19	
	CMPZ100L									SW19	
Siemens	1FK7022		SM02	SM02							
	1FK7032			SM03		SM11					
	1FK7034	SM03		SM03		SM11					
	1FK7040				SM08	SM08	SM08		SM15		SM15
	1FK7042				SM08	SM08	SM08		SM15		SM15
	1FK7060				SM09		SM09	SM12	SM12		SM12
	1FK7062				SM09		SM09	SM12	SM12	SM12	SM12
	1FK7063				SM09		SM09	SM12	SM12	SM12	SM12
	1FK7080							SM13			
	1FK7081							SM13		SM13	
	1FK7083							SM13		SM13	
	1FK7084							SM13		SM13	
	1FK7100									SM14	
	1FK7101									SM14	
	1FK7103									SM14	
	1FK7105									SM14	

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[1] See order code on Page 41

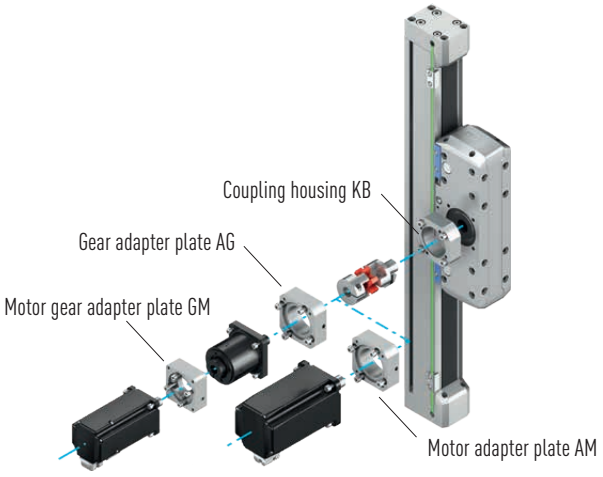
17.1.3 Drive adapter for cantilever axes HC-B

The adaption to the linear axis is a multi-part structure that simplifies the process of flange-mounting any standard motor or gear.
The flange type set consists of the following components:

- Coupling housing KB
- Coupling components
- Motor adapter plate AM or gear adapter plate AG and motor gear adapter plate GM (not applicable to NG21–NG27)

The dimensions of the coupling housing, motor adapter plate and gear adapter plate can be found in Section 17.1.4 on Page 137 ff.

Motor adapter for cantilever axes (HC)



Gear adapter plate AG: axis–gear adapter
Motor gear adapter plate GM: gear–motor adapter
Motor adapter plate AM: axis–motor adapter

Fig. 17.4 **Motor adapter for cantilever axes HC**

Table 17.3 **Order code for flange type [1] – cantilever axes HC-B**

Drive Manufacturer/type		HC025B		HC040B			HC060B			HC060B		
		Motor only	With PLE40	Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120
Gear adapter			NG21		NG22	NG23		NG24	NG25		NG26	NG27
HIWIN	**EM1-C-M-20-2**					HW03		HW05	HW05		HW10	
	EM1-C-M-40-2			HW03		HW03		HW05	HW05		HW10	
	EM1-C-M-75-2								HW06		HW08	
	EM1-A-M-1K-2											HW13
B&R	**8LSA24**		BR01		BR02	BR02		BR07				
	8LSA25		BR01		BR02	BR02		BR07				
	8LSA33					BR03		BR04	BR04		BR13	
	8LSA34			BR03		BR03		BR04	BR04		BR13	
	8LSA35			BR03		BR03		BR04	BR04		BR13	
	8LSA43						BR05					
	8LSA44						BR05					
	8LSA45						BR05					
	8LSA46						BR05			BR10		
	8LSA54									BR12		
	8LSA55									BR12		
	8LSA56									BR12		
	8LSA57									BR12		
	8LSN43						BR06			BR11		
	8LSN44						BR06			BR11		

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[1] See order code on Page 69

Table 17.3 **Order code for flange type [1] – cantilever axes HC-B**

Drive Manufacturer/type		HC025B		HC040B			HC060B			HC060B		
		Motor only	With PLE40	Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120
B&R	8LSN45						BR06			BR11		
	8LSN46						BR06			BR11		
	8LSN54									BR12		
	8LSN55									BR12		
	8LSN56									BR12		
	8LSN57									BR12		
Beckhoff	AM8022		BE19		BE01	BE01		BE04				
	AM8023		BE19	BE01	BE01	BE01		BE04				
	AM8031			BE02		BE02		BE05	BE05		BE09	
	AM8032			BE02		BE02		BE05	BE05		BE09	
	AM8033					BE02		BE05	BE05		BE09	
	AM8531			BE02		BE02	BE05	BE05	BE05		BE09	
	AM8532			BE02		BE02	BE05	BE05	BE05		BE09	
	AM8533					BE02	BE05	BE05	BE05		BE09	
	AM8041								BE06		BE10	BE10
	AM8042						BE06		BE06		BE10	BE10
	AM8043						BE06		BE06		BE10	BE10
	AM8541						BE06		BE06	BE10	BE10	BE10
	AM8542						BE06		BE06	BE10	BE10	BE10
	AM8543						BE06		BE06	BE10	BE10	BE10
	AM8051						BE07					BE11
	AM8052						BE07			BE11		BE11
	AM8053						BE07			BE11		BE11
	AM8551						BE07			BE11		BE11
	AM8552						BE07			BE11		BE11
	AM8553						BE07			BE11		BE11
	AM8061									BE12		
	AM8062									BE12		
	AM8561									BE12		
	AM8562									BE12		
Bosch	MSK030B		B001		B002	B002		B009				
	MSK030C		B001		B002	B002		B009				
	MSK040B			B003		B003		B005	B005		B010	
	MSK040C			B003		B003		B005	B005		B010	
	MSK043C			B003		B003		B005	B005		B010	
	MSK050B						B006		B006		B011	B011
	MSK050C						B006		B006		B011	B011
	MSK060B						B008			B013		B013
	MSK060C						B008			B013		B013
	MSK061B						B007		B007	B012	B012	B012
	MSK061C						B007		B007	B012	B012	B012
	MSK070C									B015		
	MSK070D									B015		
	MSK070E									B015		
	MSK071C									B015		
	MSK071D									B015		

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[1] See order code on Page 69

Table 17.3 **Order code for flange type [1] – cantilever axes HC-B**

Drive Manufacturer/type		HC025B		HC040B			HC060B			HC060B		
		Motor only	With PLE40	Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120
Bosch	MSK071E									B015		
	MSK075C									B015		
	MSK075D									B015		
	MSK075E									B015		
	MSK076C									B014		B014
	MSK100A									B014		B014
Lenze	MCS06F					LE01		LE04	LE04		LE11	
	MCS06I					LE01		LE04	LE04		LE11	
	MCS09D			LE02		LE02		LE05	LE05		LE08	
	MCS09F					LE02		LE05	LE05		LE08	
	MCS09H						LE05		LE05		LE08	
	MCS09L						LE05		LE05		LE08	
	MCS12D						LE06		LE06		LE09	LE09
	MCS12H						LE06		LE06	LE09	LE09	LE09
	MCS12L						LE06		LE06	LE09	LE09	LE09
	MCS14D									LE10		LE10
	MCS14H									LE10		LE10
	MCS14L									LE10		LE10
Schneider	BSH0551		SE01		SE02	SE02		SE10				
	BSH0552		SE01		SE02	SE02		SE10				
	BSH0553		SE01		SE02	SE02		SE10				
	BSH0701					SE03		SE07	SE07		SE16	
	BSH0702					SE03		SE07	SE07		SE16	
	BSH0703			SE04		SE06		SE08	SE08		SE17	
	BSH1001								SE09		SE13	SE13
	BSH1002								SE09		SE13	SE13
	BSH1003								SE09		SE13	SE13
	BSH1004											SE14
	BSH1401									SE15		SE15
	BSH1402									SE15		SE15
	BSH1403											SE15
	BMH0701			SE03		SE03		SE07	SE07		SE16	
	BMH0702			SE03		SE03		SE07	SE07		SE16	
	BMH0703			SE04		SE04	SE08	SE08	SE08		SE12	
	BMH1001						SE09		SE09		SE13	SE13
	BMH1002						SE09		SE09	SE13	SE13	SE13
	BMH1003						SE09		SE09	SE13	SE13	SE13
	BMH1401									SE15		SE15
	BMH1402									SE15		SE15
	BMH1403									SE15		SE15
SEW	CMP40S		SW01		SW02	SW02		SW06				
	CMP40M		SW01		SW02	SW02		SW06				
	CMP50S			SW03		SW03		SW07	SW07		SW11	
	CMP50M			SW03		SW03		SW07	SW07		SW11	
	CMP50L			SW03		SW03		SW07	SW07		SW11	
	CMP63S					SW05		SW08	SW08		SW12	

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[1] See order code on Page 69

Table 17.3 **Order code for flange type [1] – cantilever axes HC-B**

Drive Manufacturer/type		HC025B		HC040B			HC060B			HC060B		
		Motor only	With PLE40	Motor only	With PLE40	With PLQE60	Motor only	With PLQE60	With PLQE80	Motor only	With PLQE80	With PLQE120
SEW	CMP63M					SW05	SW08	SW08	SW08		SW12	
	CMP63L						SW08		SW08		SW12	
	CMP71S						SW09					SW13
	CMP71M						SW09			SW13		SW13
	CMP71L						SW09			SW13		SW13
	CMP80S									SW14		
	CMP80M									SW14		
	CMPZ71S						SW09			SW13		SW13
	CMPZ71M						SW09			SW13		SW13
	CMPZ71L						SW09			SW13		SW13
	CMPZ80S									SW14		
	CMPZ80M									SW14		
Siemens	1FK7022		SM01		SM02	SM02		SM07				
	1FK7032			SM03		SM03		SM04	SM04		SM11	
	1FK7034			SM03		SM03		SM04	SM04		SM11	
	1FK7040								SM05		SM08	SM08
	1FK7042						SM05		SM05		SM08	SM08
	1FK7060						SM06			SM09		SM09
	1FK7062						SM06			SM09		SM09
	1FK7063						SM06			SM09		SM09
	1FK7080									SM10		
	1FK7081									SM10		
	1FK7083									SM10		
	1FK7084									SM10		

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[1] See order code on Page 69

17.1.4 Dimensions of motor adapter for linear modules HM-B, linear tables HT-B, cantilever axes HC and double axes HD

The overall width of the toothed belt axis depends on the following factors:

- Adaptor materials (coupling housing KB, motor adapter plate AM, gear adapter plate AG, motor gear adapter plate GM)
- Gearbox
- Motor

Linear axis without gearbox

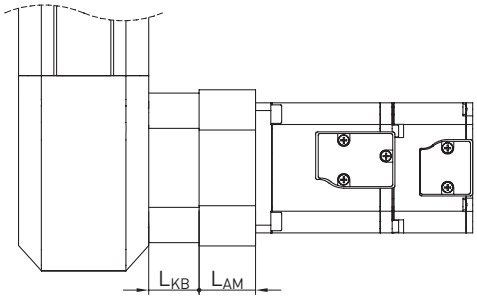


Fig. 17.5 **HM-B linear module motor connection without gears**

L_{KB} Coupling housing length, see Table 17.4
L_{AM} Motor adapter plate length, see Table 17.5

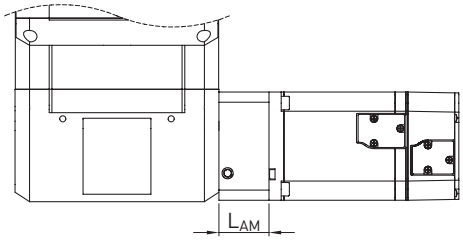


Fig. 17.6 **HT-B linear table motor connection without gears**

L_{AM} Motor adapter plate length, see Table 17.6

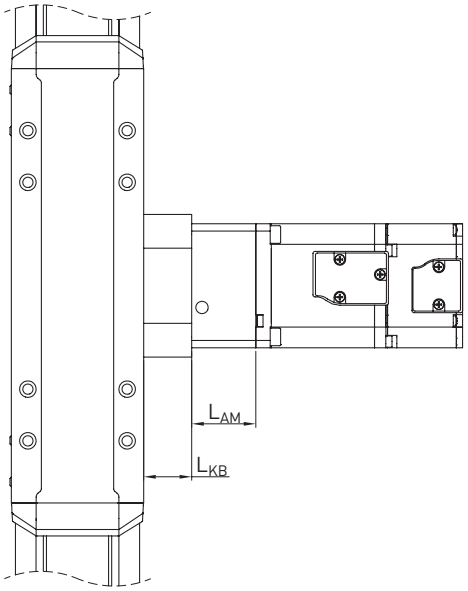
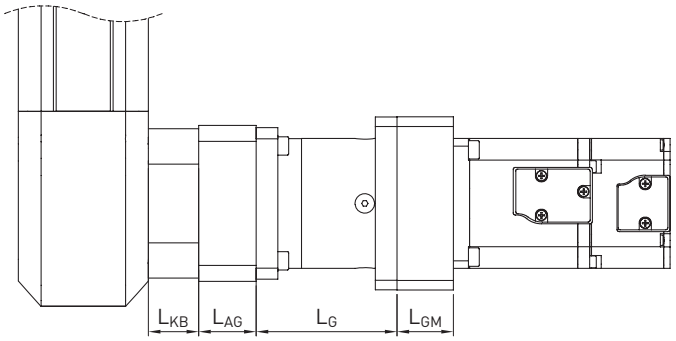


Fig. 17.7 **HC cantilever axis motor connection without gears**

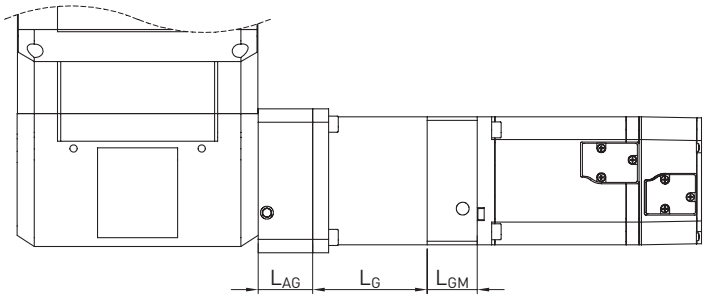
L_{KB} Coupling housing length, see Table 17.4
L_{AM} Motor adapter plate length, see Table 17.5

Linear axis with gearbox



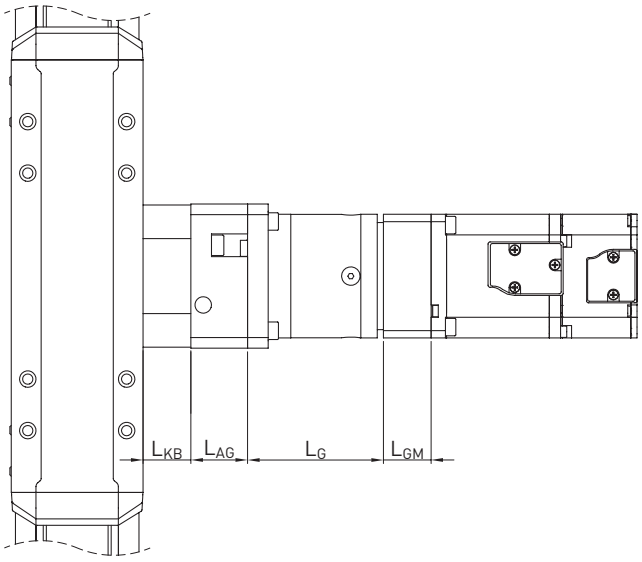
L_{KB} Coupling housing length, see Table 17.4
L_{AG} Gear adapter plate length, see Table 17.7
L_G Gearbox length, see Table 17.9
L_{GM} Motor gear adapter plate length, see Table 17.8

