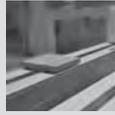


# 2



**260** 2.1 LINEAR MODULE LMS 90



**265** 2.2 LINEAR MODULE LMZ 90



**267** 2.3.1 LINEAR SYSTEM LR MODULES



**283** 2.3.2 LINEAR SYSTEM LR COMPONENTS



**322** 2.4 MINI-ADJUSTING-UNITS



**326** 2.5 ADJUSTMENT UNITS



**330** 2.6 SLIDES



**337** 2.7.1 LINEAR SYSTEM LB MODULES

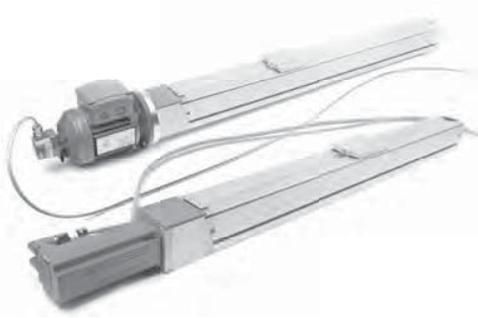


**339** 2.7.2 LINEAR SYSTEM LB COMPONENTS

# LINEAR SYSTEM

## LINEARMODUL LMS 90

The linear module LMS 90 is designed for applications requiring precision and durability with minimal installation space. It is constructed for a stroke up to 2845 mm. The guide with the standard grid dimension 90 x 90 mm of our modular system is based on highly accurate rail systems which are integrated into a profile system. The high performance linear rail guides are built to perform 10000 km.



## GUIDE OPTIONS

- High performance linear rail guides, with permanent lubrication, service performance 10,000 km (Version S1 and S2).
- Plastic slide ways for very economical applications (Version G)

## TECHNICAL SPECIFICATION

- Compact carrier profile 90x90 with standard profile grooves, compatible with all MiniTec construction profiles
- Completely closed module, guide groove covered with VA steel strip
- Guides and spindle easily accessible due to removable cover profiles
- Special grooves for internal or external attachment of position detection sensors
- Easy mounting of external switches on lateral profile grooves



## SPINDELE OPTIONS

- **K** Ball screw, tolerance class T7, right-hand thread, maximum axial clearance max. 0.04 mm, repeatability 52 µm/300 mm
- **T** Trapezoidal thread spindle 16x4, optionally pre-loaded with increased accuracy

**For all units, the spindle nuts are designed with relubrication.**

- Slides made of aluminium, precision machined all over, prepared for attachments with 4 connection threads M8 with 45 mm spacing
- Stroke max 2845 mm
- 2 bearing units with precision ball bearings, lifetime lubricated, prepared for motor attachment with Ø 10 mm pins
- Optional version with keyway or adapter plate, machined according to motor specification

TECHNICAL DATA

TYPE	SPINDLE	DE-SIGN	NO. OF LINEAR SLIDES	PART NO.	MAX. MOVE-MENT SPEED	SLIDE LENGTH WL	MAX. STROKE
LMS 90	T 16x4	G	4	<b>28.1001/0</b>	0.03 m/s	135 mm	1845 mm
LMS 90	K 16x5	S1	2	<b>28.1000/0</b>	0.25 m/s	90 mm	2845 mm
LMS 90	K 16x10	S1	2	<b>28.1000/1</b>	0.5 m/s	90 mm	2845 mm
LMS 90	K 16x16	S1	2	<b>28.1000/2</b>	0.8 m/s	90 mm	2845 mm
LMS 90	K 16x5	S2	4	<b>28.1002/0</b>	0.25 m/s	135 mm	2800 mm
LMS 90	K 16x10	S2	4	<b>28.1002/1</b>	0.5 m/s	135 mm	2800 mm
LMS 90	K 16x16	S2	4	<b>28.1002/2</b>	0.8 m/s	135 mm	2800 mm

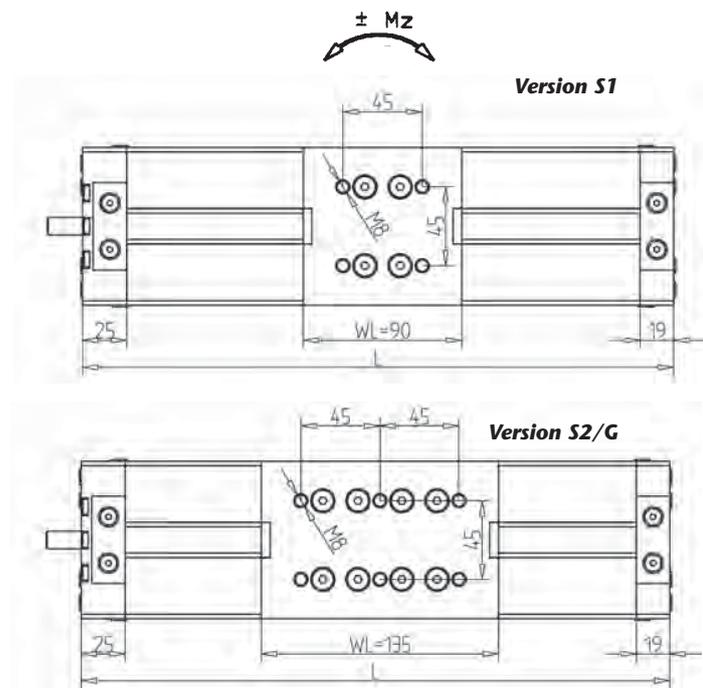
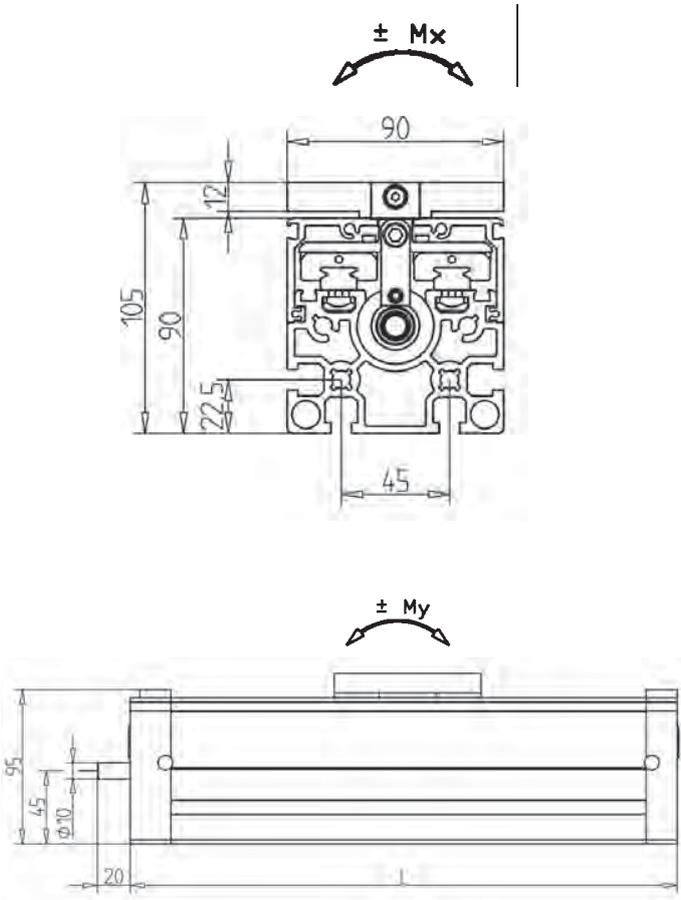
TYPE	LOAD RATING N		ALLOWABLE STATIC TORQUE (Nm)		
	Cdyn	Cstat	Mx	My	Mz
S1	7620	11180	54	54	54
S2	15240	22360	108	108	108
G	2800	2800	22	22	22

SPINDLE

- T** Trapezoidal thread spindle
- K** Ball screw

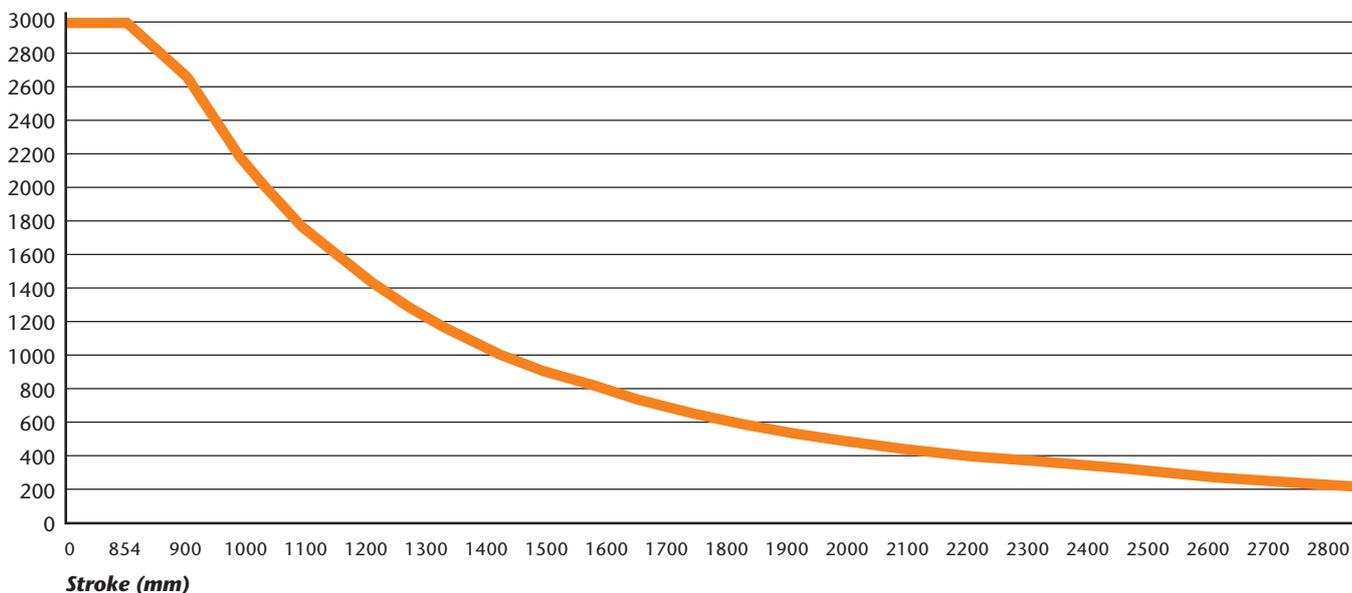
GUIDE

- G** 2 slide ways each with 2 linearguides, size 15
- S1** 2 rail guide each with 1 linearguides, size 15
- S2** 2 rail guide each with 2 linearguides, size 15



## TECHNICAL DATA

## MAXIMUM ROTATION SPEED, STROKE DEPENDENT

**Rotation speed (rpm)**

On request, the unit can also be equipped with an internal spindle support. Corresponding to the stroke the rotation speed can thereby be considerably increased.

