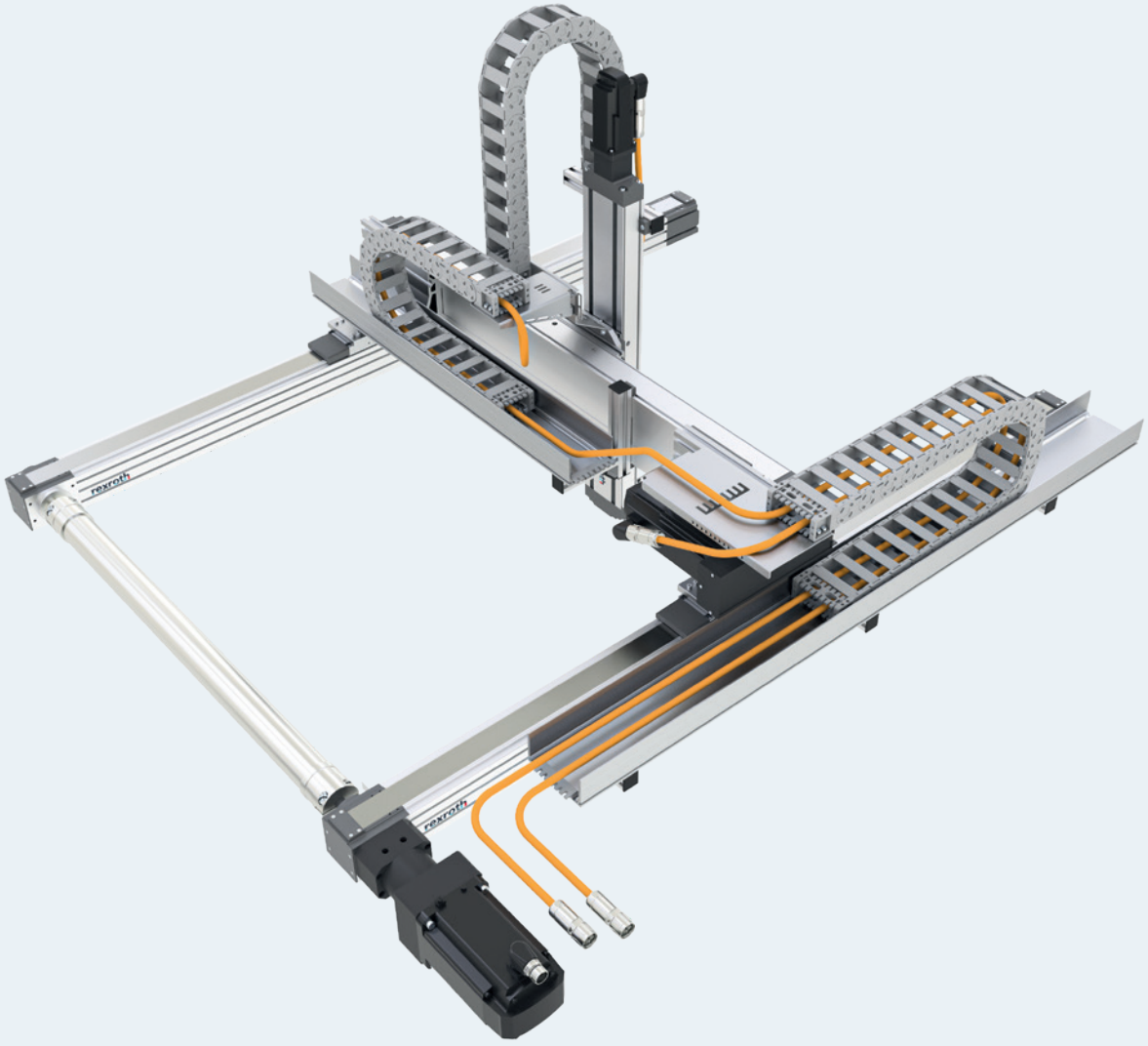
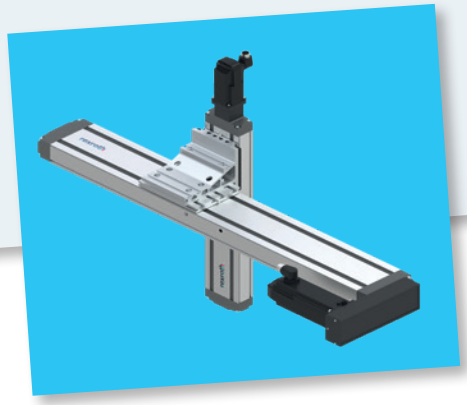
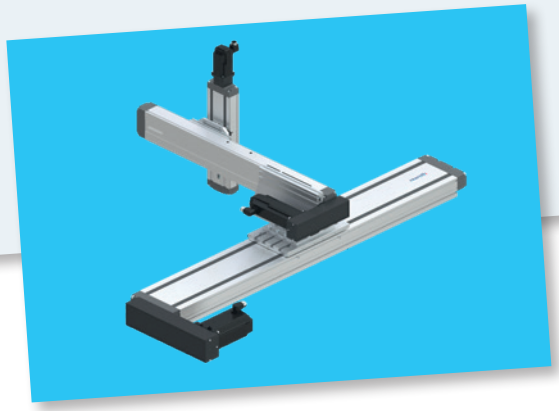
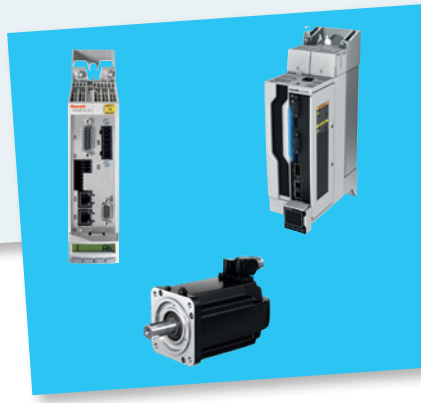
rexroth
A Bosch Company

Multi-axis systems









www.boschrexroth.com

Example			**CMS**	-	**3SB**	-	**30**	-	**2**
System	=	**Multi-axis system**							
Combination of axes	=	3SA - 3D cantilever chamber **3SB** - 3D gantry 3SC - 3D gantry, performance-optimized 2HA - 2D cantilever surface 2HB - 2D area gantry 2VA - 2D linear gantry 2VB - 2D linear gantry, wall mounting 1HB - 1D gantry							
Size	=	20 / 21 / 22 / 23 / **30** / 31 / 32 / 33 / 40 / 41							
Generation	=	Product generation **2**							

Combination of axes / overview of types

Type 3SA

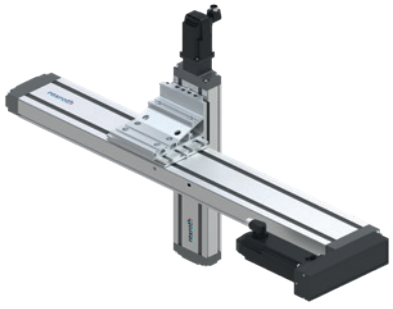
Type 3SB

Type 3SC

Type 2HA

Type 2HB

Type 2VA



Type 2VB

Type 1HB

Contents

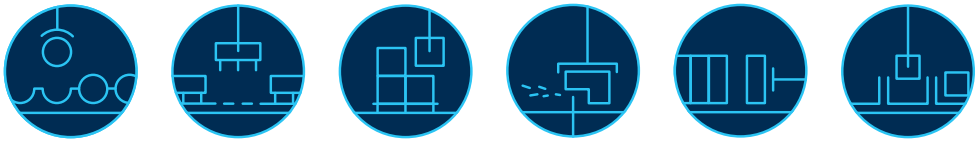
Product overview

LINEAR MOTION TECHNOLOGY, A GENERATION AHEAD: COMPLETE SOLUTION – MINIMAL ENGINEERING

The Factory of the Future will be more profitable, sustainable and future-proof – despite increasingly individual and flexible production processes. The requirements are therefore defined. As a leading supplier of linear motion technology and mechatronic systems, Bosch Rexroth is already providing the answers today: with quick click product selection, simple configuration & ordering processes, and intuitive commissioning of complete solutions without any programming knowledge. This ensures an extremely short time-to-market and high productivity during operation, even for today's highly complex multi-axis systems.

Factory of the Future
Now. Next. Beyond.

ALMOST UNLIMITED FIELDS OF APPLICATION FOR MULTI-AXIS SYSTEMS



Pick & place | **Positioning** | **Palletizing** | **Feeding** | **Moving** | **Equipping**

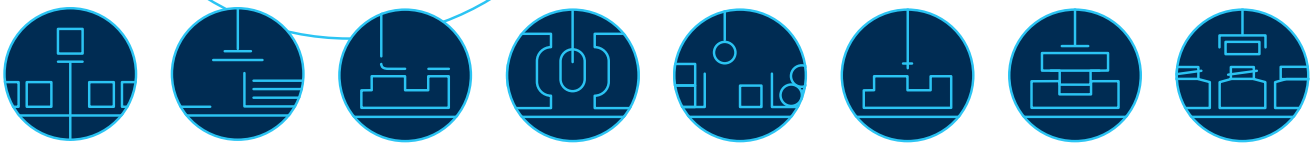
New standard for ready-to-install sub-systems: easier to select and configure, install faster and get started

MULTI-AXIS SYSTEMS MADE EASY.
EVERYTHING FROM A SINGLE SOURCE

Bosch Rexroth now makes the path to a ready-to-install sub-system unbeatably simple. 30 years of linear axis expertise have gone into the new multi-axis modular system and the completely revised LinSelect selection tool. There is no easier or faster way to select, configure and commission Cartesian multi-axis systems from standardized best-in-class components. You'll benefit from the latest generation of multi-axis systems from Bosch Rexroth: You'll receive ready-to-install, scalable positioning, handling and dispensing solutions made of proven and perfectly matched components, including all attachment parts, cable systems, motors and drive controllers – all from a single source, all from one company.

And if your fully assembled, fully integrable sub-system needs to be able to do even more, then take a look at the next step: Smart MechatroniX (from page 16) expands the components to include sensors, electronics and software – with completely new solution approaches and business models. **WE MOVE. YOU WIN.**

◀ **A smart solution as a complete kit – including sensors, electronics and software: Smart Function Kit for Dispensing or Handling.**
Page 16



A customized multi-axis system with just a few clicks

You can easily check whether the latest generation of the LinSelect selection tool fulfills what is stated in the specifications – "simpler, faster and better than anything you know": Download LinSelect (see link below) and try the tool for yourself. Or find out about the most important innovations and highlights here in advance.

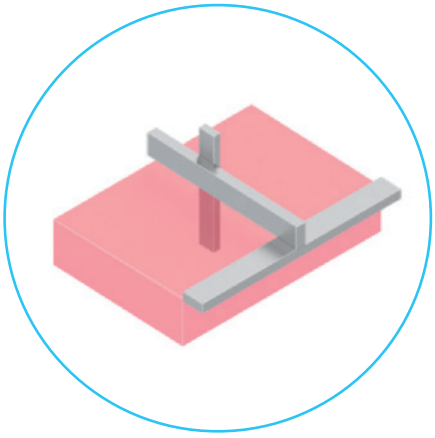
LinSelect

www.boschrexroth.com/linselect

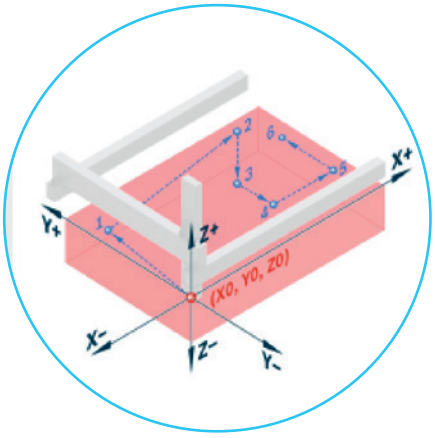
30 YEARS OF LINEAR AXIS KNOW-HOW INSIDE

Experience the concentrated expert knowledge of a leading supplier in linear motion technology – and as part of the Bosch Group also as a leading user – in every selection step of the new LinSelect. You are graphically guided and asked for a few parameters. This allows you to easily and quickly generate the appropriate reference cycle for your application, then receive detailed information and choices on running performance, such as repeatability, for example. You can easily put together your own system from standardized best-in-class components, including electrics, software, drive and motor, with just a few clicks and without any engineering effort.

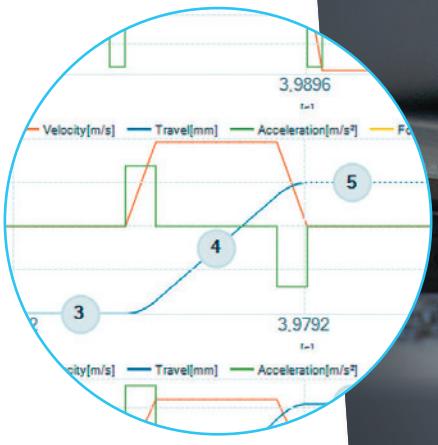
As a result, you will receive a recommendation in different performance variants and price settings – just as you are used to in a private context from online shops. You can then transfer the system data directly to the configurator and place your order. The CAD models are automatically available at Bosch Rexroth. By the way, commissioning is similarly fast. Could it be any easier?



▲ **Simple selection via graphical interfaces instead of input fields**



▲ **Simply select a reference cycle instead of creating complex travel profiles**



▲ **Simply use interactive graphics instead of confusing tables**

▲ **Simply choose from clear recommendations instead of time-consuming comparison and filtering**

▲ **Easy central access to all project information and links instead of long searches**

LINSELECT – SIMPLE SELECTION, MINIMAL ENGINEERING

LinSelect

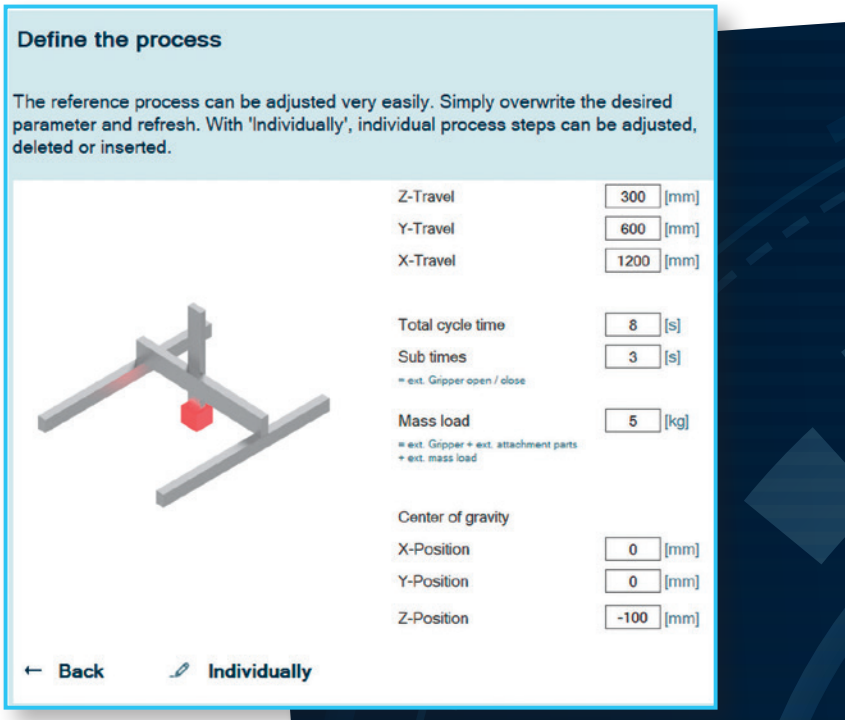
FEW PARAMETERS, FULL SCOPE – MANY ADVANTAGES

Fast:
- Select mechanics/motors/drive controllers in a single tool
- Fast engineering, fast result, shorter time-to-market

Intuitive:
- Years of application experience implemented in easy-to-use interfaces
- Visual support through interactive graphics and animations

Intelligent:
- Input of few parameters – output of prepared complex results with all relevant data
- Transparent result overview with clear recommendation depending on performance requirements, delivery time or price

Interactive:
- Continuous tool chain: Automatically transfer result to the online configurator, finish configuration, order and generate CAD data
- Central project for link management and documentation, bundled access to all project information – no decentralized storage, no long searches

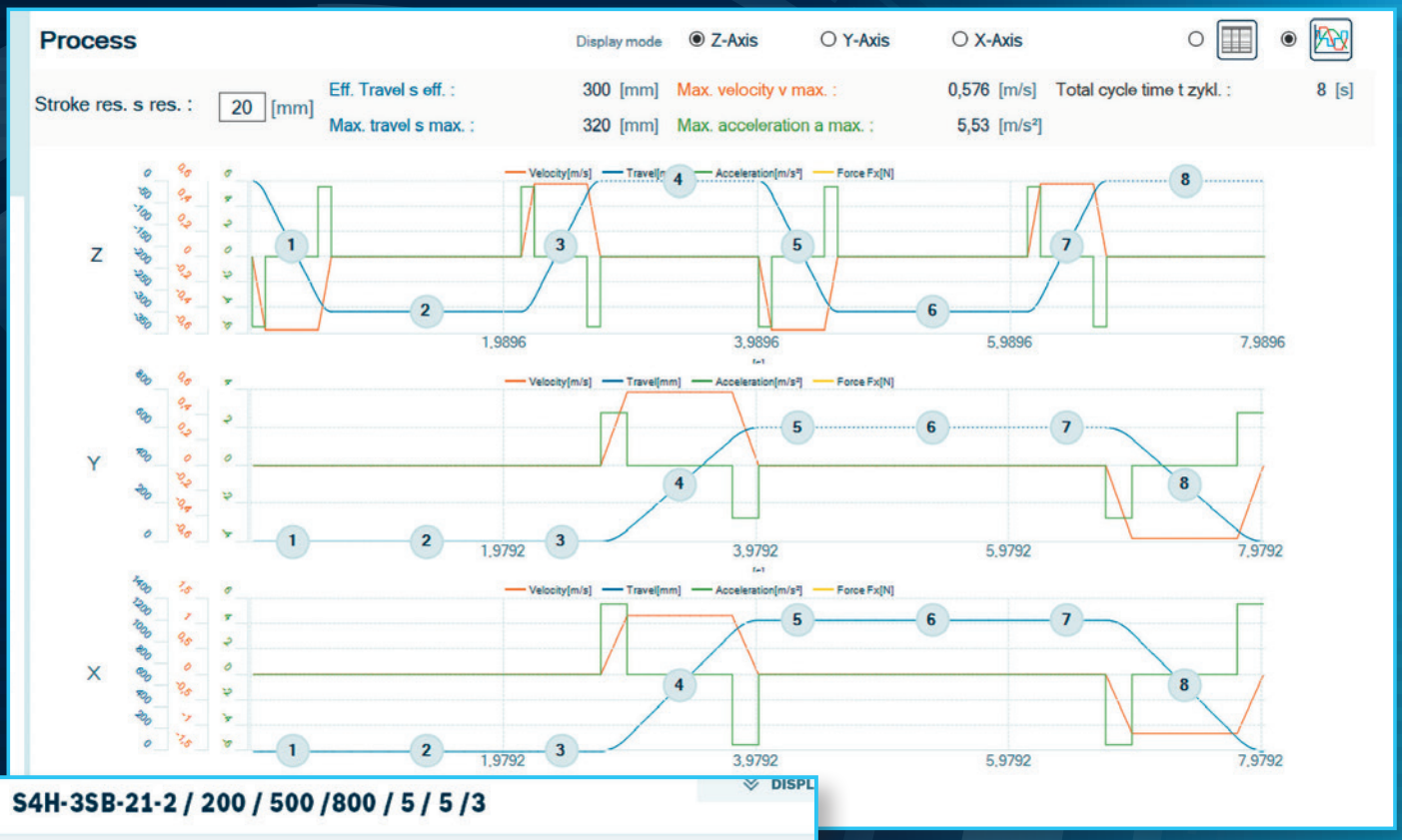


SIMPLE INPUT

Choose from 2 to 3 reference cycles – the system shows you the corresponding animation. Then simply define your desired system with 6 to 8 parameters for travel, time and mass – LinSelect does the rest.

DETAILED OUTPUT

LinSelect transforms your inputs into detailed characteristic curves for each axis. You have at least two reference cycles to choose from per portal which allow continued customization as you work through them.



S4H-3SB-21-2 / 200 / 500 /800 / 5 / 5 /3

Configuration

Max. travel Z	200	[mm] (Sub-product CKK-090-NN-1)
Max. travel Y	500	[mm] (Sub-product CKR-110-NN -1)
Max. travel X	800	[mm] (2 x Sub-pflroduct MKR-065-NN-3)
Mechanical drive Z	5	Ball screw drive / BASA 12x5
Mechanical drive Y	5	Assembly belt drive / gear PG005S-MF i=5
Mechanical drive X	3	Assembly belt drive / gear PG060 i=3
Motor Z	MS2N03-BOBYN	MS2N03-BOBYN
Holding brake Z	Y	With holding brake Single-cable connecting technology Convection cooling
Motor Y	MS2N04-BOBTN	MS2N04-BOBTN
Holding brake Y	Y	With holding brake Single-cable connecting technology Convection cooling
Motor X	MS2N04-COBTN	MS2N04-COBTN
Holding brake X	Y	With holding brake Single-cable connecting technology Convection cooling
Automation & drive package		CtrlX, PR21,WEB HMI
Function Kit		Handling

QUICK RESULT

You'll receive an overview of the possible variants along with a recommendation depending on performance requirements, price or delivery time.

You prefer to work differently? We will also show you other ways to select and configure – as individually as you like. ▸ Page 22

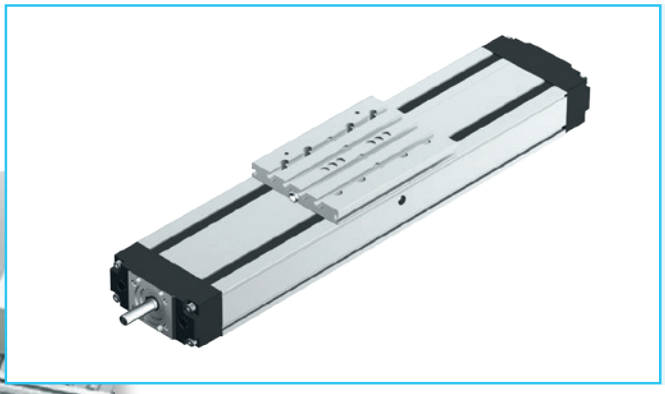
Best-in-class linear axes for movements in space

▲ **Handling portal instead of a robot. An economical solution not only in intralogistics**

PROVEN QUALITY – FROM A SINGLE SOURCE, FROM ONE COMPANY

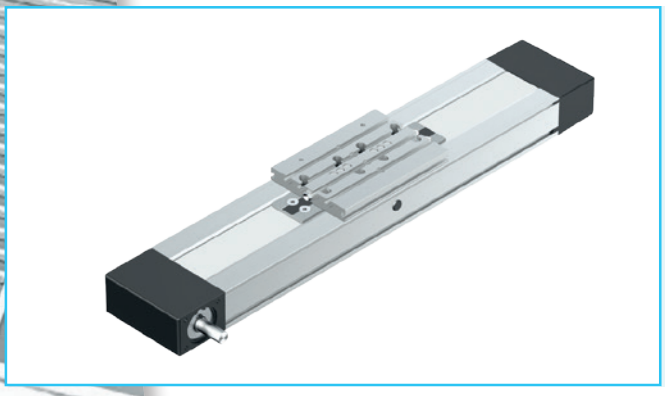
In the field of linear motion technology, Bosch Rexroth is second to none. For 30 years, we have stood for best-in-class components. They are the proven basis for state-of-the-art, robust, high-precision and yet economical multi-axis systems. And the best thing of all: Bosch Rexroth can also supply you with all the additional components and add-on parts required for your individual axis combination. All components are from a single source, optimally tailored to each other and quickly selected and configured. Could it be any easier?

COMPACT MODULES



CKK – compact linear axis with two integrated ball rail systems and ball screw assembly

Properties
- 5 sizes from CKK-070 to CKK-200
- Precision aluminum profile with two preloaded ball rail systems
- Drive via precision ball screw assembly
- Protection of the installation elements by cover plate and cover strips
- Max. travel 1,800 mm
- High travel speeds of up to 1.6 m/s
- Any lengths available in mm steps



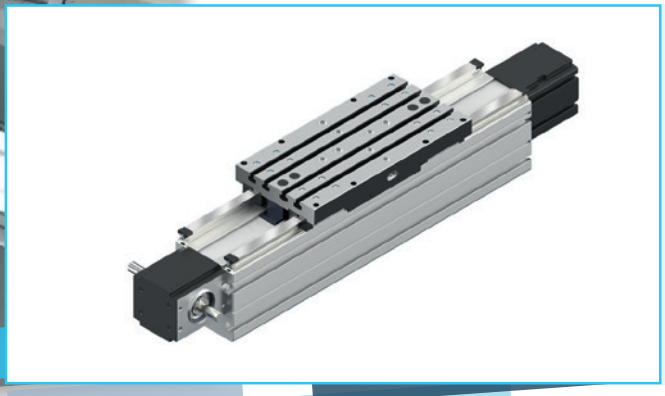
CKR – compact linear axis with two integrated ball rail systems and toothed belt drive

Properties
- 4 sizes from CKR-190 to CKR-200
- Precision aluminum profile with two preloaded ball rail systems
- Robust toothed belt drive (allows longer lengths than CKK module)
- Intelligent toothed belt guide protects internal components
- Max. travel 3,000 mm
- High travel speeds of up to 5 m/s
- Any lengths available in mm steps

LINEAR MODULE

MKR – compact linear module with integrated ball rail system and toothed belt drive

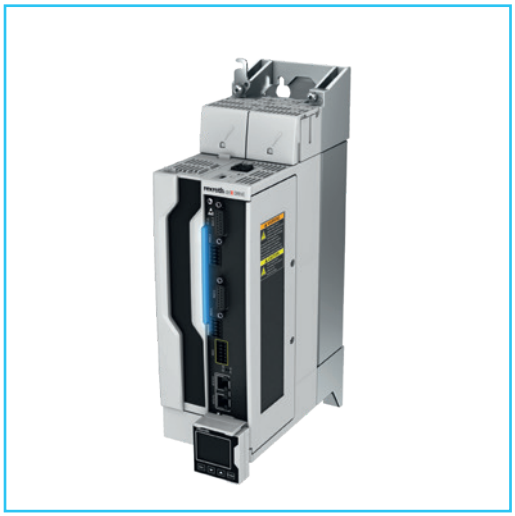
Properties
- 4 sizes from MKR-065 to MKR-140
- Extremely compact aluminum profile with preloaded ball rail system
- High-performance toothed belts for high travel speeds of up to 5 m/s
- Corrosion resistant steel cover strip
- Max. travel 3,000 mm
- Any lengths available in mm steps



MKR-145 – compact linear module with two integrated ball rail systems and toothed belt drive

Properties
- 4 sizes from MKR-065 to MKR-110
- Compact aluminum profile with high inherent rigidity and two preloaded ball rail systems
- High-performance toothed belt for high travel speeds up to 5 m/s
- Max. travel 2,150 mm
- Any lengths available in mm steps

Compactness meets modularity: drive controls and motors



▲ **ctrlX DRIVE: the new modular drive system, optionally with integrated control ctrlX CORE (left)**

ctrlX DRIVE – THE MOST COMPACT DRIVE SYSTEM

In addition to the proven drives such as from the HCS01 series, the world's most compact modular drive system is now available with ctrlX DRIVE. For absolutely future-proof multi-axis solutions. The ctrlX CORE control hardware is optionally integrated in the drive housing – saving you up to 50 percent space in the control cabinet. And even more in combination with the modern MS2N motors, as these offer up to 30 percent higher power density. It couldn't be more compact.