Fig. 17.8 **HM-B linear module motor connection with gears**



L_{AG} Gear adapter plate length, see Table 17.7
L_G Gearbox length, see Table 17.9
L_{GM} Motor gear adapter plate length, see Table 17.8

Fig. 17.9 **HT-B linear table motor connection with gears**



L_{KB} Coupling housing length, see Table 17.4
L_{AG} Gear adapter plate length, see Table 17.7
L_G Gearbox length, see Table 17.9
L_{GM} Motor gear adapter plate length, see Table 17.8

Fig. 17.10 **HC cantilever axis motor connection with gears**

17.1.4.1 Coupling housing KB for linear modules HM-B and cantilever axes HC

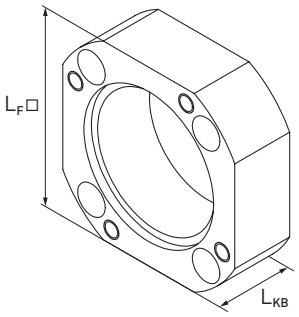


Fig. 17.11 **Coupling housing KB for linear modules HM-B and cantilever axes HC**

Table 17.4 **Dimensions of coupling housing KB for linear modules HM-B and cantilever axes HC**

Coupling housing for	L_F [mm]	L_{KB} [mm]	Article number
HC025B	50	17.0	25-002045
HM040B, HC040B	47	14.7	25-000798
HM060B , HC060B	69	23.2	25-000799
HM080B , HC080B	84	24.1	25-000800
HM120B	118	25.0	25-000801

17.1.4.2 Motor adapter plate AM for linear modules HM-B, linear tables HT-B and cantilever axes HC without gears

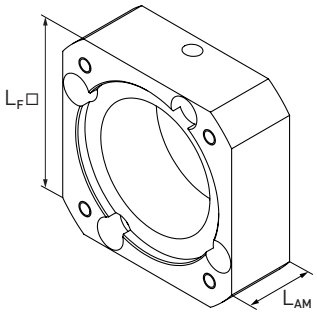


Fig. 17.12 **Motor adapter plate AM for linear modules HM-B, linear tables HT-B and cantilever axes HC without gears**

Table 17.5 **Motor adapter plate AM for linear modules HM-B and cantilever axes HC without gears**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HM040B	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	60	31	25-000404
HC040B		EM1-C-M-40-2	60	31	25-000404
HM040B, HC040B	B&R	8LSA25	58	25	25-000403
		8LSA33, 8LSA34, 8LSA35	82	31	25-000411
	Beckhoff	AM8022D, AM8022E, AM8023E, AM8023F	55	22	25-000402
		AM8031D, AM8031F, AM8531D, AM8531F, AM8032D, AM8032E, AM8032H, AM8532D, AM8532E, AM8532H	70	31	25-000407
	Bosch	MSK030B, MSK030C	54	22	25-000401
		MSK040B, MSK040C	82	31	25-000405
	Lenze	MCS06F41, MCS06F60, MCS06I41, MCS06I60	62	25	25-000406
		MCS09D41, MCS09D60	82	31	25-000411
	Schneider	BSH0701, BSH0702, BMH0701, BMH0702	62	25	25-000406
		BMH0703, BSH0703	70	31	25-000407

Table 17.5 **Motor adapter plate AM for linear modules HM-B and cantilever axes HC without gears**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HM040B, HC040B	SEW	CMP40M	54	22	25-000401
		CMP50S, CMP50M, CMP50L	62	25	25-000406
	Siemens	1FK7022	55	22	25-000402
		1FK7032, 1FK7034	72	31	25-000408
HM060B	HIWIN	EM1-C-M-75-2	80	37	25-000421
HM060B, HC060B	Bosch	MSK040B, MSK040C, MSK043B	82	27	25-000415
		MSK050B, MSK050C	98	37	25-000425
		MSK061B, MSK061C	116	37	25-000428
		MSK060B, MSK060C	116	47	25-000429
	B&R	8LSA35, 8LSA34	86	27	25-000423
		8LSA43, 8LSA44, 8LSA45, 8LSA46	100	37	25-000426
		8LSN43, 8LSN44, 8LSN45, 8LSN46	116	37	25-000430
	Beckhoff	AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8531F, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J	70	27	25-000418
		AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	87	37	25-000424
		AM8051E, AM8051G, AM8051K, AM8052F, AM8052J, AM8052L, AM8551E, AM8551G, AM8551K, AM8552F, AM8552J, AM8552L, AM8053G, AM8053K, AM8053N, AM8553G, AM8553K, AM8553N	104	47	25-000427
	Lenze	MCS09D41, MCS09D60, MCS09F38, MCS09F60, MCS09H41, MCS09H60, MCS09L41, MCS09L51	86	27	25-000423
		MCS12D20, MCS12D41, MCS12H15, MCS12H35, MCS12L20, MCS12L41	116	37	25-000430
	Schneider	BMH0701, BMH0702	72	21	25-000417
		BMH0703	70	27	25-000418
		BSH1001, BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	98	37	25-000425
	SEW	CMP50M, CMP50L	72	21	25-000417
		CMP63S, CMP63M, CMP63SL	86	27	25-000423
		CMP71S, CMP71M, CMPZ71S, CMPZ71M, CMP71L, CMPZ71L	116	47	25-000431
	Siemens	1FK7034	72	27	25-000419
		1FK7040, 1FK7042	87	37	25-000424
		1FK7060, 1FK7062, 1FK7063	116	47	25-000431
HM080B, HC080B	Beckhoff	AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J, AM8531D, AM8531F	73	27	25-000436
		AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	87	37	25-000441
		AM8051E, AM8051G, AM8051K, AM8052F, AM8052J, AM8052L, AM8053G, AM8053K, AM8053N, AM8551E, AM8551G, AM8551K, AM8552F, AM8552J, AM8552L, AM8553G, AM8553K, AM8553N	100	51	25-000444
		AM8061G, AM8061J, AM8061M, AM8062J, AM8062L, AM8062P, AM8561G, AM8561J, AM8561M, AM8562J, AM8562L, AM8562P	138	56	25-000453
	B&R	8LSA43, 8LSA44, 8LSA45, 8LSA46	100	37	25-000443
		8LSA53, 8LSA54, 8LSA55, 8LSA56, 8LSA57, 8LSN54, 8LSN55, 8LSN56, 8LSN57	142	51	25-000454
		8LSN43, 8LSN44, 8LSN45, 8LSN46	116	37	25-000447
	Bosch	MSK050B, MSK050C	98	37	25-000442
		MSK061B, MSK061C	116	37	25-000445
		MSK060B, MSK060C	116	51	25-000446
		MSK076C, MSK100A	139	51	25-000451
		MSK70C, MSK70D, MSK70E, MSK71C, MSK71D, MSK75C, MSK75D	138	56	25-000453
	Lenze	MCS09H41, MCS09H60, MCS09L41, MCS09L51	86	27	25-000440
		MCS12D20, MCS12D41, MCS12H15, MCS12H35, MCS12L20, MCS12L41	116	37	25-000447
		MCS14D15, MCS14D36, MCS14H15, MCS14H32MCS14L15, MCS14L32	139	51	25-000452
	Schneider	BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	98	37	25-000442
		BSH1401, BSH1402, BMH1401, BMH1402, BMH1403	139	51	25-000452

Table 17.5 **Motor adapter plate AM for linear modules HM-B and cantilever axes HC without gears**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HM080B, HC080B	SEW	CMP63M, CMP63L	86	27	25-000440
		CMP71S, CMP71M, CMP71L, CMPZ71S, CMPZ71M, CMPZ71L	116	51	25-000448
		CMP80S, CMP80M, CMPZ80S, CMPZ80M	138	56	25-000453
	Siemens	1FK7042	87	37	25-000441
		1FK7060, 1FK7062, 1FK7063	116	51	25-000448
		1FK7080, 1FK7081, 1FK7083, 1FK7084	138	56	25-000460
HM120B	Beckhoff	AM8553G, AM8553K, AM8553N	104	46	25-000456
		AM8062J, AM8062L, AM8062P, AM8063K, AM8063N, AM8063R, AM8561G, AM8561J, AM8561M, AM8562J, AM8562L, AM8562P, AM8563K, AM8563N, AM8563R	138	56	25-000460
		AM8071K, AM8071R, AM8072T	192	76	25-000466
	B&R	8LSA57, 8LSN54, 8LSN55, 8LSN56, 8LSN57	142	46	25-000461
		8LSA64, 8LSA65, 8LSA66	190	46	25-000464
	Bosch	MSK076C, MSK100A	140	46	25-000458
		MSK70C, MSK70D, MSK70E, MSK71C, MSK71D, MSK71E, MSK75C, MSK75D, MSK75E	138	56	25-000460
	Lenze	MCS14H15, MCS14H32, MCS14L15, MCS14L32, MCS14P14	140	46	25-000459
		MCS19F14	190	56	25-000465
	Schneider	BSH1402, BSH1403, BSH1404, BMH1401, BMH1402, BMH1403	140	46	25-000459
	SEW	CMPZ71L	116	46	25-000457
		CMP80L, CMPZ80S, CMPZ80M, CMPZ80L	138	56	25-000460
		CMP100S, CMP100M, CMP100L, CMPZ100S, CMPZ100M, CMPZ100L	163	56	25-000463
	Siemens	1FK7063	116	46	25-000457
		1FK7100, 1FK7101, 1FK7103, 1FK7105	192	76	25-000466
		1FK7080, 1FK7081, 1FK7083, 1FK7084	138	56	25-000460

Table 17.6 **Motor adapter plate AM for linear tables HT-B without gears**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HT100B	Beckhoff	AM8023E, AM8023F	55	22	25-000402
		AM8031D, AM8031F, AM8531D, AM8531F	70	31	25-000407
	Bosch	MSK040B, MSK040C	82	31	25-000405
	Lenze	MCS06I41, MCS06I60	62	25	25-000406
	Schneider	BSH0701, BMH0701, BMH0702	62	25	25-000406
	SEW	CMP50S, CMP50M	62	25	25-000406
	Siemens	1FK7034	72	31	25-000408
HT150B	HIWIN	EM1-C-M-75-2	80	37	25-000438
		EM1-A-M-1K-2	130	51	25-000450
	Beckhoff	AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J, AM8531D, AM8531F	73	27	25-000436
		AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	87	37	25-000441
		AM8051E, AM8051G, AM8051K, AM8052F, AM8052J, AM8052L, AM8053G, AM8053K, AM8053N, AM8551E, AM8551G, AM8551K, AM8552F, AM8552J, AM8552L, AM8553G, AM8553K, AM8553N	100	51	25-000444
	B&R	8LSA43, 8LSA44, 8LSA45, 8LSA46	100	37	25-000443
		8LSN43, 8LSN44, 8LSN45, 8LSN46	116	37	25-000447
	Bosch	MSK050B, MSK050C	98	37	25-000442
		MSK040B, MSK040C, MSK43C	82	27	25-000433
		MSK061B, MSK061C	116	37	25-000445
		MSK060B, MSK060C	116	51	25-000446
	Lenze	MCS09D41, MCS09D60, MCS09F38, MCS09F60, MCS09H41, MCS09H60, MCS09L41, MCS09L51	86	27	25-000440
		MCS12D20, MCS12D41, MCS12H15, MCS12H35, MCS12L20, MCS12L41	116	37	25-000447

Table 17.6 **Motor adapter plate AM for linear tables HT-B without gears**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HT150B	Schneider	BSH1001, BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	98	37	25-000442
	SEW	CMP63S, CMP63M, CMP63L	86	27	25-000440
		CMP50L	73	20	25-000435
		CMP71S, CMP71M, CMP71L, CMPZ71S, CMPZ71M, CMPZ71L	116	51	25-000448
	Siemens	1FK7040, 1FK7042	87	37	25-000441
		1FK7060, 1FK7062, 1FK7063	116	51	25-000448
HT200B	Beckhoff	AM8051E, AM8051G, AM8051K, AM8052F, AM8052J, AM8052L, AM8053G, AM8053K, AM8551E, AM8551G, AM8551K, AM8552F, AM8552J, AM8552L, AM8053N, AM8553G, AM8553K, AM8553N	104	46	25-000456
		AM8061G, AM8061J, AM8061M, AM8062J, AM8062L, AM8062P, AM8063K, AM8063N, AM8063R, AM8561G, AM8561J, AM8561M, AM8562J, AM8562L, AM8562P, AM8563K, AM8563N, AM8563R	138	56	25-000460
	B&R	8LSN54, 8LSN55, 8LSN56, 8LSN57, 8LSA54, 8LSA55, 8LSA56, 8LSA57	142	46	25-000461
		8LSA63, 8LSA64, 8LSA65, 8LSA66	190	46	25-000464
	Bosch	MSK076C, MSK100A	140	46	25-000458
		MSK70C, MSK70D, MSK70E, MSK71C, MSK71D, MSK71E, MSK75C, MSK75D, MSK75E	138	56	25-000460
	Lenze	MCS14D15, MCS14D36, MCS14H15, MCS14H32, MCS14L15, MCS14L32	140	46	25-000459
	Schneider	BSH1401, BSH1402, BSH1403, BSH1404, BMH1401, BMH1402, BMH1403	140	46	25-000459
	SEW	CMP71S, CMP71M, CMP71L, CMPZ71S, CMPZ71M, CMPZ71L	116	46	25-000457
		CMP80S, CMP80M, CMP80L, CMPZ80S, CMPZ80M, CMPZ80L	138	56	25-000460
		CMP100S, CMP100M, CMPZ100S, CMPZ100M	163	56	25-000463
	Siemens	1FK7060, 1FK7062, 1FK7063	116	46	25-000457
		1FK7080, 1FK7081, 1FK7083, 1FK7084	138	56	25-000460
HT250B	Beckhoff	AM8052F, AM8052J, AM8052L, AM8053G, AM8053K, AM8552F, AM8552J, AM8552L, AM8053N, AM8553G, AM8553K, AM8553N	104	46	25-000456
		AM8061G, AM8061J, AM8061M, AM8062J, AM8062L, AM8062P, AM8063K, AM8063N, AM8063R, AM8561G, AM8561J, AM8561M, AM8562J, AM8562L, AM8562P, AM8563K, AM8563N, AM8563R	138	56	25-000460
		AM8071K, AM8071R, AM8072T, AM8073T	192	76	25-000466
	B&R	8LSN54, 8LSN55, 8LSN56, 8LSN57, 8LSA54, 8LSA55, 8LSA56, 8LSA57, 8LSA53	142	46	25-000461
		8LSA63, 8LSA64, 8LSA65, 8LSA66	190	46	25-000464
	Bosch	MSK076C, MSK100A	140	46	25-000458
		MSK70C, MSK70D, MSK70E, MSK71C, MSK71D, MSK71E, MSK75C, MSK75D, MSK75E	138	56	25-000460
	Lenze	MCS14D15, MCS14D36, MCS14H15, MCS14H32, MCS14L15, MCS14L32, MCS14P14	140	46	25-000459
		MCS19F14	190	56	25-000465
	Schneider	BSH1401, BSH1402, BSH1403, BSH1404, BMH1401, BMH1402, BMH1403	140	46	25-000459
	SEW	CMP71M, CMP71L, CMPZ71M, CMPZ71L	116	46	25-000457
		CMP80S, CMP80M, CMP80L, CMPZ80S, CMPZ80M, CMPZ80L	138	56	25-000460
		CMP100S, CMP100M, CMPZ100S, CMPZ100M, CMP100L, CMPZ100L	163	56	25-000463
	Siemens	1FK7062, 1FK7063	116	46	25-000457
		1FK7081, 1FK7083, 1FK7984	138	56	25-000460
		1FK7100, 1FK7101, 1FK7103, 1FK7105	192	76	25-000466