## ORDER ADVICE

Please indicate part no. and stroke length required – or total length L.

(xx.xxxx/x + stroke length (H) or total length L)

Calculation of the maximum rotation speed ( $n_{\max.}$ ):

$$n_{\max.} = \frac{1.963 \times 10^9}{(H-45)^2}$$

**L** Total length (L) = stroke length (H) + slide length (WL) + 50 mm

**H** Stroke length

**wl** Slide length

For further information or product support, please call our service team on +49 (0)6373 8127-0 | info@minitec.de

## MOTOR KITS &amp; DRIVE PACKAGES

## MOTOR KITS FOR LMS 90

**MOTOR KIT LMS 90 DRM**

(part no. 28.1040/0)

Motor adaptor kit LMS for three-phase asynchronous motor (for drive unit package with three-phase asynchronous motor; part no. 33.1010/0 or 33.1020/0)

**Scope of supply**

- Clutch housing made of profile incl. adapter plate
- Clutch
- Fastening kit

**MOTOR KIT LMS 90 SERVO**

(part no. 28.1041/0)

Motor adaptor kit LMS for servo motor (for drive unit package with synchronous servo motor; part no. 33.1030/0)

**Scope of supply**

- Clutch housing made of profile incl. adapter plate
- Clutch
- Fastening kit

**OPTIONS**

- Special designed adapter plates and clutches 4m for special motor

## DRIVE PACKAGE FOR LMS 90

**DRIVE PACKAGE LMS 90 DRM-POSI**

(part no. 33.1020/0)

Three-phase asynchronous motor without transmitter feedback with frequency converter for standard positioning by switch

**Scope of supply**

- Three-phase asynchronous motor 0.18kW; 1320 1/min, 50Hz, equipped with temperature sensor
- Motor cable, length 5 m
- Transmitter cable, length 5 m
- Drive unit converter MDX61B for table positioning by IO, installation in switch box by customer
- 2 pcs. inductive proximity switches for T-slots for end position of axis (switch NC)
- 1 pc. inductive proximity switch for T-slots for end position of axis (switch NO)
- Motor adaptor kit LMS 90 DRM (part no. 28.1040/0)

**DRIVE PACKAGE LMS 90 DRM-ECO**

(part no. 33.1010/0)

Three-phase asynchronous motor without transmitter feedback with frequency converter for standard positioning by switch

**Scope of supply**

- Three-phase asynchronous motor 0.18kW; 1320 1/min, 50Hz, equipped with temperature sensor
- Motor cable, length 5 m
- Drive unit converter MC07B, actuation by IO, installation in switch box by customer
- 2 pcs. inductive proximity switches for T-slots for end position of axis (switch NC)
- 1 pc. inductive proximity switch for T-slots for end position of axis (switch NO)
- Motor adaptor kit LMS 90 DRM (part no. 28.1040/0)



## MOTOR KITS &amp; DRIVE PACKAGES

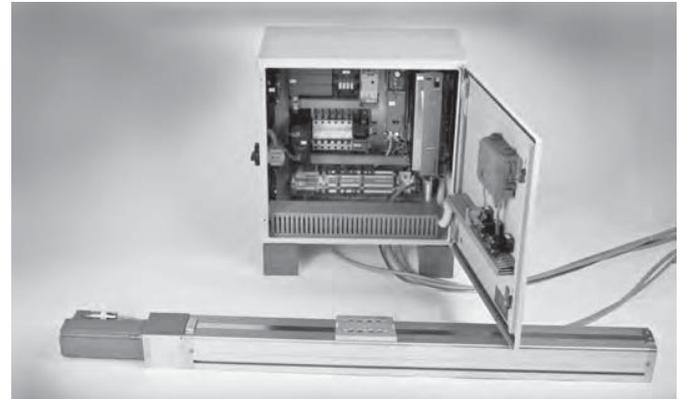
**DRIVE PACKAGE LMS 90 SERVO**

(part no. 33.1030/0)

Synchronous motor with drive unit converter for dynamical applications for table positioning

**Scope of supply**

- Synchronous servo motor with 2.4 Nm nominal torque, 3000 1/min, version with resolver and temperature sensor
- Motor cable, length 5 m
- Transmitter cable, length 5 m
- Drive unit converter MDX61B for table positioning by IO, installation in switch box by customer
- 2 pcs. inductive proximity switches for T-slots for end position of axis (switch NC)
- 1 pc. inductive proximity switch for T-slots for end position of axis (switch NO)
- Motor adaptor kit LMS 90 Servo (part no. 28.1041/0)

**Options**

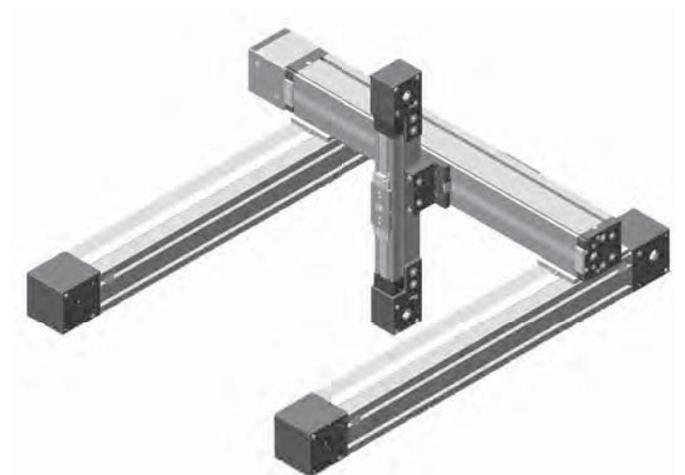
- Motor with brake
- Motor with absolute value sensor
- PROFIBus / PPOFIsafe / PROFINET / Ethercat interface card for drive unit converter
- Additional sensors, e.g. for additional creep speed- / stop-positions

**POSITIONING SYSTEMS – READY FOR CONNECTION**

The new high performance module LMS 90 is also available as ready-to-install system with drive and control unit.

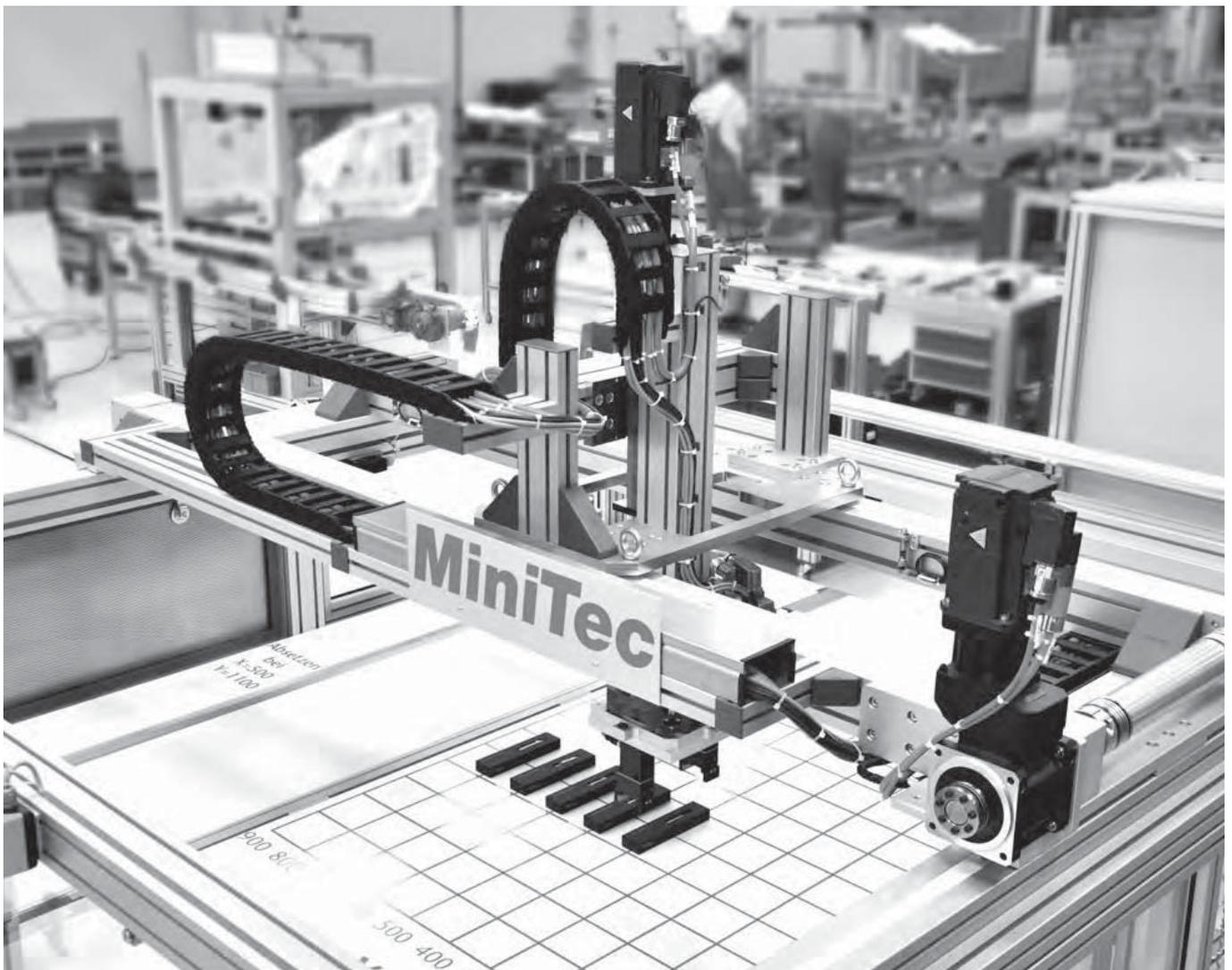
Suitable packages for each requirement are available – from the very economical design 'ECO' to the high performance design with servo drive. Commissioning and application programming will be done by MiniTec if required.

