Product overview
Our modular positioning systems consist of self-supporting, wear-free aluminium profiles. We offer different guide and drive systems including timing belts, ballscrew or trapezoidal thread spindles, toothed racks or linear motors according to the required application. The most important thing in this regard is to match the dynamic and load requirements as well as the path and positioning accuracy in an optimal way. There are endless variations and combination possibilities. We have the right solution for each area and sector of industry.

The competence of Bahr Modultechnik bases on skilled staff in all areas including sales, design and production as well as logistics. This ensures the highest quality standards are always met, which also leads to extremely short lead times and delivery periods.

Quality, made in Germany
Custom made quality products

Founded 27 years ago as a design company, our company has developed into one of world’s leading full-range supplier of modular positioning systems. We offer our customers a wide range of products and services.
**PRODUCT OVERVIEW**

**ALLM 203, 204**
Mechanical system with roll guides outside of profile. Driven by linear motor.

**ALLR 203, 204 non-driven**
Mechanical system with roll guides outside of profile.

Repeating accuracy: ± 0,05mm  
Velocity: \( v \leq 8 \text{ m/s} \)

**ALLZ 203, 204**
Mechanical system with roll guides outside of profile. Belt driven

Repeating accuracy: ± 0,1 mm  
Velocity: \( v \leq 5 \text{ m/s} \)

**ALLZQ 203, 204**
Mechanical system with roll guides outside of profile. Rack and pinion driven

Repeating accuracy: ± 0,1 mm  
Velocity: \( v \leq 5 \text{ m/s} \)

**CLL 60**
Expanded positioning system of the LL 60 series with elegantly rounded outer edges and internal roller guide. The system is driven either by highly precise threaded spindles or a timing belt.

This unit is ideal for the system build-up of housings with minimum component requirements. Developed for building large-size delta 3D printers.

The **CLLT/K** unit is driven either by a trapezoidal threaded spindle or a ball screw spindle. The carriage of the **CLLZ** system is moved by means of a revolving interior timing belt.

Repeating accuracy: ± 0,1 mm  
Velocity: \( v \leq 6 \text{ m/s} \)
PRODUCT OVERVIEW

EGT/EGK 30, 40, 60, 80
Mechanical system with plastic prismatic guides. System is driven by an integrated trapezoidal thread or ballscrew.

Repeating accuracy:
- Trapezoidal thread: ± 0.2 mm
- Ballscrew: ± 0.025 mm

EGTH/EGKH 40, 60, 80
Mechanical telescopic system with plastic prismatic guides. System is driven by an integrated trapezoidal thread or ballscrew. Result is a telescopic movement.

Repeating accuracy:
- Trapezoidal thread: ± 0.2 mm
- Ballscrew: ± 0.025 mm

EHT/EHK 60, 80
The rotary motion of the threaded spindle is converted into a linear motion of the pressure tube. Due to the piston rod principle, high axial forces can be realised, e.g. for shelf and dosing applications.

Repeating accuracy:
- Trapezoidal thread: ± 0.2 mm
- Ballscrew: ± 0.025 mm

ELR 30, 40, 60, 60S, 80, 80S, 100, 125 non-driven
ELRZ 30, 40, 60, 60S, 80, 80S, 100, 125 non-driven
ER 30, 40, 60, 60S, 80, 80S, 100, 125 non-driven
Mechanical system with roll guides outside of profile.

E 40, 60, 60S, 80, 80S non-driven
Mechanical system with roll guides outside of profile.

UL 40, 60, 80 non-driven
Mechanical system with roll guides inside of profile.

Velocity: \( v \leq 10 \text{ m/s} \)
PRODUCT OVERVIEW

ELZA 40

ELDZA 60, 60S, 80, 80S, 100

Same function as ELSZ. A rack is mounted onto the leading profile. A pinion gear is fitted to the carriage.

Repeating accuracy: ± 0.2 mm
Velocity: \( v \leq 3 \text{ m/s} \)

ELFZ 60S, 80S, 100, 125

Special lifting system with roll guides outside of profile. System is driven by one rotating timing belt with one drive. The function corresponds to a simple pulley block.