17.1.4.3 Gear adapter plate AG for linear modules HM-B, linear tables HT-B and cantilever axes HC

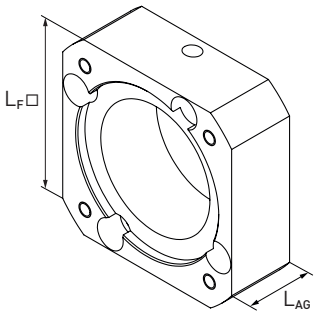


Fig. 17.13 **Gear adapter plate AG for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Table 17.7 **Gear adapter plate AG for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Linear axis	Gearbox type [2]	L_F [mm]	L_{AG} [mm]	Article number
HC025B	PLE040 [1]	50	27.0	25-002609
HM040B, HT100B, HC040B	PLE040 [1]	50	23.0	25-000735
HM040B, HT100B, HC040B	PLQE60	70	32.8	25-000387
HM060B, HC060B	PLQE60	70	27.5	25-000388
HM060B, HC060B	PLQE80	90	37.0	25-000389
HM080B, HT150B, HC080B	PLQE80	90	35.0	25-000390
HM080B, HT150B, HC080B	PLQE120	115	47.5	25-000391
HM120B, HT200B, HT250B	PLQE120	115	43.6	25-000392

[1] Adapter consists of two parts
[2] PLE and PLQE are registered trademarks of Neugart GmbH

17.1.4.4 Motor gear adapter plate GM for linear modules HM-B, linear tables HT-B and cantilever axes HC

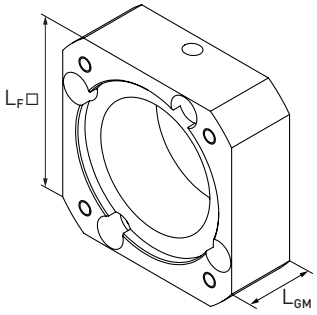


Fig. 17.14 **Motor gear adapter plate GM for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Table 17.8 **Motor gear adapter plate GM for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Gearbox type	Manufacturer	Motors	L_F [mm]	L_{GM} [mm]	Article number
PLE40	B&R	8LSA24, 8LSA25	60	18.0	25-000481
	Beckhoff	AM8022D, AM8022E, AM8023E, AM8023F	60	15.0	25-000478
	Bosch	MSK030B, MSK030C	60	15.0	25-000480
	Schneider	BSH0551, BSH0552, BSH0553	60	15.0	25-000478
	SEW	CMP40S, CMP40M	60	15.0	25-000480
	Siemens	1FK7022	60	15.0	25-000478

PLE and PLQE are registered trademarks of Neugart GmbH

Table 17.8 **Motor gear adapter plate GM for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Gearbox type	Manufacturer	Motors	L_F [mm]	L_{GM} [mm]	Article number
PLQE60	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	60	23,1	25-000486
	B&R	8LSA24, 8LSA25	60	17.1	25-000490
		8LSA33, 8LSA34, 8LSA35	90	23.1	25-000487
	Beckhoff	AM8031D, AM8031F, AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8531D, AM8531F, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J	70	23.1	25-000484
		AM8022D, AM8022E, AM8023E, AM8023F	60	16.0	25-000482
	Bosch	MSK040B, MSK040C, MSK043C	80	23.1	25-000489
		MSK030B, MSK030C	60	16.0	25-000488
	Lenze	MCS06F41, MCS06F60, MCS06I41, MCS06I60	70	16.1	25-000483
		MCS09D41, MCS09D60, MCS09F38, MCS09F60	90	23.1	25-000487
	Schneider	BSH0701, BSH0702, BMH0701, BMH0702	70	16.1	25-000483
		BSH0703, BMH0703	70	23.1	25-000484
		BSH0551, BSH0552, BSH0553	60	16.0	25-000482
	SEW	CMP50S, CMP50M, CMP50L	70	16.1	25-000483
		CMP63S, CMP63M	90	23.1	25-000487
		CMP40S, CMP40M	60	16.0	25-000488
	Siemens	1FK7022	60	16.0	25-000482
		1FK7032, 1FK7034	70	23.1	25-000485
PLQE80	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	80	21,2	25-000494
		EM1-C-M-75-2	80	31,2	25-000495
	B&R	8LSA33, 8LSA34, 8LSA35	90	21.2	25-000496
	Beckhoff	AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	90	21.2	25-000493
		AM8031D, AM8031F, AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8531D, AM8531F, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J	80	21.2	25-000498
	Bosch	MSK050B, MSK050C	100	31.2	25-000492
		MSK040B, MSK040C, MSK043C	80	21.2	25-000497
		MSK061B, MSK061C	115	31.2	25-000500
	Lenze	MCS09D41, MCS09D60, MCS09F38, MCS09F60, MCS09H41, MCS09H60, MCS09L41, MCS09L51	115	31.2	25-000499
		MCS06F41, MCS06F60, MCS06I41, MCS06I60	80	21.2	25-000498
		MCS12D20, MCS12D41, MCS12H15, MCS12H35, MCS12L20, MCS12L41	115	31.2	25-000499
	Schneider	BSH1001, BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	100	31.2	25-000492
		BSH0701, BSH0702, BSH0703, BMH0701, BMH0702, BMH0703	80	21.2	25-000498
	SEW	CMP63S, CMP63M, CMP63L	90	21.2	25-000496
		CMP50S, CMP50M, CMP50L	80	21.2	25-000498
	Siemens	1FK7032, 1FK7034	80	21.2	25-000491
		1FK7040, 1FK7042	90	21.2	25-000493
PLQE120	HIWIN	EM1-A-M-1K-2	130	36,8	25-000690
	Beckhoff	AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	115	21.8	25-000504
		AM8051E, AM8051G, AM8051K, AM8052F, AM8052J, AM8052L, AM8053G, AM8053K, AM8053N, AM8551E, AM8551G, AM8551K, AM8552F, AM8552J, AM8552L, AM8553G, AM8553K, AM8553N	115	31.8	25-000502
	Bosch	MSK060B, MSK060C	115	31.8	25-000509
		MSK061B, MSK061C	115	21.8	25-000508
		MSK076C, MSK100A	140	31.8	25-000506
		MSK050B, MSK050C	115	21.8	25-000501
	Lenze	MCS12D20, MCS12D41, MCS12H15, MCS12H35, MCS12L20, MCS12L41	115	21.8	25-000507
		MCS14D15, MCS14D36, MCS14H15, MCS14H32, MCS14L15, MCS14L32	140	31.8	25-000503

Table 17.8 **Motor gear adapter plate GM for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Gearbox type	Manufacturer	Motors	L_F [mm]	L_{GM} [mm]	Article number
PLQE120	Schneider	BSH1001, BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	115	21.8	25-000501
		BSH1401, BSH1402, BSH1403, BMH1401, BMH1402, BMH1403	140	31.8	25-000503
		BSH1004	115	31.8	25-000502
	SEW	CMP71S, CMP71M, CMP71L, CMPZ71S, CMPZ71M, CMPZ71L	115	31.8	25-000505
	Siemens	1FK7060, 1FK7062, 1FK7063	115	31.8	25-000505
		1FK7040, 1FK7042	115	21.8	25-000504

PLE and PLQE are registered trademarks of Neugart GmbH

17.1.4.5 Gearboxes for linear modules HM-B, linear tables HT-B, cantilever axes HC and double axes HD

Gearbox[1] for the optimal transfer of motor torque to the toothed belt drive.

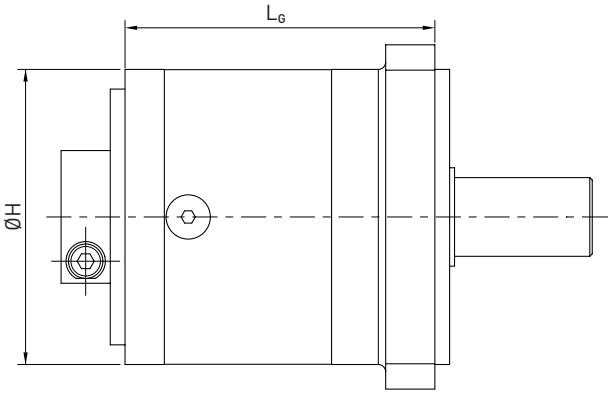


Fig. 17.15 **Dimensional drawing of gearbox for linear modules HM-B, linear tables HT-B, cantilever axes HC and double axes HD**

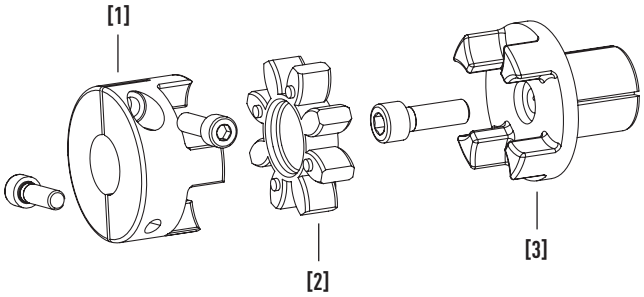
Table 17.9 **Gearboxes for linear modules HM-B, linear tables HT-B, cantilever axes HC and double axes HD**

Linear axis	Ratio i	Ø H [mm]	L_G [mm]	Max. Ø motor shaft [mm]	Gearbox type	Order code for gearbox[2]
HM040B, HD1, HT100B, HC040B	3	40	48.5	11	PLE40-3	G0403
	5	40	48.5	11	PLE40-5	G0405
	8	40	48.5	11	PLE40-8	G0408
	12	40	61.5	11	PLE40-12	G0412
HM040B, HM060B, HD1, HD2, HT100B, HC040B, HC060B	3	60	63.0	19	PLQE60-3	G0603
	5	60	63.0	19	PLQE60-5	G0605
	8	60	63.0	19	PLQE60-8	G0608
	12	60	75.5	19	PLQE60-12	G0612
HM060B, HM080B, HD2, HD3, HT150B, HC060B, HC080B	3	80	83.5	24	PLQE80-3	G0803
	5	80	83.5	24	PLQE80-5	G0805
	8	80	83.5	24	PLQE80-8	G0808
	12	80	101.0	24	PLQE80-12	G0812
HM080B, HM120B, HD3, HD4, HT150B, HT200B, HT250B, HC080B	3	115	124.5	35	PLQE120-3	G1203
	5	115	124.5	35	PLQE120-5	G1205
	8	115	124.5	35	PLQE120-8	G1208
	12	115	152.5	35	PLQE120-12	G1212

[1] Economy series PLE/PLQE, registered trademarks of Neugart GmbH

[2] See order codes on Page 21 for linear modules HM-B, on Page 41 for linear tables HT-B, on Page 69 for cantilever axes HC and on Page 79 for double axes HD

17.1.4.6 Coupling components for linear modules HM-B, linear tables HT-B and cantilever axes HC



[1] Clamping hub for the motor side
[2] Elastomer insert
[3] Expansion hub for the axis side

Fig. 17.16 **Coupling components for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Expansion hub
Coupling element to axis side.

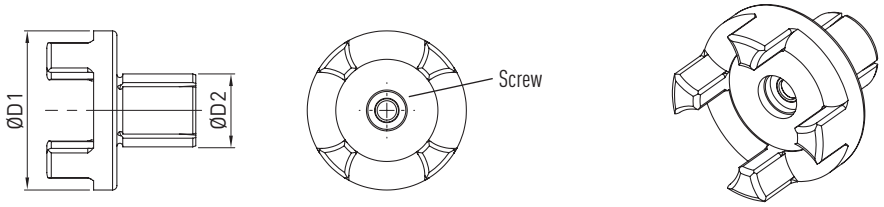


Fig. 17.17 **Expansion hub for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Table 17.10 **Article numbers and dimensions for expansion hub**

Linear axis	Type	Ø D1 [mm]	Ø D2 [mm]	Thread size × length	Screw tightening torque [Nm]	Inertia torque [kgmm²]	Friction grip torque [Nm]	Article number
HC025B	Size 12	24.5	10	M4 × 14	4	2.9	11	25-002015
HM040B	Size 14	29.5	14	M5 × 18	8	1.7	25	25-000819
HT100B, HC040B	Size 14	29.5	14	M5 × 18	10	4.4	31	27-002714
HM060B, HC060B	Size 19	39.5	20	M6 × 20	10	9.0	38	25-000199
HM080B, HT150B, HC080B	Size 24	54.5	25	M8 × 30	25	35.6	91	25-000200
HM120B, HT200B, HT250B	Size 28	64.5	35	M10 × 35	49	77.0	201	25-000201

Elastomer insert

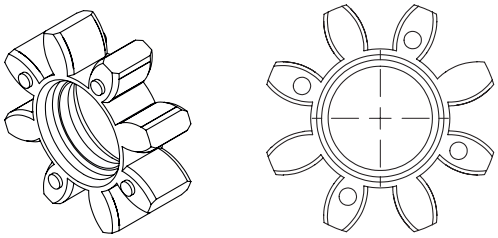


Fig. 17.18 **Elastomer insert for linear modules HM-B linear tables HT-B and cantilever axes HC**

Table 17.11 **Article numbers for elastomer insert**

Linear axis	Type	Article number
HC025B	Size 12	25-000202
HM040B, HT100B, HC040B	Size 14	25-000203
HM060B, HC060B	Size 19	25-000204
HM080B, HT150B, HC080B	Size 24	25-000205
HM120B, HT200B, HT250B	Size 28	25-000206

Clamping hub
Coupling element to motor side.

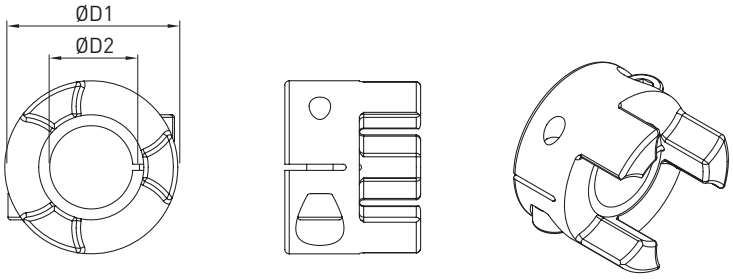


Fig. 17.19 **Clamping hub for linear modules HM-B, linear tables HT-B and cantilever axes HC**

Table 17.12 **Article numbers and specifications for clamping hub**

Linear axis	Type	Ø D1 [mm]	Ø D2 H7 [mm]	Thread size × length	Screw tightening torque [Nm]	Friction grip torque [Nm]	Inertia torque [kgmm²]	Article number
HC025B	Size 12	24.5	5	M3 × 12	2.1	5.2	1.46	25-002382
			6	M3 × 12	2.1	6.1	1.46	25-002384
			6.35	M3 × 12	2.1	6.4	1.46	25-002385
			8	M3 × 12	2.1	8.1	1.45	25-002386
			9	M3 × 12	2.1	9.1	1.45	25-002387
			10	M3 × 12	2.1	10.1	1.44	25-002388
			11	M3 × 12	2.1	11.1	1.43	25-002389
			12	M3 × 12	2.1	12.1	1.41	25-002390
			14	M3 × 12	2.1	14.1	1.41	25-002391
HM040B, HT100B, HC040B	Size 14	29.5	5	M4 × 12	5.0	10.1	2.70	25-002392
			6	M4 × 12	5.0	12.2	2.69	25-002393
			6.35	M4 × 12	5.0	13.2	2.69	25-002394
			8	M4 × 12	5.0	16.5	2.68	25-002395
			9	M4 × 12	5.0	18.6	2.68	25-002396
			10	M4 × 12	5.0	20.8	2.67	25-002397
			11	M4 × 12	5.0	23.0	2.66	25-002398
			12	M4 × 12	5.0	25.1	2.65	25-002399
			13	M4 × 12	5.0	27.2	2.63	25-002400
			14	M4 × 12	5.0	29.4	2.61	25-002401
			16	M4 × 12	4.0	28.0	6.11	25-002610
HM060B, HC060B	Size 19	39.5	6.35	M6 × 16	14.0	25.8	15.26	25-002403
			8	M6 × 16	14.0	32.5	15.25	25-002404
			9	M6 × 16	14.0	36.5	15.24	25-002405
			10	M6 × 16	14.0	40.6	15.23	25-002406
			11	M6 × 16	14.0	44.6	15.21	25-002407
			12	M6 × 16	14.0	48.7	15.18	25-002408