Complete performance package

Particularly in complex multi-axis machine systems, the multi-variant and scalable drive portfolio can demonstrate its strengths. With ctrlX DRIVE, all system components can be freely combined with each other – plus the option of comprehensive extensions of the hardware/software functions.

With a reaction time of around 4 ms, ctrlX SAFETY will offer one of the fastest SafeMotion solutions on the market in the future. Energy management functions ensure energy efficiency, and the patented Smart Energy Mode reduces peak drive loads by up to 70 percent. In addition, ctrlX DRIVE has an extremely robust EMC design.

Converter ctrlX DRIVE (XCS2, XCD2)

- Power range from 2 kW ... 15,9 kW
- Maximum currents from 23 A ... 54 A
- Direct power connection from 3 AC 200 V ... 500 V
- High overload capability
- Compact design
- Multi-Ethernet interface
- With safety technology STO

HIGHLIGHTS CTRLXDRIVE SYSTEM

More productivity

- Converters and supply units with high peak power ratings
- Flexible power supplier concept – space saving, flexible, energy-efficient

Fewer components

- 50 % less installation space in the control cabinet
- Perfect for 300 mm control cabinet
- Integrated ctrlX CORE – saves 100 % control installation space

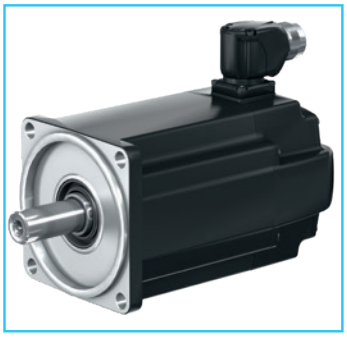
Less engineering

- Intelligent functions (multi-Ethernet, multi-encoder, integrated web server etc.)
- Easy diagnosis
- Less effort for engineering and wiring
- Single-cable technology

▼ **Control and power in one: the proven IndraDrive Cs (HCS01 in 4 sizes) controls axes perfectly in the power range of multiaxis systems**

Compact converter IndraDrive Cs (HCS01)

- Power range from 0,86 kW ... 14 kW
- Maximum currents from 8 A ... 54 A
- Direct power connection from 3 AC 200 V ... 500 V
- High overload capability
- Compact design
- Multi-Ethernet interface
- Optional safety technology (Safe Motion)



POWERFUL SERVOMOTORS

Our servo motors are the perfect team players in the ctrlX DRIVE portfolio. Boasting compact dimensions, they combine optimum dynamics with maximum precision of position, rotary speed, and torque values. Ideal for complex multi-axis systems.

Virtual commissioning

Developers have access to the digital twin of the motor, which is stored in a dimensioning tool and in the ctrlX DRIVE controller. Planning and dimensioning of even complex drive systems can therefore be virtualized quickly and reliably. Every motor is transformed into a data source for intelligent machines or i4.0 applications.

▲ **Synchron-Servomotors MS2N**
– for more torque and higher speeds. With practical 1-cable connection

- Five sizes from MS2N03 to MS2N07
- Plain shaft without shaft seal ring
- Multi-turn encoder
- Advanced encoder (C) in conjunction with 1-cable connector (AcuroLink interface)
- IP64 protection class
- With or without holding brake
- Special ground connection terminal near motor flange (used as needed)

HIGHLIGHTS MS2N SERVOMOTORS

More productivity

- High torque density for greater power
- 5 sizes from MS2N03 to MS2N07
- Maximum dynamics of the servo axes due to low motor inertia and high overload capability

Fewer components

- Robust single-cable connection
- MS2N with integrated SafeMotion encoder – no further safety components required
- Motor as torque sensor makes external sensors redundant

Less engineering

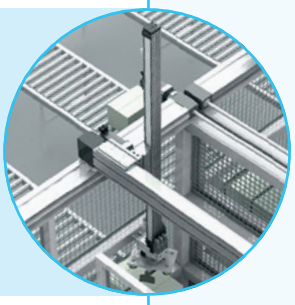
- Plug-and-play encoder data memory for faster commissioning
- Digital twin of the thermal motor model

Good to know: all the details of a completely well thought-out system

Practicality does not only become apparent in the tough day-to-day industrial operation, it can already be recognized beforehand by the many clever details, predefined interfaces and add-on parts as well as flexible options. Typical Bosch Rexroth.

GENERAL INFORMATION

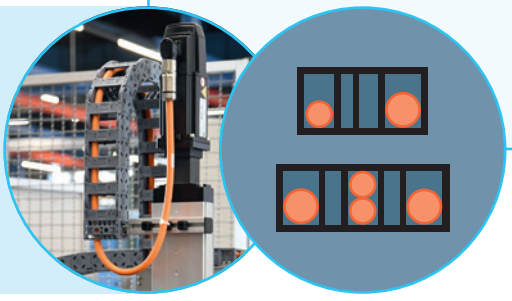
Installation position
The multi-axis systems are designed for use in a horizontal installation position on a flat surface.

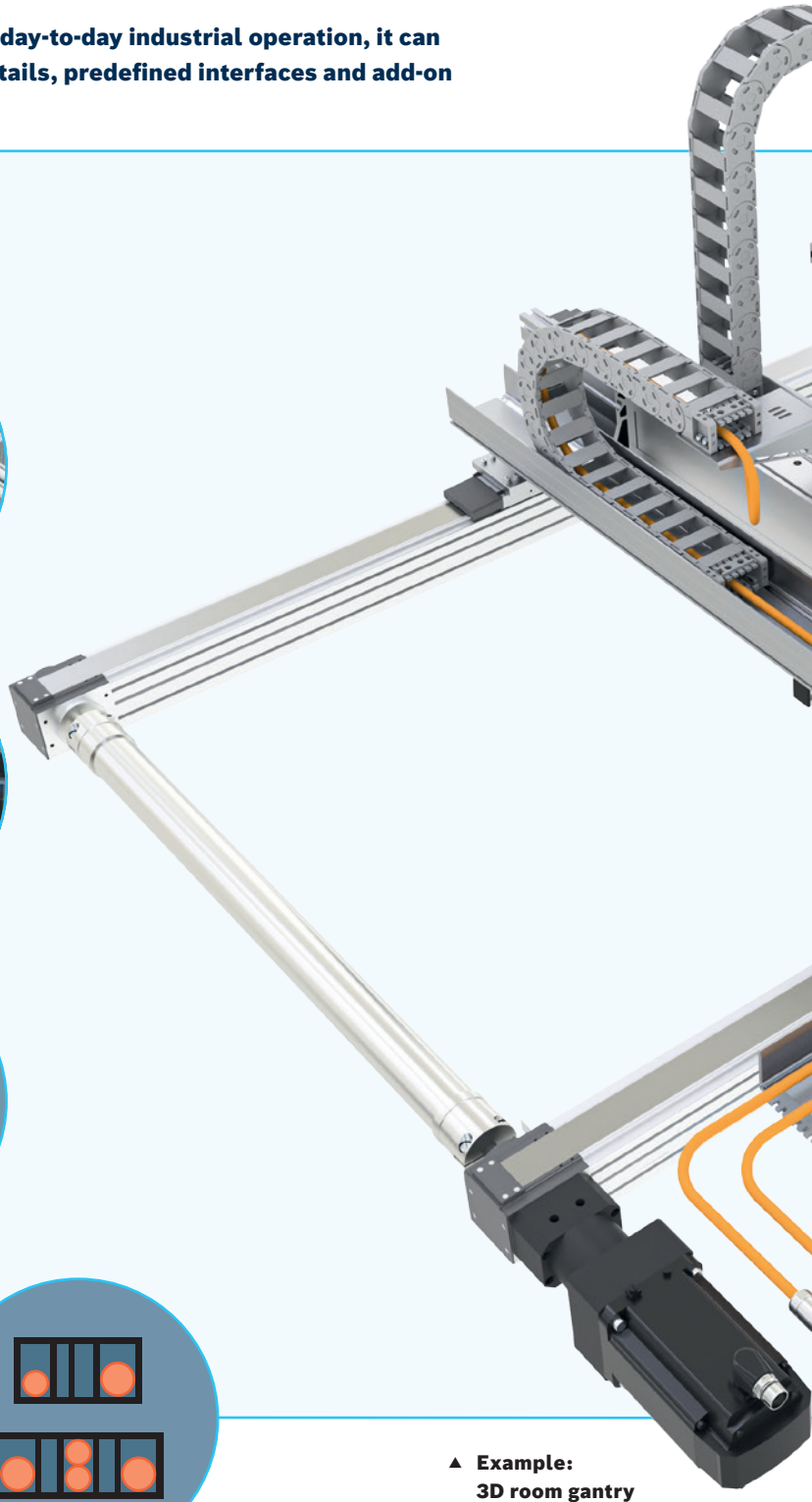


Ambient conditions
Please note for use:
- Avoid extreme room temperatures
- Steer clear of pollution
- Maintain dry environment
- Stay away from chemical impact
- Elude shocks/vibrations

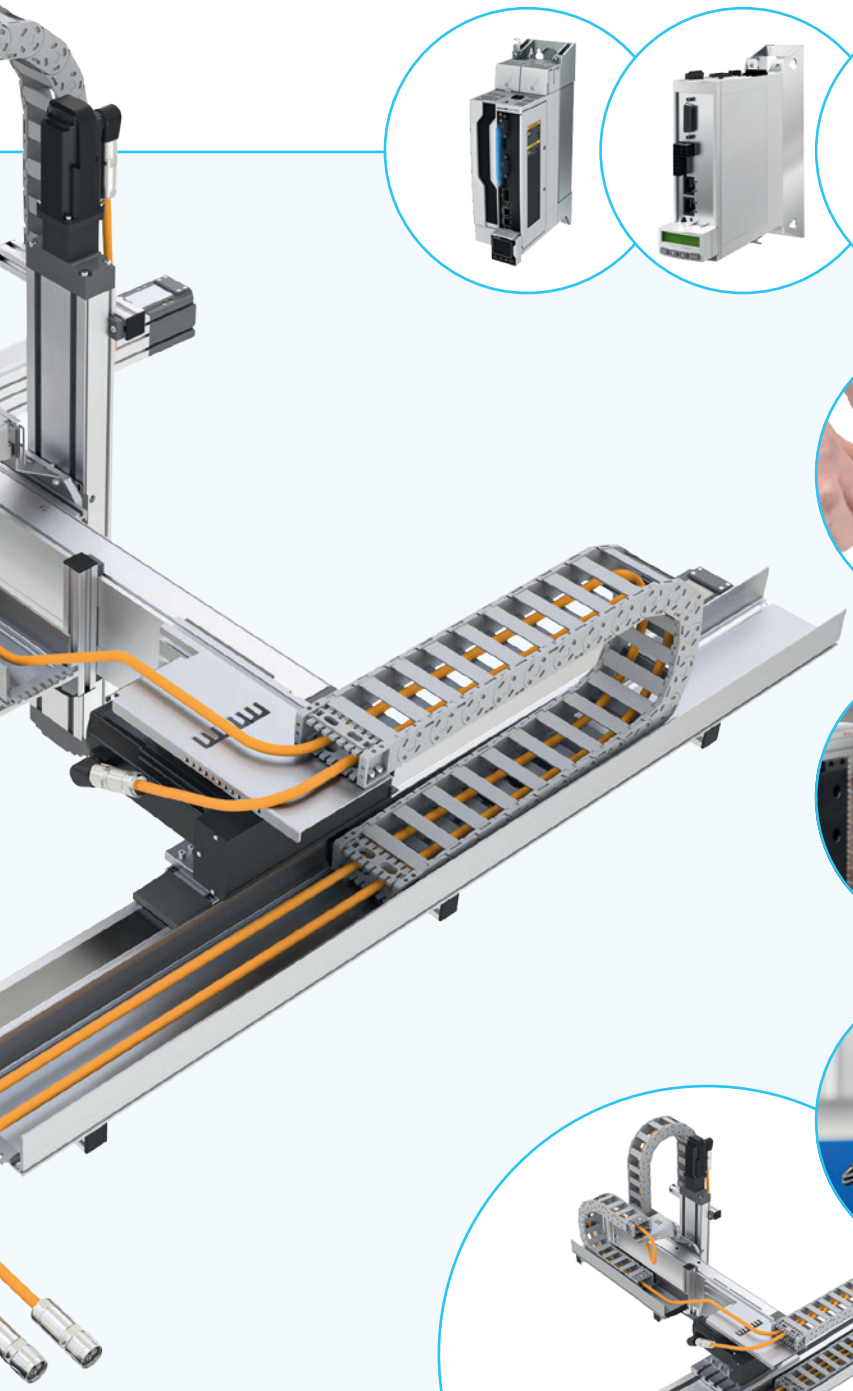
Lubrication/maintenance
Multi-axis systems come with initial greasing and are designed for grease lubrication.

Cable management
Multi-axis systems are optionally available with energy chains and cables (plug connection). With plenty of free cross-sections in the energy chains for your own cable routing.





▲ **Example: 3D room gantry**

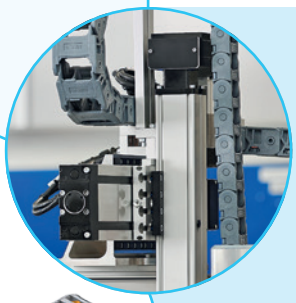


▸ **Example:**
3D cantilever space

Tailored motor-controller combination
Predefined combinations of motor and controller (electrical drive package) optimally complement the mechanics to form a functional sub-system. The Smart Function Kits with pre-installed operating software offer even more. (Page 16).

Commissioning parameters on encoder memory in motor
Simple commissioning through automated readout of the parameters stored in the motor encoder memory.

Attachment parts, interfaces
Simple mounting of the axis unit on the substructure via clamping fixtures. Wide range of connection options for customer attachments.



Scope of delivery
(depending on equipment)

Completely assembled: The multi-axis system is delivered fully assembled – including the energy chains and cables if cable management is selected as an option. The axis system is aligned on delivery and only needs to be adjusted to the substructure during installation.

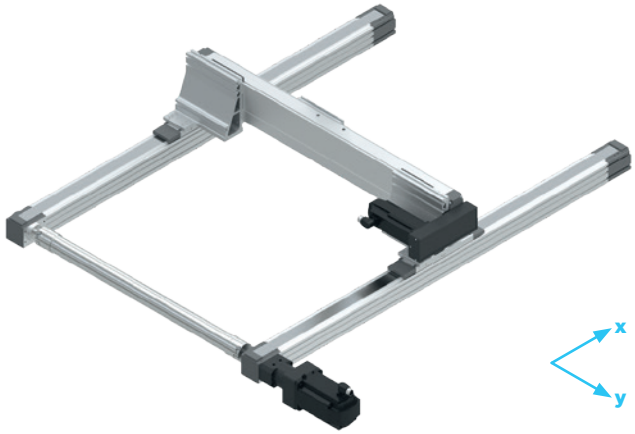
Partially assembled: For transport or handling reasons, the multi-axis system is delivered partially assembled. The assembly is carried out by the customer according to instructions.

Flexible in every respect: 8 combinations of axes for precise handling

1D gantry

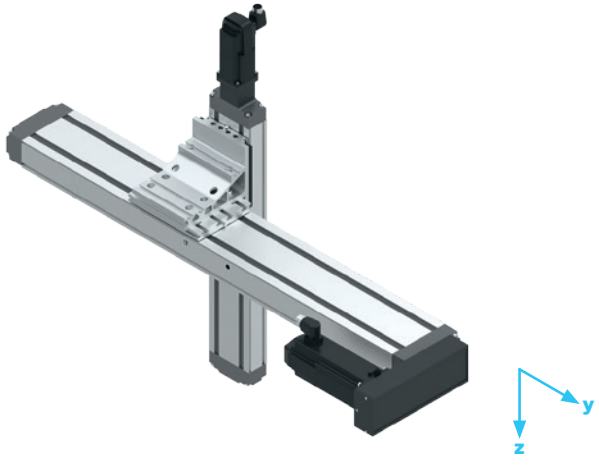
- 4 sizes
- Max. payload* 62 – 366 kg
- Travel range [mm]
  x-axis min. 60, max. 3.000

2D area gantry



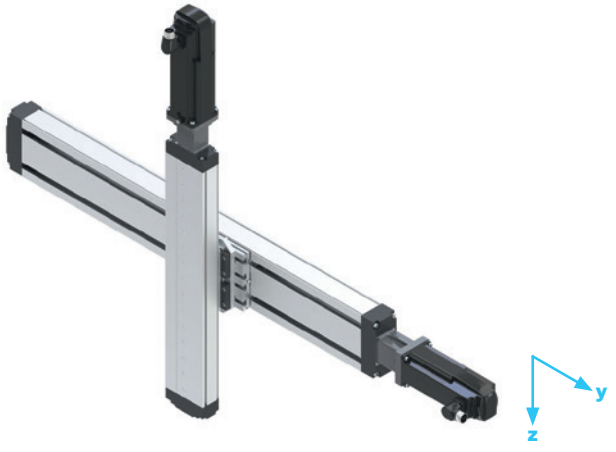
- 8 sizes
- Max. payload* 25 – 205 kg
- Travel range [mm]
  x-axis min. 60, max. 3.000
  y-axis min. 60, max. 2.869

2D linear gantry



- 8 sizes
- Max. payload* 10 – 61 kg
- Travel range [mm]
  y-axis min. 50, max. 3.000
  z-axis min. 40, max. 1.590

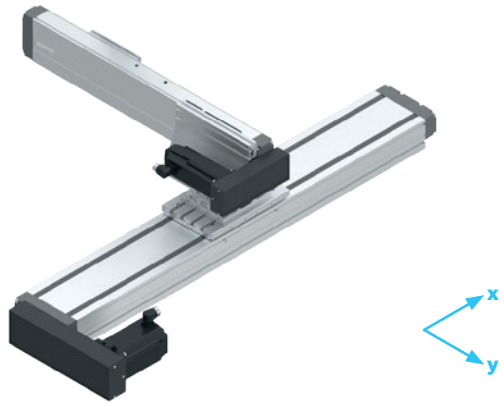
2D linear gantry, wall mounting



- 12 sizes
- Max. payload* 2 – 61 kg
- Travel range [mm]
  y-axis min. 40, max. 3.000
  z-axis min. 40, max. 1.590

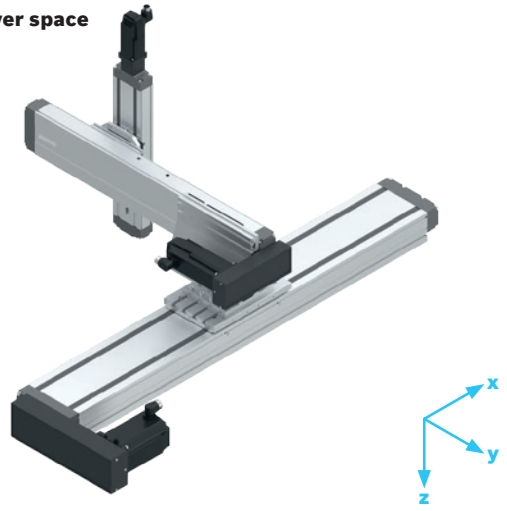
8 predefined axis combinations in 68 sizes offer you a lot of freedom for all common handling tasks. The travel ranges can be configured in all axial directions in mm increments. This allows you to make optimum use of installation space, obtain maximum flexibility during installation and adapt your sub-system perfectly to your application.

2D cantilever surface



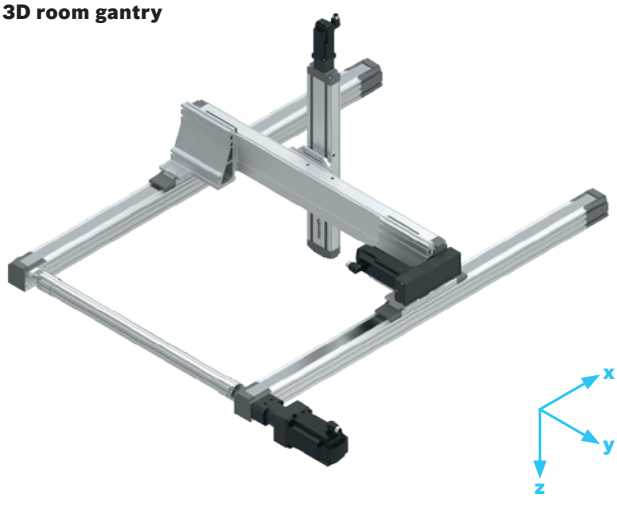
- 12 sizes
- Max. payload* 5 – 82 kg
- Travel range [mm]
  x-axis min. 40, max. 3.000
  y-axis min. 40, max. 1.200

3D cantilever space



- 8 sizes
- Max. payload* 2,5 – 32,5 kg
- Travel range [mm]
  x-axis min. 50, max. 3.000
  y-axis min. 40, max. 880
  z-axis min. 40, max. 1.325

3D room gantry

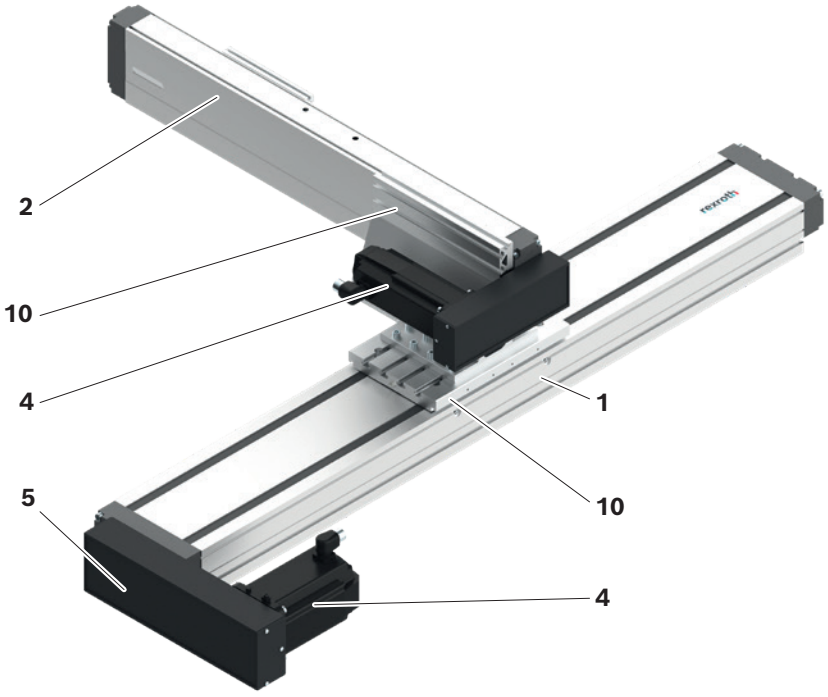


- 10 sizes
- Max. payload* 10 – 160 kg
- Travel range [mm]
  x-axis min. 60, max. 3.000
  y-axis min. 60, max. 2.753
  z-axis min. 40, max. 1.625

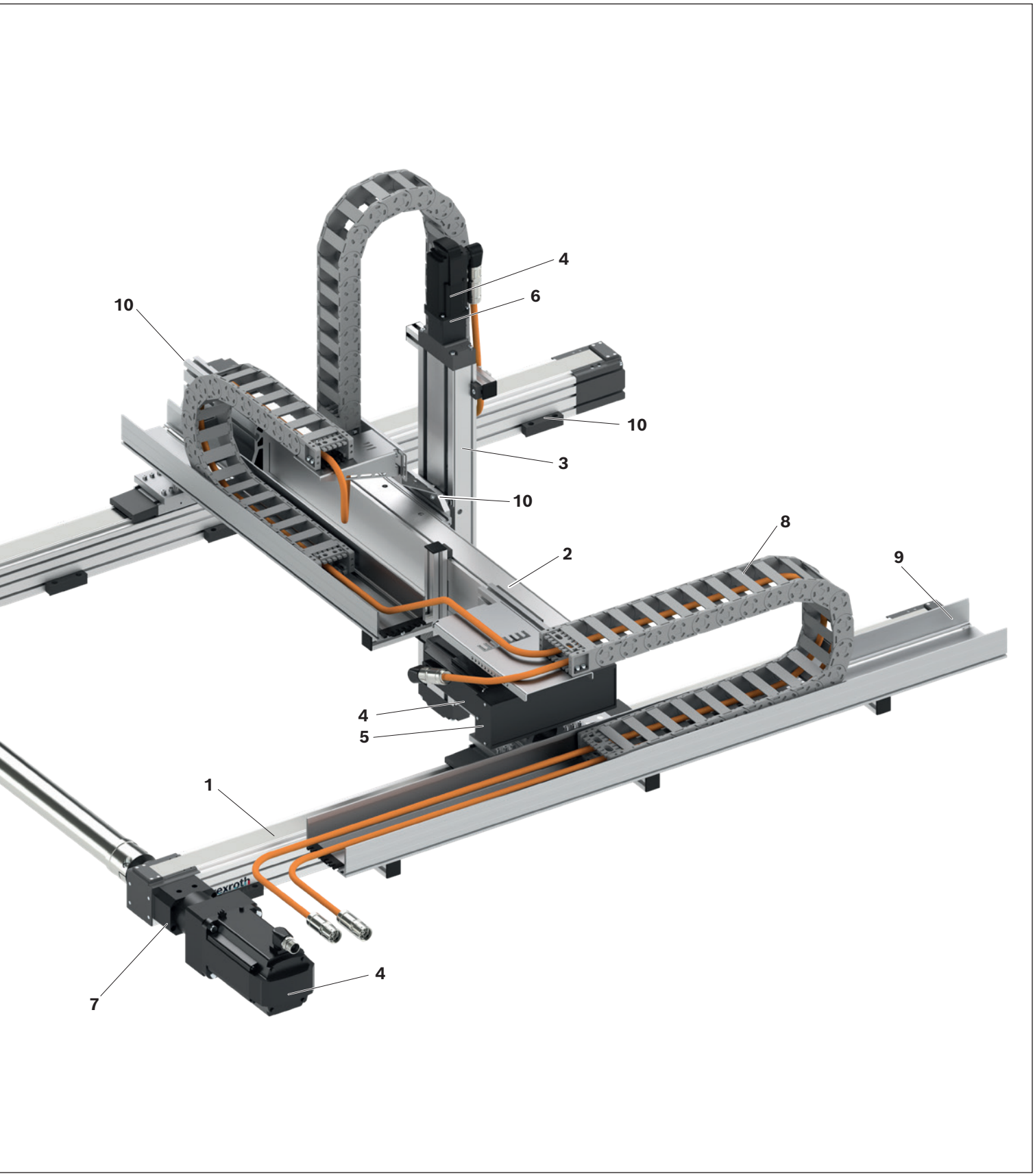
3D room gantry, performance optimized

- 6 Baugrößen
- Max. payload* 34,5 – 65,5 kg
- Travel range [mm]
  x-axis min. 60, max. 3.000
  y-axis min. 345, max. 2.350
  z-axis min. 50, max. 1.590