Repeating accuracy: ± 0.1 mm
Velocity: \( v \leq 4 \text{ m/s} \)

ELFZex 60S, 80S, 100, 125

Special lifting system with roll guides outside of profile. System is driven by one rotating timing belt with one drive. The function corresponds to a simple pulley block. This system is additionally ATEX 2014/34/EU certified.

Repeating accuracy: ± 0.1 mm
Velocity: \( v \leq 1 \text{ m/s} \)

ELHZ 60, 60S, 80, 80S, 100, 125

Mechanical system with roll guides outside of profile. System is driven by an internal belt. Position of shaft is horizontal to the carriage.

Repeating accuracy: ± 0.1 mm
Velocity: \( v \leq 8 \text{ m/s} \)

ELSD 40, 60, 60S, 80, 80S, 100

Same function as ELSZ. An additional turning shaft is integrated into the leading profile. Grippers and other components can be adapted to the shaft.

Repeating accuracy: ± 0.1 mm
Velocity: \( v \leq 6 \text{ m/s} \)
PRODUCT OVERVIEW

**ELSZ 30, 40, 60, 60S, 80, 80S, 100, 125**
Same function as ELZ, but with driven carriage.

- **Repeating accuracy:** ± 0,1 mm
- **Velocity:** \( v \leq 6 \text{ m/s} \)

**ELVZ 60, 60S, 80, 80S, 100, 125**
Mechanical system with roll guides outside of profile. System is driven by an internal belt. Position of shaft is vertical to carriage.

- **Repeating accuracy:** ± 0,1 mm
- **Velocity:** \( v \leq 8 \text{ m/s} \)

**ELT/ELK 30, 40, 60, 60S, 80, 80S, 100, 125**
Mechanical system with roll guides outside of profile. System is driven by an integrated trapezoidal thread or ballscrew.

- **Repeating accuracy:**
  - Trapezoidal thread: ± 0,2 mm
  - Ballscrew: ± 0,025 mm

**ELZ/ELZex 30, 40, 60, 60S, 80, 80S, 100, 125**
Mechanical system with roll guides outside of profile. System is belt driven. ELZex like ELZ. The positioning system is suitable for use according to the intended purpose in potentially explosive areas (see ATEX 2014/34/EU marking).

- **Repeating accuracy:** ± 0,1 mm
- **Velocity:** \( v \leq 10 \text{ m/s} \)
  \( (\text{ELZex: } v \leq 1 \text{ m/s}) \)

**ELZ 60-W, 60S-W**
Mechanical linear unit with external roller guides. Due to the rectangular profile higher torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems.

- **Repeating accuracy:** ± 0,1 mm
- **Velocity:** \( v \leq 10 \text{ m/s} \)
PRODUCT OVERVIEW

**ELZD 60-W, 605-W**
Mechanical linear unit with external roller guides. Two carriages, which are driven individually by a timing belt, move along the guide body independently of one another. Due to the rectangular profile higher torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems.

Repeating accuracy: ± 0.1 mm
Velocity: v ≤ 10 m/s

**ELZG 30, 40, 60, 605, 80, 80S**
Mechanical system with 2 roll guides outside of profile. System is driven by one rotating timing belt. At each end of this belt a carriage is fixed. Result is two carriages moving in opposite direction over the complete length of the leading the profile.

Repeating accuracy: ± 0.1 mm
Velocity: v ≤ 10 m/s

**ELZI 30, 40, 60**
X/Z gantry consisting of a double guide in the horizontal X level and a vertical Z axis. The unit is driven by a rotating belt, which remains connected through various deflection points.

Repeating accuracy: ± 0.5 mm
Velocity: v ≤ 5 m/s

**ELZQ 60, 80, 80S**
Special lifting unit with function as ELZA. High dynamic and accuracy is achieved by a precision rack and pinion.