Table 17.12 **Article numbers and specifications for clamping hub**

Linear axis	Type	Ø D1 [mm]	Ø D2 H7 [mm]	Thread size × length	Screw tightening torque [Nm]	Friction grip torque [Nm]	Inertia torque [kgmm²]	Article number
HM060B, HC060B	Size 19	39.5	14	M6 × 16	14.0	56.8	15.11	25-002409
			16	M6 × 16	14.0	64.9	14.99	25-002410
			18	M6 × 16	14.0	73.1	14.82	25-002411
			19	M6 × 16	14.0	77.1	14.71	25-002412
			20	M6 × 16	14.0	81.2	14.58	25-002413
			22	M5 × 16	10.0	71.5	13.95	25-002414
			24	M5 × 16	10.0	75.6	13.52	25-002415
HM080B, HT150B, HC080B	Size 24	54.5	11	M6 × 20	15.0	46.0	53.30	25-002456
			14	M6 × 20	15.0	58.0	53.20	25-002416
			16	M6 × 20	15.0	66.0	53.10	25-002417
			19	M6 × 20	15.0	78.0	52.80	25-002418
			20	M6 × 20	15.0	82.0	52.70	25-002419
			22	M6 × 20	15.0	90.0	52.30	25-002420
			24	M6 × 20	15.0	98.0	51.90	25-002422
			25	M6 × 20	15.0	102.0	51.60	25-002423
			28	M6 × 20	15.0	114.0	50.50	25-002424
			32	M6 × 20	15.0	130.0	48.50	25-002425
HM120B, HT200B, HT250B	Size 28	64.5	16	M8 × 25	35.0	130.0	125.45	25-002426
			19	M8 × 25	35.0	152.5	125.11	25-002427
			20	M8 × 25	35.0	160.0	124.95	25-002428
			22	M8 × 25	35.0	175.0	124.55	25-002429
			24	M8 × 25	35.0	190.0	124.02	25-002430
			25	M8 × 25	35.0	197.5	123.70	25-002431
			28	M8 × 25	35.0	220.0	122.47	25-002432
			32	M8 × 25	35.0	240.0	120.08	25-002433
			35	M8 × 25	35.0	262.5	117.59	25-002434
			38	M8 × 25	35.0	285.0	118.33	25-002435

17.2 Drive adapter for linear modules HM-S and linear tables HT-S

17.2.1 Motor adapter for linear modules HM-S and linear tables HT-S

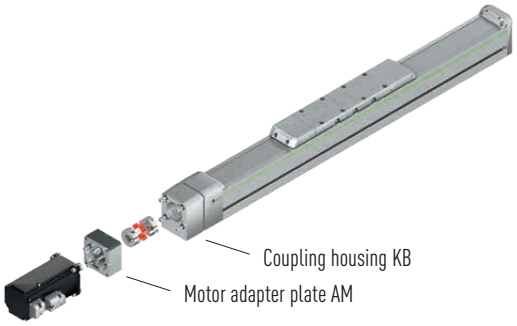
The drive adapter on the linear modules HM-S and the linear tables HT-S is a two-part structure that simplifies the process of flange-mounting any standard motor.

The flange type set consists of the following components:

- Coupling housing KB
- Coupling components
- Motor adapter plate AM or belt drive RT

See Section 17.2.2 on Page 153 ff. for the dimensions for the coupling housing, motor adapter plate, and belt drive.

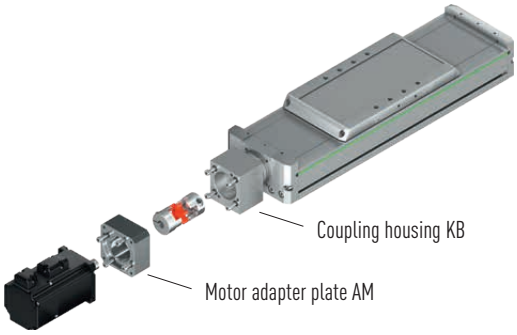
Motor adapter for linear modules with ballscrew drive – without belt drive



Motor adapter plate AM: Axis–motor adapter

Fig. 17.20 **Motor adapter for linear modules HM-S**

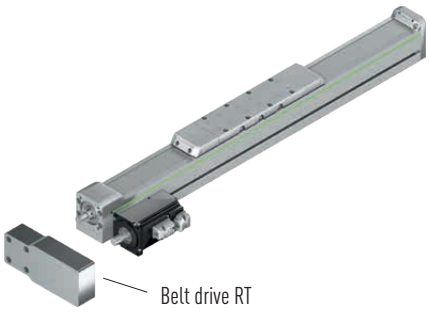
Motor adapter for linear tables with ballscrew drive (HT-S)



Motor adapter plate AM: Axis–motor adapter

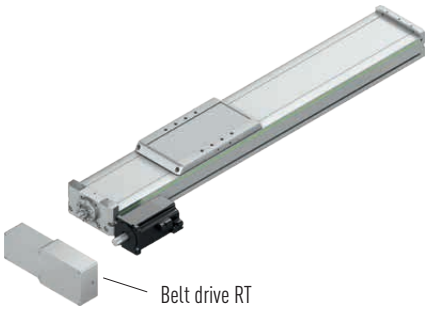
Fig. 17.21 **Motor adapter for linear tables HT-S**

Motor adapter for linear modules with ballscrew drive – with belt drive



Belt drive RT: For deflecting the drive through 180°

Fig. 17.22 **Motor adapter for linear modules HM-S with belt drive**



Belt drive RT: For deflecting the drive through 180°

Fig. 17.23 **Motor adapter for linear modules HM-S with belt drive**

Table 17.13 **Order code for flange type[3] – linear modules HM-S and linear tables HT-S**

Drive Manufacturer/type		HM-S linear module				HT-S linear table			
		HM040S	HM060S	HM080S	HM120S	HT100S	HT150S	HT200S	HT250S
		Motor only	Motor only	Motor only	Motor only	Motor only	Motor only	Motor only	Motor only
HIWIN	EM1-C-M-20-2	HW02[1]	HW03[1]	HW05[1]		HW03[1]	HW05[1]		
	EM1-C-M-40-2		HW03[1]	HW05[1]		HW03[1]	HW05[1]	HW05[1]	
	EM1-C-M-75-2			HW06[1]	HW08[1]		HW06[1]	HW06[1]	HW08[1]
	EM1-A-M-1K-2				HW13[2]				HW13[2]
B&R	8LSA24	BR01[1]	BR02[1]			BR02[1]			
	8LSA25	BR01[1]	BR02[1]			BR02[1]			
	8LSA33		BR03[2]	BR04[2]		BR03[2]	BR04[2]	BR04[2]	
	8LSA34		BR03[2]	BR04[2]		BR03[2]	BR04[2]	BR04[2]	
	8LSA35		BR03[2]	BR04[2]			BR04[2]	BR04[2]	
	8LSA43			BR05[2]	BR10[1]			BR05[2]	BR10[1]
	8LSA44				BR10[1]				BR10[1]
	8LSA45				BR10[1]				BR10[1]
	8LSA46				BR10[1]				
	8LSA53				BR12[2]				BR12[2]
	8LSA54				BR12[2]				BR12[2]
	8LSA55				BR12[2]				
	8LSN43				BR11[2]				BR11[2]
	8LSN44				BR11[2]				BR11[2]
	8LSN45				BR11[2]				
	8LSN46				BR11[2]				
	8LSN54				BR12[2]				BR12[2]
	8LSN55				BR12[2]				
	8LSN56								
Beckhoff	AM8022		BE01[1]	BE04[1]		BE01[1]	BE04[1]		
	AM8023		BE01[1]	BE04[1]		BE01[1]	BE04[1]	BE04[1]	
	AM8031		BE02[2]	BE05[1]		BE02[2]	BE05[1]	BE05[1]	
	AM8032			BE05[1]	BE09[1]			BE05[1]	BE09[1]
	AM8033			BE05[1]	BE09[1]				BE09[1]
	AM8531		BE02[2]	BE05[1]	BE09[1]	BE02[2]	BE05[1]	BE05[1]	BE09[1]
	AM8532			BE05[1]	BE09[1]			BE05[1]	BE09[1]
	AM8533			BE05[1]	BE09[1]				BE09[1]
	AM8041			BE06[2]	BE10[1]		BE06[2]	BE06[2]	BE10[1]
	AM8042			BE06[2]	BE10[1]				BE10[1]

[1] Possible belt drive V_1

[2] Possible belt drive V_2

[3] See order codes on Page 31 for linear modules HM-S and on Page 51 for linear tables HT-S

Table 17.13 **Order code for flange type[3] – linear modules HM-S and linear tables HT-S**

Drive Manufacturer/type		HM-S linear module				HT-S linear table			
		HM040S	HM060S	HM080S	HM120S	HT100S	HT150S	HT200S	HT250S
		Motor only	Motor only	Motor only	Motor only	Motor only	Motor only	Motor only	Motor only
Beckhoff	AM8043				BE10[1]				BE10[1]
	AM8541			BE06[2]	BE10[1]		BE06[2]	BE06[2]	BE10[1]
	AM8542			BE06[2]	BE10[1]				BE10[1]
	AM8543				BE10[1]				BE10[1]
	AM8051			BE07[2]	BE11[1]				BE11[1]
	AM8052				BE11[1]				
	AM8551			BE07[2]	BE11[1]				BE11[1]
	AM8552				BE11[1]				
	AM8061				BE12[2]				
	AM8561				BE12[2]				
Bosch	MSK030B	B001[1]	B002[1]			B002[1]			
	MSK030C		B002[1]			B002[1]			
	MSK040B		B003[2]	B005[1]	B010[1]	B003[2]	B005[1]	B005[1]	B010[1]
	MSK040C		B003[2]	B005[1]	B010[1]	B003[2]	B005[1]	B005[1]	B010[1]
	MSK043C			B005[1]	B010[1]			B005[1]	B010[1]
	MSK050B			B006[2]	B011[1]		B006[2]	B006[2]	B011[1]
	MSK050C			B006[2]	B011[1]			B006[2]	B011[1]
	MSK060B			B008[2]	B013[2]			B008[2]	B013[2]
	MSK060C				B013[2]				B013[2]
	MSK061B			B007[2]	B012[2]			B007[2]	B012[2]
	MSK061C				B012[2]				
	MSK070C				B015[2]				
	MSK071C				B015[2]				
	MSK075C				B015[2]				
	MSK076C				B014[2]				
Lenze	MCS06F		LE01[2]	LE04[1]		LE01[2]	LE04[1]		
	MCS06I		LE01[2]	LE04[1]		LE01[2]	LE04[1]	LE04[1]	
	MCS09D		LE02[2]	LE05[2]	LE08[1]		LE05[2]	LE05[2]	LE08[1]
	MCS09F			LE05[2]	LE08[1]			LE05[2]	LE08[1]
	MCS09H				LE08[1]				LE08[1]
	MCS09L				LE08[1]				
	MCS12D			LE06[2]	LE09[2]				LE09[2]
	MCS12H				LE09[2]				LE09[2]
	MCS14D				LE10[2]				LE10[2]
Schneider	BSH0551	SE01[1]	SE02[1]			SE02[1]			
	BSH0552	SE01[1]	SE02[1]			SE02[1]			
	BSH0701		SE03[2]	SE07[1]		SE03[2]	SE07[1]		
	BSH0702		SE03[2]	SE07[1]		SE03[2]	SE07[1]	SE07[1]	
	BSH0703			SE08[1]			SE08[1]	SE08[1]	
	BSH1001			SE09[2]	SE13[1]		SE09[2]	SE09[2]	SE13[1]
	BSH1002				SE13[1]				SE13[1]
	BSH1003				SE13[1]				SE13[1]
	BSH1401				SE15[2]				SE15[2]
	BMH0701		SE03[2]	SE07[1]		SE03[2]	SE07[1]	SE07[1]	

[1] Possible belt drive V_1
[2] Possible belt drive V_2
[3] See order codes on Page 31 for linear modules HM-S and on Page 51 for linear tables HT-S

Table 17.13 **Order code for flange type[3] – linear modules HM-S and linear tables HT-S**

Drive Manufacturer/type		HM-S linear module				HT-S linear table			
		HM040S	HM060S	HM080S	HM120S	HT100S	HT150S	HT200S	HT250S
		Motor only	**Motor only**	**Motor only**	**Motor only**	**Motor only**	**Motor only**	**Motor only**	**Motor only**
Schneider	**BMH0702**		SE03[2]	SE07[1]		SE03[2]	SE07[1]	SE07[1]	
	BMH0703			SE08[1]	SE12[1]		SE08[1]	SE08[1]	SE12[1]
	BMH1001			SE09[2]	SE13[1]		SE09[2]	SE09[2]	SE13[1]
	BMH1002			SE09[2]	SE13[1]				SE13[1]
	BMH1003				SE13[1]				SE13[1]
	BMH1401				SE15[2]				
SEW	**CMP40S**	SW01[1]	SW02[1]			SW02[1]			
	CMP40M		SW02[1]	SW06[1]		SW02[1]	SW06[1]		
	CMP50S		SW03[2]	SW07[1]		SW03[2]	SW07[1]	SW07[1]	
	CMP50M			SW07[1]			SW07[1]	SW07[1]	
	CMP50L			SW07[1]	SW11[1]			SW07[1]	SW11[1]
	CMP63S			SW08[2]	SW12[1]		SW08[2]	SW08[2]	SW12[1]
	CMP63M				SW12[1]				SW12[1]
	CMP63L				SW12[1]				SW12[1]
	CMP71S				SW13[2]				SW13[2]
	CMP71M				SW13[2]				SW13[2]
	CMP71L				SW13[2]				
	CMP80S				SW14[2]				
	CMPZ71S				SW13[2]				SW13[2]
	CMPZ71M				SW13[2]				SW13[2]
	CMPZ71L				SW13[2]				
	CMPZ80S				SW14[2]				
Siemens	**1FK7022**	SM01[1]	SM02[1]			SM02[1]			
	1FK7032		SM03[2]	SM04[1]		SM03[2]	SM04[1]	SM04[1]	
	1FK7034		SM03[2]	SM04[1]		SM03[2]	SM04[1]	SM04[1]	
	1FK7040			SM05[2]	SM08[1]		SM05[2]	SM05[2]	SM08[1]
	1FK7042			SM05[2]	SM08[1]		SM05[2]	SM05[2]	SM08[1]
	1FK7060			SM06	SM09[2]				SM09[2]
	1FK7062				SM09[2]				SM09[2]
	1FK7063				SM09[2]				
	1FK7080				SM10[2]				SM10[2]
	1FK7081				SM10[2]				
	1FK7083				SM10[2]				

[1] Possible belt drive V_1

[2] Possible belt drive V_2

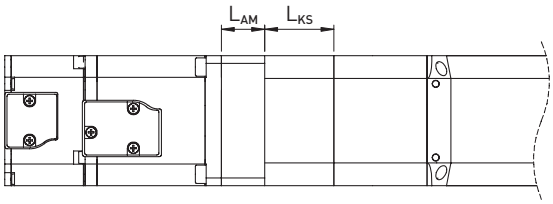
[3] See order codes on Page 31 for linear modules HM-S and on Page 51 for linear tables HT-S

17.2.2 Dimensions of motor adapter for linear modules HM-S and linear tables HT-S

The overall length of the spindle axis depends on the following factors:

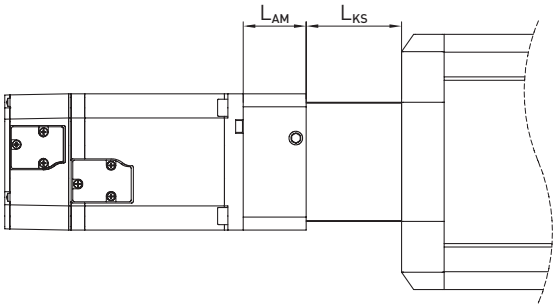
- Adapter materials (coupling housing KS, motor adapter plate AM)
- Belt drive RT
- Motor

Linear axis without belt drive



L_{KS} Coupling housing length, see Table 17.14
L_{AM} Motor adapter plate length, see Table 17.15

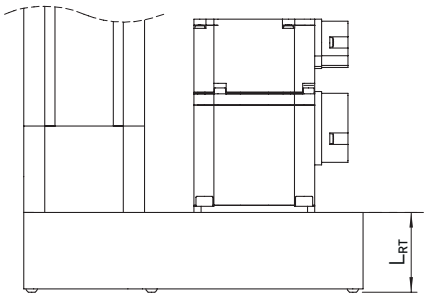
Fig. 17.24 **Motor connection of linear modules HM-S without belt drive**



L_{KS} Coupling housing length, see Table 17.14
L_{AM} Motor adapter plate length, see Table 17.16

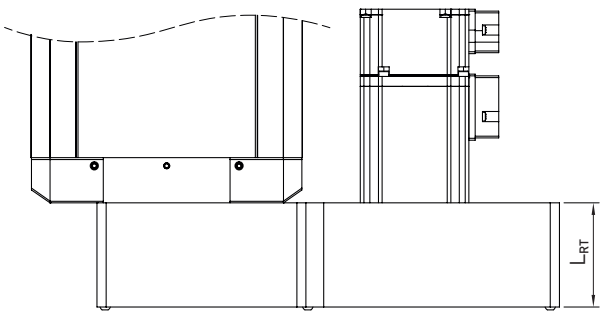
Fig. 17.25 **Motor connection of linear tables HT-S without belt drive**

Linear axis with belt drive



L_{RT} Belt drive length, see Table 17.17

Fig. 17.26 **Motor connection of linear modules HM-S with belt drive**



L_{RT} Belt drive length, see Table 17.17

Fig. 17.27 **Motor connection of linear tables HT-S with belt drive**

17.2.2.1 Coupling housing KS for linear modules HM-S and linear tables HT-S

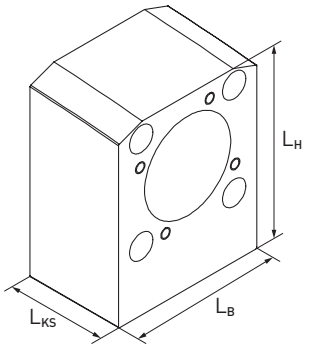


Fig. 17.28 **Coupling housing KS for linear modules HM-S**

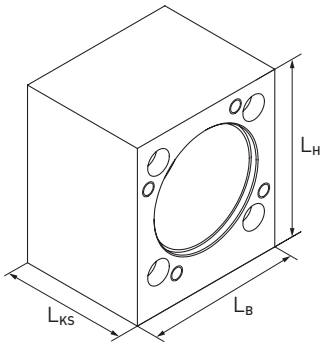


Fig. 17.29 **Coupling housing KS for linear tables HT-S**

Table 17.14 **Dimensions of coupling housing KS for linear modules HM-S and linear tables HT-S**

Coupling housing for	L_B [mm]	L_H [mm]	L_{KS} [mm]	Article number
HM040S	39.6	57.6	34	25-000305
HM060S	59.6	75.0	32	25-000306
HM080S	79.6	95.5	41	25-000307
HM120S	119.6	141.9	50	25-000308
HT100S	55.0	58.2	39	25-000952
HT150S	70.0	78.5	56	25-000951
HT200S	75.0	90.0	59	25-000950
HT250S	90.0	99.5	68	25-000949

17.2.2.2 Motor adapter plate AM for linear modules HM-S and linear tables HT-S

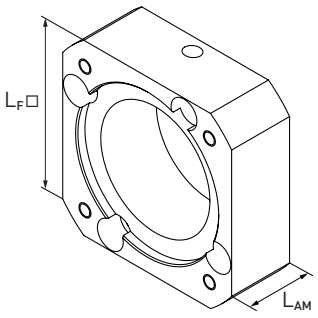


Fig. 17.30 **Motor adapter plate AM for linear modules HM-S and linear tables HT-S**

Table 17.15 **Motor adapter plate AM for linear modules HM-S**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HM040S	HIWIN	EM1-C-M-20-2	60	30	25-000398
	B&R	8LSA24, 8LSA25	58	24,5	25-000397
	Bosch	MSK030B	54	20,5	25-000395
	Schneider	BSH0551, BSH0552	55	20,5	25-000396
	SEW	CMP40S	54	20,5	25-000395
	Siemens	1FK7022	55	20,5	25-000396
HM060S	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	60	31	25-000404
	B&R	8LSA24, 8LSA25	58	25	25-000403
		8LSA33, 8LSA34, 8LSA35	82	31	25-000411
	Beckhoff	AM8022D, AM8022E, AM8023E, AM8023F	55	22	25-000402
		AM8031D, AM8031F, AM8531D, AM8531F	70	31	25-000407
	Bosch	MSK030B, MSK030C	54	22	25-000401
		MSK040B, MSK040C	82	31	25-000405
	Lenze	MCS06F41, MCS06F60, MCS06I41, MCS06I60	62	25	25-000406
		MCS09D41, MCS09D60	82	31	25-000411
	Schneider	BSH0551, BSH0552	55	22	25-000402
		BSH0701, BSH0702, BMH0701, BMH0702	62	25	25-000406
	SEW	CMP40S, CMP40M	54	22	25-000401
		CMP50S	62	25	25-000406
	Siemens	1FK7022	55	22	25-000402
		1FK7032, 1FK7034	72	31	25-000408
HM080S	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	72	27	25-000414
		EM1-C-M-75-2	80	37	25-000421
	B&R	8LSA33, 8LSA34, 8LSA35	86	27	25-000423
		8LSA43	100	37	25-000426
	Beckhoff	AM8022D, AM8022E, AM8023E, AM8023F	72	21	25-000413
		AM8031D, AM8031F, AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8531D, AM8531F, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J	70	27	25-000418
		AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J,	87	37	25-000424
		AM8051E, AM8051G, AM8051K, AM8551E, AM8551G, AM8551K	104	47	25-000427
	Bosch	MSK040B, MSK040C, MSK043C	82	27	25-000415
		MSK050B, MSK050C	98	37	25-000425
		MSK061B	116	37	25-000428
		MSK060B	116	47	25-000429
	Lenze	MCS06F41, MCS06F60, MCS06I41, MCS06I60	72	21	25-000417
		MCS09D41, MCS09D60, MCS09F38, MCS09F60	86	27	25-000423
		MCS12D20, MCS12D41	116	37	25-000430
	Schneider	BSH0701, BSH0702, BMH0701, BMH0702	72	21	25-000417
		BSH0703, BMH0703	70	27	25-000418
		BSH1001, BMH1001, BMH1002	98	37	25-000425
	SEW	CMP40M	72	21	25-000412
		CMP63S	86	27	25-000423
		CMP50S, CMP50M, CMP50L	72	21	25-000417
	Siemens	1FK7032, 1FK7034	72	27	25-000419
		1KF7040, 1FK7042	87	37	25-000424
		1FK7060	116	47	25-000431
HM120S	HIWIN	EM1-C-M-75-2	80	37	25-000438
		EM1-A-M-1K-2	130	51	25-000450

Table 17.15 **Motor adapter plate AM for linear modules HM-S**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HM120S	B&R	8LSA43, 8LSA44, 8LSA45, 8LSA46	100	37	25-000443
		8LSN43, 8LSN44, 8LSN45, 8LNS46	116	37	25-000447
		8LSA53, 8LSA54, 8LSA55, 8LSN54, 8LSN55	142	51	25-000454
	Beckhoff	AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8531D, AM8531F, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J	73	27	25-000436
		AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	87	37	25-000441
	Beckhoff	AM8051E, AM8051G, AM8051K, AM8052F, AM8052J, AM8052L, AM8551E, AM8551G, AM8551K, AM8552F, AM8552J, AM8552L	100	51	25-000444
		AM8061G, AM8061J, AM8061M, AM8561G, AM8561J, AM8561M	138	56	25-000453
	Bosch	MSK040B, MSK040C, MSK043C	82	27	25-000433
		MSK050B, MSK050C	98	37	25-000442
		MSK061B, MSK061C	116	37	25-000445
		MSK060B, MSK060C	116	51	25-000446
		MSK70C, MSK71C, MSK75C	138	56	25-000453
		MSK076C	139	51	25-000451
	Lenze	MCS09D41, MCS09D60, MCS09F38, MCS09F60, MCS09H41, MCS09H60, MCS09L41, MCS09L51	86	27	25-000440
		MCS12D20, MCS12D41, MCS12H15, MCS12H35	116	37	25-000447
		MCS14D15, MCS14D36	139	51	25-000452
	Schneider	BMH0703	73	27	25-000436
		BSH1001, BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	98	37	25-000442
		BSH1401, BMH1401	139	51	25-000452
	SEW	CMP50L	73	20	25-000435
		CMP63S, CMP63M, CMP63L	86	27	25-000440
		CMP71S, CMP71M, CMP71L, CMPZ71S, CMPZ71M, CMPZ71L	116	51	25-000448
		CMP80S, CMPZ80S	138	56	25-000453
	Siemens	1FK7040, 1FK7042	87	37	25-000441
		1FK7060, 1FK7062, 1FK7063	116	51	25-000448
		1FK7080, 1FK7081, 1FK7083	138	56	25-000453

Table 17.16 **Motor adapter plate AM for linear tables HT-S**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HT100S	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	60	31	25-000404
	B&R	8LSA24, 8LSA25	58	25	25-000403
		8LSA33, 8LSA34	82	31	25-000411
	Beckhoff	AM8022D, AM8022E, AM8023E, AM8023F	55	22	25-000402
		AM8031D, AM8031F, AM8531D, AM8531F	70	31	25-000407
	Bosch	MSK030B, MSK030C	54	22	25-000401
		MSK040B, MSK040C	82	31	25-000405
	Lenze	MCS06F41, MCS06F60, MCS06I41, MCS06I60	62	25	25-000406
	Schneider	BSH0551, BSH0552	55	22	25-000402
		BSH0701, BSH0702, BMH0701, BMH0702	62	25	25-000406
	SEW	CMP40S, CMP40M	54	22	25-000401
		CMP50S	62	25	25-000406
	Siemens	1FK7022	55	22	25-000402
		1FK7032, 1FK7034	72	31	25-000408
HT150S	HIWIN	EM1-C-M-20-2, EM1-C-M-40-2	72	27	25-000414
		EM1-C-M-75-2	80	37	25-000421
	B&R	8LSA33, 8LSA34, 8LSA35	86	27	25-000423

Table 17.16 **Motor adapter plate AM for linear tables HT-S**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HT150S	Beckhoff	AM8022D, AM8022E, AM8023E, AM8023F	72	21	25-000413
		AM8031D, AM8031F, AM8531D, AM8531F	70	27	25-000418
		AM8041D, AM8041E, AM8041H, AM8541D, AM8541E, AM8541H	87	37	25-000424
	Bosch	MSK040B, MSK040C	82	27	25-000415
		MSK050B	98	37	25-000425
	Lenze	MCS06F41, MCS06F60, MCS06I41, MCS06I60	72	21	25-000417
		MCS09D41, MCS09D60	86	27	25-000423
	Schneider	BSH0701, BSH0702, BMH0701, BMH0702	72	21	25-000417
	Schneider	BSH0703, BMH0703	70	27	25-000418
		BSH1001, BMH1001	98	37	25-000425
	SEW	CMP40M	72	21	25-000412
		CMP63S	86	27	25-000423
		CMP50S, CMP50M	72	21	25-000417
	Siemens	1FK7032, 1FK7034	72	27	25-000419
		1KF7040, 1FK7042	87	37	25-000424
HT200S	HIWIN	EM1-C-M-40-2	72	27	25-000414
		EM1-C-M-75-2	80	37	25-000421
	B&R	8LSA33, 8LSA34, 8LSA35	86	27	25-000423
		8LSA43	100	37	25-000426
	Beckhoff	AM8023E, AM8023F	72	21	25-000413
		AM8031D, AM8031F, AM8032D, AM8032E, AM8032H, AM8531D, AM8531F, AM8532D, AM8532E, AM8532H	70	27	25-000418
		AM8041D, AM8041E, AM8041H, AM8541D, AM8541E, AM8541H	87	37	25-000424
	Bosch	MSK040B, MSK040C, MSK043C	82	27	25-000415
		MSK050B, MSK050C	98	37	25-000425
		MSK061B	116	37	25-000428
		MSK060B	116	47	25-000429
	Lenze	MCS06I41, MCS06I60	72	21	25-000417
		MCS09D41, MCS09D60, MCS09F38, MCS09F60	86	27	25-000423
	Schneider	BSH0702, BMH0701, BMH0702	72	21	25-000417
		BSH0703, BMH0703	70	27	25-000418
		BSH1001, BMH1001	98	37	25-000425
	SEW	CMP63S	86	27	25-000423
		CMP50S, CMP50M, CMP50L	72	21	25-000417
	Siemens	1FK7032, 1FK7034	72	27	25-000419
		1KF7040, 1FK7042	87	37	25-000424
HT250S	HIWIN	EM1-C-M-75-2	80	37	25-000438
		EM1-A-M-1K-2	130	51	25-000450
	B&R	8LSA43, 8LSA44, 8LSA45	100	37	25-000443
		8LSN43, 8LSN44	116	37	25-000447
		8LSA53, 8LSA54, 8LSN54	142	51	25-000454
	Beckhoff	AM8032D, AM8032E, AM8032H, AM8033E, AM8033F, AM8033J, AM8531D, AM8531F, AM8532D, AM8532E, AM8532H, AM8533E, AM8533F, AM8533J	73	27	25-000436
		AM8041D, AM8041E, AM8041H, AM8042E, AM8042F, AM8042J, AM8043E, AM8043H, AM8043K, AM8541D, AM8541E, AM8541H, AM8542E, AM8542F, AM8542J, AM8543E, AM8543H, AM8543K	87	37	25-000441
		AM8051E, AM8051G, AM8051K, AM8551E, AM8551G, AM8551K	100	51	25-000444
	Bosch	MSK040B, MSK040C, MSK043C	82	27	25-000433
		MSK050B, MSK050C	98	37	25-000442
		MSK060B, MSK060C	116	51	25-000446

Table 17.16 **Motor adapter plate AM for linear tables HT-S**

Linear axis	Manufacturer	Motors	L_F [mm]	L_{AM} [mm]	Article number
HT250S	Lenze	MCS09D41, MCS09D60, MCS09F38, MCS09F60, MCS09H41, MCS09H60	86	27	25-000440
		MCS12D20, MCS12D41, MCS12H15, MCS12H35	116	37	25-000447
		MCS14D15, MCS14D36	139	51	25-000452
	Schneider	BMH0703	73	27	25-000436
		BSH1001, BSH1002, BSH1003, BMH1001, BMH1002, BMH1003	98	37	25-000442
		BSH1401	139	51	25-000452
	SEW	CMP50L	73	20	25-000435
		CMP63S, CMP63M, CMP63L	86	27	25-000440
		CMP71S, CMP71M, CMPZ71S, CMPZ71M	116	51	25-000448
	Siemens	1FK7040, 1FK7042	87	37	25-000441
		1FK7060, 1FK7062	116	51	25-000448
		1FK7080	138	56	25-000453