Thanks to the standardised profile geometry, all LMS axes can be combined among each other or even with all other linear modules from MiniTec.



## LINEAR MODULE LMZ 90 WITH TIMING BELT (PART NO. 28.0400/0)

- Compact carrier profile with standard t-slots. Compatible to MiniTec construction profiles,
- Integrated rail size 20
- With two slides, covered by timing belt
- Permanent lubrication. Lubrication system for a service performance up to 10.000 km
- Aluminium slide (processed on all sides) with integrated timing belt tensioner and 6 connection threads M8.
- 2 deflection units with precision ball bearings, mounted on carrier profile by using MiniTec power-lock fastener, prepared for built-on motors with connection shaft  $\varnothing$  17mm, with feather key. The adapter plate can be processed according to desired motor specifications.
- Infeed: 200 mm/rotation
- Max. allowable belt tractive force: 3.500 N
- Timing belt 25 AT 10, strengthened with steel wire. Mounted with preload.
- Max. stroke  $X = 3.800$  mm
- Assembly of switches lateral on t-slots with standard components of the MiniTec Profile-System.
- Speed: max. 3m/s
- Basic weight: 5.200 g
- Weight/100mm stroke: 800g



## LINEAR MODULE LMZ 90 WITH TIMING BELT (PART NO. 28.0400/0)

### DELIVERABLE VERSIONS

- Module completely assembled with drive connection, but without drive
- Customised module completely assembled with gear and engine
- Customized module completely assembled with gear, engine and control system

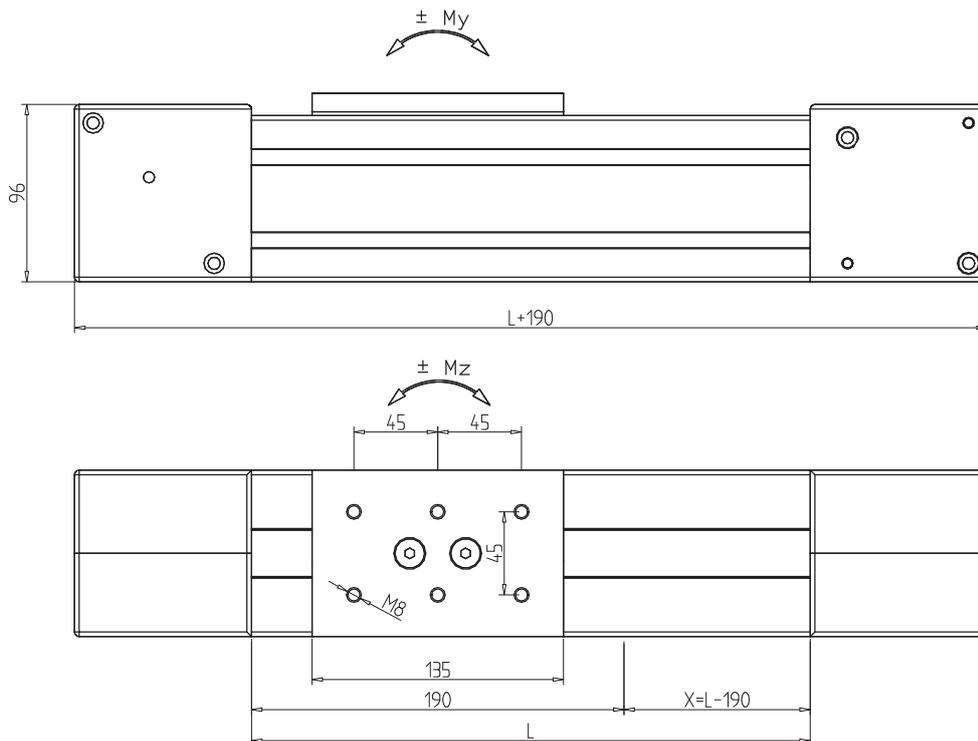
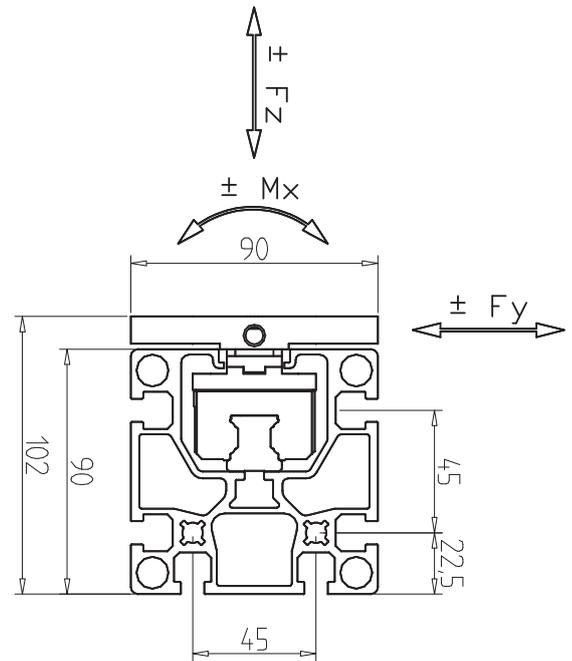
### APPLICATION

- Pick-and-Place
- Robotic palletizer
- Measuring systems
- Feedings
- Handling systems

### OPERATING CONDITIONS

Please consider that the max. allowable deflection of 3.5 mm / 4000 mm for cantilever assemblies. To guarantee high stability, we recommend to support the module every 300 to 600mm (particularly for modules with a high dynamic load).

LOAD RATING N		ALLOWABLE STATIC TORQUE		
Cdyn	Cstat	Mx	My	Mz
18800	24400	128	240	128



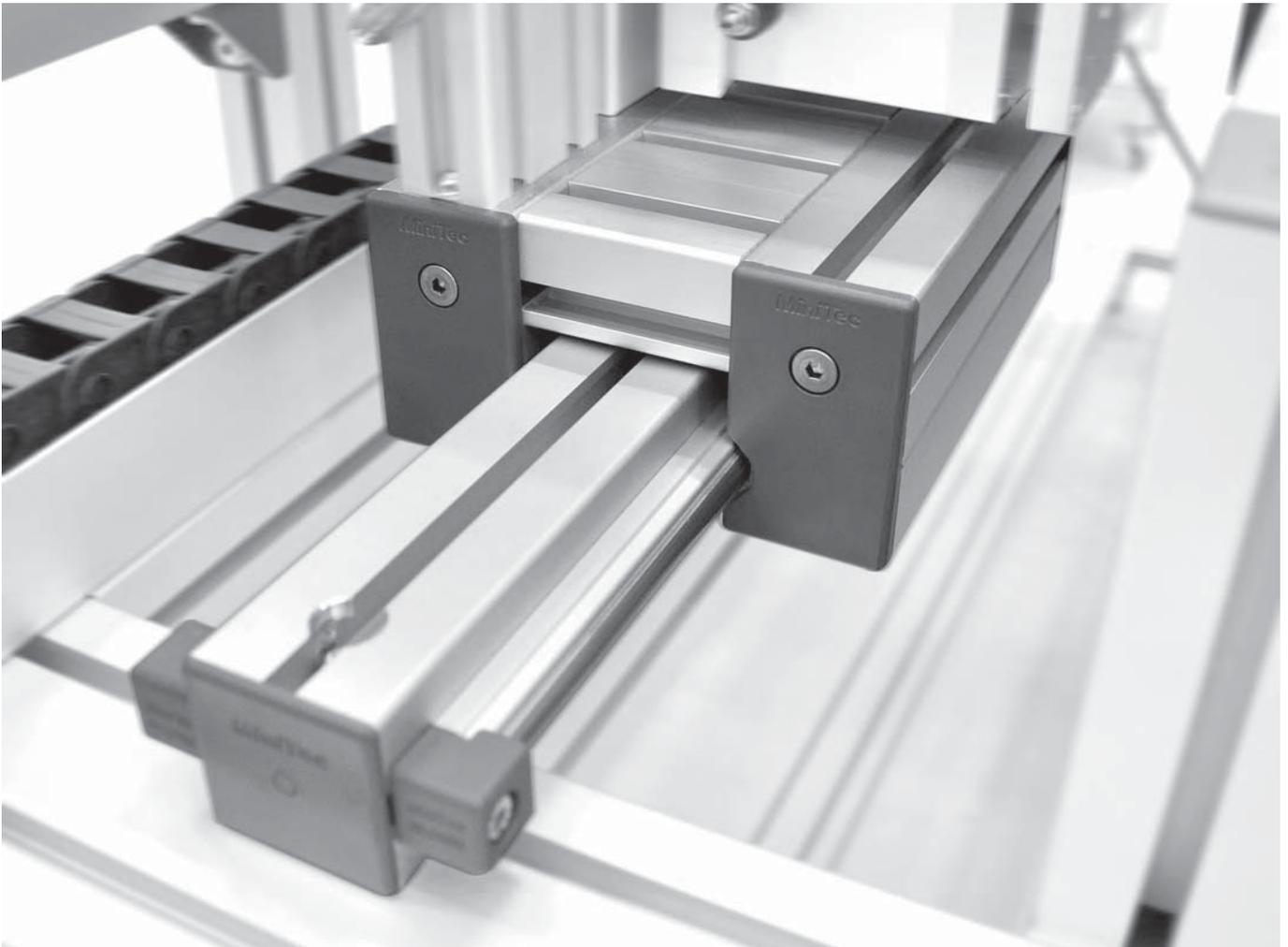
## READY FOR USE MODULS – LINEAR SYSTEM LR

The following pages show you our pre-finished LR modules. To place an order, please define the stroke and total length required.