Repeating accuracy: ± 0.1 mm
Velocity: v ≤ 3 m/s

**ELZT 40, 60, 605, 80, 80S, 100**
Same function as ELZ. Two carriages are moving in different directions. Result is a telescopic movement.

Repeating accuracy: ± 0.1 mm
Velocity: v ≤ 6 m/s
PRODUCT OVERVIEW

ELZU 30, 40, 60, 60S, 80, 80S, 100
Surface portal, consisting of 2 Y-axes and 1 X-axis, driven by one rotating belt. This belt runs around different deflection pulleys. Positioning is achieved by two motors. The coordinate is diagonal to the deflection points of the Y-axes.
Advantage: Only small masses are moved, so that high acceleration can be realized.

Repeating accuracy: ± 0,5 mm
Velocity: \( v \leq 6 \text{ m/s} \)
Acceleration: max. 20 m/s²

ELZU 60-W, 60S-W
Surface gantry consisting of two Y-axes and one reinforced X-axis. The unit is driven by a rotating belt, which remains connected through various deflection points. Due to the reinforced rectangular profile higher torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems. Advantage: Only small masses are moved and thus it is possible to achieve high accelerations.

Repeating accuracy: ± 0,5 mm
Velocity: \( v \leq 6 \text{ m/s} \)
Acceleration: max. 20 m/s²

ELZZ 60, 60S, 80, 80S, 100, 125
Same function as ELZ, but each carriage with separate drive. Divided pulleys have separate bearings, so two parallel moving belts are connected each with one carriage.

Repeating accuracy: ± 0,1 mm
Velocity: \( v \leq 5 \text{ m/s} \)

DLM/DLVM 120, 160, 200
Mechanical system with double roll guides inside of profile. Driven by linear motor.

Repeating accuracy: ± 0,1 mm
Velocity: \( v \leq 8 \text{ m/s} \)
PRODUCT OVERVIEW

**DLR 120, 160, 200** non-driven
Mechanical system with double roll guides inside of profile.

Velocity: \( v \leq 6 \text{ m/s} \)

**DLSZ 120, 160, 200**
Mechanical system with roll guides inside of profile.
Same function as DLZ but with driven carriage.

Repeating accuracy: \( \pm 0,1 \text{ mm} \)
Velocity: \( v \leq 6 \text{ m/s} \)

**DLT/DLK 120, 160, 200**
Mechanical system with double roll guides inside of profile.
System is driven by an integrated trapezoidal thread or ballscrew.

Repeating accuracy:
- Trapezoidal thread: \( \pm 0,2 \text{ mm} \)
- Ballscrew: \( \pm 0,025 \text{ mm} \)

**DLT/DLK 120 P, 160 P, 200 P**
Mechanical system with double roll guides inside of profile.
System is driven by an integrated trapezoidal thread or ballscrew.
A special curved aluminium sheet is covering the carriage side.

Repeating accuracy:
- Trapezoidal thread: \( \pm 0,2 \text{ mm} \)
- Ballscrew: \( \pm 0,025 \text{ mm} \)

**DLVZ 120, 160**
Mechanical system with roll guides inside of profile.
System is driven by an internal belt.
Position of shaft is vertical to carriage.

Repeating accuracy: \( \pm 0,1 \text{ mm} \)
Velocity: \( v \leq 6 \text{ m/s} \)
**PRODUCT OVERVIEW**

**DLZ 120, 160, 200**
Mechanical system with roll guides inside of profile. System is driven by an internal belt.

*Repeating accuracy:* ± 0,1 mm  
*Velocity:* \( v \leq 6 \text{ m/s} \)

**DLZA 120, 160, 200**
Rack and pinion system for high dynamic operations.

*Repeating accuracy:* ± 0,2 mm  
*Velocity:* \( v \leq 3 \text{ m/s} \)

**DLZPVI 120, 160, 200**
This unit consists of a rectangular aluminium profile with 2 integrated roller guides. The carriage is moved by a belt drive. On the drive side the pulley is beared on the shaft of a planetary gear. A special curved aluminium sheet is covering the carriage side.