17.2.2.3 Belt drive RT for linear modules HM-S and linear tables HT-S

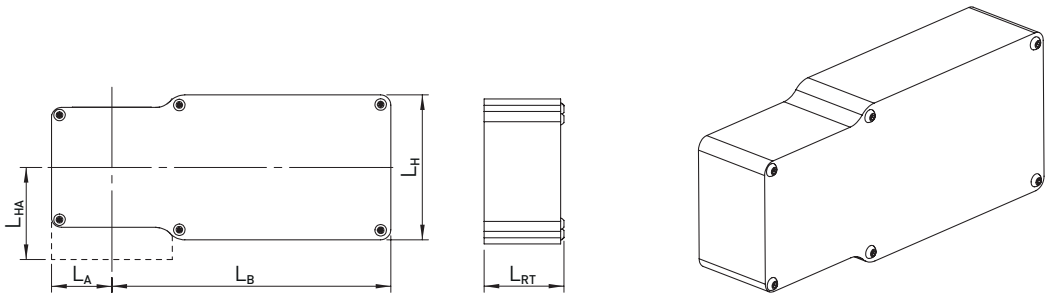


Fig. 17.31 **Belt drive RT for linear modules HM-S and linear tables HT-S**

Table 17.17 **Belt drive specifications**

Linear axis	Type [1]	L_H	L_B	L_{RT}	L_A	L_{HA}	Ratio
HM040S	V_1	72	138.5	40	30.0	36.25	1
HM060S	V_1	72	138.5	40	30.0	45.80	1
	V_2	102	171.5	40	30.0	45.80	1
HM080S	V_1	102	197.0	51	39.0	61.40	1
	V_2	131	226.0	61	39.0	61.40	1
HM120S	V_1	135	248.5	63	55.0	89.00	1
	V_2	175	288.0	73	55.0	89.00	1
HT100S	V_1	74	157.0	43	29.5	31.00	1
	V_2	102	196.0	43	29.5	31.00	1
HT150S	V_1	102	217.0	60	38.5	43.00	1
	V_2	131	251.0	70	38.5	43.00	1
HT200S	V_1	100	237.0	61	42.5	51.00	1
	V_2	131	268.5	71	42.5	51.00	1
HT250S	V_1	135	298.0	73	50.7	52.00	1
	V_2	175	349.5	83	50.7	52.00	1

[1] The required type can be found in Table 17.13

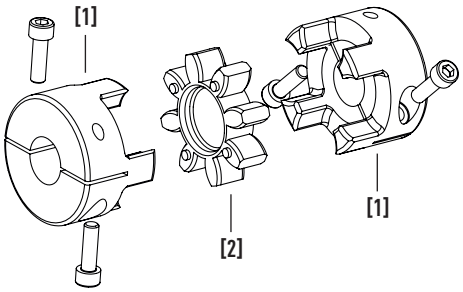
Note: Please bear in mind that the belt drive projects over the lower axis edge when:

$$\frac{L_H}{2} > L_{HA}$$

Note: Please bear in mind that the belt drive may project over the side of the axis when:

$$L_A > \frac{\text{Profile width (axis)}}{2}$$

17.2.2.4 Coupling components for linear modules HM-S and linear tables HT-S



[1] Clamping hubs (1 for axis side, 1 for motor side)
[2] Elastomer insert

Fig. 17.32 **Coupling components for linear modules HM-S and linear tables HT-S**

Clamping hub
Motor- and axis-side coupling element.

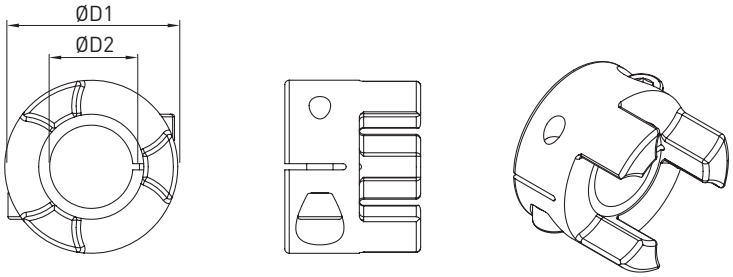


Fig. 17.33 **Clamping hub**

Table 17.18 **Article numbers and specifications for clamping hub**

Linear axis	Type	Ø D1 [mm]	Ø D2 H7 [mm]	Thread size × length	Screw tightening torque [Nm]	Friction grip torque [Nm]	Inertia torque [kgmm²]	Article number
HM040S	Size 12	24.5	5	M3 × 12	2.1	5.2	1.46	25-002382
			6	M3 × 12	2.1	6.1	1.46	25-002384
			6.35	M3 × 12	2.1	6.4	1.46	25-002385
			8	M3 × 12	2.1	8.1	1.45	25-002386
			9	M3 × 12	2.1	9.1	1.45	25-002387
			10	M3 × 12	2.1	10.1	1.44	25-002388
			11	M3 × 12	2.1	11.1	1.43	25-002389
			12	M3 × 12	2.1	12.1	1.41	25-002390
			14	M3 × 12	2.1	14.1	1.41	25-002391
HM060S, HT100S	Size 14	29.5	5	M4 × 12	5.0	10.1	2.70	25-002392
			6	M4 × 12	5.0	12.2	2.69	25-002393
			6.35	M4 × 12	5.0	13.2	2.69	25-002394
			8	M4 × 12	5.0	16.5	2.68	25-002395
			9	M4 × 12	5.0	18.6	2.68	25-002396
			10	M4 × 12	5.0	20.8	2.67	25-002397
			11	M4 × 12	5.0	23.0	2.66	25-002398
			12	M4 × 12	5.0	25.1	2.65	25-002399
			13	M4 × 12	5.0	27.2	2.63	25-002400
			14	M4 × 12	5.0	29.4	2.61	25-002401

Table 17.18 **Article numbers and specifications for clamping hub**

Linear axis	Type	Ø D1 [mm]	Ø D2 H7 [mm]	Thread size × length	Screw tightening torque [Nm]	Friction grip torque [Nm]	Inertia torque [kgmm²]	Article number
HM060S, HT100S	Size 14	29.5	16	M4 × 12	4.0	28.0	6.11	25-002610
HM080S, HT150S, HT200S	Size 19	39.5	6.35	M6 × 12	14.0	25.8	15.26	25-002403
			8	M6 × 12	14.0	32.5	15.25	25-002404
			9	M6 × 12	14.0	36.5	15.24	25-002405
			10	M6 × 12	14.0	40.6	15.23	25-002406
			11	M6 × 12	14.0	44.6	15.21	25-002407
			12	M6 × 12	14.0	48.7	15.18	25-002408
			14	M6 × 12	14.0	56.8	15.11	25-002409
			16	M6 × 12	14.0	64.9	14.99	25-002410
			18	M6 × 12	14.0	73.1	14.82	25-002411
			19	M6 × 12	14.0	77.1	14.71	25-002412
			20	M6 × 12	14.0	81.2	14.58	25-002413
			22	M5 × 16	10.0	71.5	13.95	25-002414
			24	M5 × 16	10.0	75.6	13.52	25-002415
HM120S, HT250S	Size 24	54.5	11	M6 × 20	15.0	46.0	53.30	25-002456
			14	M6 × 20	15.0	58.0	53.20	25-002416
			16	M6 × 20	15.0	66.0	53.10	25-002417
			19	M6 × 20	15.0	78.0	52.80	25-002418
			20	M6 × 20	15.0	82.0	52.70	25-002419
			22	M6 × 20	15.0	90.0	52.30	25-002420
			24	M6 × 20	15.0	98.0	51.90	25-002422
			25	M6 × 20	15.0	102.0	51.60	25-002423
			28	M6 × 20	15.0	114.0	50.50	25-002424
			32	M6 × 20	15.0	130.0	48.50	25-002425

Elastomer insert

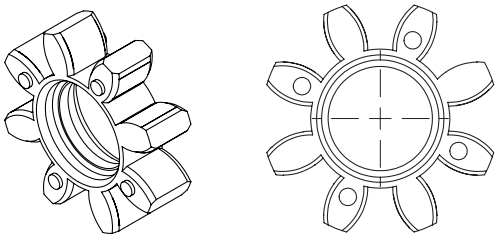


Fig. 17.34 **Elastomer insert**

Table 17.19 **Article number for elastomer insert**

Linear axis	Type	Article number
HM040S	Size 12	25-000202
HM060S, HT100S	Size 14	25-000203
HM080S, HT150S, HT200S	Size 19	25-000204
HM120S, HT250S	Size 24	25-000205

17.3 Energy supply for linear tables HT-B and HT-S

For reliable carrying of supply cables, the linear tables HT-B and HT-S up to a maximum stroke of 5,000 mm [1] are optionally supplied with generously dimensioned energy chains. The energy chains are particularly compact and space-saving when attached to the axis. The orientation of the energy chain is selectable according to the order codes in section 7.2 and 8.2. The linear tables with energy chain are optimised for horizontal installation. Axes with energy chain for vertical use on request.
Energy chain dimensions shown Fig. 17.35, Fig. 17.36, Fig. 17.37 as well as listed in Table 17.20 and Table 17.21.

[1] For HT100B the maximum stroke with energy chain is 4,000 mm

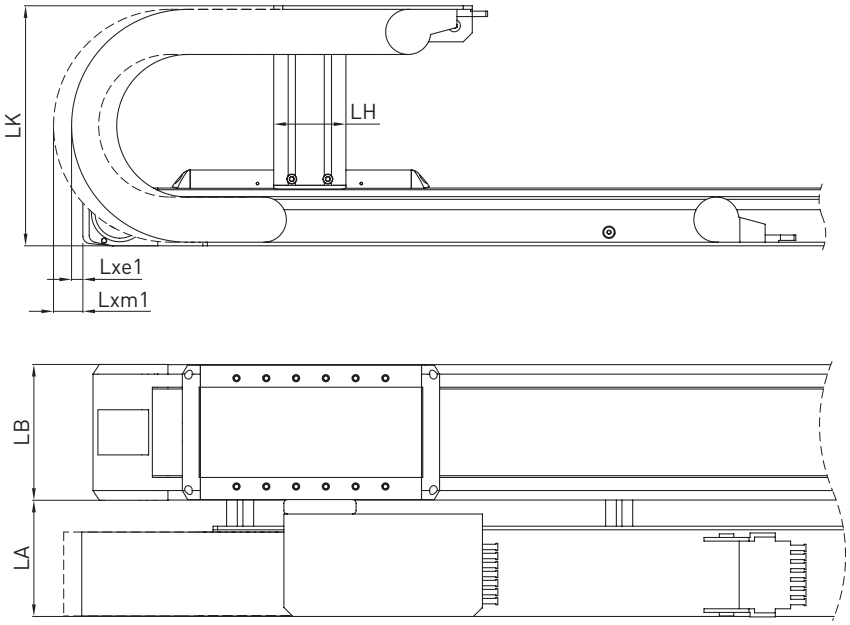


Fig. 17.35 **Linear axes HT-B: Option "E"**

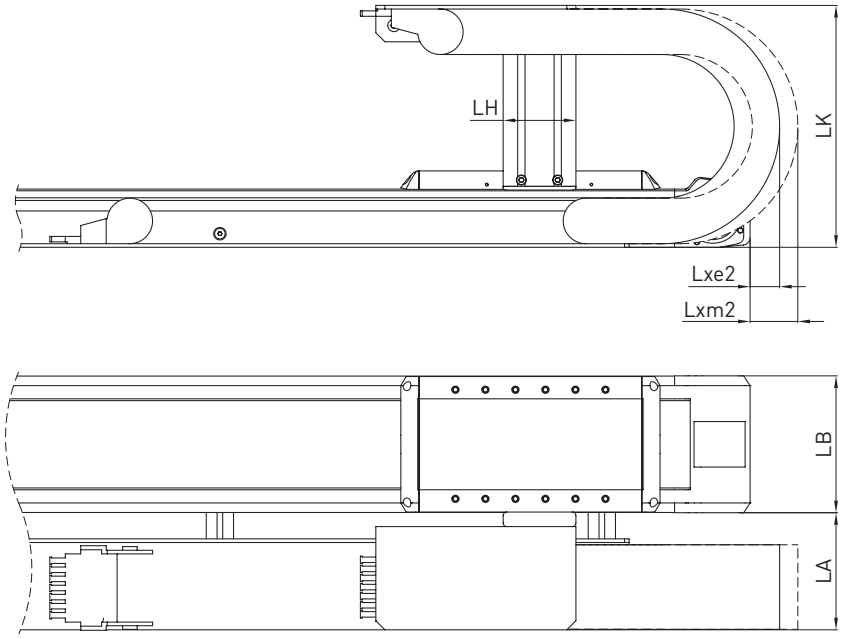


Fig. 17.36 **Linear axes HT-B: Option "C" and "F"**

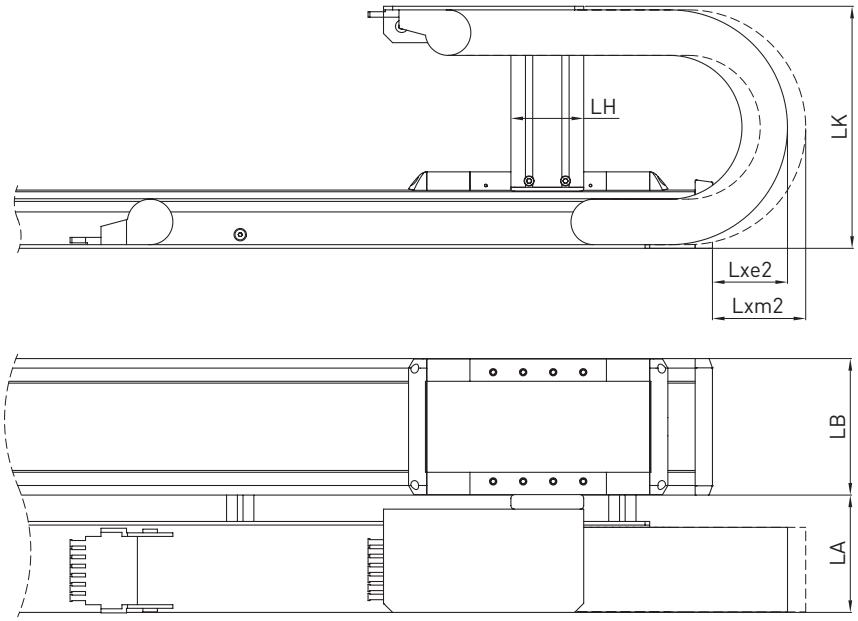


Fig. 17.37 **Linear axes HT-S: Option "C", "D", "E", "G" and "H"**

Table 17.20 **Dimensions of drive interface with energy chain for linear tables HT-B**

	Linear table – variant without cover				Linear table – variant with cover			
	HT100B	**HT150B**	**HT200B**	**HT250B**	**HT100B**	**HT150B**	**HT200B**	**HT250B**
LB [mm]	100	150	200	250	100	150	200	250
Internal cross section W × H [mm]	57 × 25	75 × 35	75 × 35	75 × 35	57 × 25	75 × 35	75 × 35	75 × 35
Bending radius [mm]	75	100	100	100	75	100	100	100
LK [mm]	198	266	266	266	198	266	266	266
LA [mm]	100	129	129	129	100	129	129	129
LH [mm]	60	80	80	80	60	80	80	80
Lxe1 [mm] [1)]	3)	3)	3)	3)	3)	3)	3)	3)
Lxe2 [mm] [1)]	3)	3)	3)	3)	3)	3)	3)	3)
Lxm1 [mm] [2)]	15	3)	3)	3)	3)	3)	3)	3)
Lxm2 [mm] [2)]	15	3)	3)	3)	3)	3)	3)	3)

[1)] At electrical zero
[2)] At mechanical zero
[3)] Energy chain without protrusion

Table 17.21 **Dimensions of drive interface with energy chain for linear tables HT-B**

	Linear table – variant without cover				Linear table – variant with cover			
	HT100S	**HT150S**	**HT200S**	**HT250S**	**HT100S**	**HT150S**	**HT200S**	**HT250S**
LB [mm]	100	150	200	250	100	150	200	250
Internal cross section W × H [mm]	57 × 25	75 × 35	75 × 35	75 × 35	57 × 25	75 × 35	75 × 35	75 × 35
Bending radius [mm]	75	100	100	100	75	100	100	100
LK [mm]	198	266	266	266	198	266	266	266
LA [mm]	100	129	129	129	100	129	129	129
LH [mm]	60	80	80	80	60	80	80	80
Lxe1 [mm] [1)]	3)	3)	3)	3)	3)	3)	3)	3)
Lxe2 [mm] [1)]	40	3)	3)	3)	10	3)	3)	3)
Lxm1 [mm] [2)]	3)	3)	3)	3)	3)	3)	3)	3)
Lxm2 [mm] [2)]	50	15	3)	3)	20	3)	3)	3)

[1)] At electrical zero
[2)] At mechanical zero
[3)] Energy chain without protrusion

17.4 Connection interface and energy supply for linear motor axes HT-L

Linear motor axes HT-L are equipped with an interface for motor and encoder cables. This is located on the side of the carriage. The self-locking quick fasteners it features provide a fast and easy way of connecting the cables – without the need for tools. There are two different options for the connector configuration to suit the installation conditions and how the cables need to be routed: see Fig. 17.38 and Fig. 17.39.
To ensure that the supply cables are carried safely, linear motor axes HT-L up to a maximum stroke of 5,000 mm are available with the option of generously dimensioned energy chains. They are extremely compact and save space when used with the axis. The configuration of the energy chain depends on the chosen connector orientation. The linear tables HT-L with energy chain are optimised for horizontal installation. Axes with energy chain for vertical use on request.