Example layout



1 X-axis/axes
2 Y-axis
3 Z-axis
4 Motor (connection e.g. via belt side drive (**5**), flange and coupling (**6**), gearing (**7**)
5 Belt side drive
6 Flange and coupling
7 Gearing
8 Cable drag chain
9 Storage tray
10 Connection elements (e.g. angle brackets, connection plate, clamping fixtures, etc.)
11 Connecting shaft


4
6
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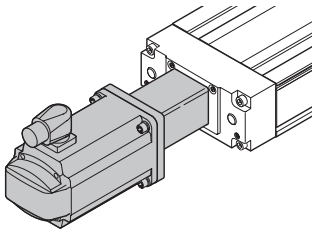
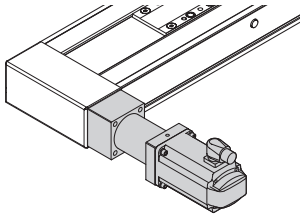
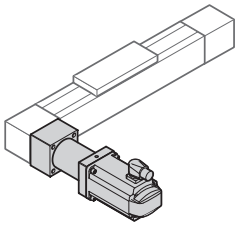
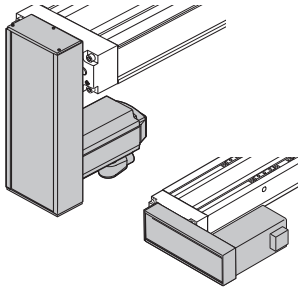
7

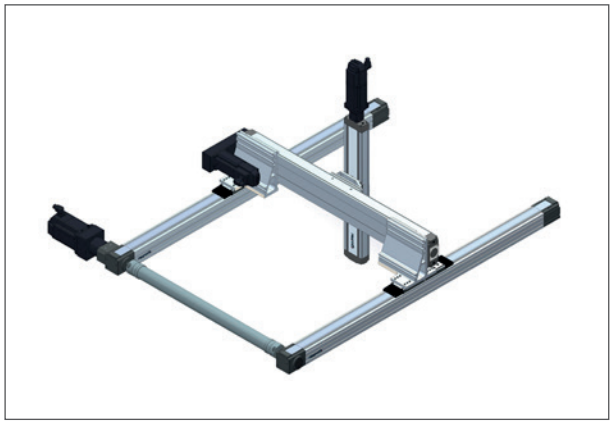
Rexroth linear axes provide for dynamic and precise movement in our multi-axis systems

Linear axes	Compact modules with ball screw assembly CKK	Compact modules with toothed belt drive CKR	Linear modules with toothed belt drive MKR
Sizes	CKK-070-NN-1 CKK-090-NN-1 CKK-110-NN-1 CKK-145-NN-1 CKK-200-NN-1	CKK-090-NN-1 CKR-110-NN-1 CKR-145-NN-1 CKR-200-NN-1	MKR-065-NN-3 MKR-080-NN-3 MKR-110-NN-3 MKR-140-NN-3 MKR-145-NN-3
Motor attachment	Flange/coupling 	Gearing 	Gearing 
	Belt side drive 		

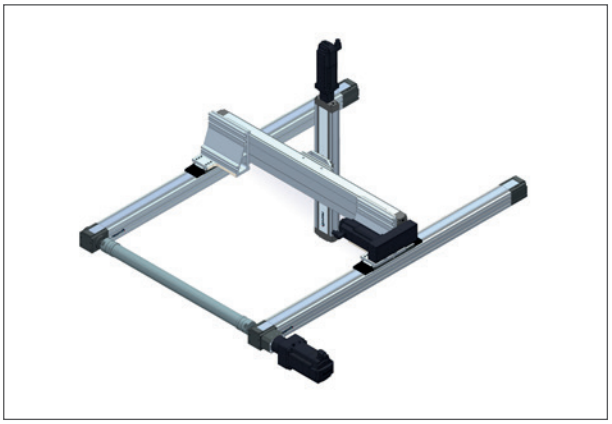
Motor position basic axis

The constructive alignment of the multi-axis systems can be selected as an option.
Example: Combination of axes 3D gantry, type 3SB

Motor basic axis, left (ML)



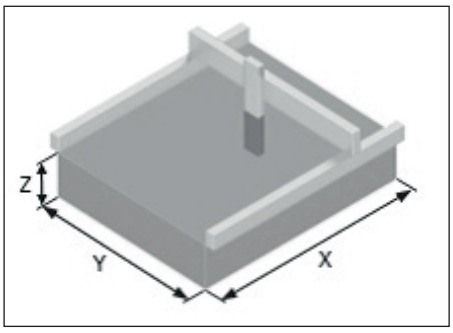
Motor basic axis, right (MR)



Technical notes

Maximum travel range

The travel ranges of the individual axes determine the maximum travel range of the multi-axis system as travel range limits without stroke reserves.
Any excess travel required as a safety distance in the end positions of the individual axes depends on the application and must therefore be taken into account accordingly by the user.
Therefore, the effectively usable working range is usually smaller than the maximum available travel range.



Example:
Travel range 3-axis combination

Technical data (maximum values)

Type	Axis	Linear axis	BASA: d_0 x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
3SB - 20	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15	40	40	600	Flange/coupling	MS2N03-B0	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	90	300	1 219	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							

Example: Combination of axes 3D gantry, type 3SB
Values for maximum travel speed v_{max}, maximum drive torque $M_{P\ max}$ and maximum payload $m_{ex\ max}$ valid at minimum travel range.
For longer travels, length-dependent reduction for v_{max} and $M_{P\ max}$ for linear axes with ball screw drive or linear axes with connecting shaft as well as a reduction of $m_{ex\ max}$ depending on travel range and dynamics.

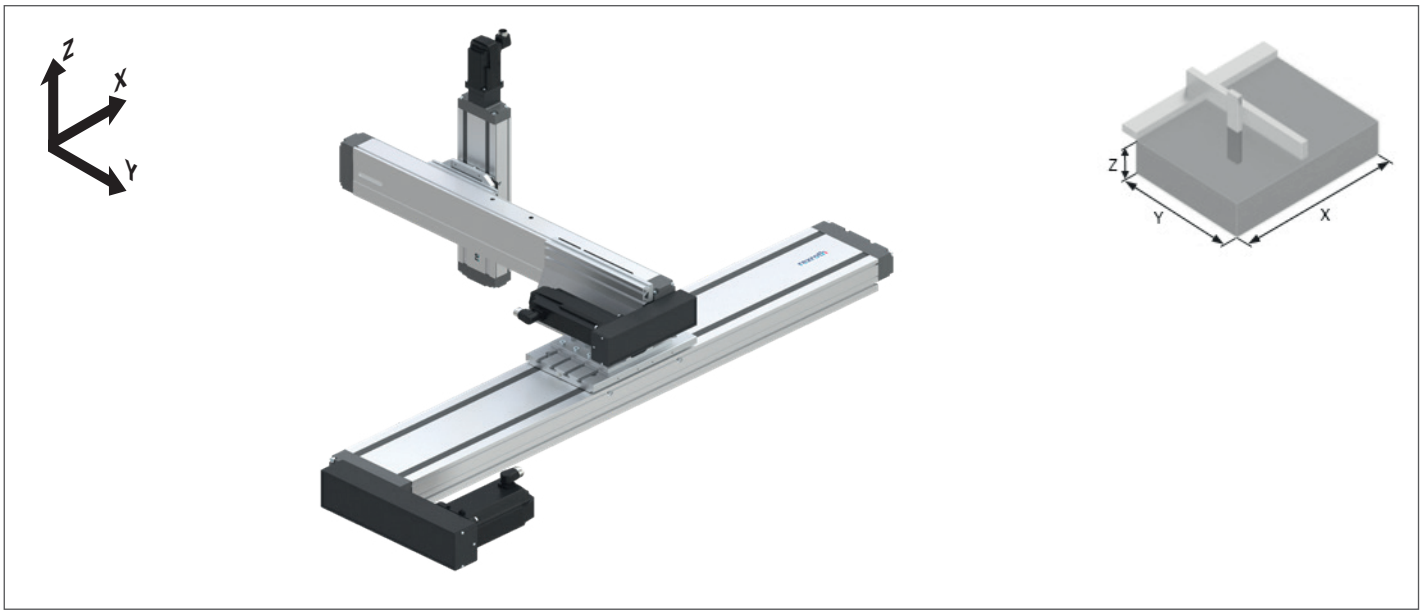
Abbreviations

Overview of abbreviations

Abbreviation/index	Designation	Unit
a_{max}	Maximum acceleration rate	(m/s^2)
$m_{ex\ max}$	Maximum permissible payload of the multi-axis system	(kg)
s_{min}	Minimum travel range	(mm)
s_{min_EC}	Minimum travel range as of which the cable drag chain can be fitted	(mm)
s_{max}	Maximum travel range	(mm)
$M_{p\ max}$	Maximum drive torque	(Nm)
v_{max}	Maximum travel speed	(m/s)

Type 3SA

Product description



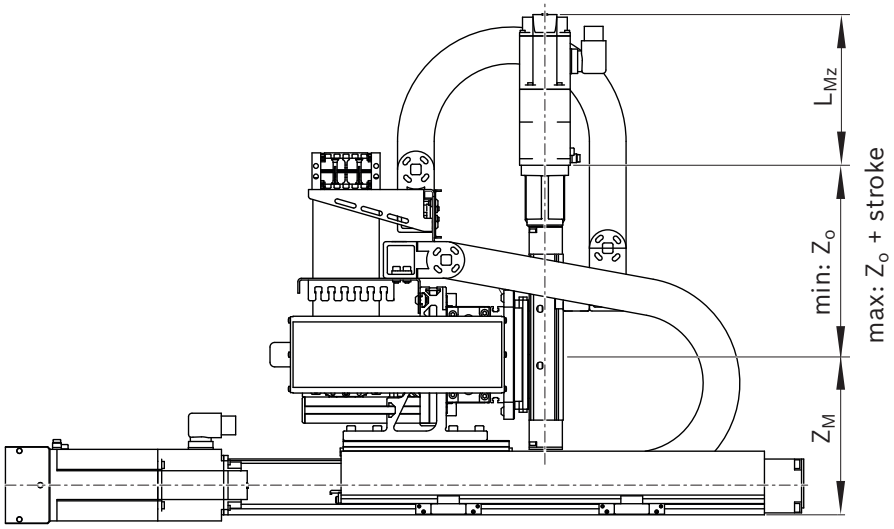
- For applications where a three-dimensional working range must be approached from the outside, the 3D cantilever chamber system is particularly suitable.
- In the basic axis compact modules with ball screw assembly or toothed belt drive.
- 8 sizes

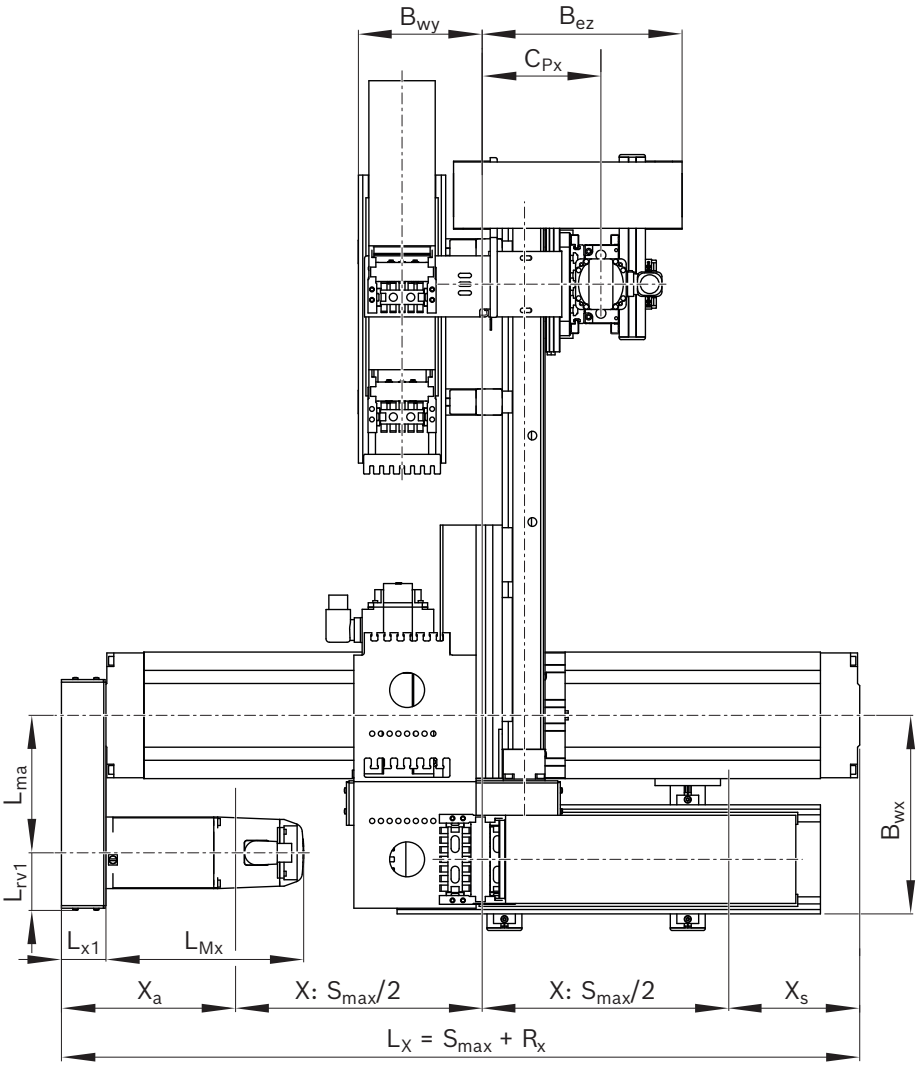
Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
3SA - 10	Z	CKK-070-NN-1	8 x 2.5	0.25	0.70	15	40	40	545	Flange/ coupling	MS2N03	2.5
			8 x 5	0.50	1.40							
	Y	CKK-090-NN-1	12 x 2	0.23	0.79	15	70	305	520	Belt side drive, i = 1	MS2N03	
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	X	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	550	1 325	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
3SA - 11	Z	CKK-070-NN-1	8 x 2.5	0.25	0.70	15	40	40	545	Flange/ coupling	MS2N03	2.5
			8 x 5	0.50	1.40							
	Y	CKK-090-NN-1	12 x 2	0.23	0.79	15	70	305	520	Belt side drive, i = 1	MS2N03	
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	X	CKR-110-NN-1	-	-	-	15	50	160	3 000	Gearing	MS2N04	
			i = 5	4.40	2.72							
			i = 10	2.20	1.26							

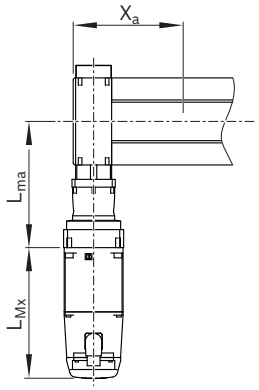
Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
3SA - 20	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15	40	40	600	Flange/ coupling	MS2N03	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	800	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	565	1 590	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
3SA - 21	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15	40	40	600	Flange/ coupling	MS2N03	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	800	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKR-145-NN-1	i = 3	5.00	11.00	15	60	210	3 000	Gearing	MS2N05	
			i = 5	5.00	6.70							
			i = 10	5.00	3.35							
3SA - 22	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	30.0
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	650	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	565	1 590	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
3SA - 23	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	30.0
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	650	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKR-145-NN-1	i = 3	5.00	11.00	15	60	210	3 000	Gearing	MS2N05	
			i = 5	5.00	6.70							
			i = 10	5.00	3.35							
3SA - 30	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	400	880	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	CKK-200-NN-1	32 x 5	0.30	19.01	15	80	405	1 825	Belt side drive, i = 1	MS2N06	
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
3SA - 31	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	400	880	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	CKR-200-NN-1	i = 3	5.00	38.73	15	80	150	3 000	Gearing	MS2N07	
			i = 5	5.00	23.24							
			i = 10	5.00	11.62							

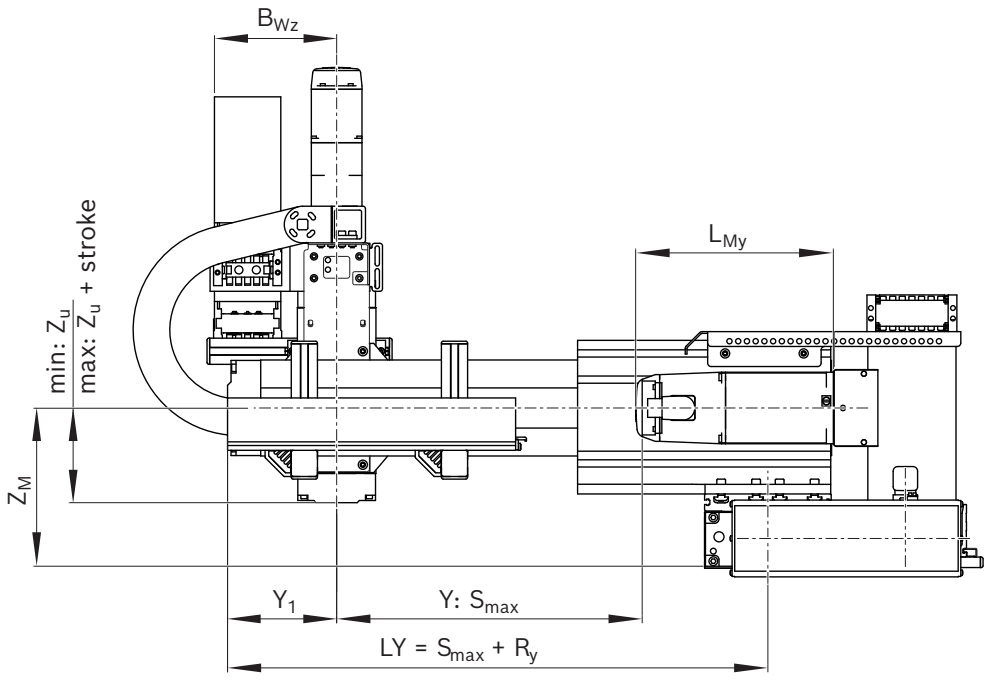
Dimension drawings





Version:
X-axis as
toothed belt axis

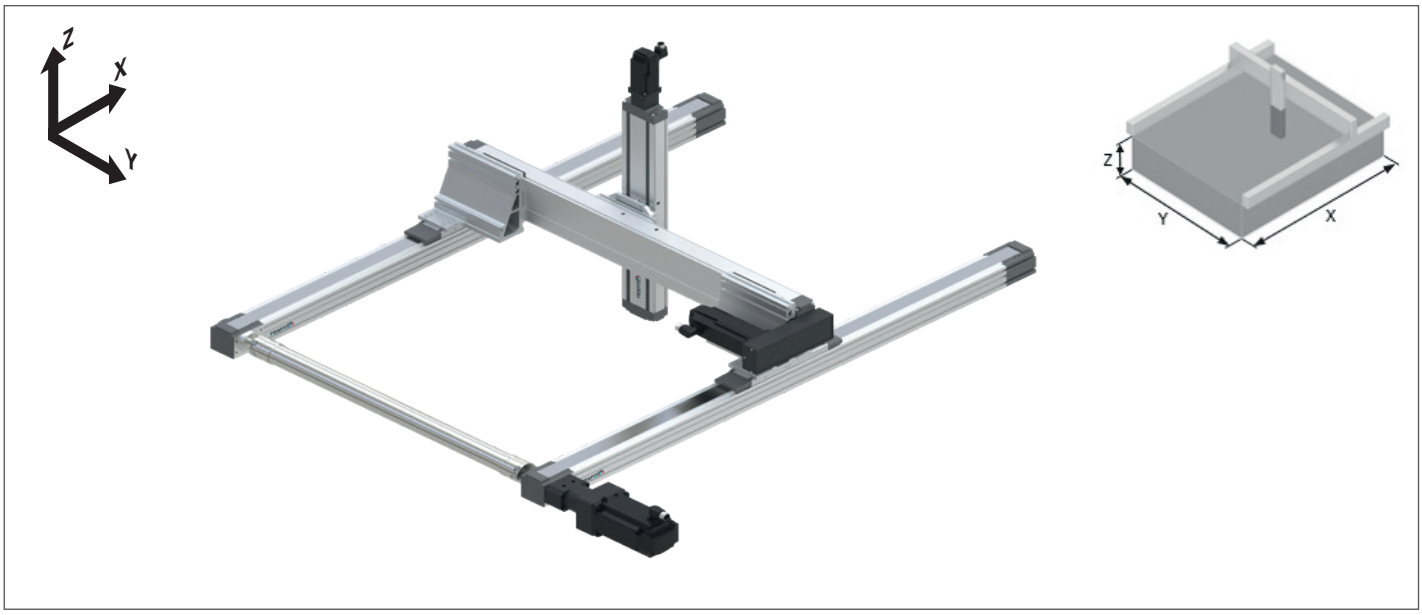




Type	**Dimensions** (mm)																		
	R_x	R_y	X_a	X_s	B_{wx}	B_{wy}	B_{wz}	B_{ez}	C_{Px}	L_{rv1}	L_{ma}	L_{x1}	Z_M	Z_u	Z_o	Y_1	L_{Mx} (max)	L_{My} (max)	L_{Mz} (max)
3SA-10	300.0	237.5	174.5	125.5	210	144	140	215	127	59	145	51	143	80.5	123.5	108.5	194	164	192
3SA-11	366.5	237.5	186.0	180.5	210	144	140	215	127	–	105.5	–	143	80.5	123.5	108.5	194	164	192
3SA-20	350.0	269.0	200.0	150	227.5	142	140	229.0	136.0	66	157.5	51	183.5	108.5	177.5	125.0	258.5	226.5	192.0
3SA-21	400.5	269.0	196.5	204	227.5	142	140	229.0	136.0	–	210.0	–	183.5	108.5	177.5	125.0	290.0	226.5	192.0
3SA-22	350.0	269.0	200.0	150	227.5	142	140	244.5	151.5	66	157.5	51	183.5	125.5	201.0	125.0	258.5	226.5	258.5
3SA-23	400.5	269.0	196.5	204	227.5	142	140	244.5	151.5	–	210.0	–	183.5	125.5	201.0	125.0	290.0	226.5	258.5
3SA-30	546.0	345.0	301.0	245	255.0	132	140	271.0	175.5	76	267.5	66	203.0	95.5	231.0	149.5	261.0	258.5	258.5
3SA-31	649.0	345.0	319.0	330	255.0	132	140	271.0	175.5	–	329.0	–	203.0	95.5	231.0	149.5	317.0	258.5	258.5