*Repeating accuracy:* ± 0,1 mm  
*Velocity:* \( v \leq 6 \text{ m/s} \)

**DLZPVIE 120, 160, 200**
This unit consists of a rectangular aluminium profile with 2 integrated roller guides. The carriage is moved by a belt drive. On the drive side the pulley is beared on the shaft of a planetary gear. A special curved aluminium sheet is covering the carriage side. Enclosed with a stainless steel casing and components.

*Repeating accuracy:* ± 0,1 mm  
*Velocity:* \( v \leq 6 \text{ m/s} \)

**DLZZ 120, 160, 200**
Mechanical system with roll guides inside of profile. Each carriage with separate drive. Divided pulleys have separate bearings, so two parallel moving belts are connected each with one carriage.

*Repeating accuracy:* ± 0,1 mm  
*Velocity:* \( v \leq 6 \text{ m/s} \)
PRODUCT OVERVIEW

**DSM 160, 200**
Mechanical system with a double integrated ball rail inside of profile. Driven by linear motor.

- **Repeating accuracy:** ± 0,02 mm
- **Velocity:** $v \leq 8$ m/s

**DSM 160P**
Mechanical system with a double integrated ball rail inside of profile. Driven by linear motor, but with a covered guide profile.

- **Repeating accuracy:** ± 0,02 mm
- **Velocity:** $v \leq 6$ m/s

**DSR 120, 160, 200** non-driven
Mechanical system with a double integrated ball rail inside of profile.

- **Velocity:** $v \leq 6$ m/s

**DSSZ 120, 160, 200**
Mechanical system with a double integrated ball rail inside of profile. Same function as DSZ but with driven carriage.

- **Repeating accuracy:** ± 0,1 mm
- **Velocity:** $v \leq 6$ m/s

**DST/DSK 120, 160, 200**
Mechanical system with a double integrated ball rail inside of profile. System is driven by an integrated trapezoidal thread or ballscrew.

- **Repeating accuracy:**
  - Trapezoidal thread: ± 0,2 mm
  - Ballscrew: ± 0,025 mm
**PRODUCT OVERVIEW**

**DST/DSK 120 P, 160 P, 200 P**
This unit consists of a rectangular aluminium profile with 2 integrated rail guides. The carriage is driven by means of a rotating spindle with leading nut. A special curved aluminium sheet is covering the carriage side.

Repeating accuracy:  
- Trapezoidal thread: ± 0,2 mm  
- Ballscrew: ± 0,025 mm

**DSZ 120, 160, 200**
Mechanical system with a double integrated ball rail inside of profile. System is driven by an internal belt.

Repeating accuracy: ± 0,1 mm  
Velocity: v ≤ 6 m/s

**DSZA 160, 200**
Mechanical system with a double integrated ball rail inside of profile. The carriage is driven by a pinion on a high precision rack. The rack and pinion system is suitable for highly dynamic servo operation and ideal for lifting movements. The pinion is equipped with maintenance-free ball bearings.

Repeating accuracy: ± 0,1 mm  
Velocity: v ≤ 5 m/s

**DSZPV1 120, 160, 200**
Mechanical system with a double integrated ball rail inside of profile. System is driven by an internal belt. One pulley is beared on a planetary gear shaft.

Repeating accuracy: ± 0,1 mm  
Velocity: v ≤ 6 m/s

**DSZPVIE 120, 160, 200**
Mechanical system with a double integrated ball rail inside of profile. System is driven by an internal belt. One pulley is beared on a planetary gear shaft. Enclosed with a stainless steel casing and components.

Repeating accuracy: ± 0,1 mm  
Velocity: v ≤ 6 m/s
PRODUCT OVERVIEW

**DSZS 120, 160, 200**
Same function as DSSZ but with fixed drive under the profile.

*Repeating accuracy:* $\pm 0.1\, \text{mm}$
*Velocity:* $v \leq 6\, \text{m/s}$

**DSZS 120 P, 160 P, 200 P**
Mechanical system with a double integrated ball rail inside of profile and with fixed drive under the profile. A special curved aluminium sheet is covering the carriage side.