The dimensions of the energy chain and the electrical interface can be found in Fig. 17.38, Fig. 17.39 and Table 17.22.

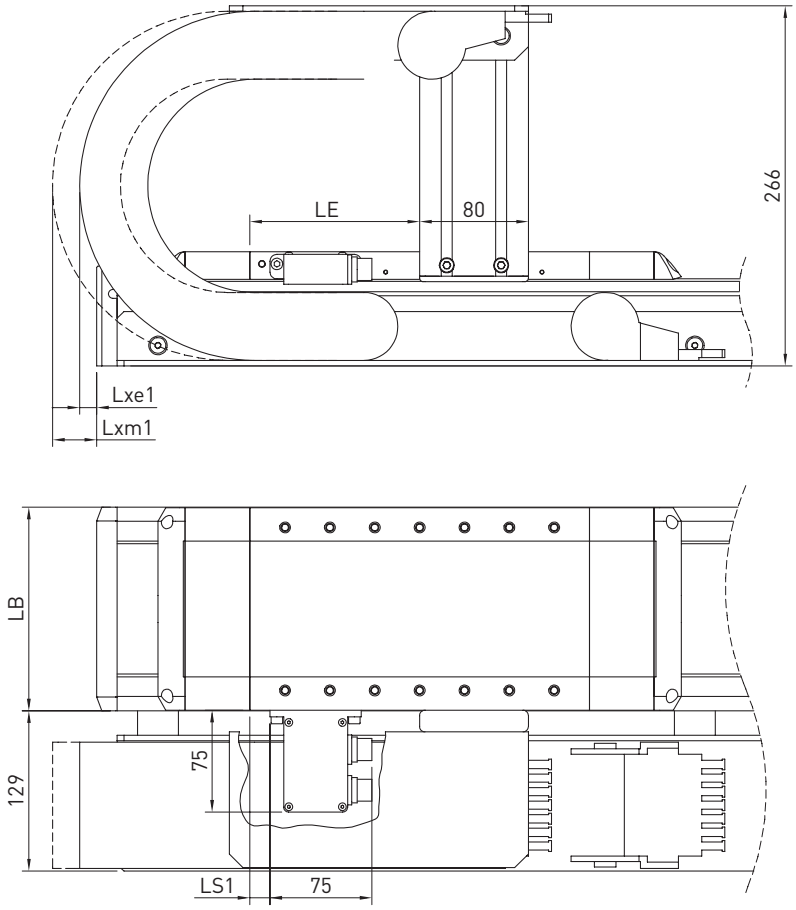


Fig. 17.38 **Linear motor axes HT-L: "D" and "F" options – connector right/front, mirrored also applies to "C" and "E" options – connector left/front**

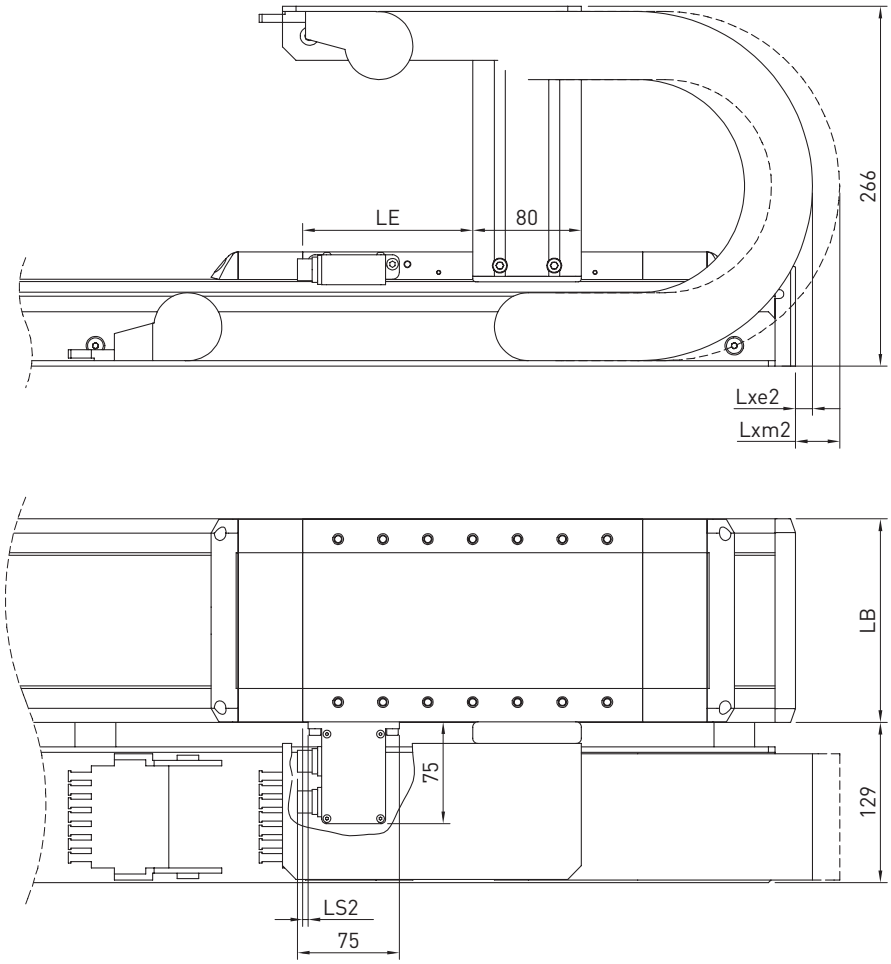


Fig. 17.39 **Linear motor axes HT-L: "R" and "B" options – connector right/front, mirrored also applies to "L" and "A" options – connector left/front**

Table 17.22 **Dimensions of connection interface and energy chains for linear motor axes HT-L**

	Linear table – variant without cover			Linear table – variant with cover		
	HT150L	**HT200L**	**HT250L**	**HT150L**	**HT200L**	**HT250L**
LB [mm]	150	200	250	150	200	250
Internal cross section W × H [mm]	75 × 35	75 × 35	75 × 35	75 × 35	75 × 35	75 × 35
Bending radius [mm]	100	100	100	100	100	100
LE [mm] [3]	125	120	135	125	120	135
Lxe1 [mm] [1] [3]	70	30	–	20	–	–
Lxe2 [mm] [1] [3]	–	–	–	–	–	–
Lxm1 [mm] [2] [3]	90	60	35	40	10	–
Lxm2 [mm] [2] [3]	–	–	–	–	–	–
Ls1 [mm]	4	6	14	4	6	14
Ls2 [mm]	15	17	25	15	17	25

[1] At electrical zero
[2] At mechanical zero
[3] Not applicable for variant without energy chain
For compatible motor and encoder cables, refer to the accessories information in Sections 18.8 to 18.10

18. Accessories

18.1 Clamping profiles

Clamping profiles are devices for installing the linear axis to the machine frame from above. The clamping profiles can be swivelled into the sides of the axis' profile groove.

The required number of clamping profiles depends on the axis length and the load. It can be found in the Assembly Instructions. Sets are available with four clamping profiles.

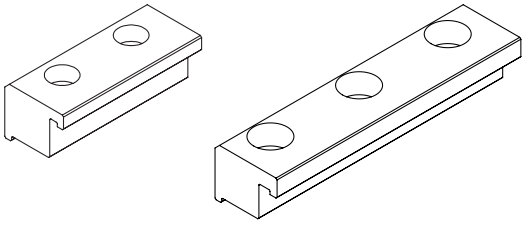


Fig. 18.1 **Short and long clamping profiles**

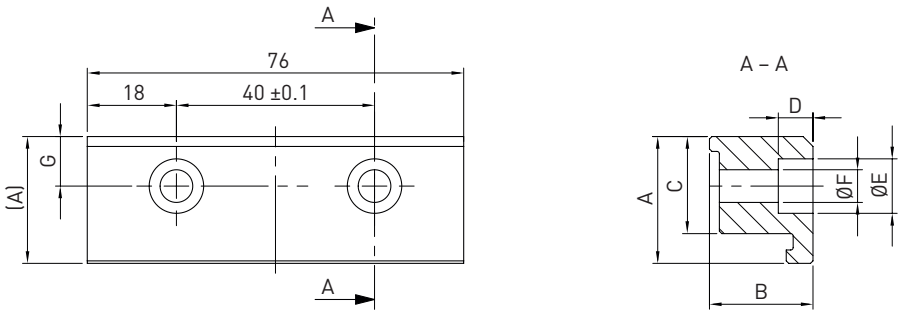


Fig. 18.2 **Dimensional drawing of short clamping profile**

Table 18.1 **Article numbers and dimensions for short clamping profiles**

Suitable for linear axis	Type	A	B	C	D	Ø E	Ø F	G	Suitable screw	Article number, 4 pcs.
HM040/HT100	Size 5	18.0	10.5	14.1	6.0	10	5.5	6.85	DIN 912 M5	25-000517
HM060	Size 6	25.6	20.9	19.6	9.5	11	6.6	10.00	DIN 912 M6	25-000518
HT150	Size 6	26.1	15.9	19.6	8.5	11	6.6	10.00	DIN 912 M6	25-001023
HM080 [1]/HM120/ HT200/HT250	Size 8	28.0	22.0	19.5	8.0	15	9.0	10.00	DIN 912 M8	25-000519

[1] Standard
Unit: mm

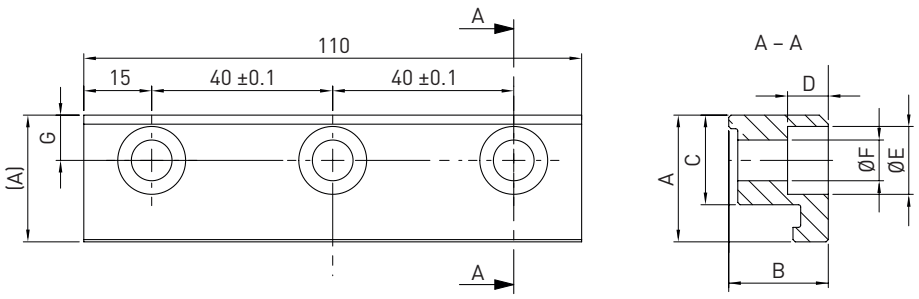


Fig. 18.3 **Dimensional drawing of long clamping profile**

Table 18.2 **Article numbers and dimensions for long clamping profiles**

Suitable for linear axis	Type	A	B	C	D	Ø E	Ø F	G	Suitable screw	Article number, 4 pcs.
HM080/HM120 [1]/ HT200 [1]/HT250 [1]	Size 8	28.0	22.0	19.5	8.0	15.0	9.0	10.0	DIN 912 M8	25-000520

[1] Standard
Unit: mm

18.2 T nut

T nut for the frictional connection of the linear axis. Flexible fastening options through the grooves on the side and on the bottom of the axis profile. The required number of T nuts depends on the axis length and the load. It can be found in the Assembly Instructions. Sets are available with ten T nuts.

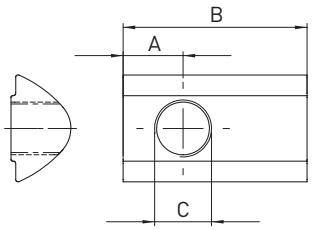


Fig. 18.4 **Dimensional drawing of T nut**

Table 18.3 **Article numbers and dimensions for T nuts**

Suitable for linear axis	Type	A	B	C	Article number, 10 pcs.
HM040, HT100	Size 5 M4	3.5	12.0	M4	20-000528
HM040, HT100 [1)]	Size 5 M5	3.5	12.0	M5	20-000529
HM060, HT150	Size 6 M5	4.5	17.0	M5	20-000530
HM060, HT150 [1)]	Size 6 M6	5.5	17.0	M6	20-000531
HM080, HM120, HT200, HT250	Size 8 M5	7.5	23.0	M5	20-000532
HM080, HM120, HT200, HT250	Size 8 M6	6.5	23.0	M6	20-000533
HM080, HM120, HT200, HT250 [1)]	Size 8 M8	7.5	23.0	M8	20-000534

[1)] Preferred type for axis mounting
Unit: mm

18.3 Centring sleeve

Centring sleeves that are inserted in the carriage's mounting holes for precise, repeatable load bearing. Sets are available with ten centring sleeves.

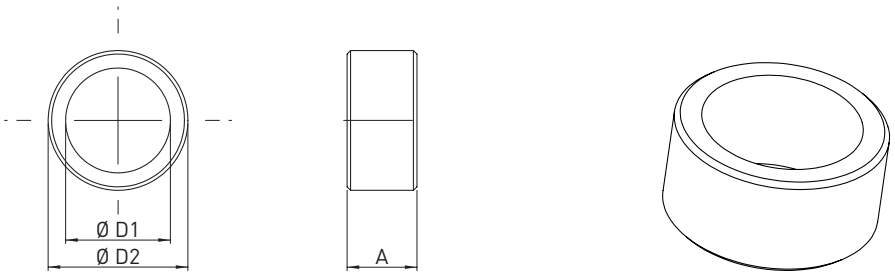


Fig. 18.5 **Dimensional drawing of centring sleeve**

Table 18.4 **Article numbers and dimensions for centring sleeves**

Suitable for linear axis	A	Ø D1	Ø D2	Article number, 10 pcs.
HC025	4	4.5	6 h6	25-002195
HM040, HM060, HT100, HT150, HC040, HC060	4	6.5	8 h6	25-000511
HM080, HT200, HC080	4	9.0	12 h6	25-000512
HM120, HT250	4	11.0	15 h6	25-000513

Unit: mm

18.4 Groove cover

Cover for the fastening groove. Length: 2 m. Sets are available with five groove covers.

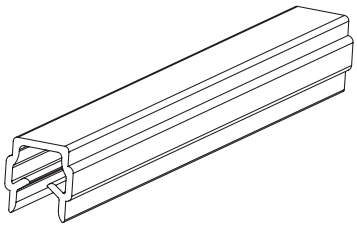


Fig. 18.6 **Groove cover for linear axes HM/HT/HC**

Table 18.5 **Article numbers for groove covers**

Suitable for linear axis	Type	Article number, 5 pcs.
HM040, HT100, HC040, HC060	Size 5	25-000514
HM060, HT150, HC080	Size 6	25-000515
HM080, HM120, HT200, HT250	Size 8	25-000516

18.5 Limit switch

Inductive limit switch as NC or NO contact. The limit switch is supplied as standard with plug or open cable end. Set including mounting material.

