BAHR
Modultechnik

PRODUCT OVERVIEW

VARIETY THROUGH COMBINATION!

CUSTOM-MADE LINEAR AXES
FOR EVERY INDUSTRY AND A MULTITUDE
OF APPLICATION POSSIBILITIES

ABOUT **US**

Bahr Modultechnik has been an expert in the development and manufacture of mechanical linear axes of outstanding quality since 1990. With us at your side, you have the right system partner for a professional realization of your plant or special-purpose machine. We will work together with you to develop a tailored solution for every project and deliver the corresponding services. Since every application has its own challenges, you will only receive individually manufactured linear units from us. From procurement through to delivery, we ensure that your expectations regarding a good price/performance ratio will be met or exceeded.

More than ten thousand projects in more than 30 successful years as a supplier in the field of mechanical and plant engineering have produced a well-rehearsed and qualified team of employees who tackle every challenge. At our state-of-the art production site in Luhden, Lower Saxony, we develop and produce innovative linear technology with great commitment. Our customers are from a wide range of industries from all over the world and have been appreciating the reliable and familiar cooperation with our company, often for many years.

CONTENTS

ENGINEERING
& SERVICE

At Bahr Modultechnik, our focus is on individually designed drive solutions and the perfect integration of modular linear axes into our customers' equipment. We work with our customers to develop customized linear systems in an efficient manner based on their requirements.

With more than 30 years' experience, we offer products of the highest quality, a one-of-a-kind engineering service and an experienced team that have successfully realized countless projects.

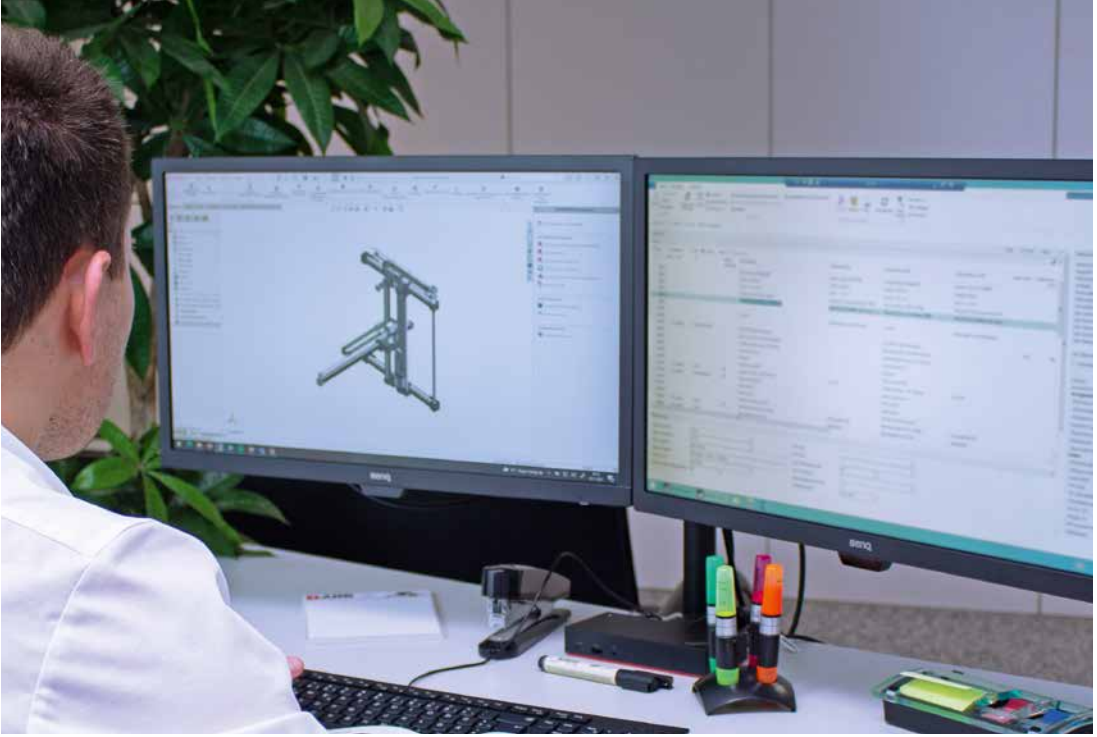
COMPREHENSIVE **CONSULTING**

CALCULATIONS **AND ANALYSES**

TAILOR-MADE **SOLUTIONS**

BEST-IN-CLASS **SERVICE**

BAHR Modultechnik



"Flexible solutions tailored to our requirements, personal and target-oriented advice as well as flawless support have repeatedly convinced us to choose BAHR Modultechnik for a number of projects."

ABELE INGENIEURE

COMPREHENSIVE **CONSULTING**

From the early engineering phase onwards, we provide support and assistance to mechanical engineering and producing companies on a partnership basis, diving deeply into the individual applications - this is what consulting means to us. Our field staff will give you assistance from the design phase through to commissioning including maintenance and repair of your equipment. You will benefit from the following standard services:

- Personal consulting via phone, online or on site
- Free-of-charge quotation within the shortest possible time
- Technical drawings and CAD data with every quotation
- Joint product configuration and trainings

CALCULATIONS **AND ANALYSES**

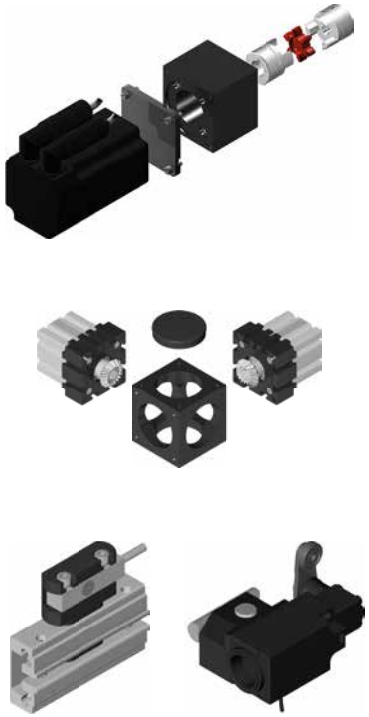
Our expert team of technicians and engineers will assist you by providing transparent calculations and analyses for the design of your specific application. Our sales and design teams work closely together to optimize your system with regard to efficiency and longevity. In each project case you will receive the following services without charge:

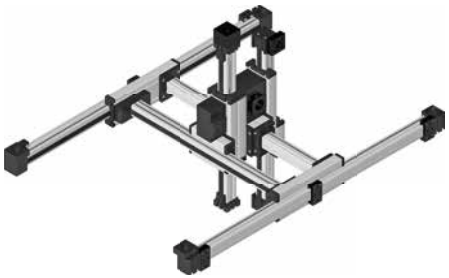
- Design of multi-axis gantry systems with energy chains
- Application-specific cycle-time analyses
- Lifetime and deflection calculations
- Design of gear units and motors of your choice

CUSTOM-MADE **SPECIAL-PURPOSE SOLUTIONS**

Since every industrial application is different, you will receive from us tailor-made and customized linear technology. Thanks to unlimited combination possibilities of different guide and drive concepts we can realize single axes or gantry systems for every project case. In addition, the corresponding accessories for adapting electric drives, workpieces or sensors for each of our linear units can be delivered ex warehouse. By individually configuring profile lengths, guide carriages and drive pinions, our product portfolio can be accurately fitted into your existing machine frame, saving you laborious design work.

GUIDE SYSTEM + **DRIVE CONCEPT** + **ACCESSORIES** = **UNLIMITED POSSIBILITIES**





BEST-IN-CLASS **SERVICE**

Excellent service is not only reflected at the interface between sales team and customer. Our state-of-the-art production and office facilities with **fully automated warehouse systems** speak for themselves in this regard. Since our focus is on quality, we have individually adapted our entire value creation process to meet our customers' requirements. This way we ensure a fast project realization with standard delivery times of 2-3 weeks.

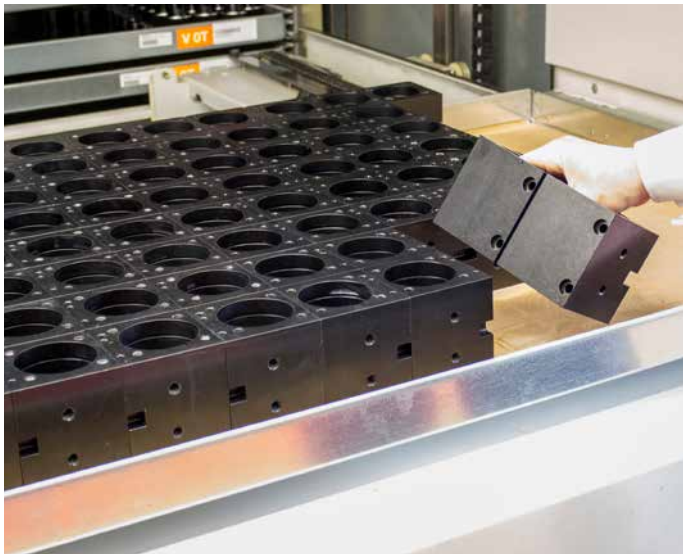
In the event of an unforeseen machine downtime within your plant, our standard systems can be delivered within **24 hours domestically and within 48 hours internationally**. We will also be happy to carry out repair and maintenance work on your linear axes. From single screws to complete product substitutions, we will provide you with **custom-fit replacement parts** at all times.

Standard delivery period
2-3 weeks

Emergency delivery
24h nationally
48h internationally

Maintenance and repair

Spare parts
ex warehouse for every system



TOOTHED BELT DRIVES

Linear axes with toothed belt drive can be found in **every industry** and in **every application area**. No matter how often and how far you want to move your workpieces, belt-driven linear units are ideal for **fast handling and positioning tasks**. The linear axis is driven by a steel-reinforced toothed belt moving **light-weight or heavy loads** from A to B within the **desired cycle time**.

SPECIFIC SOLUTIONS FOR EVERY APPLICATION

Our toothed belt drives are characterized by **high speeds**, delivering impressive results even over **long travel distances**. Each of our linear axes can be individually configured and modified by any type of special machining. In addition to our standard designs we also deliver stainless and reinforced components that are suitable for applications in **explosion protection, food processing and clean room areas**. The positioning of the carriage is achieved by means of a **roller guide or rail guide**, depending on the product series and the application requirements. Our **„Made in Germany“** promise guarantees the use of **high-quality components** and ensures an unbeatable **service life** of your application.

- HIGH DYNAMICS
- LONG SERVICE LIFE
- INDIVIDUALLY CONFIGURABLE
- LOW-MAINTENANCE
- LONG TRAVEL DISTANCES
- SUITABLE FOR EX PROTECTION, CLEAN ROOM ETC.
- TEMPERATURE RANGE BETWEEN -30 °C AND +75 °C

TRACK ROLLERS

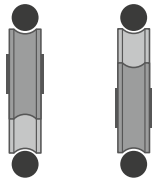
Linear axes with track roller guides are cost-efficient and extremely robust even in harsh operating conditions. We use premium-quality track rollers and steel shafts for our systems, ensuring long service lives with low maintenance effort.