*Repeating accuracy:* $\pm 0.1\, \text{mm}$
*Velocity:* $v \leq 6\, \text{m/s}$

**DSZZ 120, 160, 200**
Mechanical system with a double integrated ball rail inside of profile. Each carriage with separate drive. Divided pulleys have separate bearings, so two parallel moving belts are connected each with one carriage.

*Repeating accuracy:* $\pm 0.1\, \text{mm}$
*Velocity:* $v \leq 6\, \text{m/s}$

**GGT / GGK 90**
Spindle axis for wheelchair lifting systems, lifting platforms and other lifting applications. Mechanical linear unit with two internal sliding guides. The carriage is moved by means of a rotating thread spindle with an assigned follower nut. The openings in the guide body are closed by a plastic cover band.

*Repeating accuracy:*
  - Trapezoidal thread: $\pm 0.2\, \text{mm}$
  - Ball screw: $\pm 0.025\, \text{mm}$

**GDGT/GDGK 90**
Optimized spindle axis for lift systems, bicycle assembly stands and other lifting applications. Mechanical linear unit with internal sliding guides. The guide carriages are moved by means of threaded spindles. The double “GG” profile ensures a very high stability.

*Repeating accuracy:*
  - Trapezoidal thread: $\pm 0.2\, \text{mm}$
  - Ball screw: $\pm 0.025\, \text{mm}$
PRODUCT OVERVIEW

**LLZ 60, 80**
The guide body consists of an aluminium square profile, with an integrated roller guide. The carriage is moved by means of an internal rotating toothed belt.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)

Velocity: \( v \leq 6 \text{ m/s} \)

**LLZE 60**
Function like LLZ 60, but with a stainless steel casing and components.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)

Velocity: \( v \leq 6 \text{ m/s} \)

**LSN 60**
Mechanical linear unit with internal rail guide. The system is driven by a revolving knobbed belt. The knobbed belt is self-tracking and has a very low operating noise level thanks to its knobs being offset by 45°. Furthermore, it is almost vibration-free in the transition sections.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)

Velocity: \( v \leq 6 \text{ m/s} \)

**LSZ 60, 80**
The guide body consists of an aluminium square profile, with an integrated rail guide. The carriage is moved by means of an internal rotating toothed belt.

**LSZ 60, 80 HP**
Function like LSZ. Positioning system with very high accuracy.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)

Velocity: \( v \leq 6 \text{ m/s} \)

**LSZE 60**
The guide body consists of an aluminium square profile, with an integrated rail guide. The carriage is moved by means of an internal rotating toothed belt. With a stainless steel casing and components.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)

Velocity: \( v \leq 6 \text{ m/s} \)
**PRODUCT OVERVIEW**

**MLZ 60, 60S, 80, 80S, 100**
Mechanical system with roll guides outside of profile.

*Velocity:* $v \leq 8 \text{ m/s}$

**MLR 60, 80** non-driven
Mechanical system with roll guides.

**LSR 60, 80** non-driven
Mechanical system with an integrated ball rail inside of profile.

*Velocity:* $v \leq 6 \text{ m/s}$

**MLN 60, 60S**
Mechanical linear unit with external roller guides. The system is driven by a knobbed belt guided within the guide profile. The knobbed belt is self-tracking and has a very low operating noise level thanks to its knobs being offset by 45°. Furthermore, it is almost vibration-free in the transition sections.

*Repeating accuracy:* $\pm 0.1 \text{ mm}$
*Velocity:* $v \leq 8 \text{ m/s}$

**MLZ 60, 60S-W, 80, 80S, 100**
Mechanical system with roll guides outside of profile. The system is driven by a belt that is guided inside the profile.

*Repeating accuracy:* $\pm 0.1 \text{ mm}$
*Velocity:* $v \leq 8 \text{ m/s}$

**MLZD 60, 60S**
Mechanical linear unit with external roller guides. Due to the rectangular profile higher torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems. Two guide carriages, each with its own drive, move along the guide body.