Type 3SB

Product description



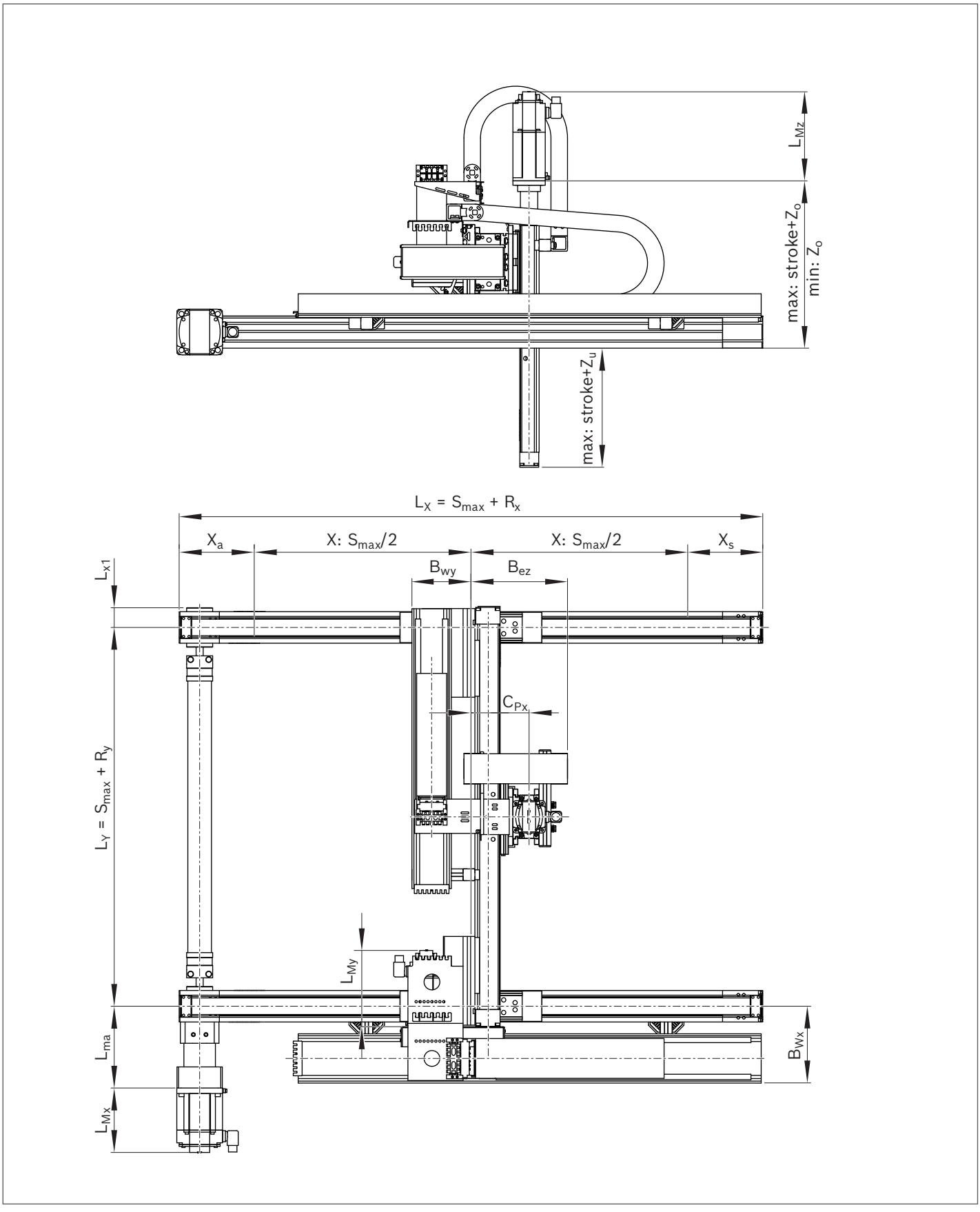
- 3D gantries are flexible units for positioning in the three-dimensional working range. They comprise mechanically coupled linear modules with toothed belt drive in the x-direction, compact modules with ball screw assembly or toothed belt drive in the y-direction and a compact module axis with ball screw assembly in the z-direction.
- 10 sizes

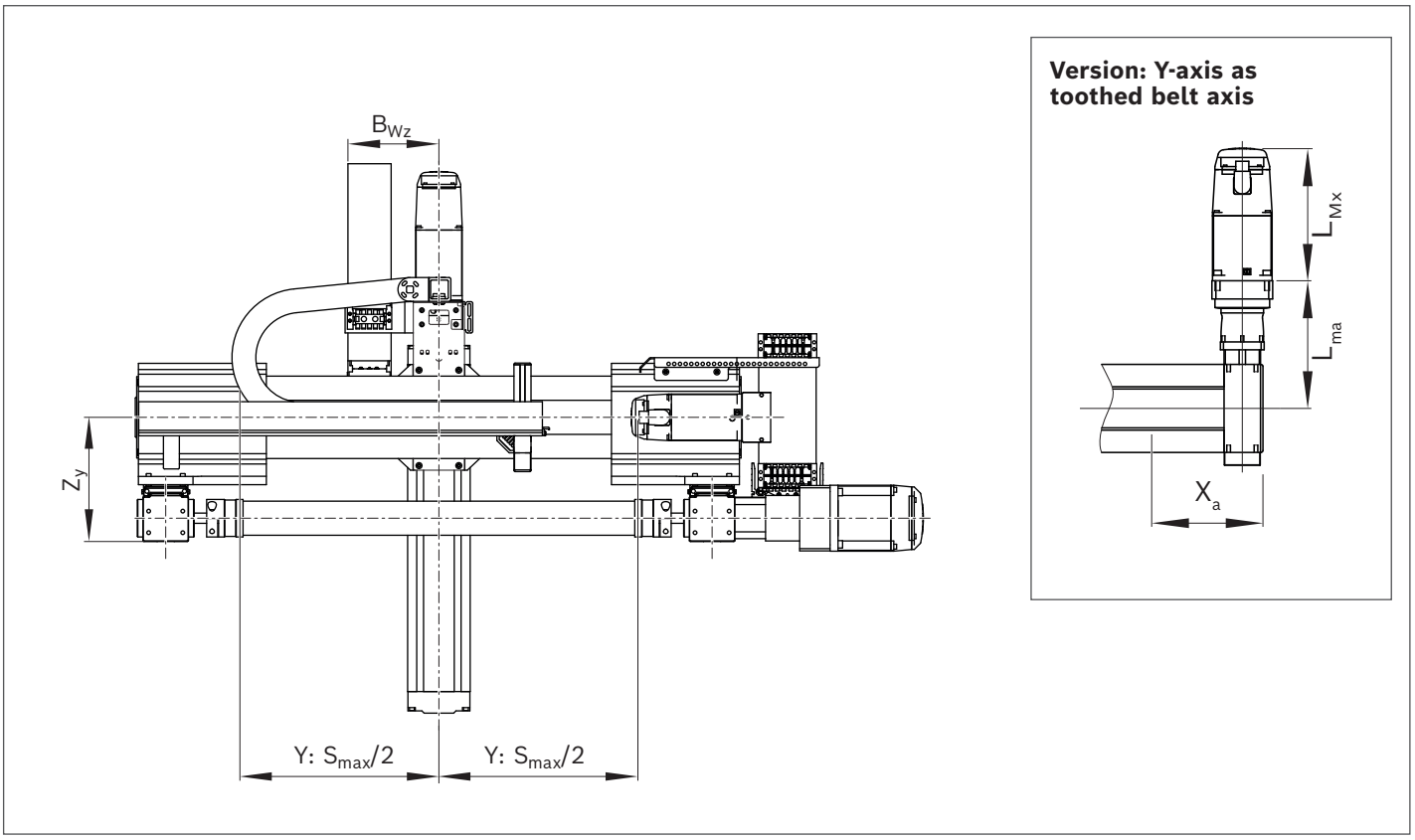
Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
3SB - 20	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15	40	40	600	Flange/ coupling	MS2N03-B0	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	90	300	1 219	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							
3SB - 21	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15	40	40	600	Flange/ coupling	MS2N03-B0	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKR-110-NN-1	-	-	-	15	90	200	1 409	Gearing (NP 005)	MS2N04	
			i = 5	4.40	2.72							
			i = 10	2.20	1.26							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							
3SB - 22	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	17.0
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	90	300	1 123	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
3SB - 23	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	27.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-110-NN-1	–	–	–	15	90	200	1 138	Gearing (NP 005)	MS2N04	
			i = 5	4.40	2.72							
			i = 10	2.20	1.26							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							
3SB - 30	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	35.0
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	100	400	1 523	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	MKR-080-NN-3	i = 3	5.00	12.00	15	60	100	3 000	Gearing	MS2N06	
			i = 5	3.00	7.20							
			i = 10	1.50	3.60							
3SB - 31	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	50	1 325	Flange/ coupling	MS2N04	35.0
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-145-NN-1	i = 3	5.00	11.00	15	60	140	2 753	Gearing (NP 015)	MS2N05	
			i = 5	5.00	6.70							
			i = 10	2.92	3.35							
	X	MKR-080-NN-3	i = 3	5.00	12.00	15	60	100	3 000	Gearing	MS2N06	
			i = 5	3.00	7.20							
			i = 10	1.50	3.60							
3SB - 40	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15	60	60	1 590	Flange/ coupling	MS2N04	70.0
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKK-200-NN-1	32 x 5	0.30	19.01	15	130	360	1 770	Belt side drive, i = 1	MS2N06	
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	X	MKR-110-NN-3	i = 3	5.00	33.30	15	60	60	3 000	Gearing	MS2N07	
			i = 5	5.00	20.00							
			i = 10	2.90	10.00							
3SB - 41	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15	60	60	1 590	Flange/ coupling	MS2N04	70.0
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKR-200-NN-1	i = 3	5.00	38.73	15	80	80	2 265	Gearing (NP 035)	MS2N07	
			i = 5	5.00	23.24							
			i = 10	2.50	11.62							
	X	MKR-110-NN-3	i = 3	5.00	33.30	15	60	60	3 000	Gearing	MS2N07	
			i = 5	5.00	20.00							
			i = 10	2.90	10.00							
3SB - 50	Z	CKK-200-NN-1	32 x 5	0.30	19.01	15.0	80	80	1 625	Flange/ coupling	MS2N06	150.0
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	Y	CKK-200-NN-1	32 x 5	0.30	19.01	15.0	80	360	1 680	Belt side drive, i = 1	MS2N06	
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	X	MKR-140-NN-3	i = 5	5.00	60.00	15.0	80	80	3 000	Gearing	MS2N07	
			i = 12	3.20	25.00							
			i = 16	2.40	18.75							
3SB - 61	Z	CKK-200-NN-1	32 x 5	0.30	19.01	15.0	80	80	1 625	Flange/ coupling	MS2N06	160.0
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	Y	MKR-145-NN-2	i = 3	5.00	33.30	15.0	80	80	2 400	Gearing	MS2N07	
			i = 5	5.00	20.00							
			i = 10	3.10	10.00							
	X	MKR-140-NN-3	i = 5	5.00	60.00	15.0	80	80	3 000	gearbox	MS2N07	
			i = 12	3.20	25.00							
			i = 16	2.40	18.75							

Dimension drawings





Type	**Dimensions** (mm)																
	R_x	R_y	X_a	X_s	B_{wx}	B_{wy}	B_{ez}	C_{Px}	L_{X1}	L_{ma}	L_{Mx}	Z_u	Z_o	Z_y	L_{My}	L_{Mz}	B_{wz}
3SB-20	376	265	191.0	185.0	187.5	135.0	246.0	143.0	45.0	154.5	258.5	-74.5	360.0	183.0	226.5	194.5	140.0
3SB-21	376	265	191.0	185.0	187.5	135.0	246.0	143.0	45.0	154.5	258.5	-74.5	360.0	183.0	226.5	194.5	140.0
3SB-22	376	265	191.0	185.0	187.5	135.0	246.0	143.0	45.0	154.5	258.5	-57.5	384.0	183.0	226.5	258.5	140.0
3SB-23	376	265	191.0	185.0	187.5	135.0	246.0	143.0	45.0	154.5	258.5	-57.5	384.0	183.0	226.5	258.5	140.0
3SB-30	481	261	240.5	240.5	195.0	160.0	245.0	147.5	50.0	207.5	261.0	-88.0	419.5	218.5	258.5	258.5	160.0
3SB-31	481	261	240.5	240.5	195.0	160.0	245.0	147.5	50.0	207.5	261.0	-88.0	419.5	218.5	290.0	258.5	160.0
3SB-40	578	347	283.0	295.0	210.0	127.0	339.5	233.5	59.0	264.0	317.0	-132.0	515.5	282.0	261.0	258.5	160.0
3SB-41	578	347	283.0	295.0	210.0	127.0	339.5	233.5	59.0	264.0	317.0	-132.0	515.5	282.0	375.0	258.5	160.0
3SB-50	715	347	370.5	344.5	225.0	127.0	383.5	256.5	84.0	324.5	176.0	-76.0	683.0	323.0	165.0	301.0	185.0
3SB-61	715	459	370.5	344.5	255.0	70.5	361.0	233.0	129.5	324.5	205.0	-27.5	634.5	274.5	176.0	301.0	182.5

Type 3SC

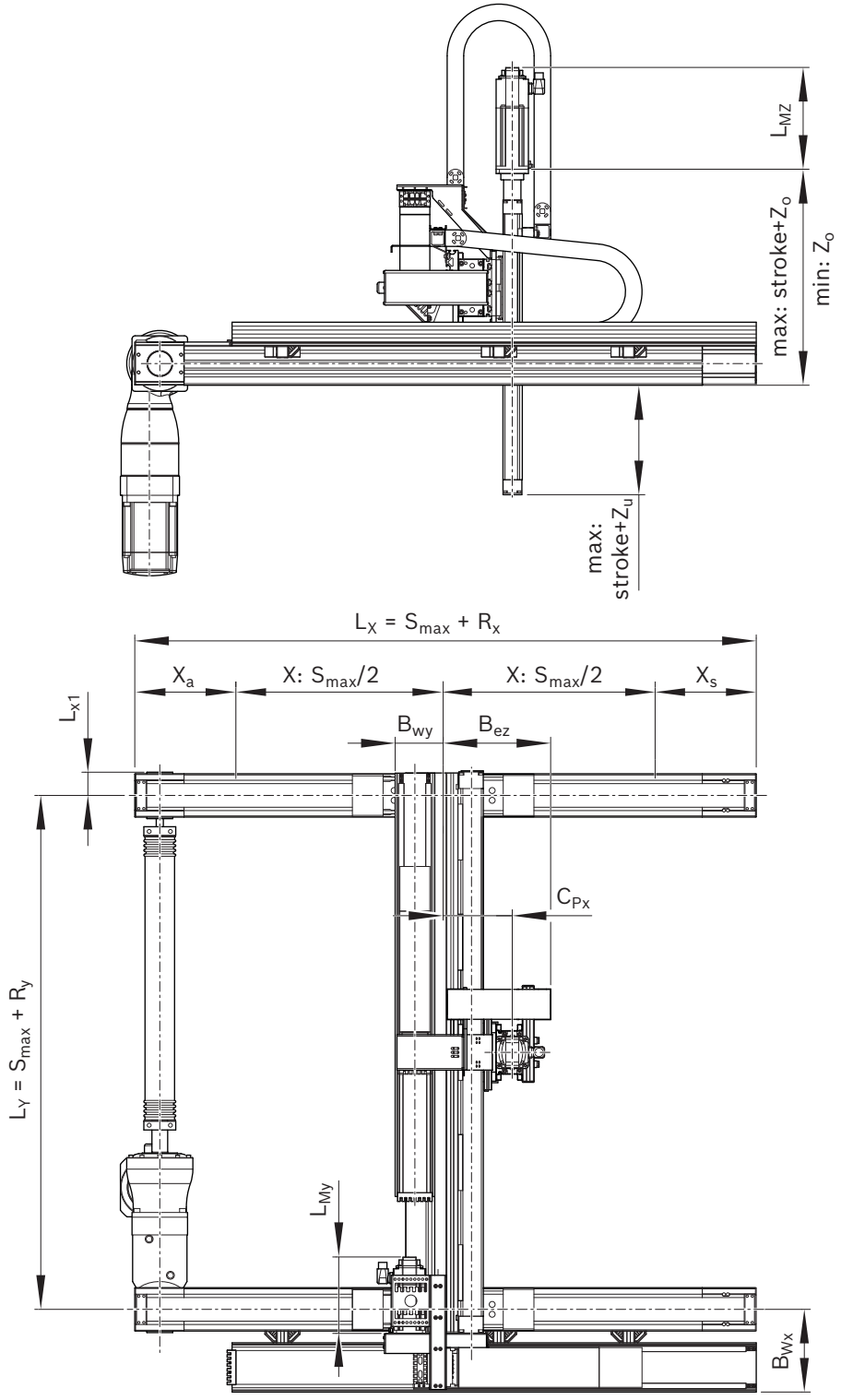
Product description

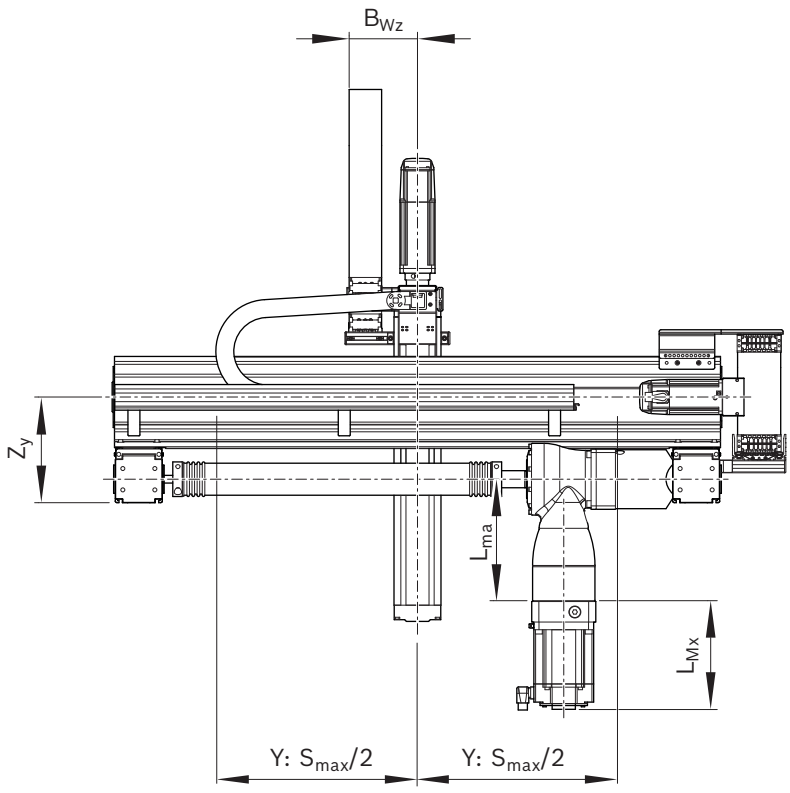
- 3D gantries are flexible and performance-optimized units for positioning in the three-dimensional working range. They comprise mechanically coupled linear modules with toothed belt drive in the x-direction, compact modules with ball screw assembly or toothed belt drive in the y-direction and a compact module axis with ball screw assembly in the z-direction.
- By arranging the motor of the X-axis via a T-gear between the linear axes, higher drive torques can be transmitted. A continuous angle in the Y-axis ensures the required rigidity.
- 6 sizes

Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
3SC - 22	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	34.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	380	380	1 205	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	MKR-080-NN-3	i = 7	2.69	8.74	15.0	60	85	3 000	Gearing	MS2N06	
			i = 12	1.28	5.10							
			i = 16	0.96	3.83							
3SC - 23	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	34.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-110-NN-1	-	-	-	15.0	380	380	2 640	Gearing (NP 005)	MS2N04	
			i = 5	4.40	2.72							
			i = 10	2.20	1.26							
	X	MKR-080-NN-3	i = 7	2.69	8.74	15.0	60	85	3 000	Gearing	MS2N06	
			i = 12	1.28	5.10							
			i = 16	0.96	3.83							
3SC - 30	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	34.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	550	550	1 460	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	MKR-110-NN-3	i = 7	3.45	24.29	15.0	60	60	3 000	Gearing	MS2N07	
			i = 12	1.81	14.17							
			i = 16	1.36	10.63							
3SC - 31	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	34.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-145-NN-1	i = 3	5.00	11.00	15.0	550	550	2 580	Gearing (NP 015)	MS2N05	
			i = 5	5.00	6.70							
			i = 10	2.92	3.35							
	X	MKR-110-NN-3	i = 7	3.45	24.29	15.0	60	60	3 000	Gearing	MS2N07	
			i = 12	1.81	14.17							
			i = 16	1.36	10.63							
3SC - 40	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15.0	60	60	1 590	Flange/ coupling	MS2N04	65.5
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKK-200-NN-1	32 x 5	0.30	19.01	15.0	510	510	1 825	Belt side drive, i = 1	MS2N06	
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	X	MKR-110-NN-3	i = 7	3.45	24.29	15.0	60	60	3 000	Gearing	MS2N07	
			i = 12	1.81	14.17							
			i = 16	1.36	10.63							
3SC - 41	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15.0	60	60	1 590	Flange/ coupling	MS2N04	65.5
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKR-200-NN-1	i = 3	5.00	38.73	15.0	345	345	2 374	Gearing (NP 035)	MS2N07	
			i = 5	5.00	23.24							
			i = 10	2.50	11.62							
	X	MKR-110-NN-3	i = 7	3.45	24.29	15.0	60	60	3 000	Gearing	MS2N07	
			i = 12	1.81	14.17							
			i = 16	1.36	10.63							

Dimension drawings





Type	**Dimensions** (mm)																
	R_x	R_y	X_a	X_s	B_{wx}	B_{wy}	B_{ez}	C_{Px}	L_{X1}	L_{ma}	L_{Mx}	Z_u	Z_o	Z_y	L_{My}	L_{Mz}	B_{wz}
3SC-22	481	263	191.0	185.0	195.0	130	251.5	154.0	50	253.5	184	-72.5	399.0	198.0	194.0	258.5	140
3SC-23	481	263	191.0	185.0	195.0	130	251.5	154.0	50	253.5	184	-72.5	399.0	198.0	162.0	258.5	140
3SC-30	578	305	283.0	295.0	210.0	122	273.0	175.5	59	334.5	205	-122.0	448.5	247.5	140.0	258.5	160
3SC-31	578	305	283.0	295.0	210.0	122	273.0	175.5	59	334.5	205	-122.0	448.5	247.5	188.0	258.5	160
3SC-40	578	347	283.0	295.0	210.0	127	339.5	233.5	59	334.5	205	-132.0	515.5	282.0	164.0	258.5	160
3SC-41	578	347	283.0	295.0	210.0	127	339.5	233.5	59	334.5	205	-132.0	515.5	282.0	176.0	258.5	160

Type 2HA

Product description

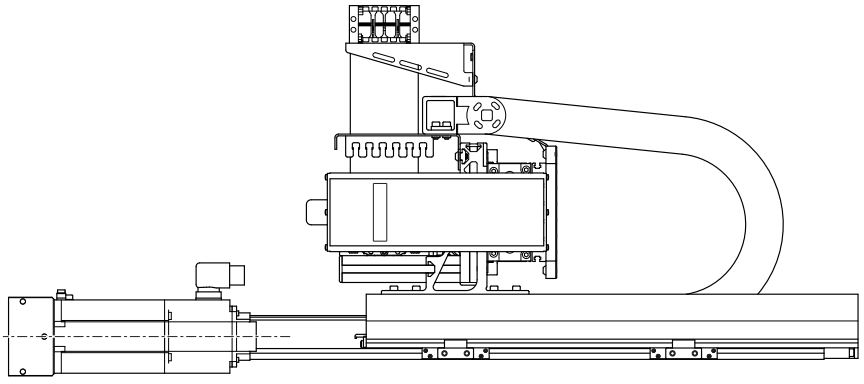
- The cantilever system 2D cantilever surface is particularly suitable for applications in which the axis system enters the working range from the outside.
- Compact modules with ball screw assembly or toothed belt drive are available for the X-axis.
- 12 sizes

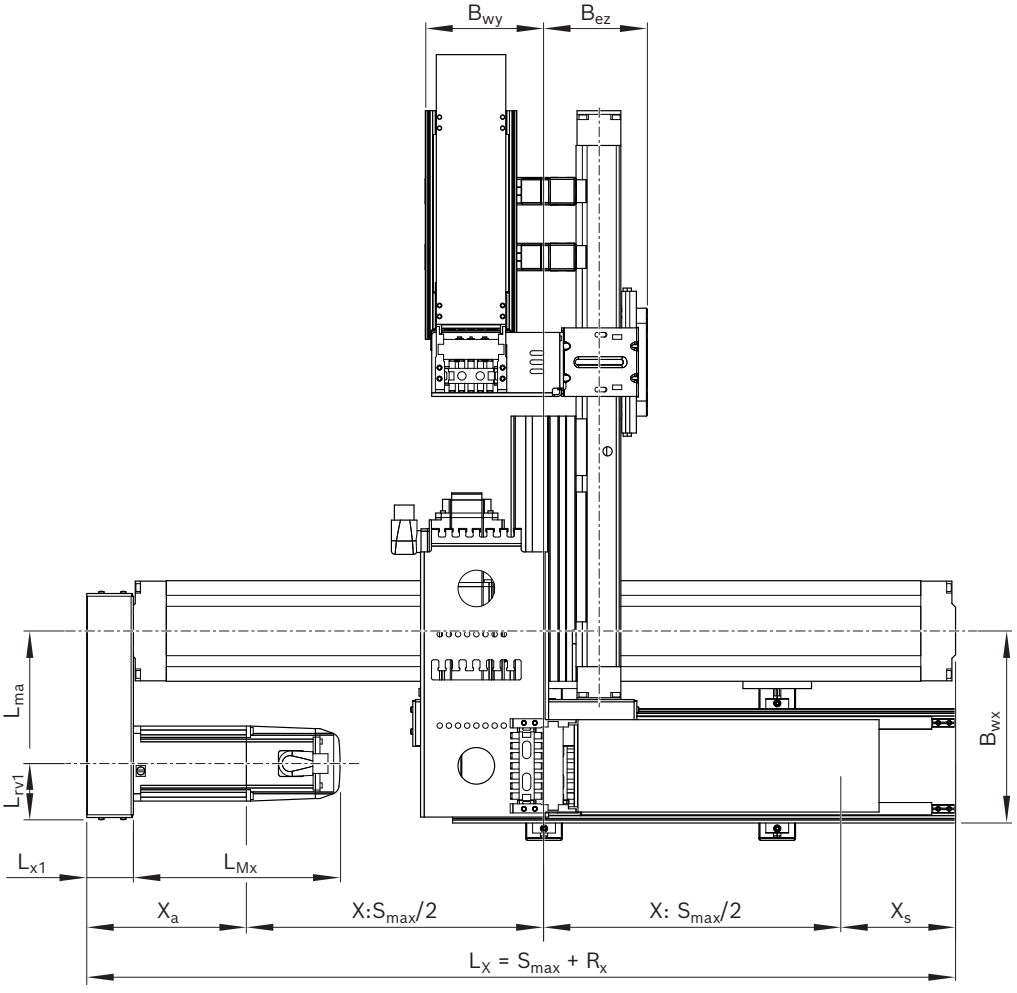
Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2HA - 08	Y	CKK-070-NN-1	8 x 2.5	0.25	0.70	15.0	135	135	485	Belt side drive, i = 1	MS2N03	5.0
			8 x 5	0.50	1.40							
	X	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	40	515	600	Belt side drive, i = 1	MS2N03	
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
2HA - 09	Y	CKK-070-NN-1	8 x 2.5	0.25	0.70	15.0	135	135	485	Belt side drive, i = 1	MS2N03	5.0
			8 x 5	0.50	1.40							
	X	CKR-090-NN-1	i = 5	3.0	1.6	15.0	40	200	3 000	Gearing	MS2N03	
			i = 10	1.5	0.8							
2HA - 10	Y	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	70	305	520	Belt side drive, i = 1	MS2N03	13.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	X	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	550	1 325	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
2HA - 11	Y	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	70	305	520	Belt side drive, i = 1	MS2N03	13.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	X	CKR-110-NN-1	i = 5	5.0	2.7	15.0	50	160	3 000	Gearing	MS2N04	
			i = 10	5.0	1.4							