EL | ML - SERIES

double roller - single guided

LL | QL - SERIES

double roller - single guided



DL - SERIES

double roller - double guided

SMOOTH RUNNING

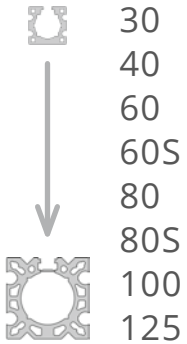
LONG SERVICE LIFE

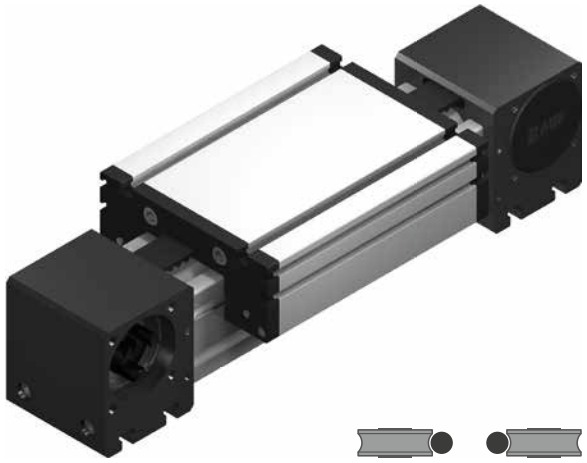
HIGH VELOCITY

LOW-MAINTENANCE

LONG TRAVEL DISTANCES

ELZ





INDIVIDUALLY CONFIGURABLE

ROBUST FOR USE IN HARSH ENVIRONMENTS

LONG TRAVEL DISTANCES

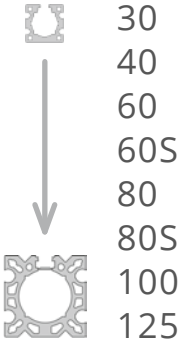
SUITABLE FOR EX PROTECTION

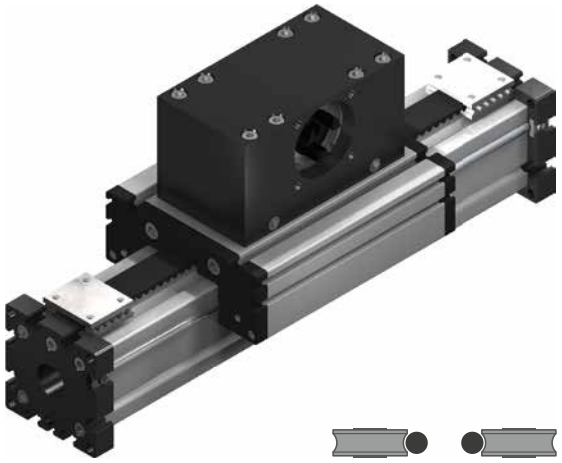
TOOTHED BELT DRIVE

Mechanical linear unit with external track roller guide. The system is driven by a revolving toothed belt. The carriage and the toothed belt can be configured in reinforced versions. The reinforced carriage and toothed belt versions are suitable for use in applications with high loads.

Since these units can be configured in a multi-segment design, long strokes of well over 20 meters can be realized with the ELZ series. Thanks to its high flexibility, this linear unit can be used in a wide range of applications in all industrial sectors.

ELSZ



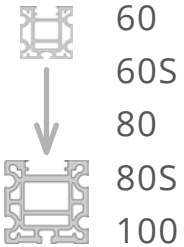


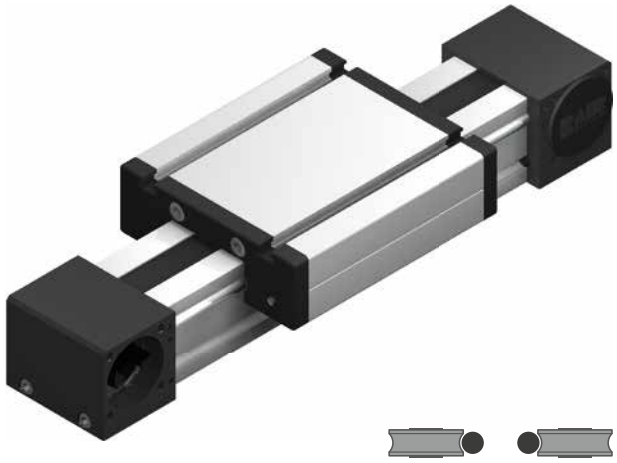
- INDIVIDUALLY CONFIGURABLE
- OMEGA SYSTEM - VERTICAL LIFTING UNIT
- REINFORCED VERSIONS AVAILABLE
- TWO INDEPENDENT CARRIAGES POSSIBLE

TOOTHED BELT DRIVE

Mechanical linear unit with external track roller guide. The system is driven by a fixed toothed belt. The omega deflection of the carriage allows the guide profile to be moved. Additionally, several carriages can be driven separately.
The ELSZ system is particularly suitable for a vertical mounting position in gantry systems used to lift loads. Similarly, two separately driven carriages can be used for horizontal applications with long strokes.

MLZ



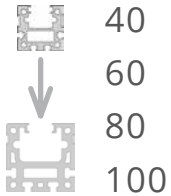


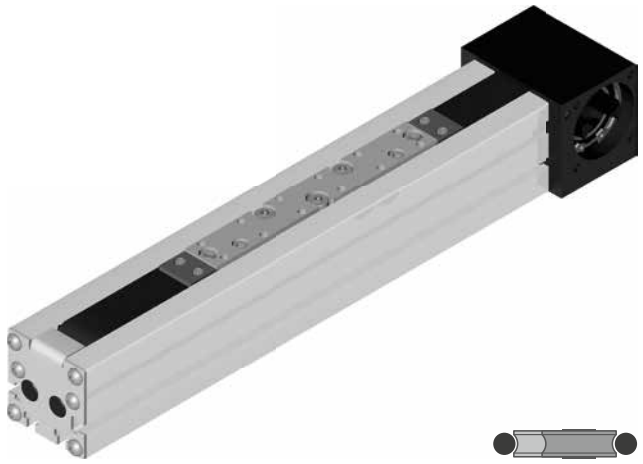
- INDIVIDUALLY CONFIGURABLE
- FLEXIBLE MOUNTING POSITION
- LONG TRAVEL DISTANCES
- AVAILABLE WITH NUBBED BELT

TOOTHED BELT DRIVE

Mechanical linear unit with external track roller guide. The system is driven by a revolving toothed belt guided within the profile.
The toothed belt guided within the profile makes this linear drive ideal for any mounting position, even for long travel distances. A nubbed belt may be used for applications that must be particularly quiet without compromising accuracy.