*Repeating accuracy:* $\pm 0.1 \text{ mm}$
*Velocity:* $v \leq 8 \text{ m/s}$
PRODUCT OVERVIEW

QLR 60, 80, 100  non-driven
Mechanical system with roll guides inside of profile.

Velocity: $v \leq 6 \text{ m/s}$

QLZ 60, 80, 100
Mechanical system with roll guides inside of profile. System is driven by a belt which is guided within the profile. This unit is suitable for cleanroom applications (Clean room classification: VDI 2083, class 4; ISO 14644-1, class 6; US Federal Standard 209E, class 1.000)

Repeating accuracy: $\pm 0,1 \text{ mm}$
Velocity: $v \leq 6 \text{ m/s}$

QLZE 60, 80, 100
Like QLZ, but enclosed with a stainless steel casing and components.

Repeating accuracy: $\pm 0,1 \text{ mm}$
Velocity: $v \leq 4 \text{ m/s}$

QSR 60, 80, 100, 125  non-driven
Mechanical system with an integrated ball rail inside of profile.

Velocity: $v \leq 6 \text{ m/s}$

QSRZ 60, 80, 100, 125  non-driven
Same function as QSZ, but without drive.

Repeating accuracy: $\pm 0,1 \text{ mm}$
Velocity: $v \leq 6 \text{ m/s}$
PRODUCT OVERVIEW

**QSSR 60, 80, 100** non-driven
Mechanical system with an integrated ball rail inside of profile.

Velocity: \( v \leq 6 \text{ m/s} \)

**QSSZ 60, 80**
Same function as QSZ, but with driven carriage.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)
Velocity: \( v \leq 6 \text{ m/s} \)

**QST/QSK 60, 80, 100**
Mechanical system with an integrated ball rail inside of profile. System is driven by an integrated trapezoidal thread or ballscrew.

Repeating accuracy:
- Trapezoidal thread: \( \pm 0.2 \text{ mm} \)
- Ballscrew: \( \pm 0.025 \text{ mm} \)

**QST/KE 60, 80, 100**
Like QST/K, but enclosed with a stainless steel casing and components.

Repeating accuracy:
- Trapezoidal thread: \( \pm 0.2 \text{ mm} \)
- Ballscrew: \( \pm 0.025 \text{ mm} \)

**QSZ 60, 80, 100, 125**
Mechanical system with an integrated ball rail inside of profile. System is driven by a timing belt which is guided within the profile.

Repeating accuracy: \( \pm 0.1 \text{ mm} \)
Velocity: \( v \leq 6 \text{ m/s} \)
PRODUCT OVERVIEW

QSZE 60, 80, 100
Like QSZ, but enclosed with a stainless steel casing and components.

Repeating accuracy:  ± 0,1 mm
Velocity:  \( v \leq 4 \text{ m/s} \)

SLTR/SLTZA 30, 50
Heavy Duty Traverse without drive (SLTR) and with rack and pinion drive (SLTZA).

Repeating accuracy:  ± 0,1 mm
Velocity:  \( v \leq 5 \text{ m/s} \)

WGVZ / WKVZ 16
This positioning system is guided either by means of ball bushings (WKVZ) or sliding bushings (WGVZ). The carriage is moved by means of a revolving vertical timing belt. The open arrangement ensures that no dirt can accumulate in the interior parts. Optionally, the unit is also available with two carriages (right/left).

Repeating accuracy:  ± 0,1 mm
Velocity:  \( v \leq 10 \text{ m/s} \)

WGT/K / WKT/K 16
This positioning system is guided either by means of ball bushings (WK) or sliding bushings (WG). The carriage is moved by means of a rotating thread spindle. The open arrangement ensures that no dirt can accumulate in the interior parts. Optionally, the unit is also available with two carriages (right/left).

Repeating accuracy:
- Trapezoidal thread:  ± 0,2 mm
- Ballscrew:  ± 0,025 mm