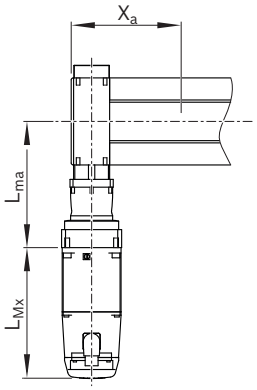
Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2HA - 20	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	725	Belt side drive, i = 1	MS2N04	25.0
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	550	1 325	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
2HA - 21	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	725	Belt side drive, i = 1	MS2N04	25.0
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKR-110-NN-1	–	–	–	15	50	220	3 000	Gearing	MS2N04	
			i = 5	5.00	2.70							
			i = 10	5.00	1.30							
2HA - 22	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	1 050	Belt side drive, i = 1	MS2N04	44.5
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	565	1 590	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
2HA - 23	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15	50	350	1 050	Belt side drive, i = 1	MS2N04	44.5
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	CKR-145-NN-1	i = 3	5.00	11.0	15	60	210	3 000	Gearing	MS2N05	
			i = 5	5.00	6.70							
			i = 10	5.00	3.40							
2HA - 30	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	400	1 050	Belt side drive, i = 1	MS2N04	52.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	565	1 590	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
2HA - 31	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	400	1 050	Belt side drive, i = 1	MS2N04	52.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	CKR-145-NN-1	i = 3	5.00	11.00	15	60	210	3 000	Gearing	MS2N05	
			i = 5	5.00	6.70							
			i = 10	5.00	3.40							
2HA - 32	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	400	1 200	Belt side drive, i = 1	MS2N04	82.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	CKK-200-NN-1	32 x 5	0.30	19.01	15	80	405	1 825	Belt side drive, i = 1	MS2N06	
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
2HA - 33	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15	60	400	1 200	Belt side drive, i = 1	MS2N04	82.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	CKR-200-NN-1	i = 3	5.00	38.70	15	80	150	3 000	Gearing	MS2N07	
			i = 5	5.00	23.20							
			i = 10	5.00	11.60							

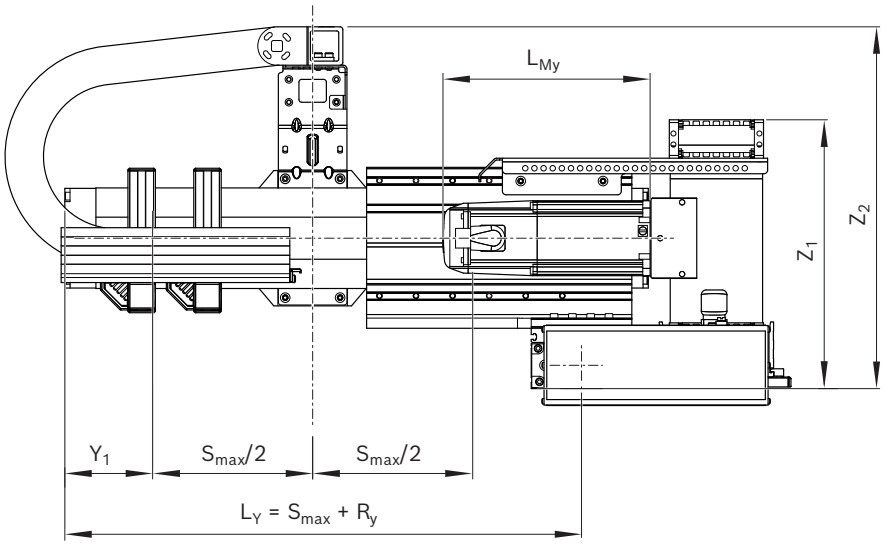
Dimension drawings





Version:
X-axis as toothed belt axis

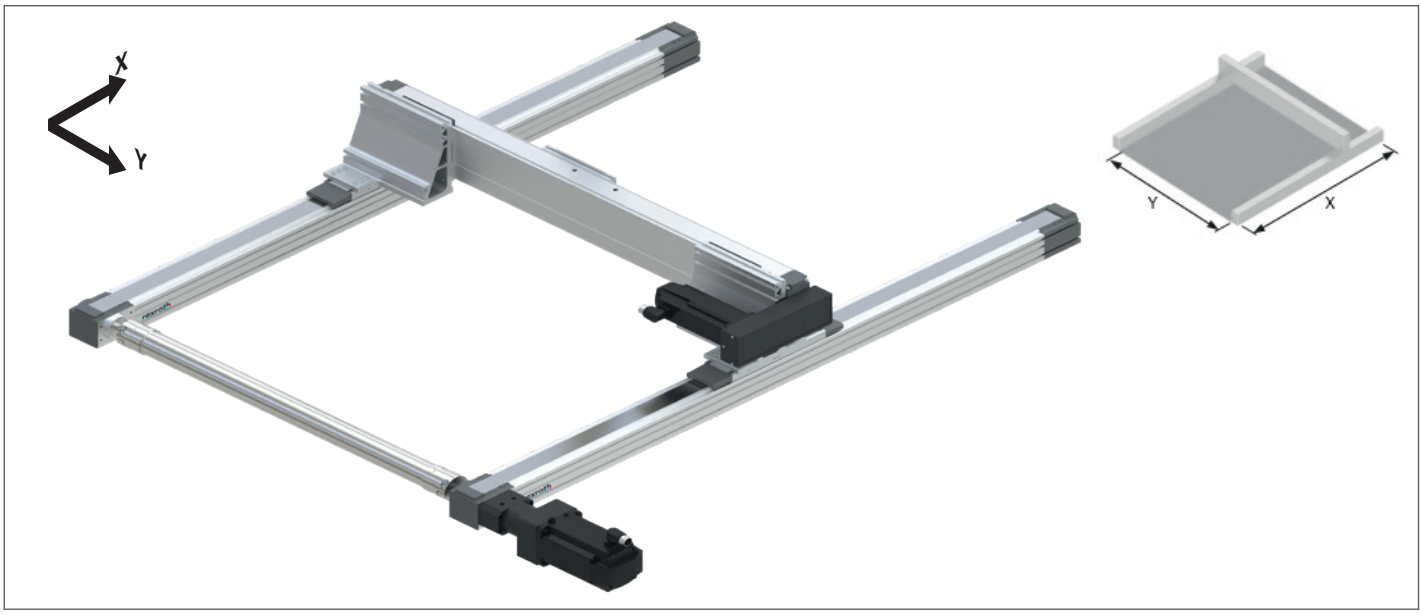




Type	Dimensions (mm)														
	R_x	R_y	X_a	X_s	B_{wx}	Y_1	B_{wy}	B_{ez}	L_{x1}	L_{ma}	L_{rv1}	L_{Mx} (max)	L_{My} (max)	Z_1	Z_2
2HA-08	252.5	168.0	144.0	108.5	200.0	80.5	–	42.5	37	103.5	40.5	203.5	163.5	295	–
2HA-09	289.5	168.0	149.5	140.0	200.0	80.5	–	42.5	–	140.9	–	203.5	163.5	295	–
2HA-10	300.0	237.5	174.5	125.5	210.0	108.5	144.5	98.5	51	145.0	62.0	226.5	163.5	305	388
2HA-11	366.5	237.5	186.0	155.5	210.0	108.5	144.5	98.5		160.5	–	226.5	163.5	305	388
2HA-20	300.0	265.0	174.5	125.5	210.0	125.0	130.0	113.5	51	145.0	62.0	226.5	226.5	294	396
2HA-21	366.5	265.0	161.0	155.5	210.0	125.0	130.0	113.5	–	160.5	–	226.5	226.5	294	396
2HA-22	350.0	269.0	200.0	150.0	227.5	120.0	142.0	101.0	51	157.5	55.0	258.5	226.5	313	415
2HA-23	400.5	269.0	196.5	204.0	227.5	120.0	142.0	101.0	–	210.5	–	290.0	226.5	313	415
2HA-30	350.0	345.0	200.0	150.0	227.5	149.5	127.0	135.0	51	157.5	55.0	258.5	258.5	350	450
2HA-31	400.5	345.0	196.5	150.0	227.5	149.5	127.0	135.0	–	210.5	–	290.0	258.5	350	450
2HA-32	546.0	345.0	301.0	245.0	255.0	149.5	132.0	125.0	66	267.5	76.0	261.0	258.5	392	492
2HA-33	649.0	345.0	319.0	330.0	255.0	149.5	132.0	125.0	–	329.0	–	317.0	258.5	392	492

Type 2HB

Product description



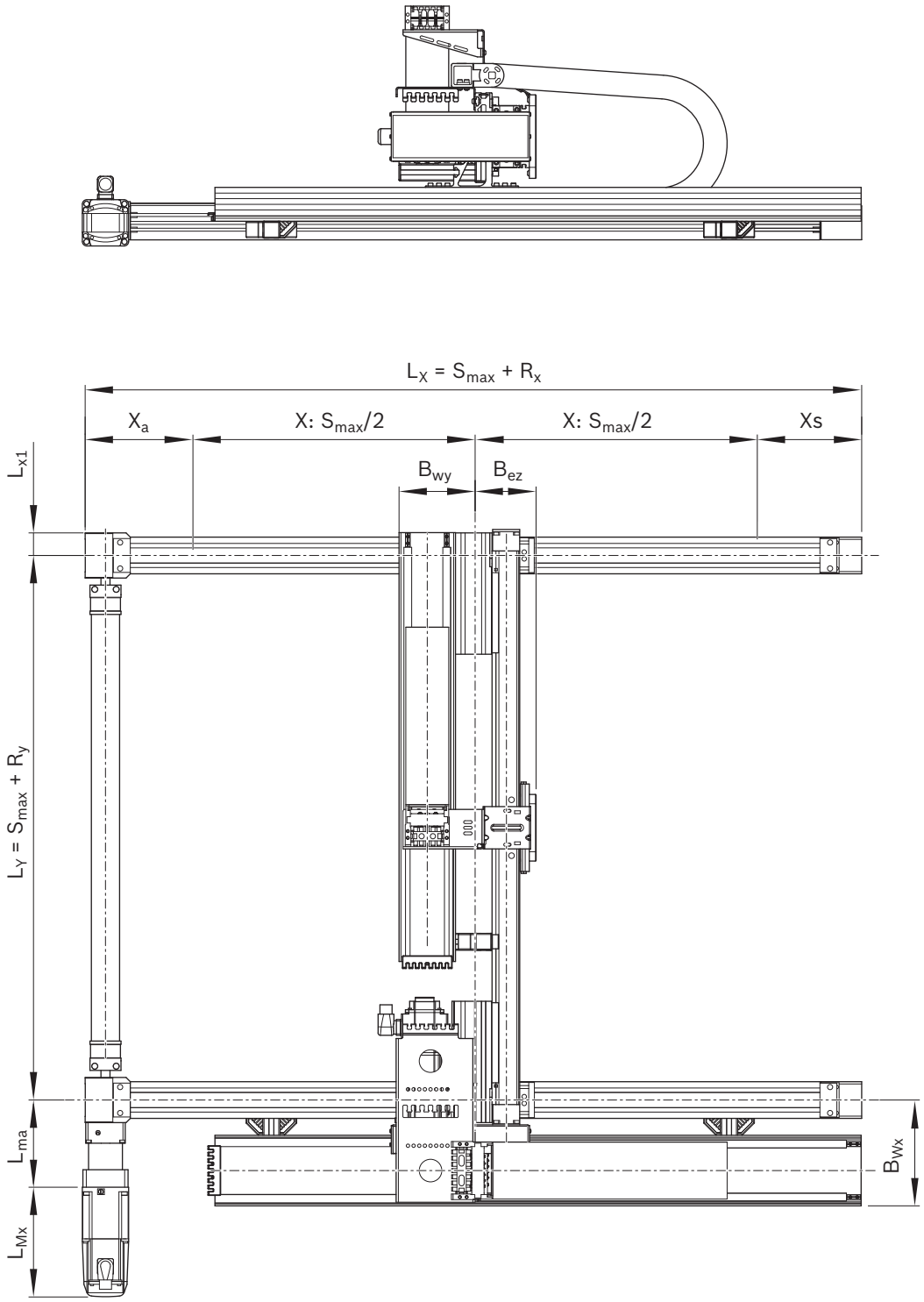
- The 2D area gantry is dynamically positioned in the x-axis via 2 mechanically coupled linear modules with toothed belt drive.
- The precise transverse motion in the y-axis is realized by compact modules with ball screw assembly or toothed belt drive.
- 8 sizes

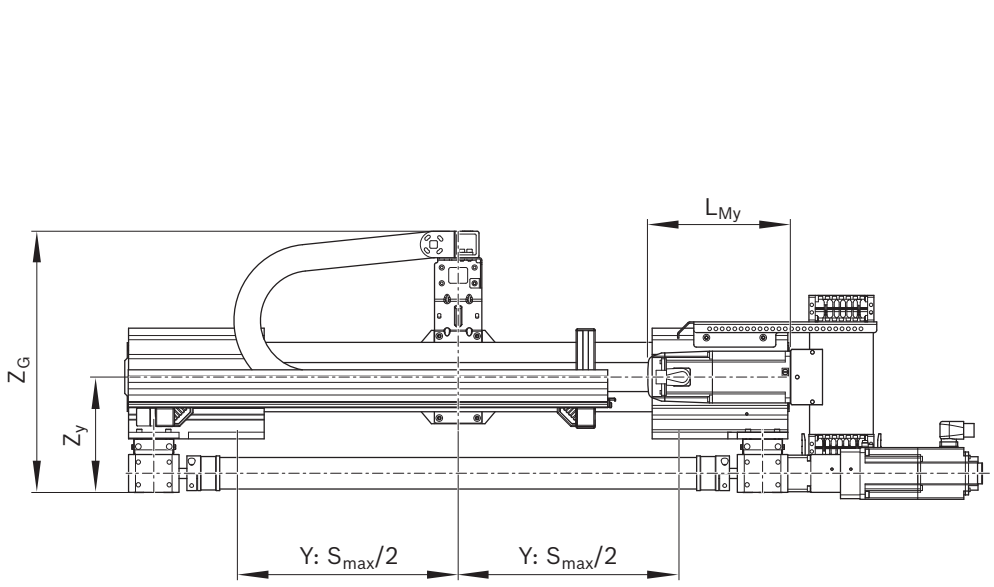
Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2HB - 20	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	90	300	1 219	Belt side drive, i = 1	MS2N04	25.0
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15.0	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							
2HB - 21	Y	CKR-110-NN-1	i = 5	4.40	2.72	15.0	90	200	2 869	Gearing	MS2N04	36.0
			i = 10	2.20	1.26							
	X	MKR-065-NN-3	i = 3	5.00	4.00	15.0	60	170	3 000	Gearing	MS2N04	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							
2HB - 30	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	100	400	1 523	Belt side drive, i = 1	MS2N04	69.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	X	MKR-080-NN-3	i = 3	5.00	4.00	15.0	60	100	3 000	Gearing	MS2N06	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							

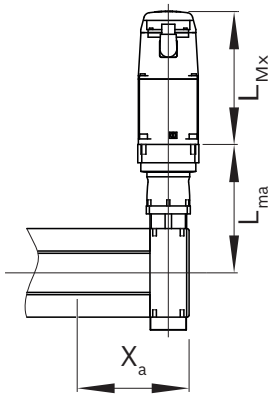
Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2HB - 31	Y	CKR-145-NN-1	i = 3	5.00	11.00	15.0	60	140	2 869	Gearing	MS2N05	82.0
			i = 5	5.00	6.70							
			i = 10	2.92	3.35							
	X	MKR-080-NN-3	i = 3	5.00	4.00	15.0	60	100	3 000	Gearing	MS2N06	
			i = 5	4.50	2.40							
			i = 10	2.30	1.20							
2HB - 40	Y	CKK-200-NN-1	32 x 5	0.30	19.01	15.0	130	360	1 770	Belt side drive, i = 1	MS2N06	100.0
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	X	MKR-110-NN-3	i = 3	5.00	33.30	15.0	60	60	3 000	Gearing	MS2N07	
			i = 5	4.00	20.00							
			i = 10	2.00	10.00							
2HB - 41	Y	CKR-200-NN-1	i = 3	5.00	38.73	15.0	80	80	2 869	Gearing	MS2N07	100.0
			i = 5	5.00	23.24							
			i = 10	2.50	11.62							
	X	MKR-110-NN-3	i = 3	5.00	33.30	15.0	60	60	3 000	Gearing	MS2N07	
			i = 5	4.00	20.00							
			i = 10	2.00	10.00							
2HB - 50	Y	CKK-200-NN-1	32 x 5	0.30	19.01	15.0	80	360	1 680	Belt side drive, i = 1	MS2N06	195.0
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
	X	MKR-140-NN-3	i = 5	5.00	60.00	15.0	80	80	3 000	Gearing	MS2N07	
			i = 12	3.20	25.00							
			i = 16	2.40	18.75							
2HB - 61	Y	MKR-145-NN-2	i = 3	5.00	33.30	15.0	80	80	2 500	Gearing	MS2N07	205.0
			i = 5	5.00	20.00							
			i = 10	3.10	10.00							
	X	MKR-140-NN-3	i = 5	5.00	60.00	15.0	80	80	3 000	Gearing	MS2N07	
			i = 12	3.20	25.00							
			i = 16	2.40	18.75							

Dimension drawings





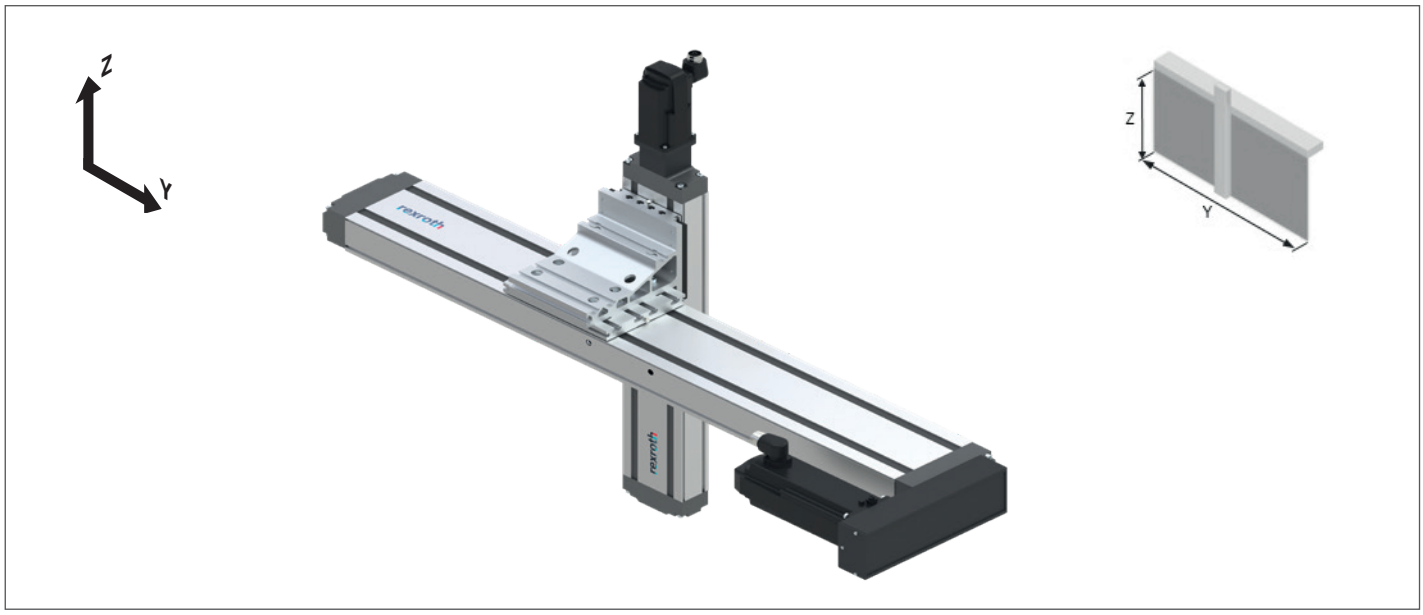
Version: Y-axis as toothed belt axis



Type	**Dimensions** (mm)												
	R_x	R_y	X_a	X_s	B_{wx}	B_{wy}	B_{ez}	L_{x1}	L_{ma}	Z_y	Z_G	L_{Mx}	L_{My}
2HB-20	376	265	191.0	185.0	187.5	135.0	88.0	40	154.5	183.0	415	258.5	226.5
2HB-21	376	265	191.0	185.0	187.5	135.0	88.0	40	154.5	183.0	415	258.5	226.5
2HB-30	481	261	240.5	240.5	195.0	160.0	107.0	50	207.5	218.5	465	261.0	258.5
2HB-31	481	261	240.5	240.5	195.0	160.0	107.0	50	207.5	218.5	465	261.0	290.0
2HB-40	578	347	283.0	295.0	210.0	127.0	182.5	59	264.0	282.0	548	317.0	261.0
2HB-41	578	347	283.0	295.0	210.0	127.0	182.5	59	264.0	282.0	548	317.0	375.0
2HB-50	715	347	370.5	344.5	225.0	127.0	182.5	84	324.5	323.0	603	176.0	165.0
2HB-51	715	459	370.5	344.5	255.0	70.5	162.0	84	324.5	274.5	672	205.0	176.0

Type 2VA

Product description

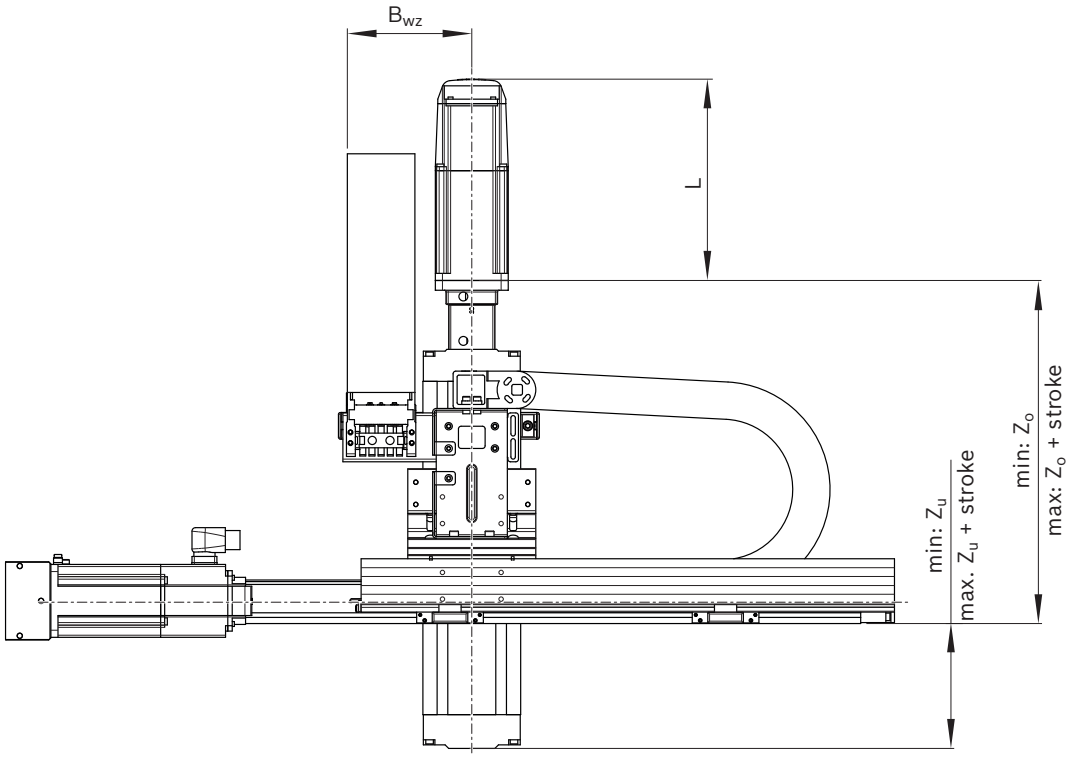


- 2D line gantries cover applications with horizontal and vertical motion direction.
- Compact modules with the drive versions of ball screw assembly or toothed belt drive are available for the x-axis.
- 8 sizes

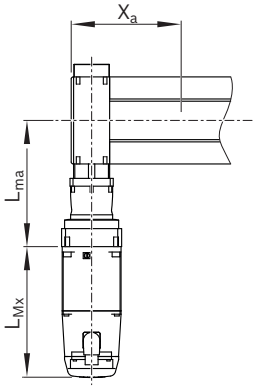
Technical data

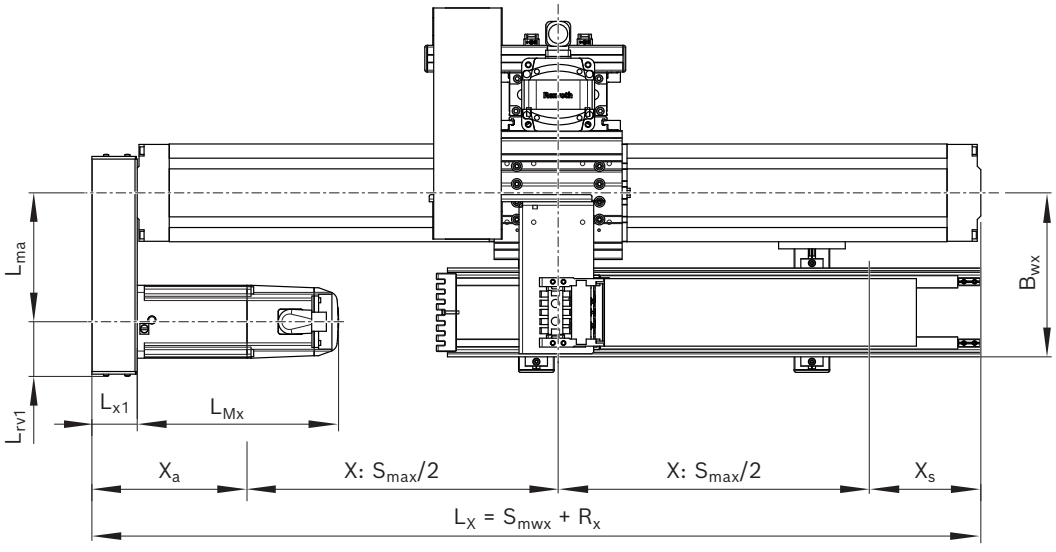
Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2VA - 20	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	40	40	600	Flange/ coupling	MS2N03	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	480	1 325	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
2VA - 21	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	40	40	600	Flange/ coupling	MS2N03	10.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKR-110-NN-1	i = 5	5.00	2.70	15.0	50	220	3 000	Gearing	MS2N04	
			i = 10	5.00	1.40							
2VA - 22	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	480	1 325	Belt side drive, i = 1	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
2VA - 23	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-110-NN-1	i = 5	5.00	2.70	15.0	50	220	3 000	Gearing	MS2N04	
			i = 10	5.00	1.40							
2VA - 30	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	60	495	1 590	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
2VA - 31	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-145-NN-1	i = 3	5.00	10.80	15.0	60	210	3 000	Gearing	MS2N05	
			i = 5	5.00	6.50							
			i = 10	5.00	3.30							
2VA - 32	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15.0	60	60	1 590	Flange/ coupling	MS2N04	61.0
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	60	495	1 590	Belt side drive, i = 1	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
2VA - 33	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15.0	60	60	1 590	Flange/ coupling	MS2N04	61.0
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKR-145-NN-1	i = 3	5.00	10.80	15.0	60	210	3 000	Gearing	MS2N05	
			i = 5	5.00	6.50							
			i = 10	5.00	3.30							