The linear system LR is based on double-row angular contact bearings made of bearing steel, hardened and ground precision shafts 1.1214 (Cf 53). Any required stroke length can be implemented. The slides are equipped with double-row roller bearings with gothic arch outer grooves. For very high loads multiple bearings are attached with steel-T-Slot bars directly to the slideplate giving the construction great rigidity. No special bearing profiles are required for the assembly. The clearance between bearings and shafts can be adjusted by eccentric bushings.

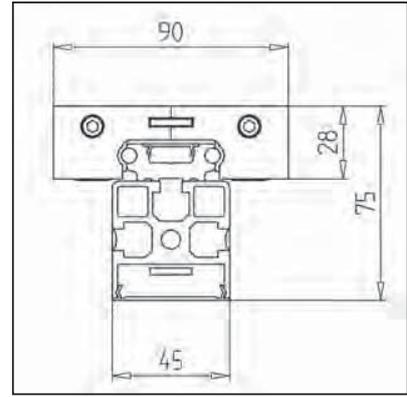
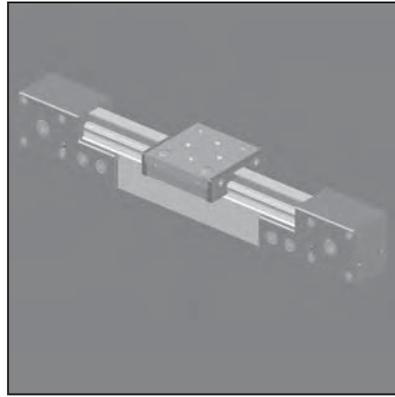
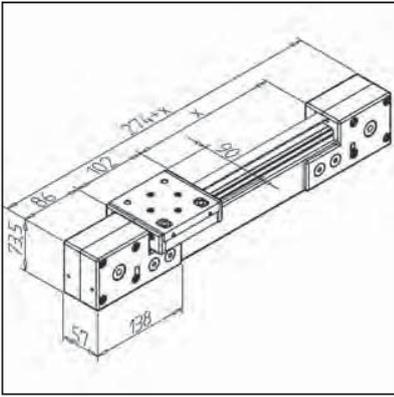
Both closed and open-frame slides with any desired length or width can be fabricated. Linear modul LR 6 X/Y-tables are easily constructed by the attachment of 4 bearings on to the top of the slide. The guide rails for this configuration are made from profile 45 x 32. End caps LR and cover profile AL also fit the Y-axis.

The slides are completely covered, lubrication felts are fitted in the endcaps which clean and grease the shafts. For maintenance purposes the felts can be exchanged quickly and easily without tools. This advantage is important for applications in rough working conditions



## MODULE LR 6 Z 45

part no. 28.0500/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear-guide, ready for use assembled from:
- 1x Rail LR 6 with precision-steel-shafts  $\varnothing$ , 6mm, h6, with profile 45 x 45 R
- 1x Slide LW 6 Z with timing belt fastener
- 2x timing- belt reverse units
- 1x timing belt 16 AT 5, steel-reinforced
- Weight (without profile) 2,25 kg
- Weight/100 mm stroke 0,322 kg
- Please specify travel "X" and bore of timing belt reverse unit ( $\varnothing$  11 mm/ $\varnothing$  14 mm/None)
- Please specify travel "X" and bore of timing belt reverse unit ( $\varnothing$  11 mm/ $\varnothing$  14 mm/None)

### APPLICATIONS

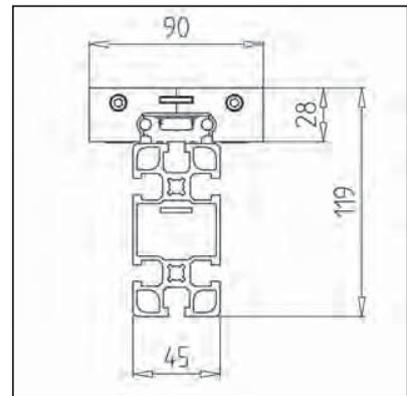
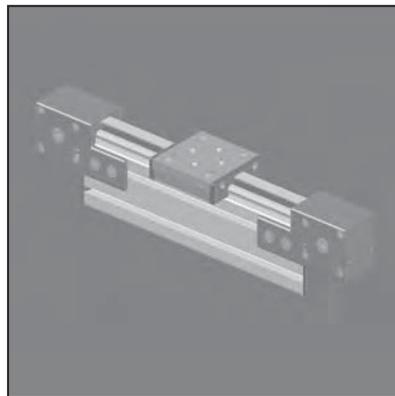
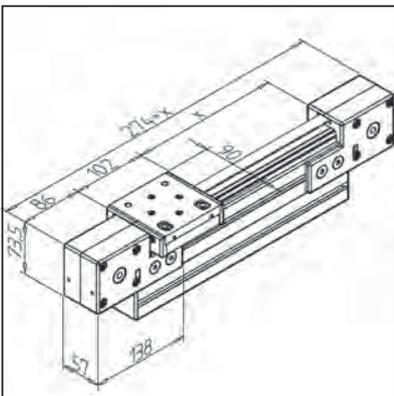
- MiniTec linear guide systems LR 6
- Material-handling
- Measuring devices
- Doors

### ASSEMBLY

- Timing-belt tensioners integrated in reverse-units

## MODULE LR 6 Z 90

part no. 28.0501/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear-guide, ready for use assembled from:
- 1x Rail LR 6 with precision-steel-shafts  $\varnothing$ , 6mm, h6, with profile 45 x 45 R
- 1x Slide LW 6 Z with timing belt fastener
- 2x timing- belt reverse units
- 1x timing belt 16 AT 5, steel-reinforced
- Basis weight (without profile) 2,25 kg
- Weight/100 mm stroke 0,453 kg
- Please specify travel "X" and bore of timing belt reverse unit ( $\varnothing$  11 mm/ $\varnothing$  14 mm/None)
- Please specify travel "X" and bore of timing belt reverse unit ( $\varnothing$  11 mm/ $\varnothing$  14 mm/None)

### APPLICATIONS

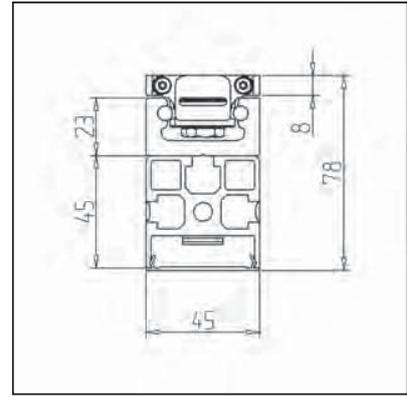
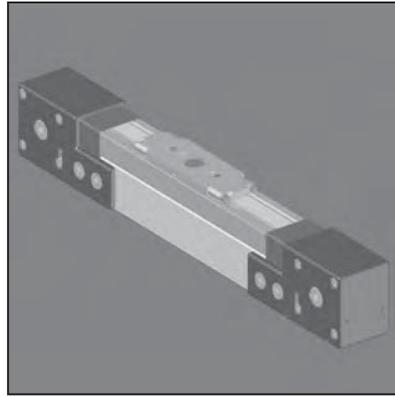
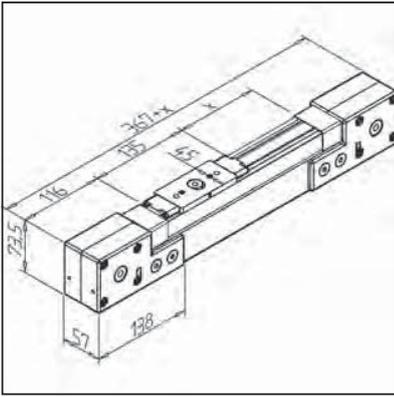
- MiniTec linear guide systems LR 6
- Material-handling
- Measuring devices
- Precise guidance of doors or large drawers

### ASSEMBLY

- Timing-belt tensioners integrated in reverse-units

## MODULE LR 6 Z COMPACT - 45

part no. 28.0503/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
- 1x Rail LR 6 with precision-steel-shafts, h6, Ø 6 mm, h6, with carrier profile 45 x 45 R, 1x slide LW 6 Z with timing belt fastener, 2x timing-belt pulleys, 1x timing belt 16 AT 5, steel-reinforced
- Weight 2,977 kg
- Weight/100 mm stroke 0,407 kg
- Please specify travel "X" and deviation
- Stainless version part no. 28.0503/1

### APPLICATIONS

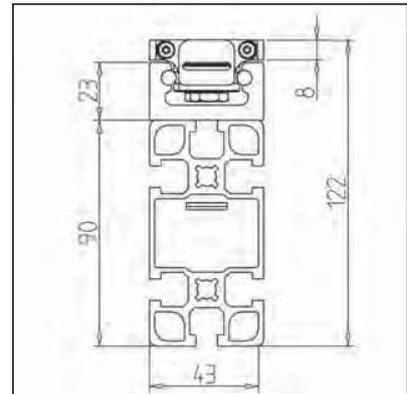
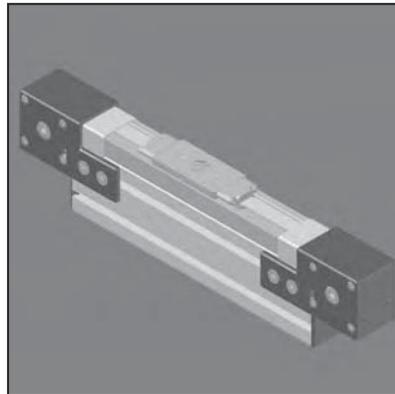
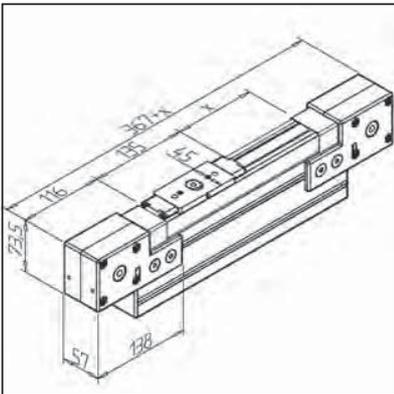
- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