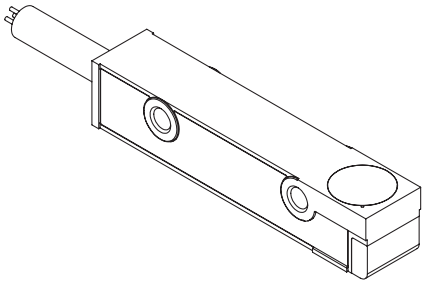


Fig. 18.7 **Limit switch for linear axes HM/HT/HC**

Table 18.6 **Limit switch options**

Suitable for linear axis	Option	Article number
HM, HT, HC040B, HC060B, HC080B	Limit switch with 100 mm cable, plug (NO)	25-002766
HM, HT, HC040B, HC060B, HC080B	Limit switch with 100 mm cable, plug (NC)	25-000786
HM, HT, HC040B, HC060B, HC080B	Limit switch with 4 m cable (NC)	25-000787
HM, HT, HC040B, HC060B, HC080B	Limit switch with 5 m cable (NO)	25-000788
HC025B	Limit switch with 200 mm cable, plug (NC)	25-002204
HC025B	Limit switch with 2 m cable (NC)	25-002205

18.6 Extension cable for limit switch

Cable with 3-pin M8 round connector on the limit switch side and exposed wires on the other cable end.

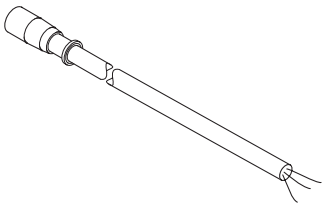


Fig. 18.8 **Extension cable for limit switch**

Table 18.7 **Extension cable for limit switch**

Length [m]	Max. cable diameter [mm]	Min. bending radius static [mm]	Min. bending radius dynamic [mm]	Article number
3	4.5	13.5	18.0	8-10-0275
5	4.5	13.5	18.0	8-10-0276
7	4.5	13.5	18.0	8-10-0277
10	4.5	13.5	18.0	8-10-0278
15	4.5	13.5	18.0	8-10-0279

18.7 Damping element

The damping element is needed to switch the limit switches at both of the carriage's end positions (at stroke 0 and stroke max). It can be attached on the left and right of the carriage. Set including mounting material.

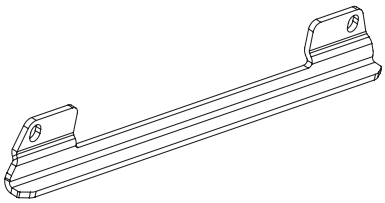


Fig. 18.9 **Damping element for linear axes HM/HT**

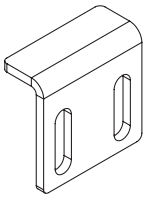


Fig. 18.10 **Damping element for cantilever axes HC**

Table 18.8 **Article numbers for damping element**

Suitable for linear axis	Article number
HM, carriage type E	25-001999
HM, carriage type S, M, L	25-000785
HT	25-001031
HC025	25-002196
HC040	25-002197
HC060, HC080	25-002198

18.8 Motor cable for HT-L linear table

Motor cable suitable for linear tables HT-L. Open cable end.

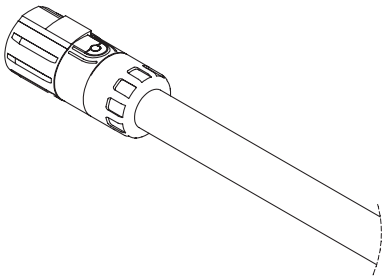


Fig. 18.11 **Motor cable for HT-L linear table**

Table 18.9 **Motor cable for HT-L linear table**

Length [m]	Article number
3	8-10-1214
5	8-10-1215
10	8-10-1217

18.9 Encoder cable for incremental distance measuring system

Cable for incremental distance measuring system (option A, B, D, E) for HT-L linear table.

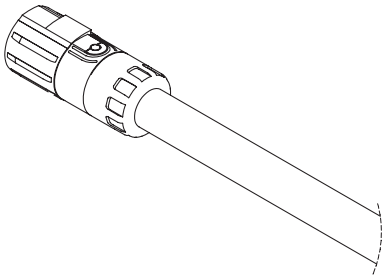


Fig. 18.12 **Encoder cable for incremental distance measuring system**

Table 18.10 **Encoder cable for incremental distance measuring system**

Length [m]	Suitable for option	Cable end	Article number
3	A, D	Open cable end: MAGIC, 1 V_{PP}, TTL, without Hall sensor	8-10-1207
5	A, D	Open cable end: MAGIC, 1 V_{PP}, TTL, without Hall sensor	8-10-1208
10	A, D	Open cable end: MAGIC, 1 V_{PP}, TTL, without Hall sensor	8-10-1210
3	B, E	Open cable end: MAGIC, 1 V_{PP}, TTL, with Hall sensor	8-10-1201
5	B, E	Open cable end: MAGIC, 1 V_{PP}, TTL, with Hall sensor	8-10-1202
10	B, E	Open cable end: MAGIC, 1 V_{PP}, TTL, with Hall sensor	8-10-1204

18.10 Encoder cable for absolute distance measuring system

Cable for absolute distance measuring system (option H, T, R, S) for HT-L linear tables.

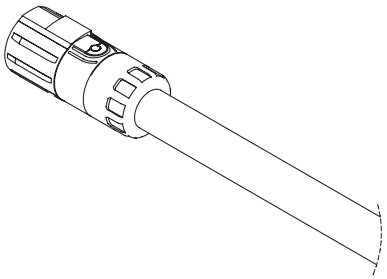


Fig. 18.13 **Encoder cable for absolute distance measuring system**

Table 18.11 **Encoder cable for absolute distance measuring system**

Length [m]	Suitable for option	Cable end	Article number
3	H, T, R, S	Open cable end	8-10-1207
5	H, T, R, S	Open cable end	8-10-1208
10	H, T, R, S	Open cable end	8-10-1210

18.11 Separators for energy chain

Separators for separating the cables within the energy chain. By default, the energy chain is equipped with a separator in each second chain link. Additional separators are available in sets of 20 pieces.

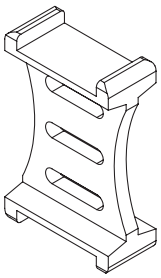


Fig. 18.14 **Separator for energy chain**

Table 18.12 **Article numbers for separators**

Suitable for linear axis				Article number, 20 pcs.
HT	**HS (X-axis)**	**HS (Y-axis)**	**HS (Z-axis)**	
–	–	–	31	8-05-0393
–	21, 31	21, 22, 23, 24, 31, 32, 33, 34	32, 33, 34	8-05-0336
100, 150, 200, 250	22, 23, 24, 32, 33, 34	–	–	8-05-0337

18.12 Tape for noise reduction of the energy chain

Single-sided self-adhesive cellular rubber tape to be glued to the contact surface of the energy chain to reduce the noise emissions of energy chains. Suitable for all linear axes HT-L and HS with energy chain (except HT150L with drive interface E or F).
Roll of 10 m
Article number: 25-002485

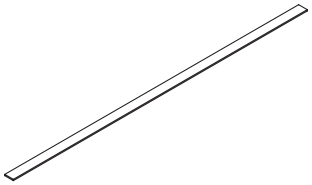


Fig. 18.15 **Tape for noise reduction of the energy chain**

18.13 Cover for drive block

Cover plate for sealing unneeded input and output drives on linear axes with toothed belt drive HM-B and HT-B as well as cantilever axes HC-B.
Set including mounting material.

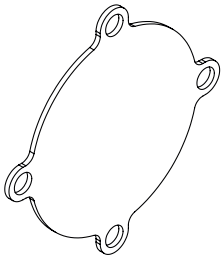


Fig. 18.16 **Cover for drive block**

Table 18.13 **Article numbers for drive block cover**

Suitable for linear axis	Article number
HC025B	25-002379
HM040B, HC040B	25-002375
HM060B, HC060B	25-002376
HM080B, HC080B	25-002377
HM120B	25-002378
HT100B	25-002372
HT150B	25-002373
HT200B, HT250B	25-002374

18.14 Journal for linear axes HM-B and cantilever axes HC

The journal can be clamped to each side of the drive wheel. It can be used to adapt the input/output drive, synchronous drive, encoder attachment, etc.

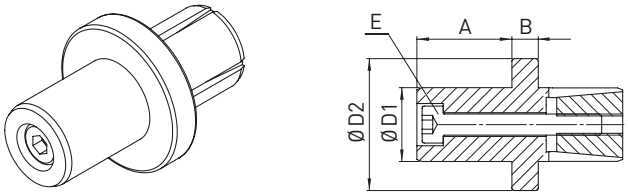


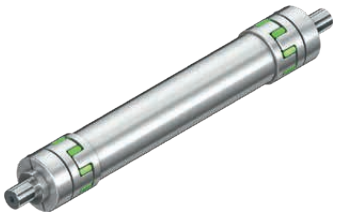
Fig. 18.17 **Journal dimensions**

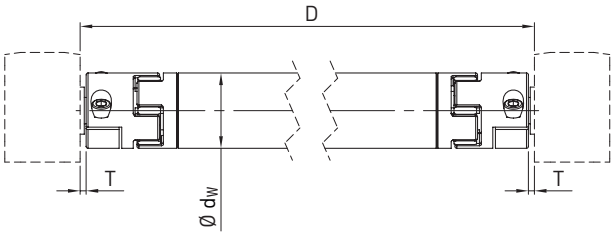
Table 18.14 **Article numbers and dimensions for journal**

Suitable for linear axis	A [mm]	B [mm]	E (Screw)	Ø D1 [mm]	Ø D2 [mm]	Screw tightening torque [Nm]	Mass inertia moment [kgmm²]	Transferable torque (calculated) [Nm]	Article number
HC025B	12	5.5	ISO 4762 M4 × 25	12 h7	17 h9	2.9	0.24	7.7	25-002514
HM040B, HC040B	18	5.0	ISO 4762 M4 × 30	14 h7	25 h9	4.5	1.21	17.0	25-000174
HM060B, HC060B	22	8.0	ISO 4762 M6 × 45	20 h7	32 h9	10.0	5.37	36.0	25-000175
HM080B, HC080B	30	8.0	ISO 4762 M8 × 55	25 h7	45 h9	25.0	17.70	81.0	25-000176
HM120B	30	10.0	ISO 4762 M10 × 60	35 h7	55 h9	55.0	55.70	213.0	25-000177

18.15 Synchronous shaft

In the case of double axes, the synchronous shaft transfers the drive torque from the powered to the passenger axis. In addition to the actual synchronous set, the set also contains the coupling elements and the adapters.





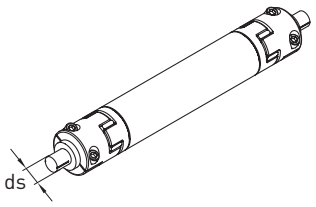
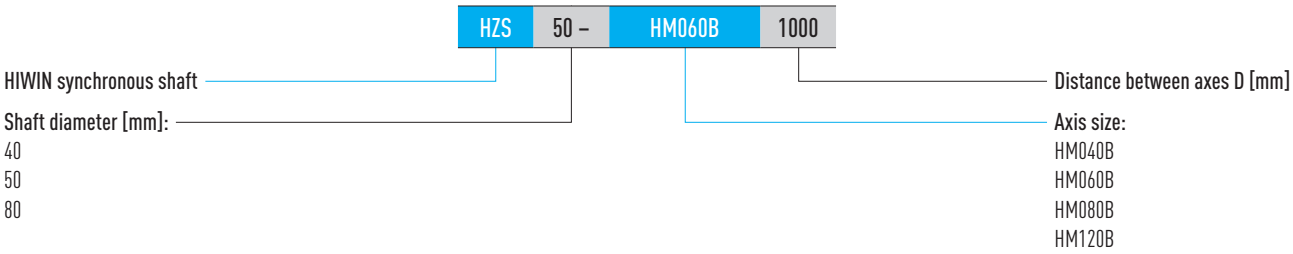


Table 18.15 **Dimensions of synchronous shaft**

Suitable for double axis	D min	D max	T	Ø shaft	Ø ds
HD1/HM040B	160	1,500	3.2	40	14
HD2/HM060B	186	2,000	7.2	50	20
HD3/HM080B	200	2,400	14.2	50	25
HD4/HM120B	256	3,000	5.7	80	35

Unit: mm

18.15.1 Order code for synchronous shaft



18.15.2 Spacer

If not installed horizontally, the synchronous shaft must be fitted with the spacer disc.
This prevents metal-on-metal contact in the lower coupling.

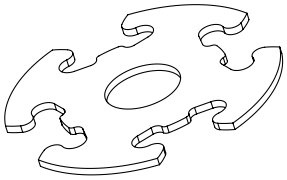


Table 18.16 **Article numbers for spacer**

Suitable for double axis	Suitable for synchronous shaft	Article number
HD1/HM040B	HZS40HM040Bxxxx [1]	25-000730
HD2/HM060B	HZS50HM060Bxxxx [1]	25-000731
HD3/HM080B	HZS50HM080Bxxxx [1]	25-000731
HD4/HM120B	HZS80HM120Bxxxx [1]	25-000733

[1] xxxx = Distance between axes D

18.16 HIWIN lubricants

Table 18.17 **Recommended HIWIN grease**

Grease type	Application	Quantity unit	Article number
G04	High speed	Cartridge 400 g	20-000345

Table 18.18 **Recommended HIWIN grease gun**

Article number	Description	Scope of delivery	Comment
20-000333	Grease gun GN-400C incl. set of lubrication adapter and nozzles (see Fig. 18.18)	Grease gun GN-400-C consisting of: ○ Grease gun ○ Hydraulic coupling A1 suitable for conical grease nipples acc. to DIN 71412, outer diameter 15 mm ○ Hollow mouthpiece A2 suitable for conical or ball grease nipples acc. to DIN 71412/DIN 3402, outer diameter 10 mm ○ Set of lubrication adapter and nozzles	Suitable for 400 g cartridge or direct filling

Fig. 18.18 **Grease gun GN-400C**

18.17 HIWIN grease nipples

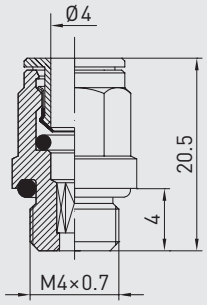
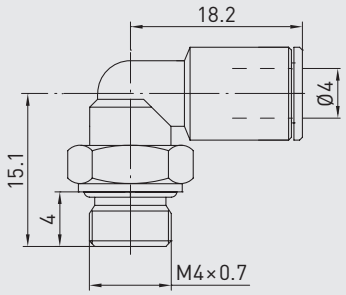
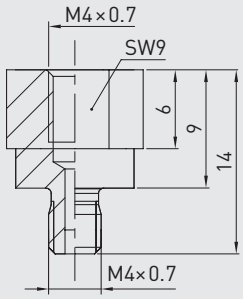
Grease nipples suitable for HM, HT and HC (all sizes, all drive types).

Table 18.19 **Grease nipples M4 × 0.7**

Article number	Linear axes HM	Linear tables HT	Cantilever axes HC	Picture
20-000325	Standard	Standard: HT100B Option: HT150B, HT200B, HT250B	Standard	
20-000538	Option	Standard: HT150B, HT200B, HT250B Option: HT100B	Option	
20-000272	Option	Option	Option	

18.18 Lubrication fittings and push-in fittings

Table 18.20 **Lubrication fittings and push-in fittings**

Article number	Description	Drawing
8-12-0186	Straight push-in fitting Ø 4	
20-002116	90° angled push-in fitting Ø 4	
20-002108	Lubrication adapter M4/M4 for extending the push-in fittings to avoid collisions (e.g. damping element)	

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