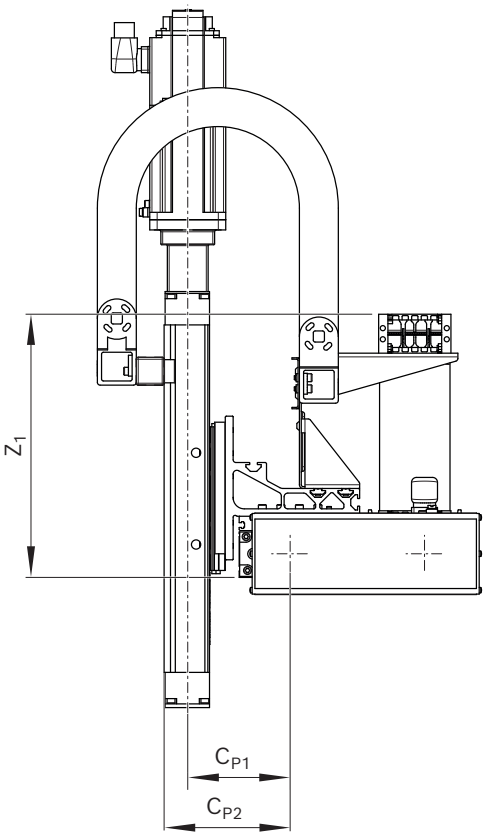
Dimension drawings



Version:
X-axis as
toothed belt axis



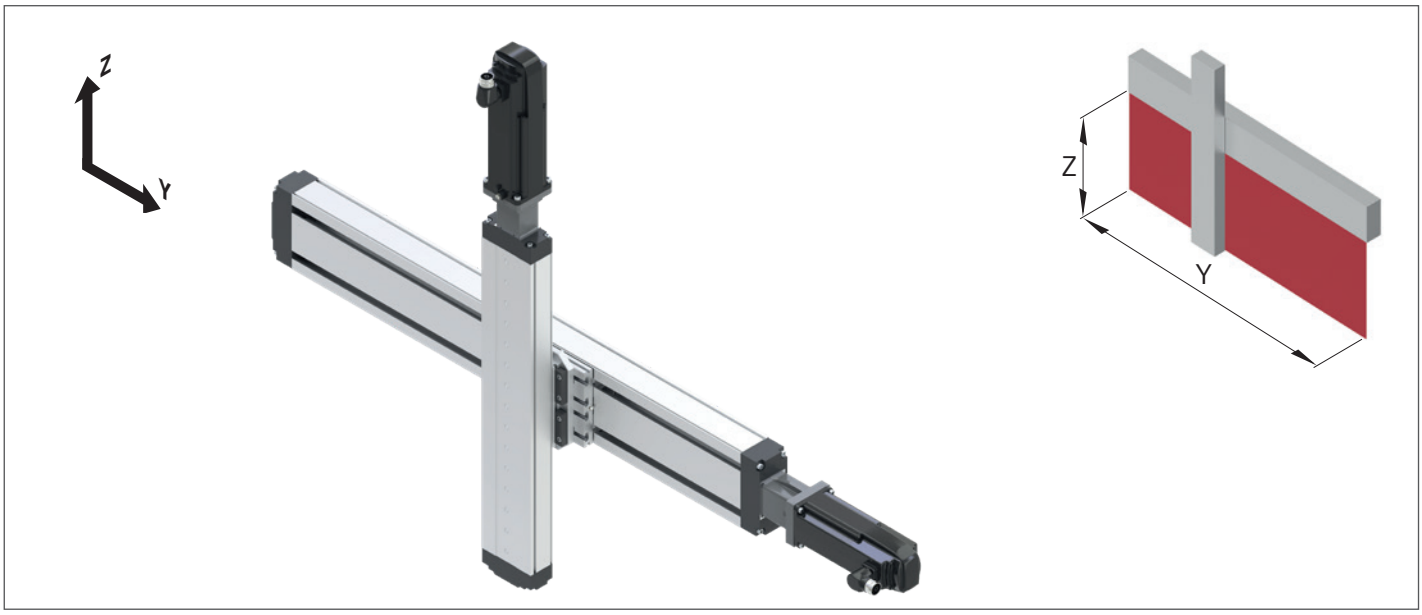




Type	**Dimensions** (mm)														
	R_x	X_a	X_s	B_{wx}	B_{wz}	CP_1	CP_2	Z_u	Z_o	Z_1	L_{x1}	L_{rv1}	L_{ma}	L_{Mx} (max)	L_{Mz} (max)
2VA-20	300.0	174.5	125.5	184.5	140	105.0	126.0	23.5	262.0	285	51	62	145.0	226.5	192.0
2VA-21	366.5	186.0	180.5	184.5	140	105.0	126.0	23.5	262.0	285	–	–	160.5	226.5	192.0
2VA-22	300.0	174.5	125.5	184.5	140	110.5	136.0	40.5	286.0	285	51	62	145.0	226.5	258.5
2VA-23	366.5	186.0	180.5	184.5	140	110.5	136.0	40.5	286.0	285	–	–	160.5	226.5	258.5
2VA-30	349.5	199.5	150.0	207.0	140	130.0	155.5	5.0	321.5	303	51	62	157.5	258.5	258.5
2VA-31	400.5	196.5	204.0	207.0	140	130.0	155.5	5.0	321.5	303	–	–	210.5	290.0	258.5
2VA-32	349.5	199.5	150.0	207.0	140	167.0	201.0	29.5	354.0	303	51	62	157.5	258.5	258.5
2VA-33	400.5	196.5	204.0	207.0	140	167.0	201.0	29.5	354.0	303	–	–	210.5	290.0	258.5

Type 2VB

Product description



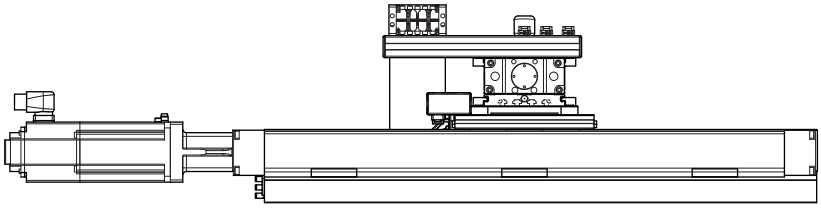
- 2D linear gantries of type 2VB are units for wall mounting and cover applications with horizontal and vertical directions of movement. For these applications, 12 sizes are available offering compact modules in the X-axis with ball screw drive (CKK) or toothed belt drive (CKR) variants.
- 12 sizes

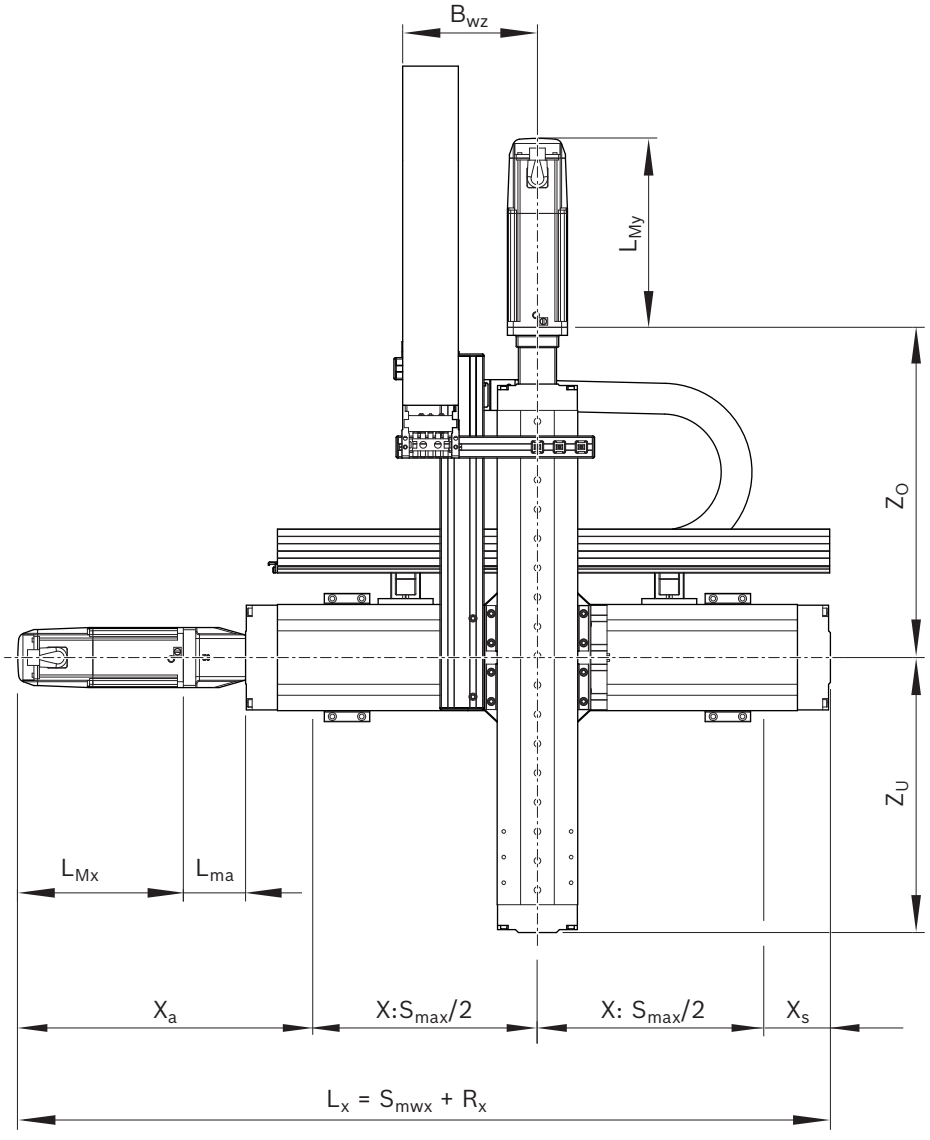
Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2VB - 10	Z	CKK-070-NN-1	8 x 2,5	0.25	0.70	15.0	40	40	500	Flange/ coupling	MS2N03	2.0
			8 x 5	0.50	1.40							
	Y	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	40	195	600	Flange/ coupling	MS2N03	
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
2VB - 11	Z	CKK-070-NN-1	8 x 2,5	0.25	0.70	15.0	40	40	500	Flange/ coupling	MS2N03	2.0
			8 x 5	0.50	1.40							
	Y	CKR-090-NN-1	i = 5	3.0	1.6	15.0	40	165	3 000	Gearing	MS2N03	
			i = 10	1.5	0.8							
2VB - 20	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	40	40	600	Flange/ coupling	MS2N03	7.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	170	1 325	Flange/ coupling	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
2VB - 21	Z	CKK-090-NN-1	12 x 2	0.23	0.79	15.0	40	40	600	Flange/ coupling	MS2N03	7.0
			12 x 5	0.57	2.39							
			12 x 10	1.13	4.42							
	Y	CKR-110-NN-1	i = 5	5.0	2.7	15.0	50	120	3 000	Gearing	MS2N04	
			i = 10	5.0	1.4							

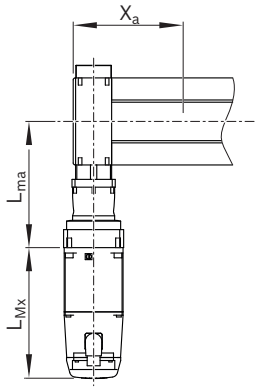
Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
2VB - 22	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	Y	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	170	1 325	Flange/ coupling	MS2N04	
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
2VB - 23	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	7.66							
			16 x 16	1.23	7.66							
	Y	CKR-110-NN-1	i = 5	5.0	2.7	15.0	50	120	3 000	Gearing	MS2N04	
			i = 10	5.0	1.4							
2VB - 30	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	60	135	1 590	Flange/ coupling	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
2VB - 31	Z	CKK-110-NN-1	16 x 5	0.38	6.76	15.0	50	50	1 325	Flange/ coupling	MS2N04	32.5
			16 x 10	0.77	13.51							
			16 x 16	1.23	16.50							
	Y	CKR-145-NN-1	i = 3	5.0	10.8	15.0	60	115	3 000	Gearing	MS2N05	
			i = 5	5.0	6.5							
			i = 10	5.0	3.3							
2VB - 32	Z	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	60	60	1 590	Flange/ coupling	MS2N04	61.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	Y	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	60	135	1 590	Flange/ coupling	MS2N04	
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
2VB - 33	Z	CKK-145-NN-1	20 x 5	0.30	8.22	15.0	60	60	1 590	Flange/ coupling	MS2N04	61.0
			25 x 10	0.63	8.22							
			20 x 20	1.27	8.22							
	Y	CKR-145-NN-1	i = 3	5.0	10.8	15.0	60	115	3 000	Gearing	MS2N05	
			i = 5	5.0	6.5							
			i = 10	5.0	3.3							
2VB - 40	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15.0	60	60	1 590	Flange/ coupling	MS2N04	61.0
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKK-200-NN-1	32 x 5	0.25	19.01	15.0	80	80	1 825	Flange/ coupling	MS2N06	
			32 x 10	0.50	19.21							
			32 x 20	1.00	19.21							
			32 x 32	1.60	19.21							
2VB - 41	Z	CKK-145-NN-1	20 x 5	0.30	11.01	15.0	60	60	1 590	Flange/ coupling	MS2N04	61.0
			25 x 10	0.63	22.02							
			20 x 20	1.27	29.60							
	Y	CKR-200-NN-1	i = 3	5.0	38.7	15.0	80	80	3 000	Gearing	MS2N07	
			i = 5	5.0	23.2							
			i = 10	2.5	11.6							

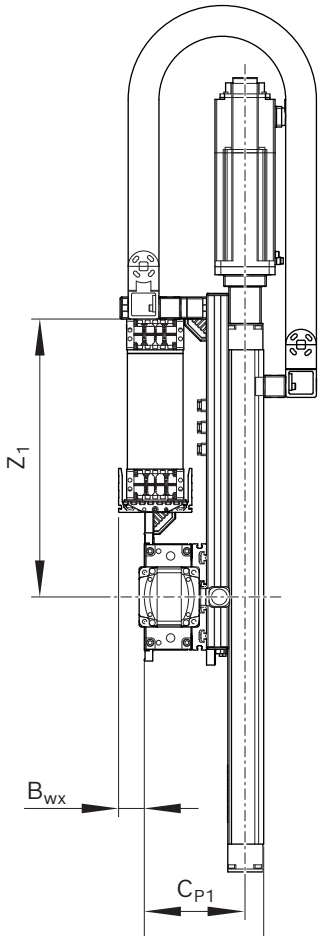
Dimension drawings





Version:
Y-axis as toothed belt axis





Type	**Dimensions** (mm)												
	Rx	**Xa**	**Xs**	**Bwx**	**Bwz**	**CP1**	**CP2**	**Zu**	**Zo**	**Z1**	**Lma**	**LMx** (max)	**LMz** (max)
2VB-10	449.0	340.5	108.5	36.5	152	96.5	112.5	80.5	123.5	349.0	70.0	163.5	192.0
2VB-11	289.5	150.0	140.0	36.5	152	96.5	112.5	80.5	123.5	349.0	141.0	203.5	192.0
2VB-20	521.0	395.0	125.5	35.0	169	113.0	134.0	108.5	177.0	359.0	77.5	194.0	192.0
2VB-21	366.5	186.0	180.5	35.0	169	113.0	134.0	108.5	177.0	359.0	160.5	194.0	192.0
2VB-22	521.0	395.0	125.5	35.0	184	118.5	144.0	125.5	201.0	360.0	77.5	194.0	258.5
2VB-23	366.5	186.0	180.5	35.0	184	118.5	144.0	125.5	201.0	360.0	160.5	194.0	258.5
2VB-30	577.5	427.5	150.0	35.0	184	137.5	163.0	125.5	201.0	379.5	85.0	194.0	258.5
2VB-31	400.5	196.5	204.0	35.0	184	137.5	163.0	125.5	201.0	379.5	210.0	188.0	258.5
2VB-32	577.5	427.5	150.0	35.0	213	148.0	182.0	150.0	233.5	379.5	85.0	194.0	258.5
2VB-33	400.5	196.5	204.0	35.0	213	148.0	182.0	150.0	233.5	379.5	210.0	188.0	258.5
2VB-40	831.0	583.0	247.0	8.0	213	192.0	226.0	150.0	233.5	389.0	125.0	224.0	258.5
2VB-41	768.0	319.0	330.0	8.0	213	192.0	226.0	150.0	233.5	389.0	329.0	176.0	258.5

Type 1HB

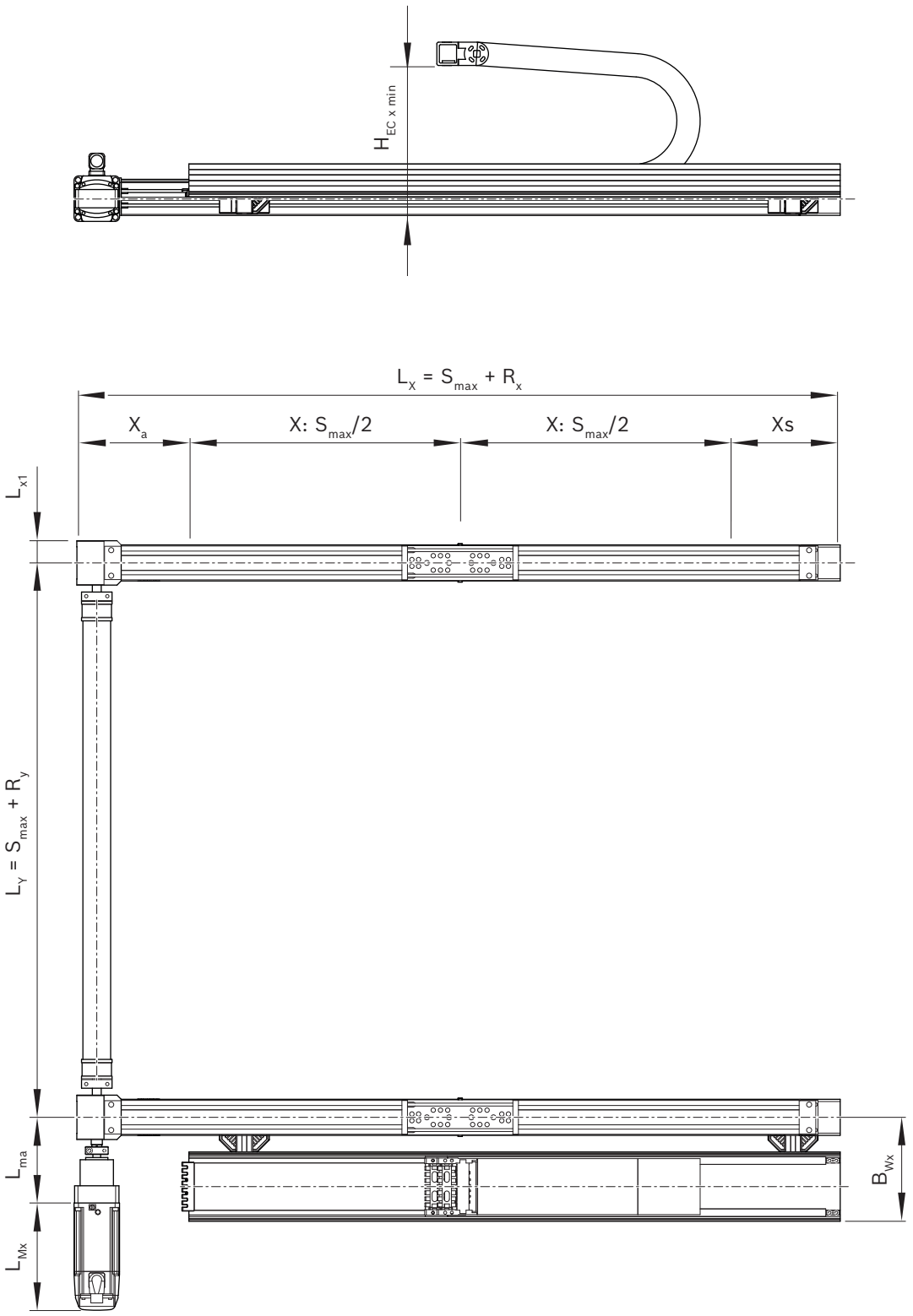
Product description

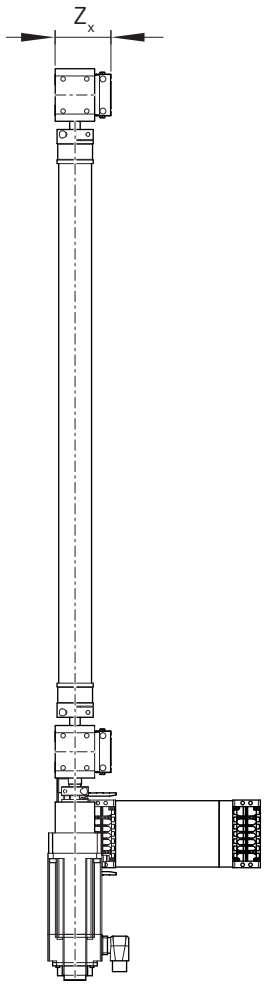
- 1D gantries are units of mechanically coupled linear modules with toothed belt drive for one-dimensional motion tasks.
- Four sizes

Technical data

Type	Axis	Linear axis	BASA: d_o x P Toothed belt: Gear ratio i	v_{max} (m/s)	$M_{P\ max}$ (Nm)	a_{max} (m/s^2)	s_{min} (mm)	s_{min_EC} (mm)	s_{max} (mm)	LM_{min} (mm)	LM_{max} (mm)	Motor attachment	Motor	$m_{ex\ max}$ (kg)
1HB - 20	X	MKR-065-NN-3	i = 3	5.00	4.00	15.0	60	125	3 000	253	3 105	Gearing	MS2N04	62
			i = 5	4.50	2.40									
			i = 10	2.30	1.20									
1HB - 30	X	MKR-080-NN-3	i = 3	5.00	4.00	15.0	60	85	3 000	315	4 144	Gearing	MS2N06	118
			i = 5	4.50	2.40									
			i = 10	2.30	1.20									
1HB - 40	X	MKR-110-NN-3	i = 3	5.00	33.30	15.0	60	60	3 000	355	4 155	Gearing	MS2N07	214
			i = 5	4.00	20.00									
			i = 10	2.00	10.00									
1HB - 50	X	MKR-140-NN-3	i = 5	5.00	60.00	15.0	80	80	3 000	475	4 195	Gearing	MS2N07	366
			i = 12	3.20	25.00									
			i = 16	2.40	18.75									

Dimension drawings





Type	**Dimensions** (mm)								
	R_x	X_a	X_s	B_{wx}	$H_{EC\ x\ min}$	L_{x1}	L_{ma}	L_{Mx}	Zx
1HB-20	376	191.0	185.0	187.5	270	40	154.5	258.5	85
1HB-30	481	240.5	240.5	195.0	270	50	207.5	261.0	100
1HB-40	578	283.0	295.0	210.0	270	59	264.0	317.0	129
1HB-50	715	370.5	344.5	225.0	270	84	324.5	176.0	170

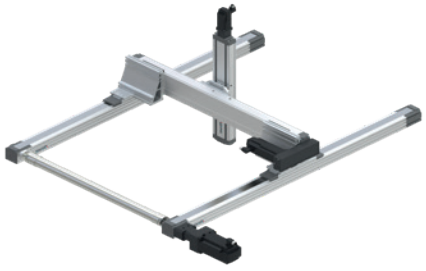
Overview

Fastening options on the relevant axes depend on the type and size of the multi-axis system.
Example: 2D area gantry, type 2HB, size 30
According to the table, information on mounting the x-axis (basic axis) can be found in section "Fig. B2" for the required size MKR-080.