- Timing-belt tensioners integrated in reverse-units

## MODULE LR 6 Z COMPACT - 90

part no. 28.0504/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
- 1 Rail LR 6 with precision-steel-shafts, h6, Ø 6 mm, , with carrier profile 45 x 90, 1 slide LW 6 Z with timing belt pulleys, 2 timing-belt pulleys, 1 timing belt 16 AT 5, steel-reinforced
- Weight 3,305 kg
- Weight/100 mm stroke 0,547 kg
- Please specify travel "X" and deviation
- Stainless version part no. 28.0504/1

### APPLICATIONS

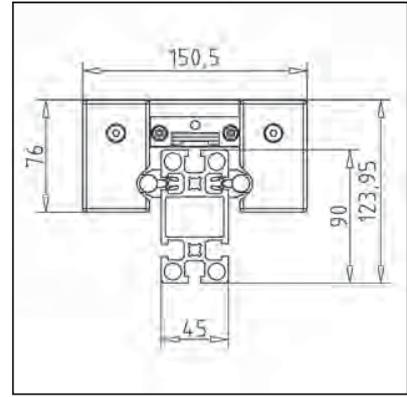
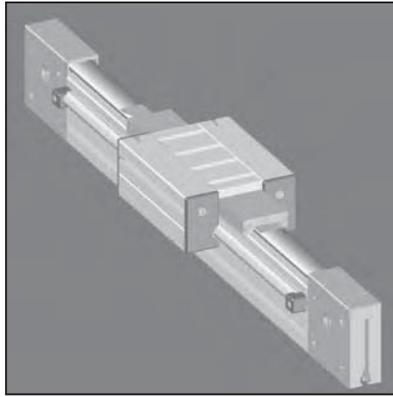
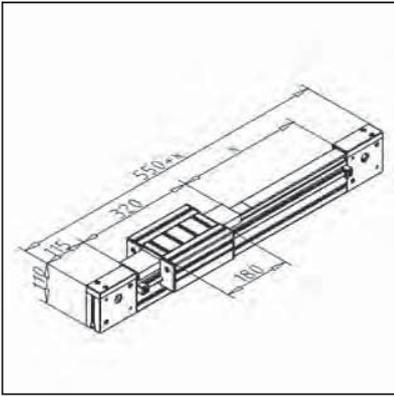
- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

- Timing-belt tensioners integrated in reverse-units

## LINEAR GUIDE LR 12 - 45

part no. 28.0600/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
  - 1x Rail 45 x 90 H with shaft retention device
  - 2x timing-belt pulley T45
  - 2x timing-belt tensioners
  - 1x slide LW 45,
  - 1x timing belt 32 AT 10
- 
- Weight 7,37 kg
  - Weight/100 mm stroke 0,656 kg
- 
- Please specify travel "X" and deviation
  - Stainless version part no. 28.0600/1

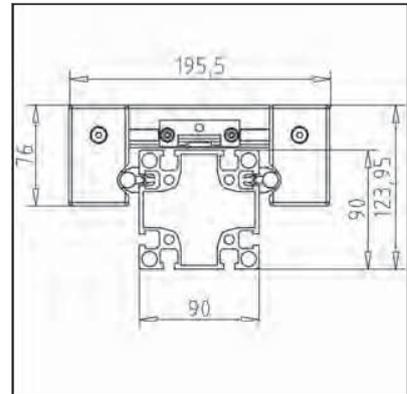
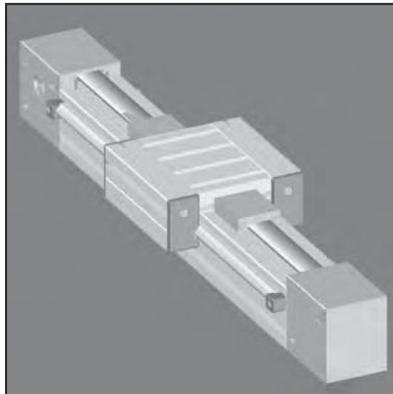
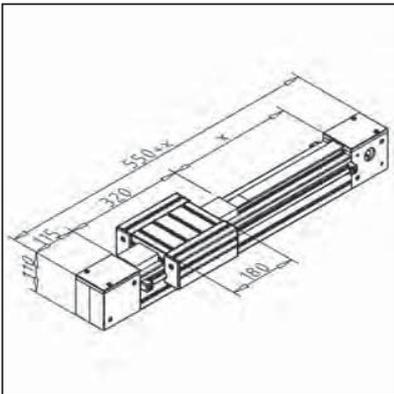
### APPLICATIONS

- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

## LINEAR GUIDE LR 12 - 90

part no. 28.0601/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
  - 1x Rail LR 12 - 90 with shaft retention device
  - 2x timing-belt pulley T90
  - 2x timing-belt tensioners
  - 1x slide LW 90,
  - 1x timing belt 32 AT 10
- 
- Weight 11,65 kg
  - Weight/100 mm stroke 0,827 kg
- 
- Please specify travel "X" and deviation
  - Stainless version part no. 28.0601/1

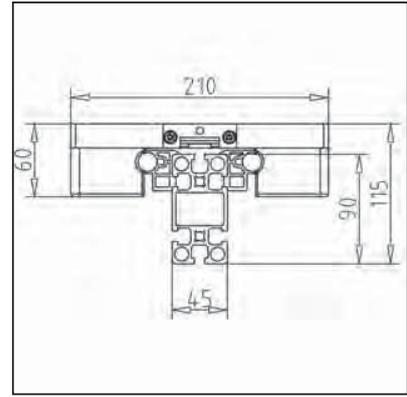
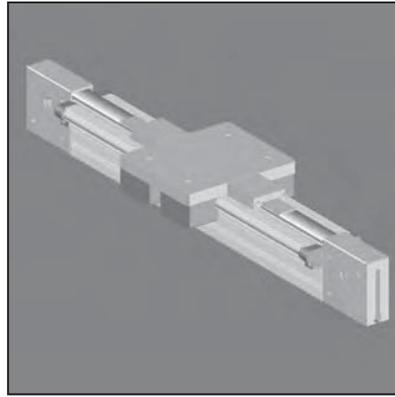
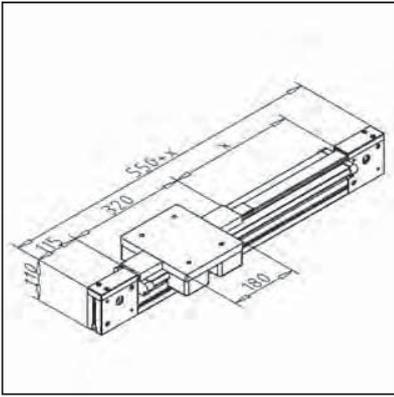
### APPLICATIONS

- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

## LINEAR GUIDE LR 16 - 45 X 90

part no. 28.0802/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
- 1x Rail LR 16 - 45 x 90 with shaft retention device
- 2x timing-belt pulley T90
- 2x timing-belt tensioners
- 1x slide LW 16-45,
- 1x timing belt 32 AT 10

- Weight 10,19 kg

- Weight/100 mm stroke 0,908 kg

- Please specify travel "X" and deviation

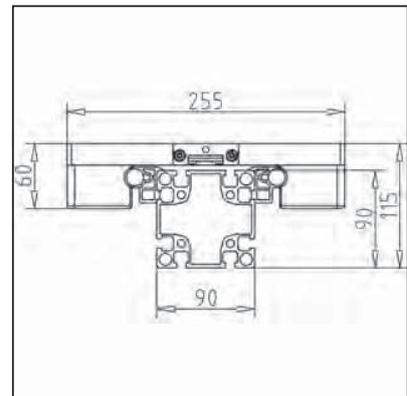
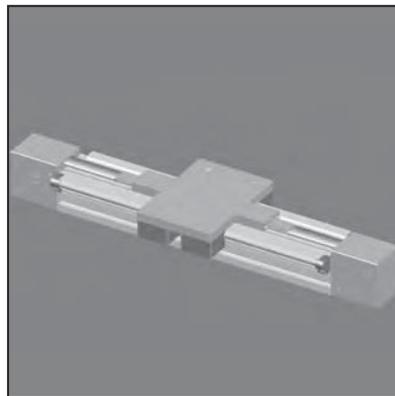
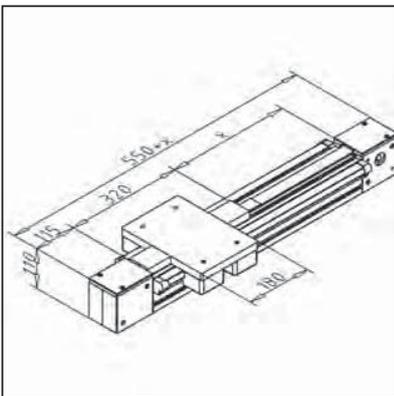
### APPLICATIONS

- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

## LINEAR GUIDE LR 16 - 90

part no. 28.0800/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
- 1x Rail LR 16 - 90 with shaft retention device
- 2x timing-belt pulley T90
- 2x timing-belt tensioners
- 1x slide LW 16-90,
- 1x timing belt 32 AT 10

- Weight 14,45 kg

- Weight/100 mm stroke 1,08 kg

- Please specify travel "X" and deviation

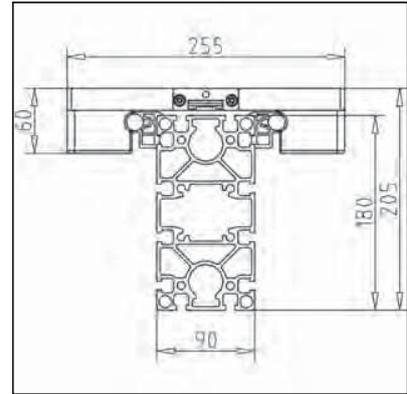
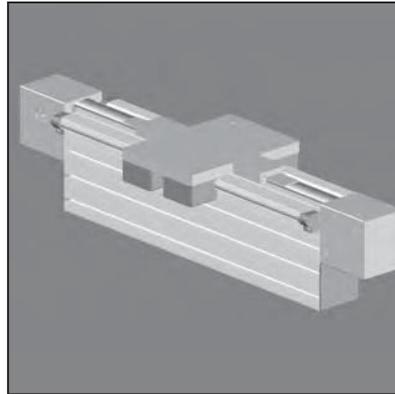
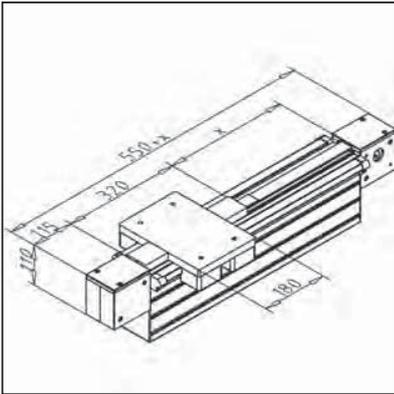
### APPLICATIONS

- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

## LINEAR GUIDE LR 16 - 90 X 180

part no. 28.0801/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear guide, ready for use, consisting of:
- 1x Rail LR 16 - 90 x 180 with shaft retention device
- 2x timing-belt pulley T90
- 2x timing-belt tensioners
- 1x slide LW 16-90,
- 1x timing belt 32 AT 10

- Weight 17,51 kg

- Weight/100 mm stroke 1,741 kg

- Please specify travel "X" and deviation

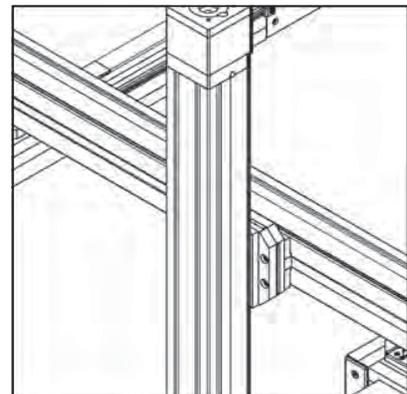
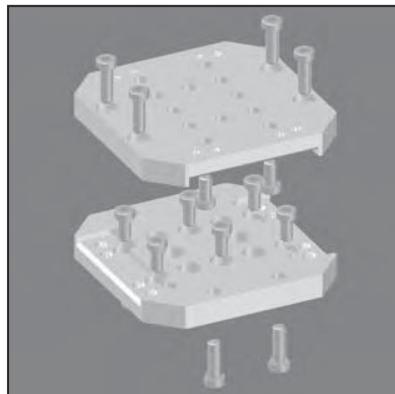
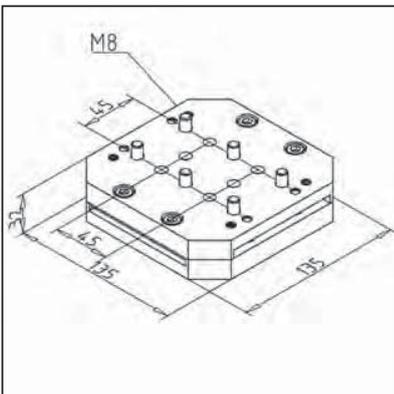
### APPLICATIONS

- Material-handling
- Measuring devices
- Adjustment devices

### ASSEMBLY

## MOUNTING KIT 90 S-S

part no. 28.0264/0



### TECHN. DATA / ITEMS SUPPLIED

- Adapter plate 90, aluminium, natural anodised

- Fastening kit

- Weight 1,487 kg

### APPLICATIONS

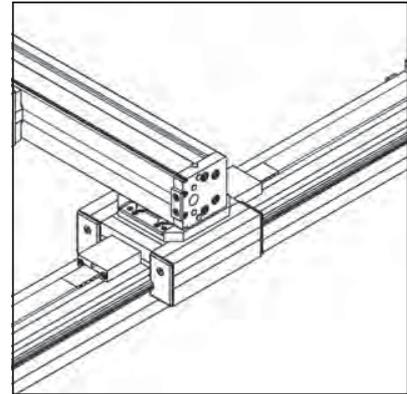
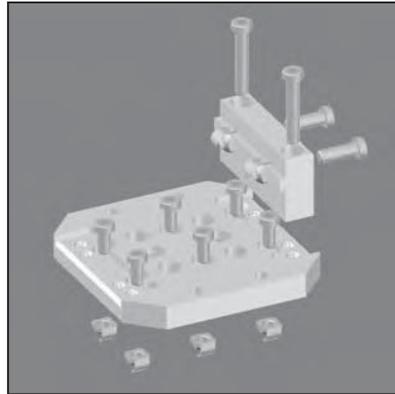
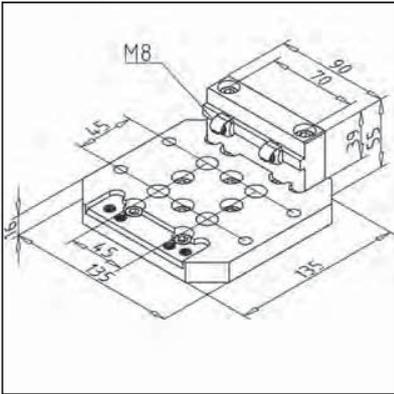
- For connection of 2 axes under 90°

### ASSEMBLY

- Both plates mounted on slides to connect:
  - LMS with LMS / LMZ or
  - LMZ with LMZ / LMS or
  - LR12 with LMS / LMZ

## MOUNTING KIT 90 S-A 90°

part no. 28.0173/0



### TECHN. DATA / ITEMS SUPPLIED

- Adapter plate 90, aluminium, natural anodised
- Fastening kit
- Weight 1,039 kg

### APPLICATIONS

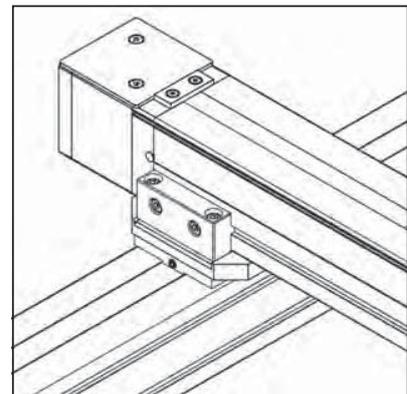
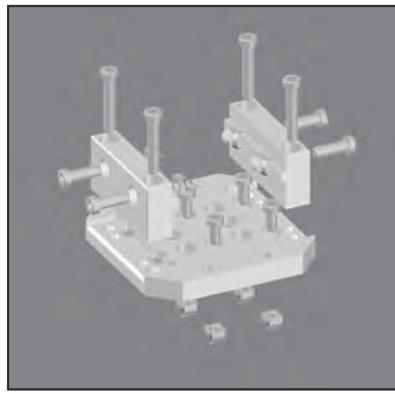
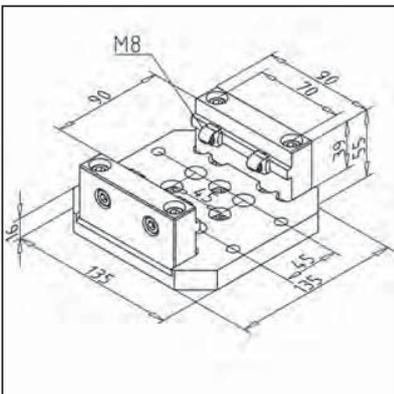
- For connection of 2 axes under 90°

### ASSEMBLY

- Big plate is mounted on slide of:
  - LR6 or
  - LR6 compact or
  - LMS or
  - LMZ or
  - LR12 e.g. LW 45 / LW 90 or
  - slides of adjusting units
- Small plate is mounted on:
  - Carrier profile of the transverse axis

## MOUNTING KIT 90 S-A 180°

part no. 28.0265/0



### TECHN. DATA / ITEMS SUPPLIED

- Adapter plate 90, aluminium, natural anodised
- Fastening kit
- Weight 1,359 kg

### APPLICATIONS

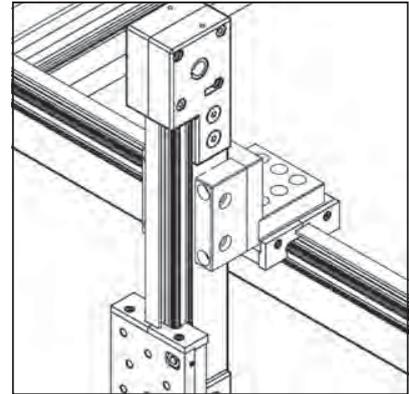
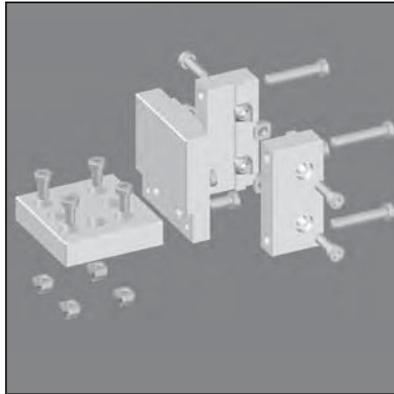
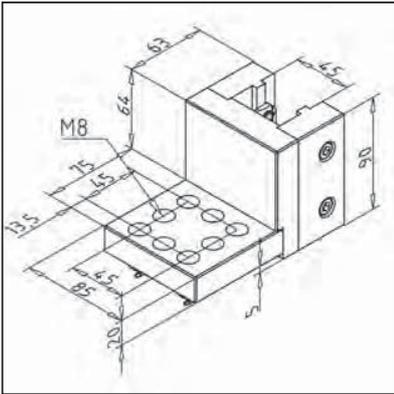
- For connection of 2 axes under 90°

### ASSEMBLY

- Big plate is mounted on slide of:
  - LR6 or
  - LR6 compact or
  - LMS or
  - LMZ or
  - LR12 e.g. LW 45 / LW 90 or
  - slides of adjusting units
- Small plates are mounted on:
  - Carrier profile of the transverse axis