LLZ



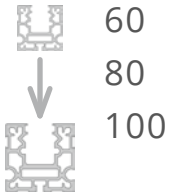


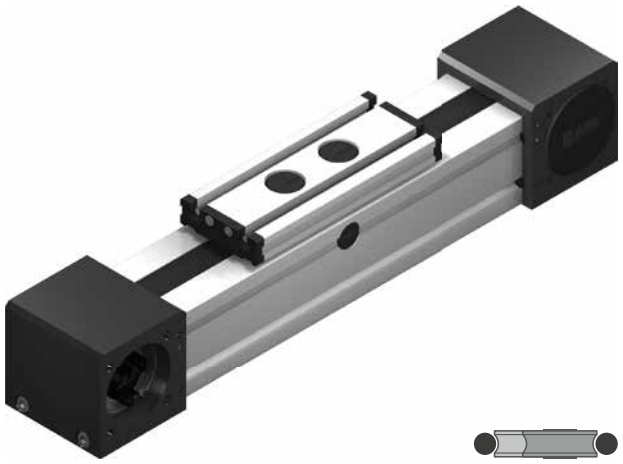
- INDIVIDUALLY CONFIGURABLE
- COMPACT DESIGN
- FLEXIBLE MOUNTING POSITION
- LONG TRAVEL DISTANCES

TOOTHED BELT DRIVE

Mechanical linear unit with internal track roller guide. The toothed belt guided within the profile makes this linear drive ideal for any mounting position, even for long travel distances. The compact design is achieved by an internal deflection roller and a unilateral drive connection via a belt reverse unit. In addition to the largest possible stroke with a small overall length, this also ensures an unbeatable price/performance ratio.

QLZ



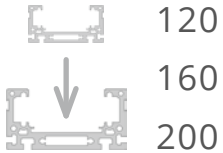


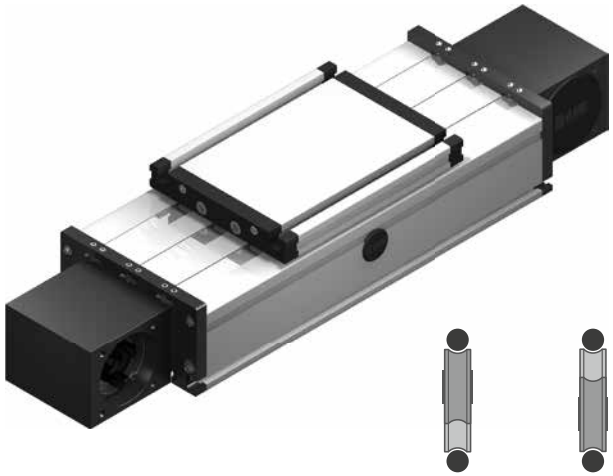
- INDIVIDUALLY CONFIGURABLE
- FLEXIBLE MOUNTING POSITION
- SUITABLE FOR CLEAN ROOM APPLICATIONS
- LONG TRAVEL DISTANCES

TOOTHED BELT DRIVE

Mechanical linear unit with internal track roller guide. The toothed belt guided within the profile makes this linear drive ideal for any mounting position, even for long travel distances. Since these units can be configured in a multi-segment design, long strokes of well over 20 meters can be realized with the QLZ series. The required profile stability is achieved by secure butt joints and offset guide shafts, which at the same time ensure smooth running transitions.

DLZ



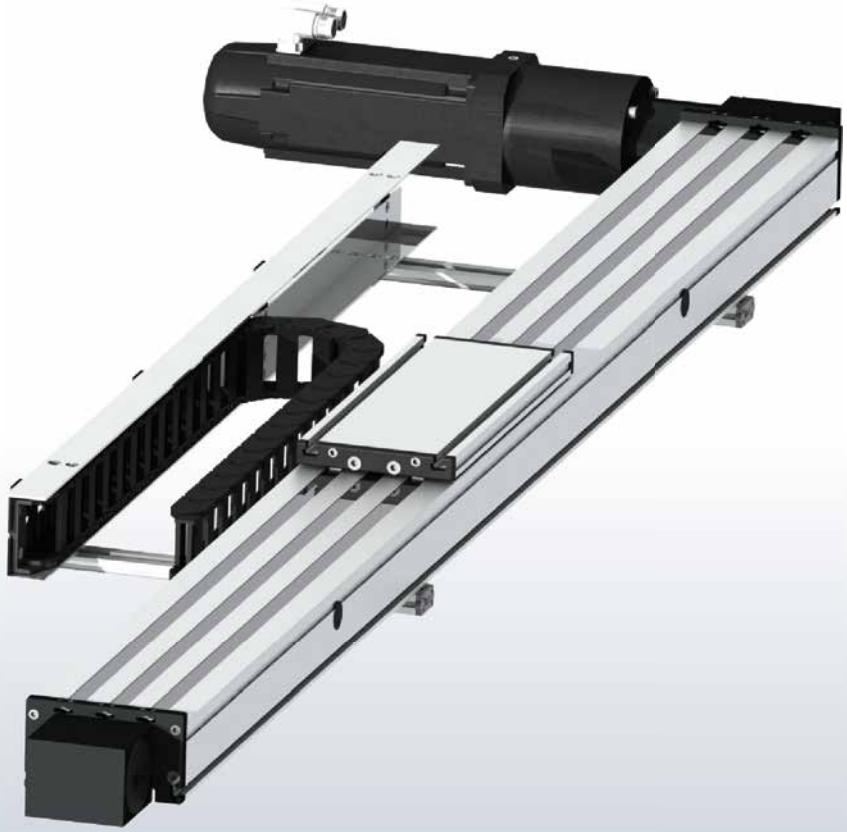


- INDIVIDUALLY CONFIGURABLE
- HIGH LOADS POSSIBLE
- INTERNAL GUIDE
- ROBUST IN HARSH CONDITIONS

TOOTHED BELT DRIVE

Mechanical linear unit with internal track roller guide. It is driven by a completely internal and revolving toothed belt. Thus, the linear unit is extremely robust in harsh conditions.

Ideal loading of the system is achieved by the horizontal mounting position of the double-guided rollers. The DL series can be equipped with a reinforced toothed belt, so that higher loads can be applied.