3D cantilever chamber

TYPE	Size	Z-axis				X-axis (basic axis)	
		Z-adapter	HK				
		Adapter A	Adapter B	Without adapter	Size	Fig.	Size
3SA	10	Z1	Z2	Z0	CKK-070	B1	CKX-110
	11	Z1	Z2	Z0	CKK-070	B1	CKX-110
	20	Z1	Z2	Z0	CKK-090	B1	CKX-145
	21	Z1	Z2	Z0	CKK-090	B1	CKX-145
	22	Z1	Z2	Z0	CKK-110	B1	CKX-145
	23	Z1	Z2	Z0	CKK-110	B1	CKX-145
	30	Z1	Z2	Z0	CKK-110	B1	CKX-200
	31	Z1	Z2	Z0	CKK-110	B1	CKX-200

3D gantry



TYPE	Size	Z-axis				X-axis (basic axis)	
		Z-adapter 1	Z-adapter 2	HK			
		Fig.	Fig.	Fig.	Size	Fig.	Size
3SB	20	Z1	Z2	Z0	CKK-090	B2	MKR-065
	21	Z1	Z2	Z0	CKK-090	B2	MKR-065
	22	Z1	Z2	Z0	CKK-110	B2	MKR-065
	23	Z1	Z2	Z0	CKK-110	B2	MKR-065
	30	Z1	Z2	Z0	CKK-110	B2	MKR-080
	31	Z1	Z2	Z0	CKK-110	B2	MKR-080
	40	Z1	Z2	Z0	CKK-145	B2	MKR-110
	41	Z1	Z2	Z0	CKK-145	B2	MKR-110
	50	Z1	Z2	Z0	CKK-200	B2	MKR-140
	61	Z1	Z2	Z0	CKK-200	B2	MKR-140

3D gantry, performance-optimized

TYPE	Size	Z-axis				X-axis (basic axis)	
		Z-adapter 1	Z-adapter 2	HK			
		Fig.	Fig.	Fig.	Size	Fig.	Size
3SC	22	Z1	Z2	Z0	CKK-110	B2	MKR-080
	23	Z1	Z2	Z0	CKK-110	B2	MKR-080
	30	Z1	Z2	Z0	CKK-110	B2	MKR-110
	31	Z1	Z2	Z0	CKK-110	B2	MKR-110
	40	Z1	Z2	Z0	CKK-145	B2	MKR-110
	41	Z1	Z2	Z0	CKK-145	B2	MKR-110

2D cantilever surface

TYPE	Size	Y-axis		X-axis (basic axis)	
		Fig.	Size	Fig.	Size
2HA	8	H6	CKK-070	B1	CKX-090
	9	H6	CKK-070	B1	CKX-090
	10	H5	CKK-090	B1	CKX-110
	11	H5	CKK-090	B1	CKX-110
	20	H1	CKK-110	B1	CKX-110
	21	H1	CKK-110	B1	CKX-110
	22	H1	CKK-110	B1	CKX-145
	23	H1	CKK-110	B1	CKX-145
	30	H2	CKK-145	B1	CKX-145
	31	H2	CKK-145	B1	CKX-145
	32	H2	CKK-145	B1	CKX-200
	33	H2	CKK-145	B1	CKX-200

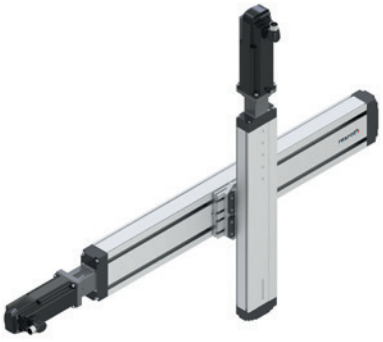
2D area gantry

TYPE	Size	Y-axis		X-axis (basic axis)	
		Fig.	Size	Fig.	Size
2HB	20	H1	CKX-110	B2	MKR-065
	21	H1	CKX-110	B2	MKR-065
	30	H2	CKX-145	B2	MKR-080
	31	H2	CKX-145	B2	MKR-080
	40	H3	CKX-200	B2	MKR-110
	41	H3	CKX-200	B2	MKR-110
	50	H3	CKX-200	B2	MKR-140
	61	H4	MKR-145	B2	MKR-140

2D linear gantry

TYPE	Size	Z-axis				Y-axis (basic axis)	
		Z-adapter 1	Z-adapter 2	HK			
		Fig.	Fig.	Fig.	Size	Fig.	Size
2VA	20	Z1	Z2	Z0	CKK-090	B1	CKX-110
	21	Z1	Z2	Z0	CKK-090	B1	CKX-110
	22	Z1	Z2	Z0	CKK-110	B1	CKX-110
	23	Z1	Z2	Z0	CKK-110	B1	CKX-110
	30	Z1	Z2	Z0	CKK-110	B1	CKX-145
	31	Z1	Z2	Z0	CKK-110	B1	CKX-145
	32	Z1	Z2	Z0	CKK-145	B1	CKX-145
	33	Z1	Z2	Z0	CKK-145	B1	CKX-145

2D linear gantry, wall mounting



TYPE	Size	Z-axis				Y-axis (basic axis)	
		Z-adapter 1	Z-adapter 2	HK			
		Fig.	Fig.	Fig.	Size	Fig.	Size
2VB	10	Z1	Z2	Z0	CKK-070	B1	CKX-090
	11	Z1	Z2	Z0	CKK-070	B1	CKX-090
	20	Z1	Z2	Z0	CKK-090	B1	CKX-110
	21	Z1	Z2	Z0	CKK-090	B1	CKX-110
	22	Z1	Z2	Z0	CKK-110	B1	CKX-110
	23	Z1	Z2	Z0	CKK-110	B1	CKX-110
	30	Z1	Z2	Z0	CKK-110	B1	CKX-145
	31	Z1	Z2	Z0	CKK-110	B1	CKX-145
	32	Z1	Z2	Z0	CKK-145	B1	CKX-145
	33	Z1	Z2	Z0	CKK-145	B1	CKX-145
	40	Z1	Z2	Z0	CKK-145	B1	CKX-200
	41	Z1	Z2	Z0	CKK-145	B1	CKX-200

1D gantry

TYPE	Size	X-axis (basic axis)	
		Fig.	Size
1HB	20	B2	MKR-065
	30	B2	MKR-080
	40	B2	MKR-110
	50	B2	MKR-140

CKX = compact modules with ball screw assembly CKK or toothed belt drive CKR
MKR = linear modules with toothed belt drive

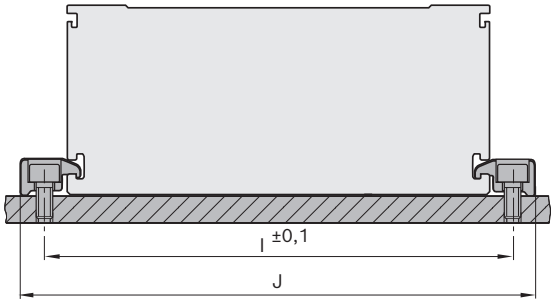
Fastening with clamping fixtures

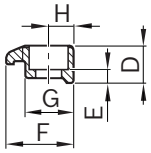
Position and number of the clamping fixtures can be taken from the configured 3D CAD model

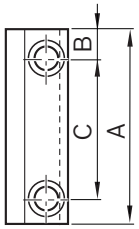
Fig. B1

⚠ **Do not secure or support the compact module at the end enclosures or cross ties! The frame is the load-bearing part!**

Countersink for thread M
ISO 4762, number N





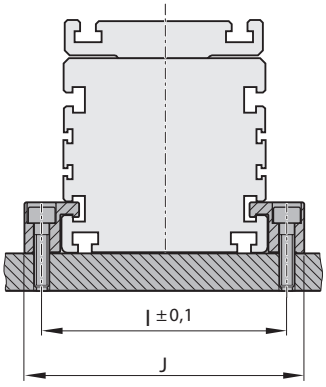


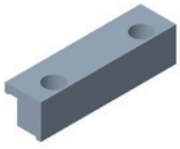
Size	for thread M	N	Dimensions (mm)										Material number
			A	B	C	D	E	F	G	H	I	J	
CKX-090	M4	2	62	11.0	40	9.0	4.6	14.5	10.5	5.0	102	112	R037531033
CKX-110	M6	2	62	11.0	40	11.5	5.3	19.3	14.0	7.0	126	140	R037551034
CKX-145	M6	2	62	11.0	40	11.5	5.3	19.3	14.0	7.0	161	175	R037551034
CKX-200	M8	2	78	19.0	40	27.5	14.8	29	19.0	9.0	222	240	R117529097

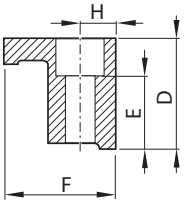
Fig. B2

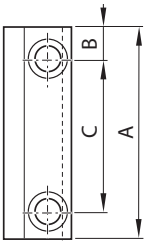
⚠ **Do not secure or support the linear module at the end enclosures! The frame is the load-bearing part!**

Countersink for thread M
ISO 4762, number N





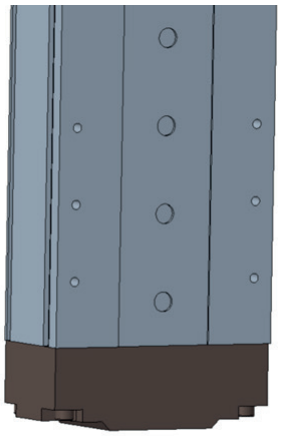


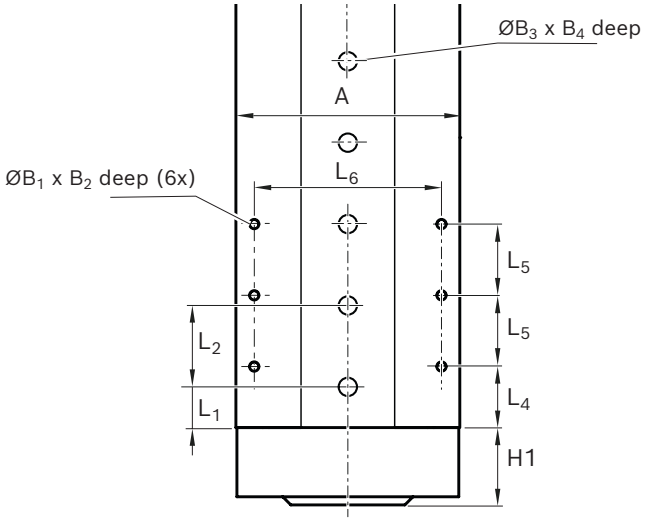


Size	Countersink ISO 4762 for	N	Dimensions (mm)									Material number
			A	B	C	D	E	F	H	I	J	
MKR-065	M6	2	78	14.0	50	20.0	11.5	20	7.0	81.0	95.0	R117519024
MKR-080	M6		78	14.0	50	20.0	11.5	20	7.0	96.0	110.0	R117519024
MKR-110	M8		108	19.0	70	27.5	16.5	29	9.0	132.0	150.0	R117529026
MKR-140	M10		163	29.0	105	40.5	27.0	41	13.0	170.0	196.0	R117539014

Z adaptation

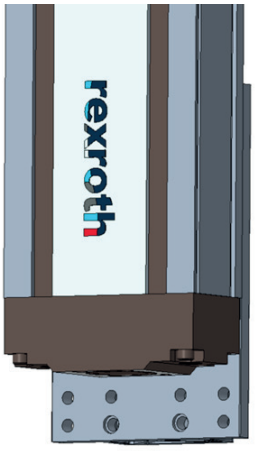
Fig. Z0
without adapt

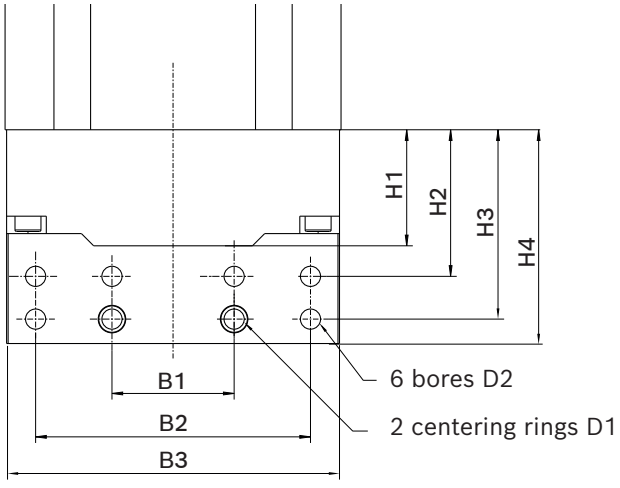




Size	Dimensions (mm)											
	A	B_1	B_2	$ØB_3^{H7}$	B_4	H1	L_1	L_2 ±0.01	L_3 (min)	L_4	L_5	L_6
CKK-070	70	M3	6.0	7	1.6	29.0	20	40	10	15	25	59
CKK-090	90	M4	7.5	9	2.1	32.0	20	40	10	30	35	76
CKK-110	110	M5	9.0	9	2.1	38.0	20	40	10	30	35	92
CKK-145	145	M6	13.0	12	2.1	45.0	20	40	10	30	35	124
CKK-200	200	M8	12.0	16	3.1	59.5	20	40	10	35	40	119

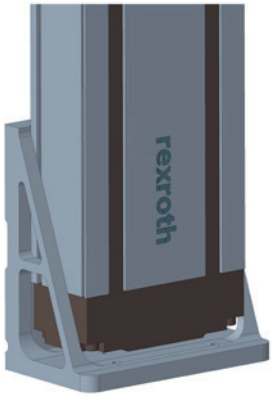
Fig. Z1
Adapter A

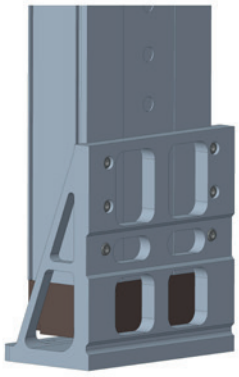


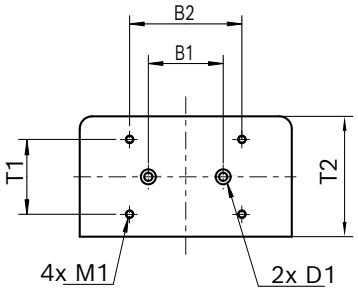


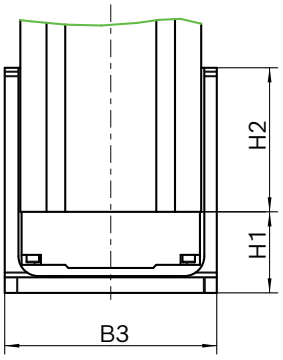
Size	Dimensions (mm)									Material number
	B1	B2	B3	H1	H2	H3	H4	ø D1	ø D2	
CKK-070	20	40	68	20.0	29	39	45	7H7	4.5	R039120371
CKK-090	40	76	89	32.0	42	54	61	9H7	5.5	R039120372
CKK-110	40	90	109	38.0	48	62	70	9H7	6.6	R039120373
CKK-145	60	125	144	43.5	58	78	90	12H7	9.0	R039120374
CKK-200	60	125	144	59.5	76	100	114	16H7	11.0	R039120375

Fig. Z2
Adapter B







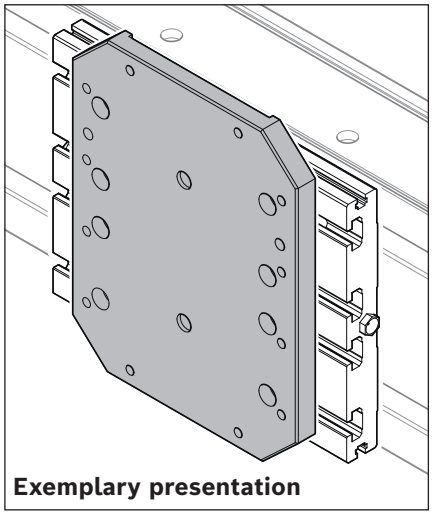


Size	Dimensions (mm)									Material number
	B1	B2	B3	H1	H2	T1	T2	D1^{H7}	M1	
CKK-070	40	60	85	43.0	69.5	20	52.0	7	M4	R039120423
CKK-090	40	60	110	49.5	106.5	40	67.5	9	M4	R039120424
CKK-110	40	60	130	53.0	107.0	40	67.5	9	M5	R039120425
CKK-145	60	90	170	65.0	115.5	60	96.5	12	M6	R039120426
CKK-200	60	120	235	89.5	129.5	90	138.5	16	M8	R039120427

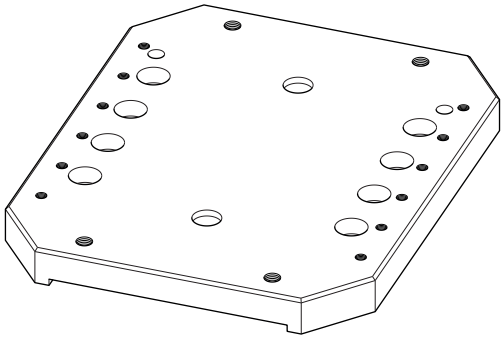
Connection plates

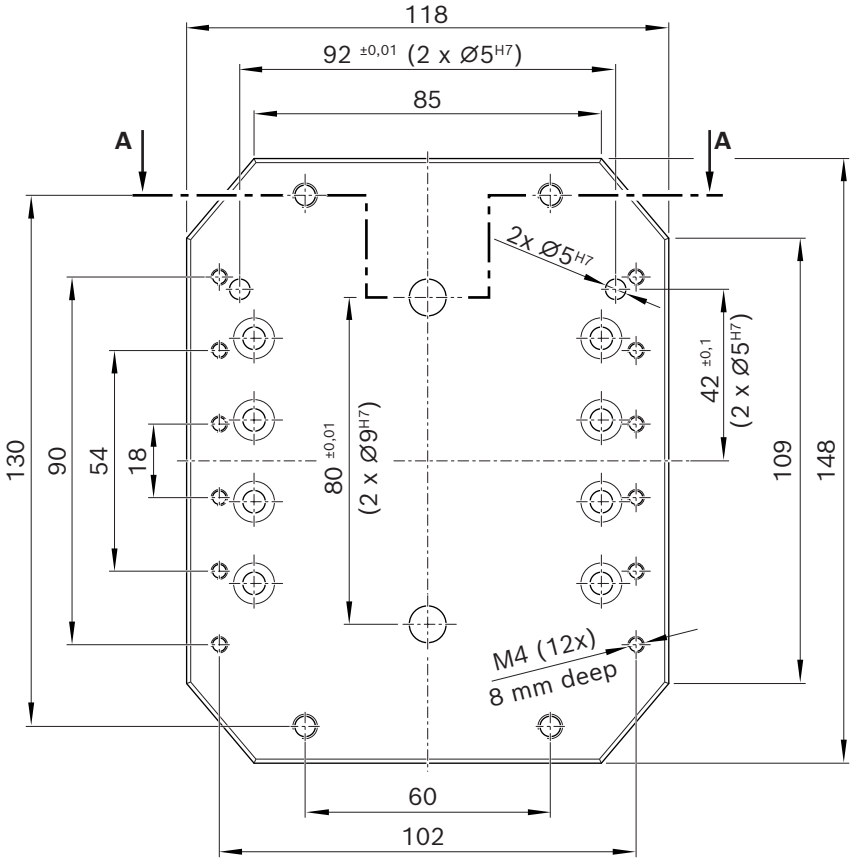
Fig. H1

Size CKX-110



Exemplary presentation





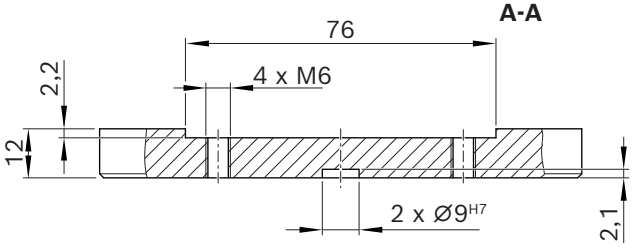
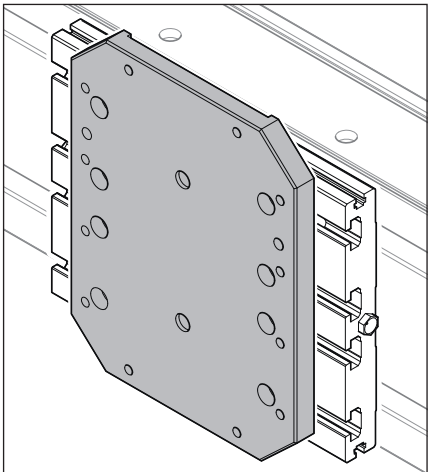
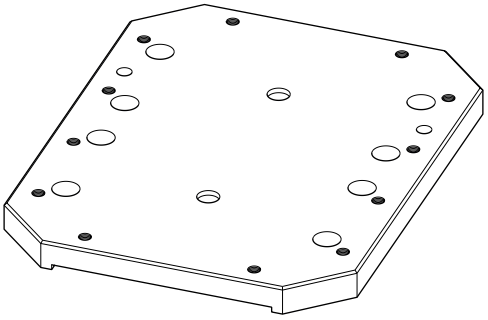


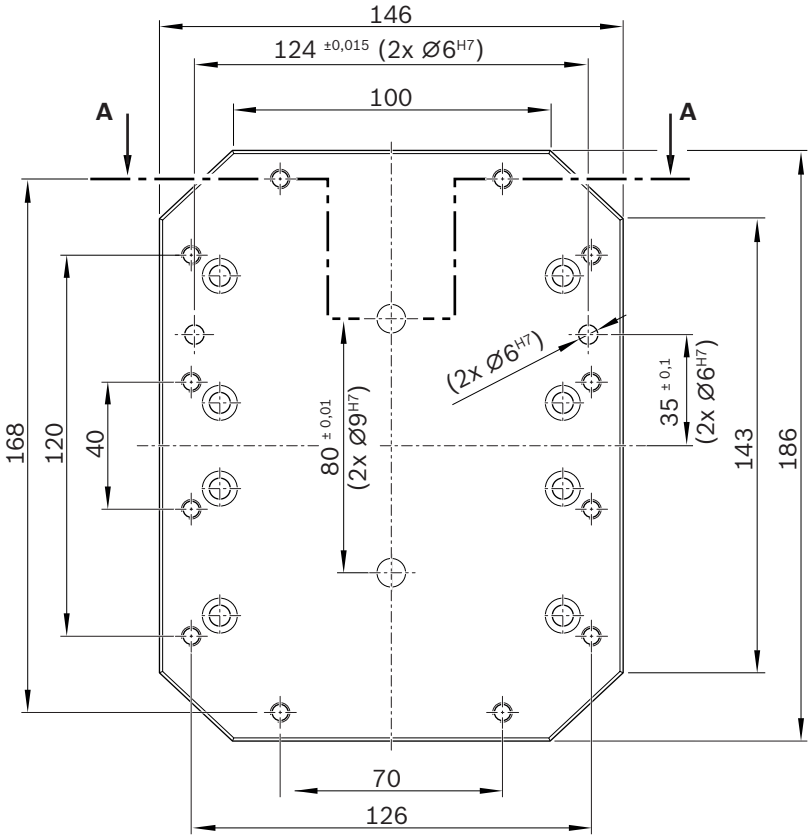
Fig. H2

Size CKX-145



Exemplary presentation





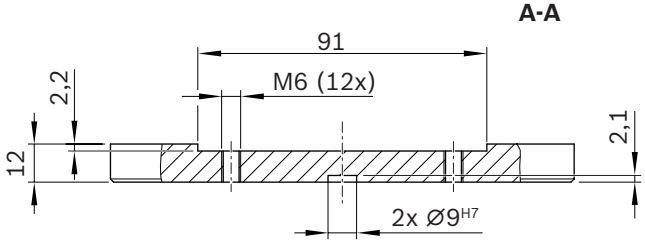
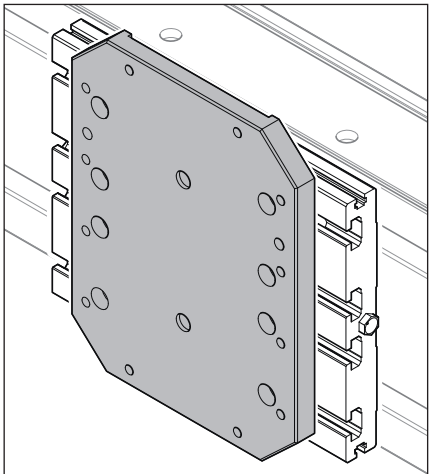
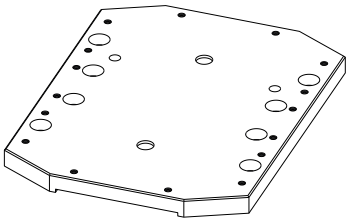


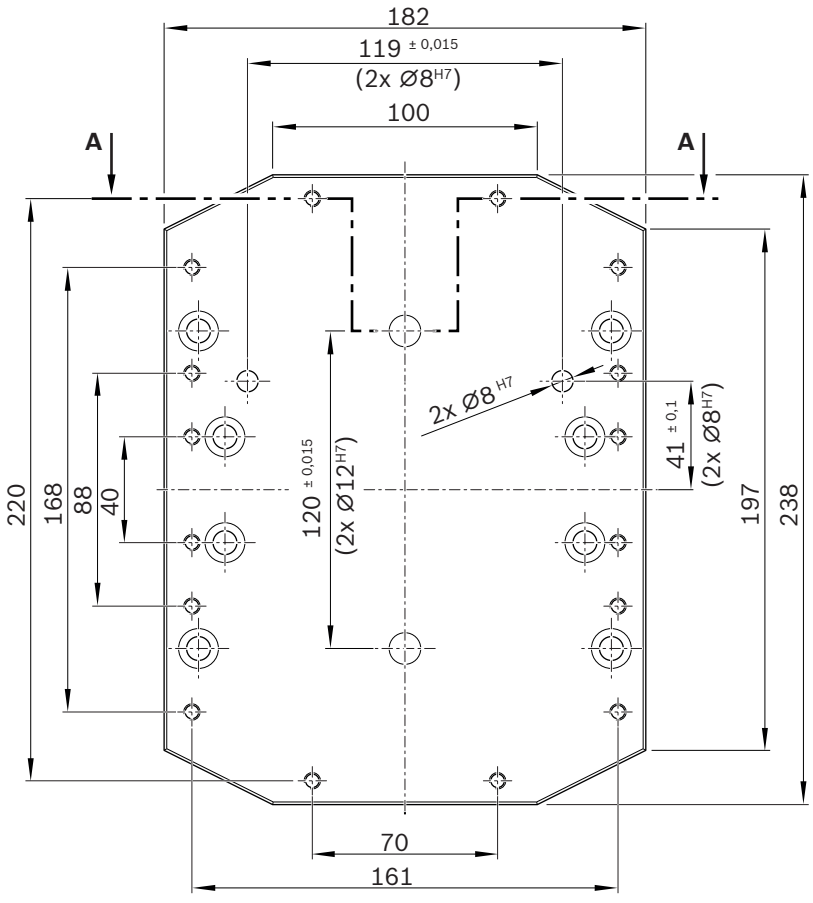
Fig. H3

Size CKX-200



Exemplary presentation





A-A

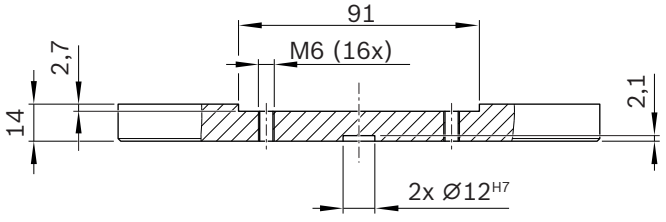
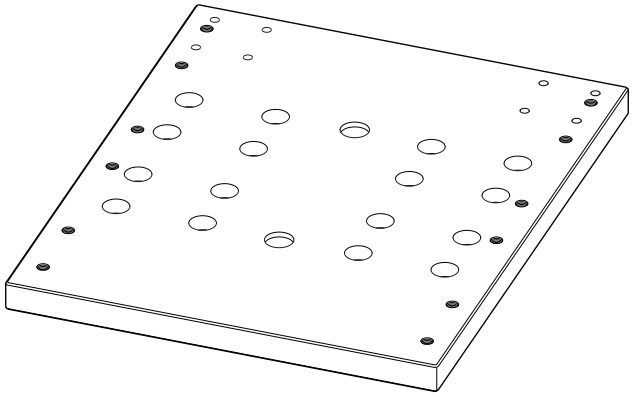