## MOUNTING KIT 45 S-A 90°

part no. 28.0174/0



### TECHN. DATA / ITEMS SUPPLIED

- Adapter plate 90, aluminium, natural anodised

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- Fastening kit

---

- Weight 1,547 kg

### APPLICATIONS

- For connection of 2 axes under 90°

### ASSEMBLY

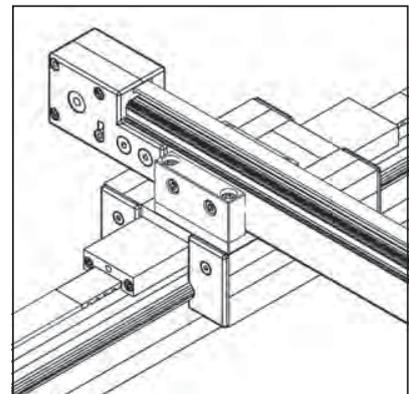
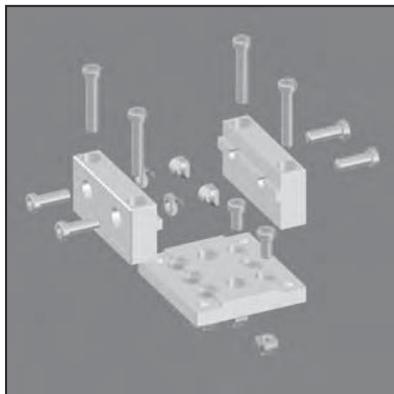
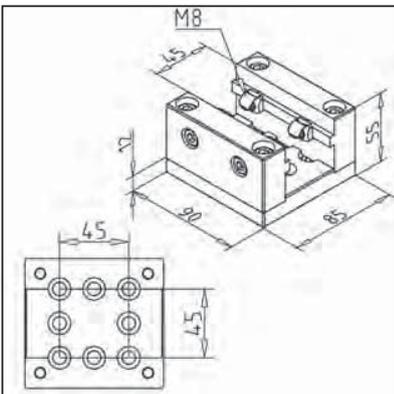
- Big plate is mounted on slide of:
  - LR6 or
  - LR6 compact

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- Small plates are mounted on:
  - Carrier profile of the transverse axis

## MOUNTING KIT 45 S-A 180°

part no. 28.0175/0



### TECHN. DATA / ITEMS SUPPLIED

- Adapter plate 90, aluminium, natural anodised

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- Fastening kit

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- Weight 0,937 kg

### APPLICATIONS

- For connection of 2 axes under 90°

### ASSEMBLY

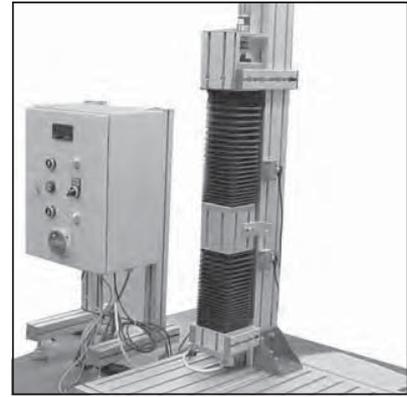
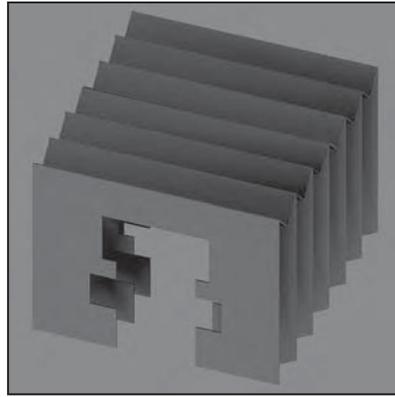
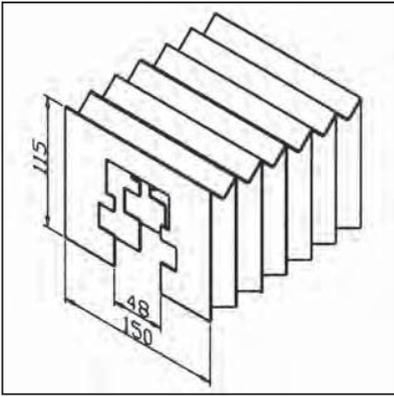
- Big plate is mounted on slide of:
  - LR6 or
  - LR6 compact or
  - LMS or
  - LMZ or
  - LR12 e.g. LW 45 / LW 90 or
  - slides of adjusting units

---

- Small plates are mounted on:
  - Carrier profile of the transverse axis

## PROTECTIVE BELLOW LR 45

part no. 33.3007/0



### TECHN. DATA / ITEMS SUPPLIED

- Plastic, black with plastic frame
- Without fastening kit
- Length when pushed together for 1 m travel: - 130 mm
- Weight 0,65 kg/m
- max. Length 6 m

### APPLICATIONS

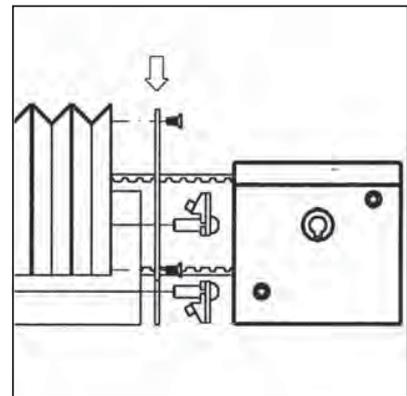
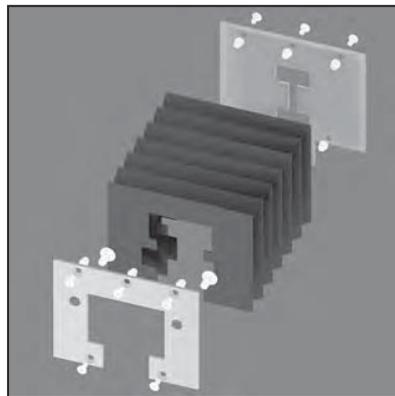
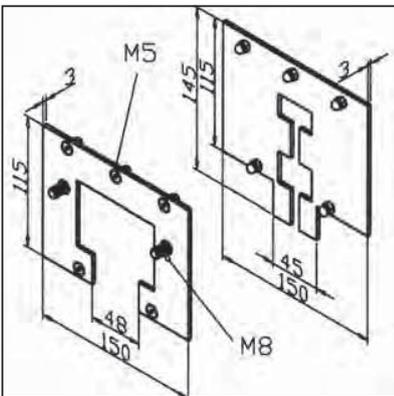
- Cover of MiniTec linear guides LR 45
- Rough working conditions, dust, chips

### ASSEMBLY

- Push bellow onto rail
- Fix ends with fastening kit for protective bellow **part no. 33.3010/0**
- The travel length is reduced by approx. 22% when bellow is used
- Caution: Consider higher friction moment when dimensioning drive unit!

## FASTENING KIT FOR PROTECTIVE BELLOW LR 45

part no. 33.3010/0



### TECHN. DATA / ITEMS SUPPLIED

- 1 End frame slide
- 1 End frame pulley
- Fastening kit for frame and bellow

### APPLICATIONS

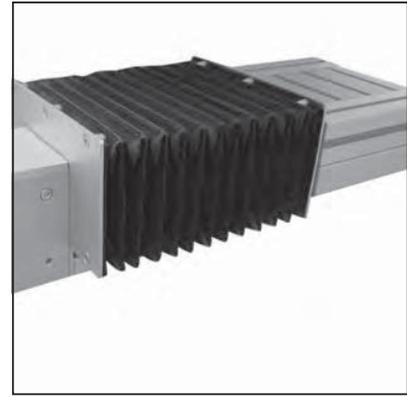
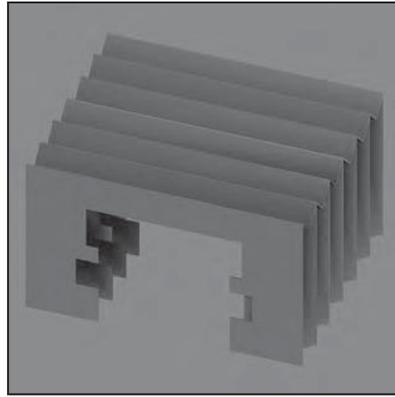
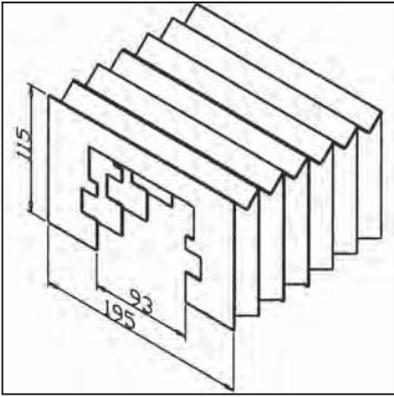
- Fastening of protective bellow LR 45 on slide LW 45
- Fastening of protective bellow LR 45 on timing belt pulley T 45

### ASSEMBLY

- Fasten end frame on slide
- Push protective bellow on rail
- Loosen power-lock fastener on the pulley side and insert end frame pulley between rail and timing belt pulley; tighten power-lock fastener
- Fasten protective bellow by means of the supplied screws on the end frame

## PROTECTIVE BELLOW LR 90

part no. 33.3008/0



### TECHN. DATA / ITEMS SUPPLIED

- Plastic, black with plastic frame
- Without fastening kit
- Length when pushed together for 1 m travel: - 130 mm
- Weight 0,75 kg/m
- max. Length 6 m

### APPLICATIONS

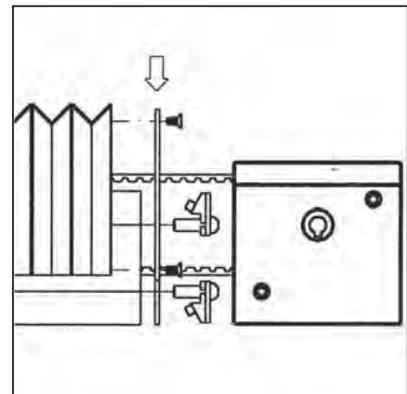
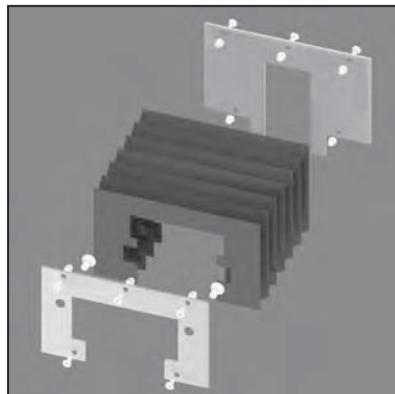
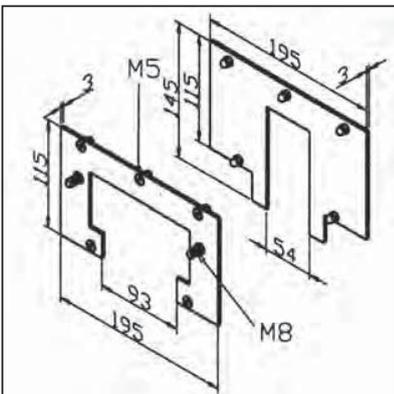
- Cover of MiniTec linear guides LR 90
- Rough working conditions, dust, chips

### ASSEMBLY

- Push bellow onto rail
- Fix ends with fastening kit for protective bellow a **part no. 33.3011/0** at slide or reverse unit
- The travel length is reduced by approx. 22% when bellow is used
- Caution: Consider higher friction moment when dimensioning drive unit!