DLZ 160 TOOTHED BELT DRIVE

DLZ 160 toothed belt drive with energy chain, special components and a servo gear combination

ELZI

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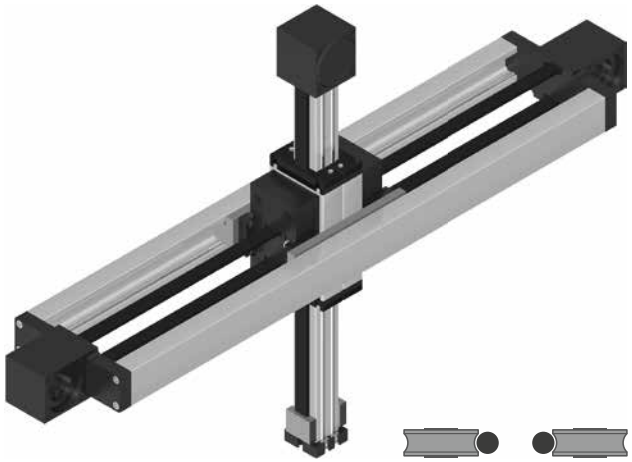
40
60



INDIVIDUALLY CONFIGURABLE

DYNAMIC X/Z GANTRY

COMPACT DESIGN

PICK & PLACE APPLICATIONS

TOOTHED BELT DRIVE

Gantry system consisting of mechanical linear units with internal and external track roller guides. The system is driven by a single toothed belt that runs through the entire system and is mounted in the vertical Z axis.
Due to the compact design and the fixed connection of all electric motors to the X-axis, only small masses are moved. This allows the realization of highly dynamic pick-and-place applications.

ELZU

30
40
60
60S
80
80S
100

INDIVIDUALLY CONFIGURABLE

DYNAMIC X/Y OR X/Z GANTRY

COMPACT DESIGN

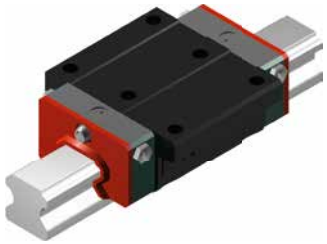
PICK & PLACE APPLICATIONS

TOOTHED BELT DRIVE

Gantry system consisting of mechanical linear units with external track roller guides. The unit is driven by a revolving toothed belt which remains connected through various deflection points.
Due to the compact design and the fixed connection of all electric motors to the X-axis, only small masses are moved in Y(Z) direction. This enables dynamic positioning over a wide area, which is why the ELZU gantry system is often used in order picking and warehouse systems.

RAIL GUIDE

Linear axes with rail guides are ideal for dynamic applications with heavy loads. Thanks to optimum shape and position tolerances, our linear axes with rail guide achieve precise accuracies. Additionally, the guides are extremely low-maintenance and quiet.



LS | QS - SERIES

single rail guide

DS - SERIES

double rail guide

- HIGH DYNAMICS
- HIGH LOAD-CARRYING CAPACITY
- LOW-MAINTENANCE
- LOW NOISE
- LONG TRAVEL DISTANCES

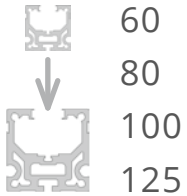
LSZ

- INDIVIDUALLY CONFIGURABLE
- COMPACT DESIGN
- HIGH DYNAMICS
- HIGH-PRECISION VERSION AVAILABLE

TOOTHED BELT DRIVE

Mechanical linear unit with internal rail guide. The toothed belt guided within the profile makes this linear drive ideal for any mounting position, even for long travel distances.
The compact design is achieved by an internal deflection roller and a unilateral drive connection via a belt reverse unit. In addition to the largest possible stroke with a small overall length, this also ensures an unbeatable price/performance ratio.

QSZ



60
80
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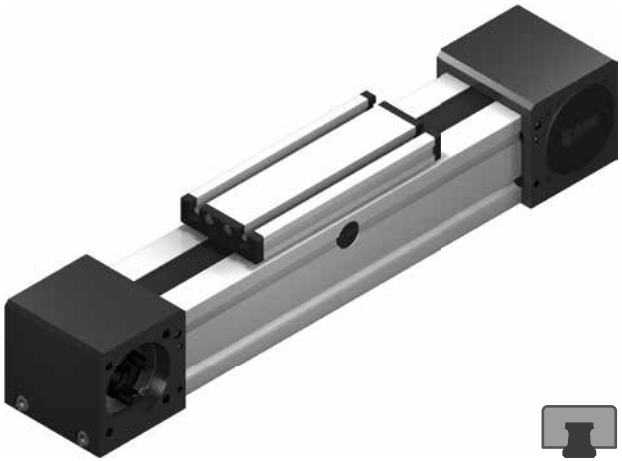
125



INDIVIDUALLY CONFIGURABLE

FLEXIBLE MOUNTING POSITION

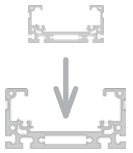
SUITABLE FOR CLEAN ROOM APPLICATIONS

LONG TRAVEL DISTANCES

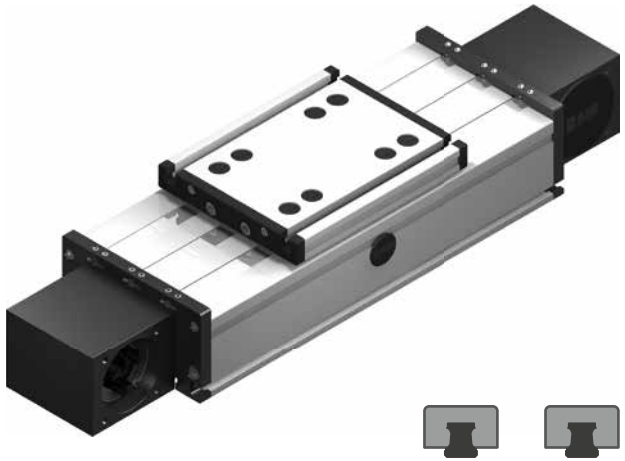
TOOTHED BELT DRIVE

Mechanical linear unit with internal rail guide which enables higher moments to be absorbed. The toothed belt guided within the profile makes this linear drive ideal for any mounting position, even for long travel distances.
Since these units can be configured in a multi-segment design, long strokes of well over 20 meters can be realized with the QSZ series. The required profile stability is achieved by secure butt joints and offset guide rails, which at the same time ensure smooth transitions.