Fig. H4

Size MKR-145



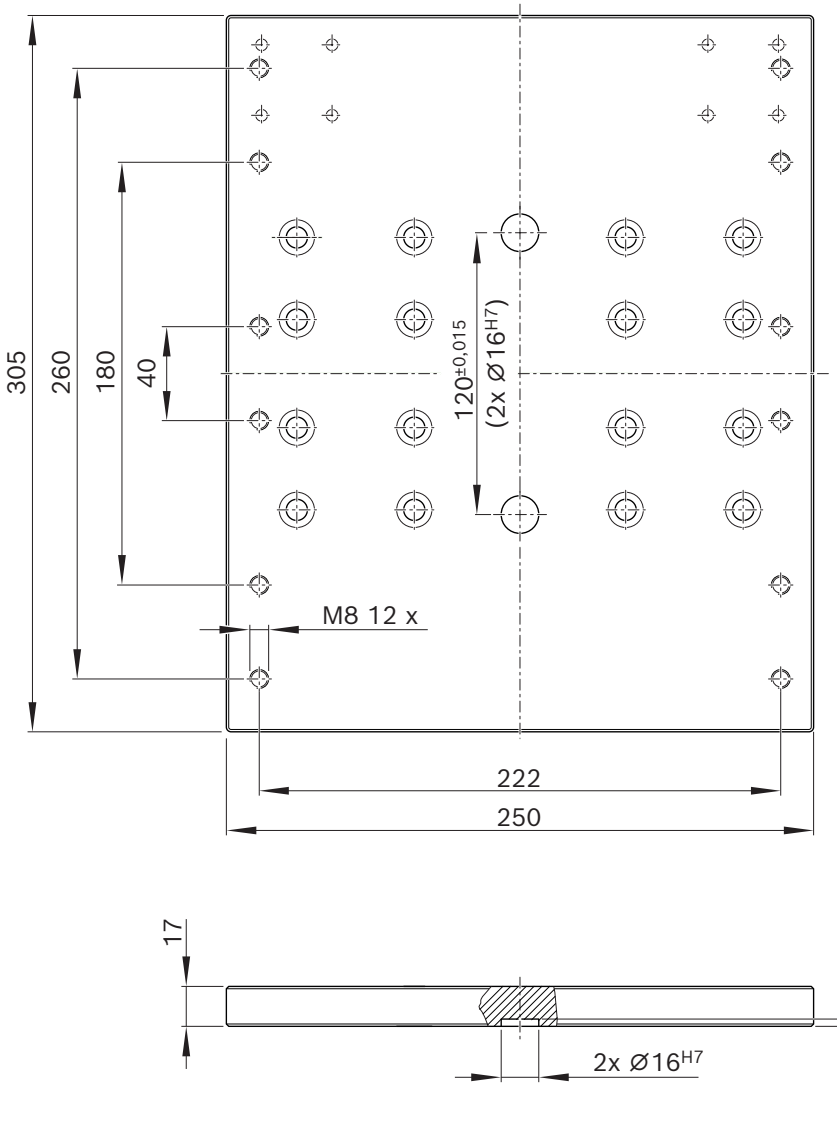
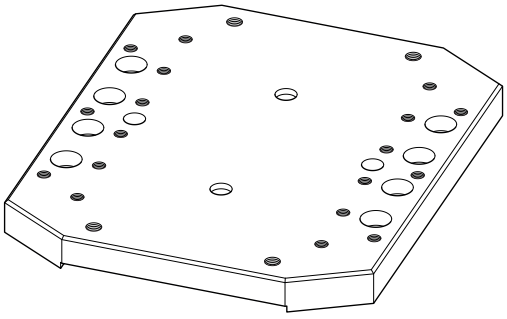
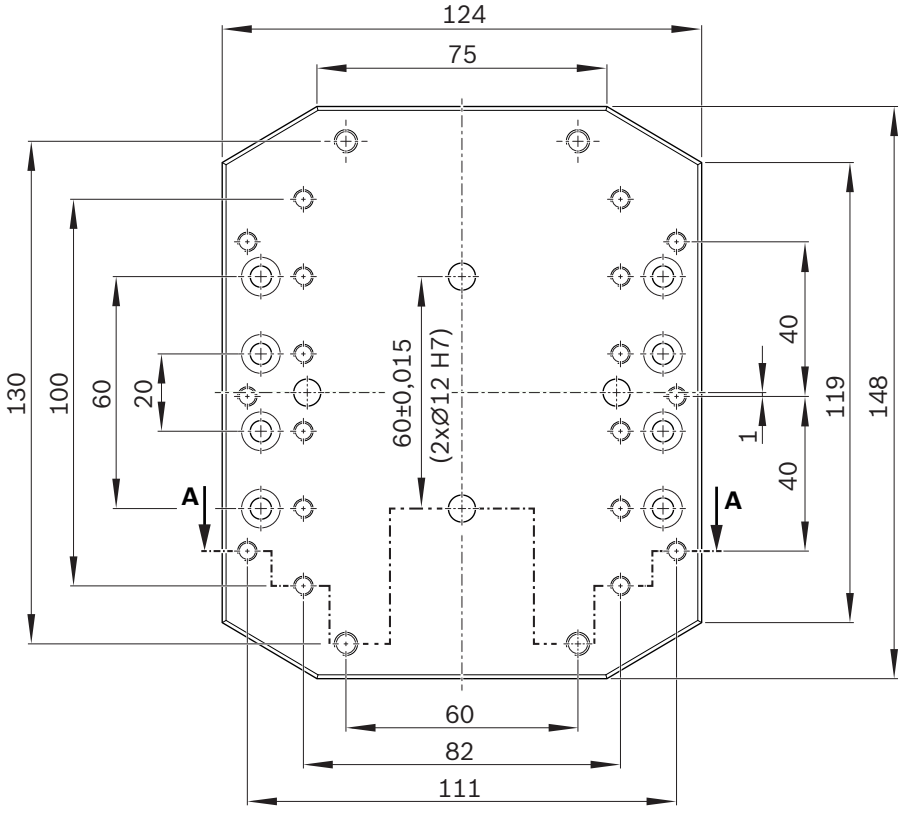


Fig. H5

Size CKX-090





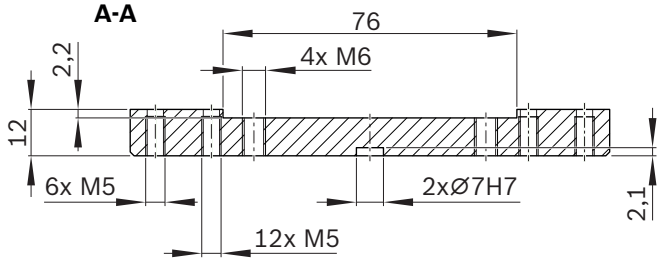
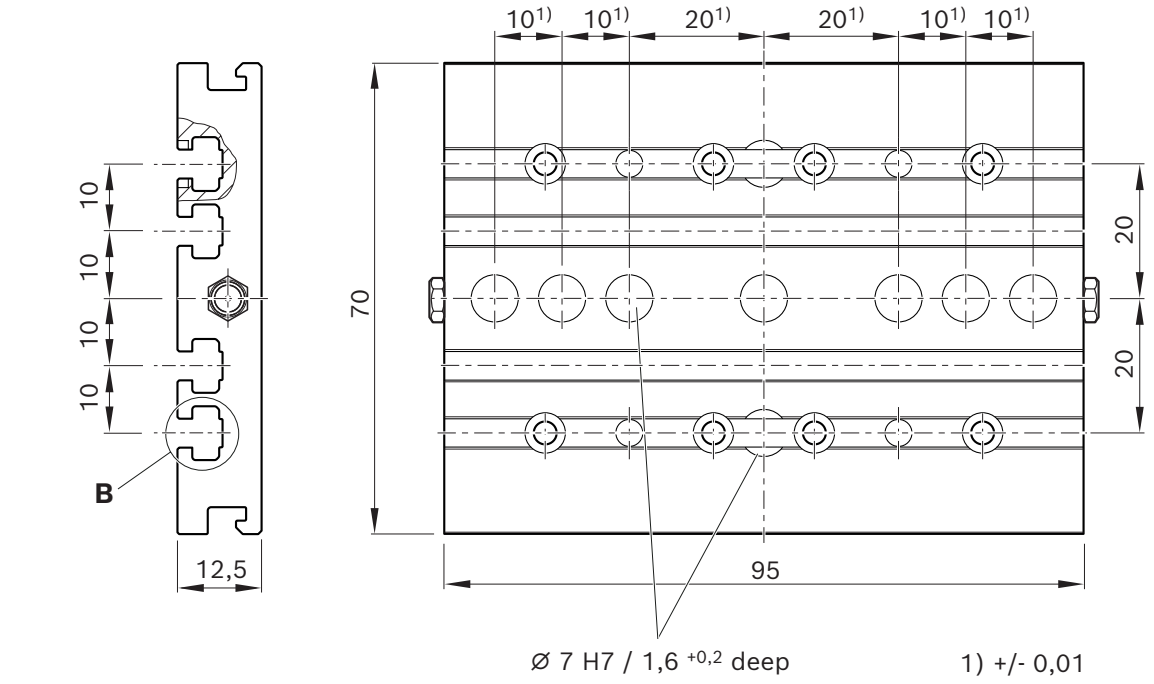
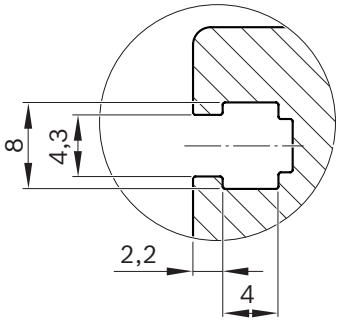


Fig. H6

Size CKK-070





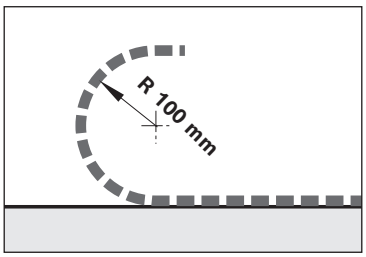
Cable drag chains

Features

- ESD-capable
- Smooth running
- High stability
- Flexible interior layout
- Chain connector with integrated strain relief

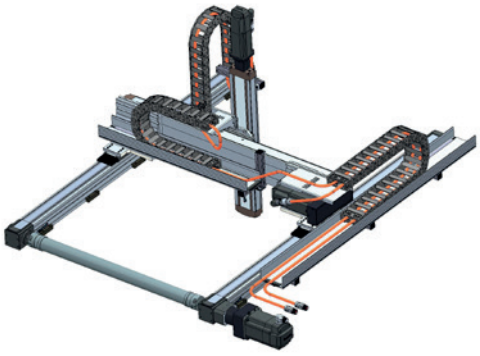
Bending radius

- Minimum bending radius 100 mm
- Customer cables or hoses: Observe the manufacturer's specifications

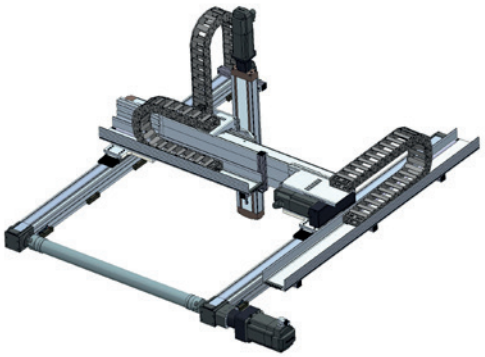


Cable drag chains can be selected as an option

Cable drag chains with cable (for single-cable connection)
The scope of delivery includes cable drag chains, storage trays as well as all fastening material and is completely mounted on the multi-axis system.
With cables connected (plug connection), which are routed in the cable drag chains to the output of the storage tray of the basic axis. The cable ends and the motor of the basic axis are designed with a plug connection thus offering the option of connecting cables to the controller.



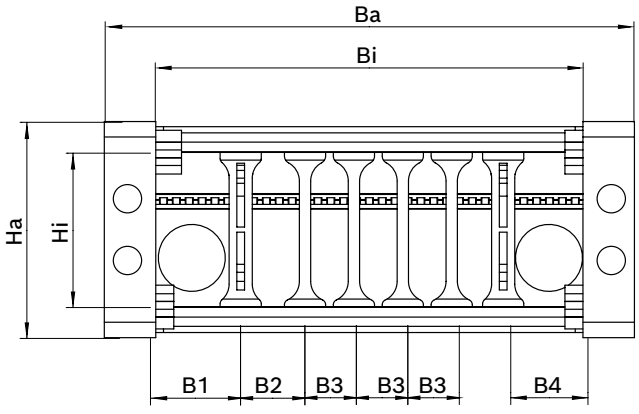
Cable drag chain without cable:
The scope of delivery includes cable drag chains, storage trays as well as all fastening material and is completely mounted on the multi-axis system.
All motors without motor cable.



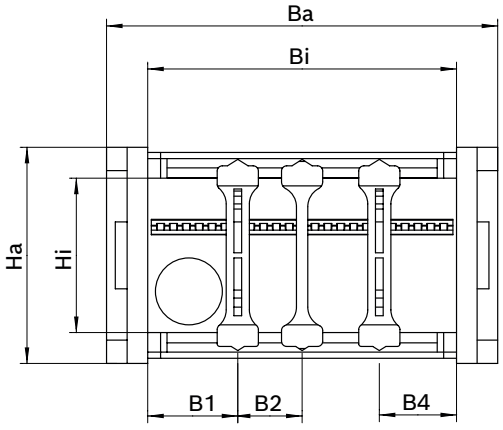
Without cable drag chain, without cable:
The multi-axis system does not have cable drag chain and cable

Illustrations are exemplary

EFK-085



EFK-060



EFK	**Dimensions** (mm)							
	Ba	**Bi**	**Ha**	**Hi**	**B1**	**B2**	**B3**	**B4**
EFK-085	103	85	42	30	17.5	12.5	10	15
EFK-060	78	58	42	30	17.5	12.5	–	15

Combination of axes (independent of size)	**Allocation of cable drag chain**		
	X-axis	**Y-axis**	**Z-axis**
3SA	EFK-085	EFK-060	EFK-060
3SB	EFK-085	EFK-060	EFK-060
3SC	EFK-085	EFK-060	EFK-060
2HA	EFK-085	EFK-060	–
2HB	EFK-085	EFK-060	–
2VA	–	EFK-060	EFK-060
2VB	–	EFK-060	EFK-060
1HB	EFK-085	–	–

Operating conditions

Normal operating conditions

Ambient temperature with Rexroth servo motor	0 °C ... 40 °C, loss of performance above 40 °C
Ambient temperature for mechanical system (no dropping below dew point)	–10 °C ... 50 °C
Soiling	not permissible

Required and supplementary documentation

For further instructions and information, please refer to the documentation for this product.

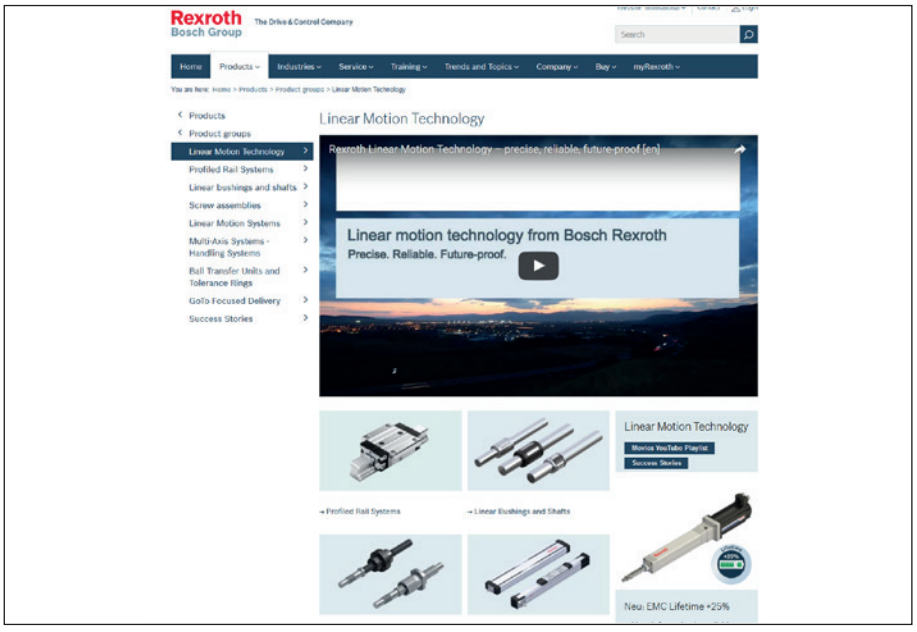
You can find PDF files of these documents on the Internet at www.boschrexroth.com/mediadirectory.

We would also be happy to send you the documents that you want.

If you are unsure about using this product, please contact Bosch Rexroth.

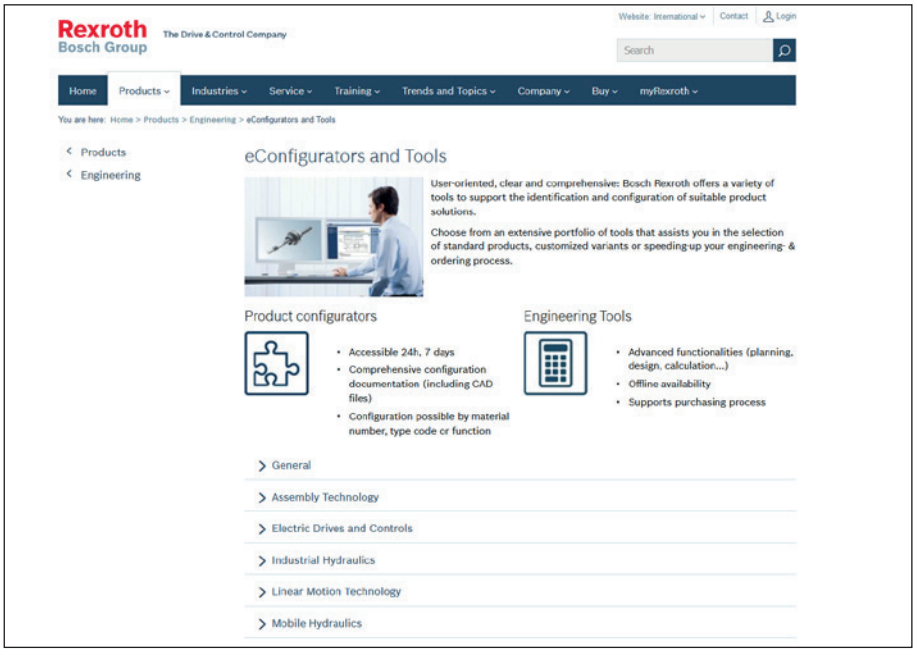
Bosch Rexroth Linear Motion Technology homepage

https://www.boschrexroth.com/en/xc/products/product-groups/linear-motion-technology/index

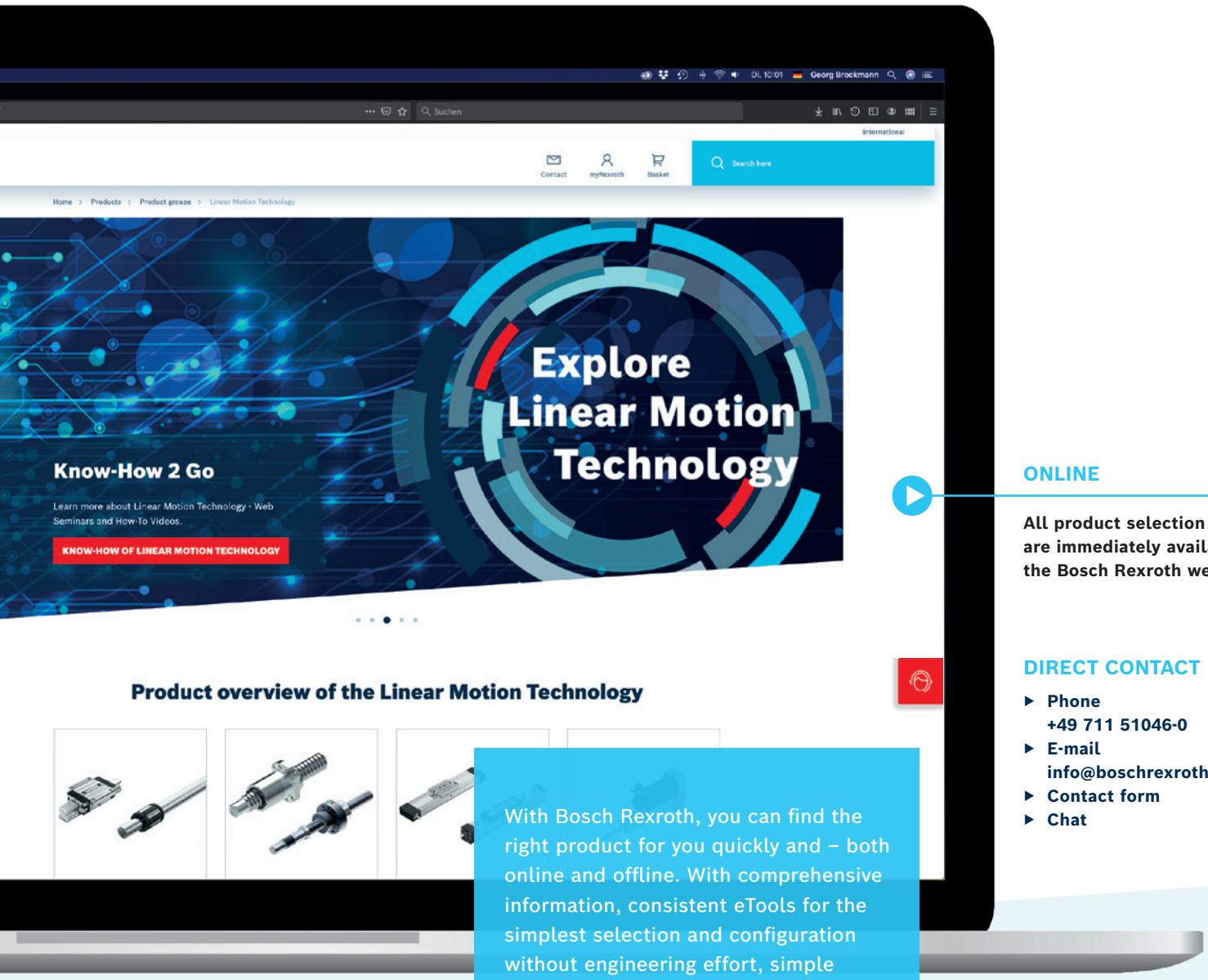


Configurators and tools:

https://www.boschrexroth.com/en/xc/products/engineering/econfigurators-and-tools/econfigurators



Perfect fit: Choose the best way to your product



ONLINE

All product selection guides are immediately available via the Bosch Rexroth website

DIRECT CONTACT

- **Phone**
  +49 711 51046-0
- **E-mail**
  info@boschrexroth.de
- **Contact form**
- **Chat**

With Bosch Rexroth, you can find the right product for you quickly and – both online and offline. With comprehensive information, consistent eTools for the simplest selection and configuration without engineering effort, simple ordering and personal support at any time. The perfect basis for building best-in-class multi-axis systems. Fast and economical.

www.boschrexroth.de/lineartechnik

I want to get an overview.

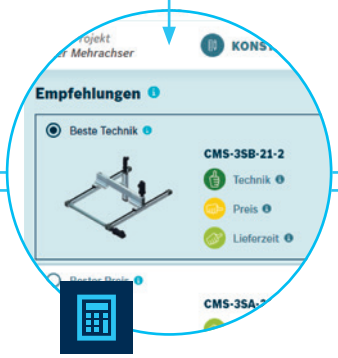
Detailed product information

CATALOGS

- **Online/offline**
- **Print**

I have a specific application but am not familiar with the products.

Quick solution proposal

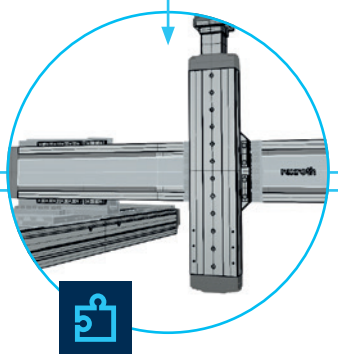


LINSELECT

- **Selection**
- **Sizing**

I am familiar with the products and know what I want. Sizing is not required.

Easy ordering



CONFIGURATOR

- **With 3D model**
- **CAD data**

I have not found what I am looking for or would like some advice.

Modification or individualized solution

HELP DESK

- **Consulting**
- **Support**
- **Adjustments**
- **Request**

ORDER

- **eShop**
- **Price information**

SIMPLY SELECT, CONFIGURE, ORDER

We want you to reach your goal as easily and quickly as possible, depending on the level of information and requirements. That is our claim. With the latest generation of the central selection tool LinSelect, you can find the right product selection with just a few parameters, transfer it to the configurator, generate 3D models if required and order conveniently. You can also use the direct contact at any time!

Linear motion technology servicing: Maximum machine availability and productivity

Rexroth servicing for linear motion technology means partnership over the entire life cycle of your systems. We are there to help you in 80 countries around the world. From emergency repairs to field service, with original spare parts, modernization and predictive maintenance services. And beyond that with an extensive training portfolio. Working together, we increase your productivity and ensure maximum availability.

REPAIR
- Analysis
- Expert overhauls
- Cost control

SPARE PARTS
- Inexpensive
- Time-saving
- Spare parts from the original manufacturer
- Low storage costs

FIELD SERVICE
- Repairs on location
- Reduced downtimes
- Customer-specific service packages

TRAINING
- Professional assembly
- Replacing wear parts
- Damage analysis
- Rexroth Academy
- How-to videos

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www.boschrexroth.com/contact

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