DSZ



120
160
200



INDIVIDUALLY CONFIGURABLE

HIGH MOMENT ABSORPTION POSSIBLE

INTERNAL GUIDE

ROBUST IN HARSH CONDITIONS

TOOTHED BELT DRIVE

Mechanical linear unit with internal rail guide, making it possible to absorb higher moments. The system is driven by a completely internal and revolving toothed belt.
Thus, the linear unit is extremely robust in harsh conditions. Due to the double rail guide, longer lever arms with larger moments can also be realized. The DS series can be equipped with a reinforced toothed belt, so that higher loads can be applied.

SPINDLE DRIVES

Linear axes with spindle drive can be found in every industry and in **every application area**. They are used for moving **high loads** or in **precise dosing equipment**. Spindle drives can be used to realize **high feed forces**, while at the same time they are suitable for cases with high requirements regarding **positioning and repeating accuracy**.

SPECIFIC SOLUTIONS FOR EVERY APPLICATION

Our spindle drives are characterized by **excellent accuracy**, which can be guaranteed even under harsh operating conditions and with **long operating times**. Each of our linear axes can be individually configured and modified by any type of special machining. In addition to our standard designs we also deliver **stainless and reinforced components** that are suitable for applications in **explosion protection, food processing and clean room areas**. The systems are driven either by a **trapezoidal threaded spindle** or by a **ball screw spindle**. For positioning the carriage, you can choose between a **sliding guide**, a **roller guide** or a **rail guide**. Our **"Made in Germany"** promise guarantees the use of high-quality components and ensures an unbeatable service life of your application.

- HIGH POSITIONING ACCURACY
- LONG SERVICE LIFE AND OPERATING SAFETY
- HIGH EFFICIENCY WITH BALL SCREW
- INDIVIDUALLY CONFIGURABLE
- HIGH FEED FORCES
- SELF-LOCKING WITH TRAPEZOIDAL SCREW

EGT/K

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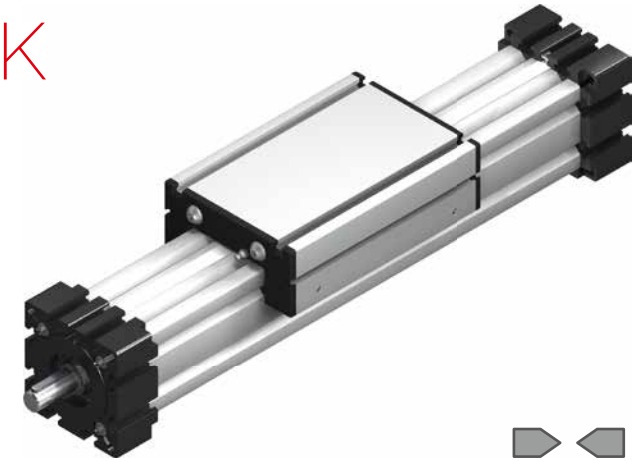
40
60
80



INDIVIDUALLY CONFIGURABLE

SLIDING GUIDE

ROBUST FOR USE IN HARSH ENVIRONMENTS

COST-EFFICIENT

SPINDLE DRIVE

Mechanical linear unit with external plastic sliding guide. The system is driven either by an internal trapezoidal screw or ball screw drive. Depending on the requirements, the diameter and pitch of the spindle can be configured accordingly.
The sliding guide is ideal for cost-efficient and simple movement tasks, as well as in harsh environments. Optionally, the system can be configured with two carriages to realize a bench vise principle. Also available with a split spindle and two drive sides.

ELT/K

30
40
60
60S
80
80S
100
125

INDIVIDUALLY CONFIGURABLE

ROLLER GUIDE

RIGHT/LEFT SYSTEM

MOVEMENT AND LIFTING SYSTEM

SPINDLE DRIVE

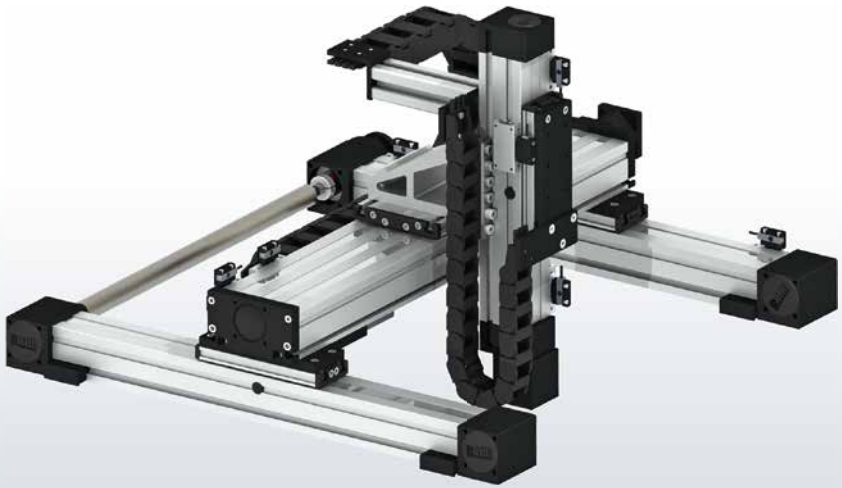
Mechanical linear unit with external track roller guide. The system is driven either by an internal trapezoidal screw or ball screw drive. Depending on the requirements, the diameter and pitch of the spindle can be configured accordingly.
Optionally, the system can be configured with two carriages to realize a bench vise principle. Also available with a split spindle and two drive sides.

QST/K

- INDIVIDUALLY CONFIGURABLE
- RAIL GUIDE
- RIGHT/LEFT SYSTEM
- MOVEMENT AND LIFTING SYSTEM

SPINDLE DRIVE

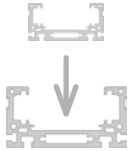
Mechanical linear unit with internal rail guide, making it possible to absorb higher moments. The system is driven either by an internal trapezoidal screw or ball screw drive. Depending on the requirements, the diameter and pitch of the spindle can be configured accordingly.
Optionally, the system can be configured with two carriages to realize a bench vise principle. Also available with a split spindle and 2 drive sides.



MULTI-AXIS GANTRY

Consisting of QSK 80, QSZ 80 and DSK 160.
Linear axes for handling heavy loads, including sensors, connecting shafts, energy chains and motor adaptation.

DLT/K



120
160
200

INDIVIDUALLY CONFIGURABLE

ROLLER GUIDE

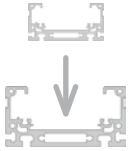
RIGHT/LEFT SYSTEM POSSIBLE

MOVEMENT AND LIFTING UNIT

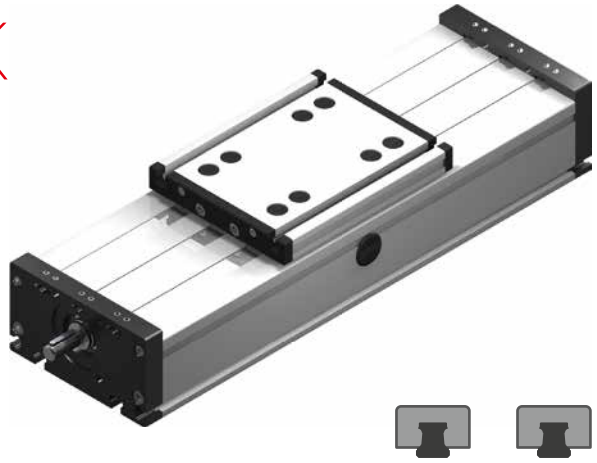
SPINDLE DRIVE

Mechanical linear units with internal track roller guide. Ideal loading of the system is achieved by the horizontal mounting position of the double-guided rollers. The system is driven either by an internal trapezoidal screw or ball screw drive.
Depending on the requirements, the diameter and pitch of the spindle can be configured accordingly. Optionally, the system can be configured with two carriages to realize a bench vise principle. Also available with a split spindle and two drive sides.

DST/K



120
160
200



INDIVIDUALLY CONFIGURABLE

RAIL GUIDE

RIGHT/LEFT SYSTEM POSSIBLE

MOVEMENT AND LIFTING UNIT

SPINDLE DRIVE

Mechanical linear units with internal rail guide. Due to the double rail guide, longer lever arms with larger moments can also be realized. The system is driven either by an internal trapezoidal screw or ball screw drive.
Depending on the requirements, the diameter and pitch of the spindle can be configured accordingly. Optionally, the system can be configured with two carriages to realize a bench vise principle. Also available with a split spindle and two drive sides.

APPLICATION **EXAMPLES**

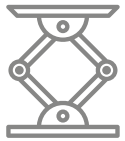
We develop customized solutions for every requirements profile, from individual parts to series production, and we offer the right linear technology for every industry segment.

Mechanical and systems engineering

- Coating, painting, welding, measuring and forming plants; glass, stone and wood working machinery

Automation & electrical engineering

- Assembly lines and storage systems
- Assembly and handling systems
- Measuring and inspection equipment



Lifting and materials handling technology

- Bottling and dosing systems
- Electromechanical lifting systems
- Lift systems

Food industry

- Food and animal food production
- Resistant against cleaning agents

Chemical and pharmaceutical industry

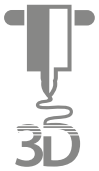
- Mixing, testing and dosing equipment
- Laboratory applications
- Clean-room conditions

Pharmacy Automation

- Automatic picking system

Packaging technology

- Labelling and packaging equipment
- Systems for cartoners, loaders, packers and deliverers



3D printing

- Rapid prototyping
- Industrial 3D printing
- Sintered metal process
- Architectural projects

SIEMENS
Ingenuity for life

"A five-axis 3D printer was developed as part of a project. The cooperation was excellent and unbureaucratic throughout the entire project lifecycle.
The competent and personal advice as well as the excellent design of the linear technology contributed significantly to the success of the project."

APPLICATION EXAMPLE **PACKAGING TECHNOLOGY**

There are several challenges in developing modern packaging systems, which not only concern the realization of short cycle times and high dynamics. Due to increasing e-commerce and an extensive variety of products, new packaging systems must also be able to handle individual packages and parcels of different sizes one after another as quickly as possible. In this project case, our customer had to develop a packaging system capable of cutting individual cardboard packagings, folding them accordingly and labeling the finished cardboard boxes.

After lively discussions and knowledge exchanges between the project team and our sales experts regarding the technical requirements we developed a customized solution for the different use cases within the system. Our QSZ linear axes with rail guides and toothed belt drive were the perfect all-rounder solution for this project. Thanks to its compact design and the millimeter-accurate configuration of the system length, it was easily possible to integrate the linear drive into the customer's machine frame. Due to the use of a reinforced toothed belt and a rail guide, the system is designed for high dynamics and short cycle times, without compromising its accuracy.

After the customer had chosen his preferred drive manufacturer, he received the required motor design and the corresponding cycle time analysis within few days. The design of an appropriate energy chain for guiding the cables as well as a special adaptation for mounting a special gripper were also part of our service.

APPLICATION | **QSZ 60**

- Toothed belt drive with rail guide
- Short cycle times
- High dynamics
- Millimeter-accurate system length
- Design of the drive system
- Construction of energy chains and special parts


Grand
CHEF

APPLICATION EXAMPLE
AUTOMATION AND ELECTRICAL ENGINEERING

APPLICATION | **ELZI TOOTHED BELT DRIVE**

- Dynamic X/Z gantry
- Compact design
- Ideal for pick-and-place applications

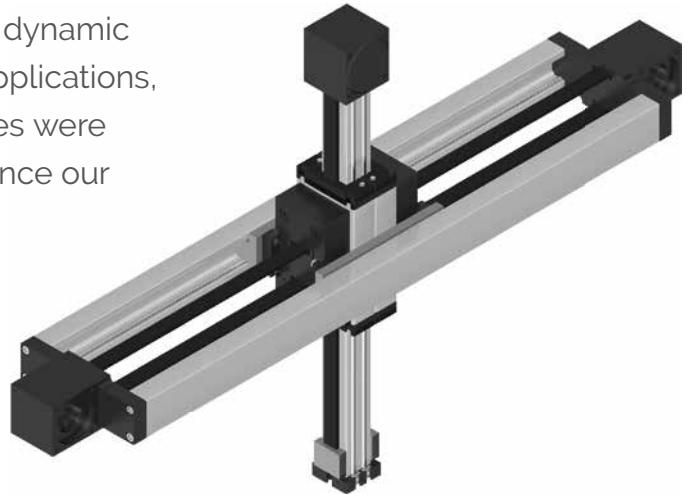
Whether it comes to the manufacture of retaining plates, the assembly of plants or the rapid handling of delicate small parts, the market for automation systems today offers multiple solutions for every conceivable application case.

The know-how of mechanical engineers is often more diverse than one might expect, and with regard to state-of-the art manufacturing and production technologies, there is not only one correct way. Each manufacturer relies on its own specific solution which has its own challenges and demands.

A number of requirements had to be met for this special machine which is used for handling electrical components. The delicate components had to be moved and positioned precisely over a distance of several meters. At the same time, different dynamics and loads were encountered during the assembly process, while the components passed several processing steps within the manufacturing cell.

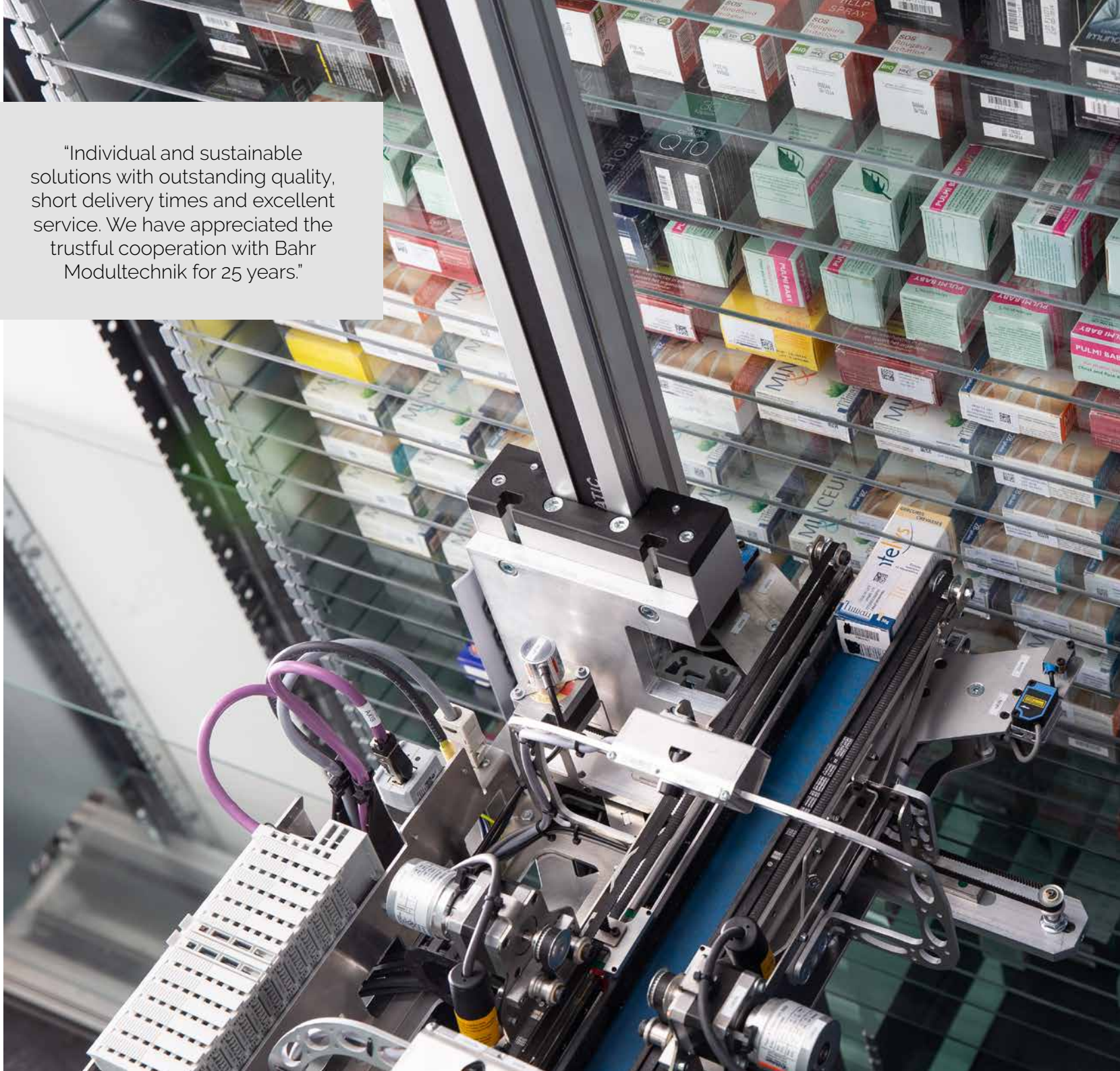
In this case, we were able to convince our customer with a tailor-made special solution and our comprehensive project service. This led to the construction of multi-axis gantry systems with a large number of individual special machining operations to meet the application parameters. Due to the compact system design, it was possible to achieve maximum travel distances even with limited installation space.

As regards highly dynamic pick-and-place applications, our ELZI belt drives were able to fully convince our customer.



WEMHÖNER

"Individual and sustainable solutions with outstanding quality, short delivery times and excellent service. We have appreciated the trustful cooperation with Bahr Modultechnik for 25 years."



SEGER AUTOMATION

"We appreciate
Bahr Modultechnik's flexibility and
customer orientation; moreover,
the company supplies products of
the highest quality with
outstanding delivery reliability."

BAHR
Modultechnik

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