## FASTENING KIT FOR PROTECTIVE BELLOW LR 90

part no. 33.3011/0



### TECHN. DATA / ITEMS SUPPLIED

- 1 End frame slide
- 1 End frame pulley
- Fastening kit for frame and bellow

### APPLICATIONS

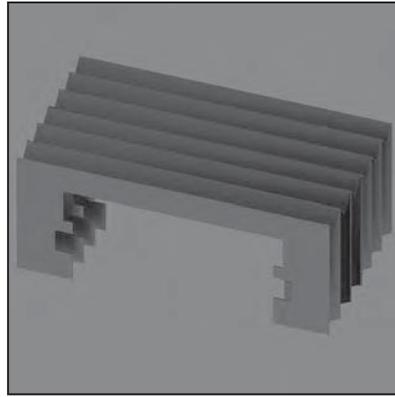
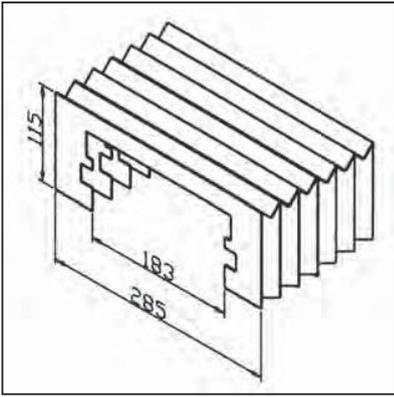
- Cover of MiniTec linear guides LR 90
- Rough working conditions, dust, chips

### ASSEMBLY

- Fasten end frame on slide
- Push protective bellow on rail
- Loosen power-lock fastener on the pulley side and insert end frame pulley between rail and timing belt pulley; tighten power-lock fastener
- Fasten protective bellow by means of the supplied screws on the end frame

## PROTECTIVE BELLOW LR 180

part no. 33.3009/0



### TECHN. DATA / ITEMS SUPPLIED

- Plastic, black with plastic frame
- Without fastening kit
- Length when pushed together for 1 m travel: - 110 mm
- Weight 0,95 kg/m
- max. Length 6 m

### APPLICATIONS

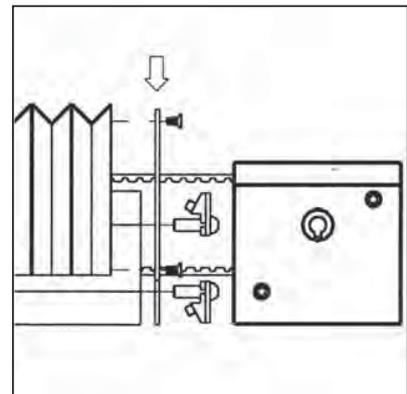
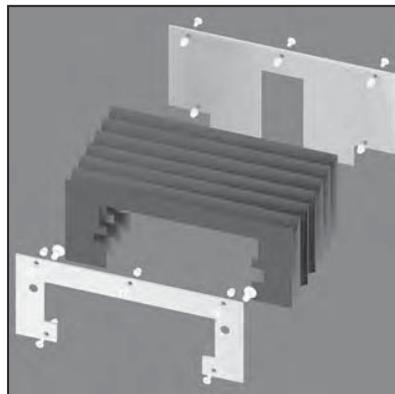
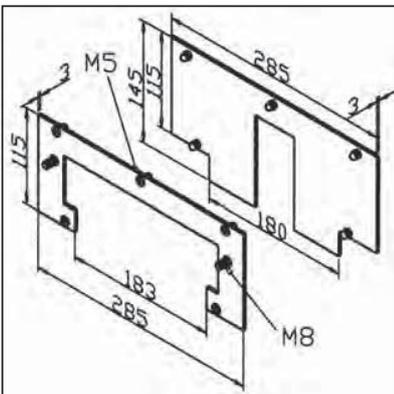
- Cover of MiniTec linear guides LR 180
- Rough working conditions, dust, chips

### ASSEMBLY

- Push bellow onto rail
- Fix ends with fastening kit for protective bellow a **part no. 33.3012/0** at slide or reverse unit
- The travel length is reduced by approx. 22% when bellow is used
- Caution: Consider higher friction moment when dimensioning drive unit!

## FASTENING KIT FOR PROTECTIVE BELLOW LR 180

part no. 33.3012/0



### TECHN. DATA / ITEMS SUPPLIED

- 1 End frame slide
- 1 End frame pulley
- Fastening kit for frame and bellow

### APPLICATIONS

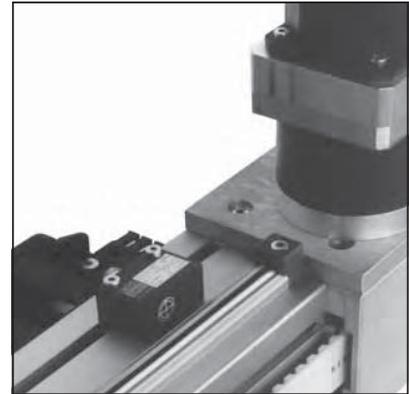
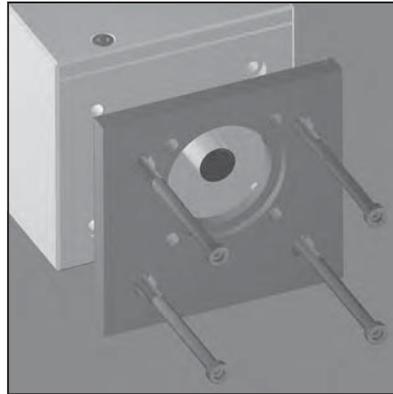
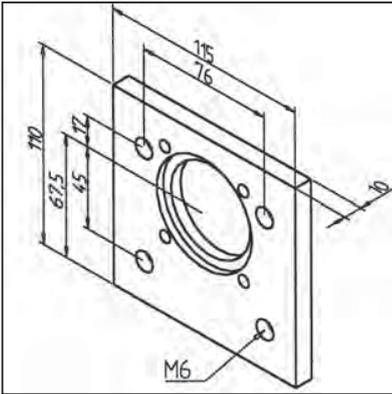
- Fastening of protective bellow LR 180 on slide LW 180

### ASSEMBLY

- Fasten end frame on slide
- Push protective bellow on rail
- Loosen power-lock fastener on the pulley side and insert end frame pulley between rail and timing belt pulley; tighten power-lock fastener
- Fasten protective bellow by means of the supplied screws on the end frame

## ADAPTOR PLATE

part no. 28.0112/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, natural
- Dimension according to customers specification

### APPLICATIONS

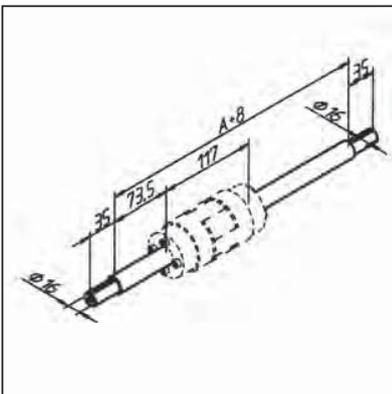
- Attachment of motors, timing belt pulley and counter

### ASSEMBLY

- Mount on timing belt pulley

## CONNECTING SHAFT 45

part no. 17.1706/0



### TECHN. DATA / ITEMS SUPPLIED

- Steel, Ø 20 mm
- Length and processing of ends according to customer specification
- 2 pieces, clutch not included
- Fastening kit
- Weight 2,47 kg/m
- Spring

### APPLICATIONS

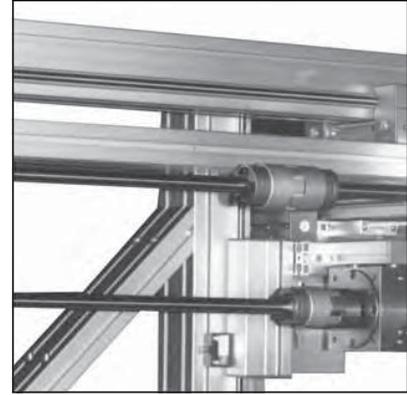
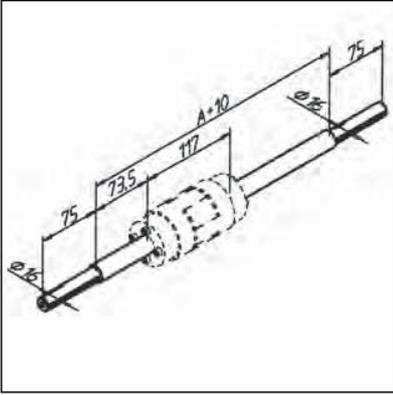
- Simultaneous transmission of 2 parallel linear guides
- Install support bearing for longer shafts

### ASSEMBLY

- Fasten shafts with spring in timing belt pulley
- Connect both shaft pieces with clutch **part no. 28.0180/0**

## CONNECTING SHAFT 90

part no. 17.1706/1



### TECHN. DATA / ITEMS SUPPLIED

- Steel, Ø 20 mm
- Length and processing of ends according to customer specification
- 2 pieces, clutch not included
- Fastening kit
- Weight 2,47 kg/m
- + Spring

### APPLICATIONS

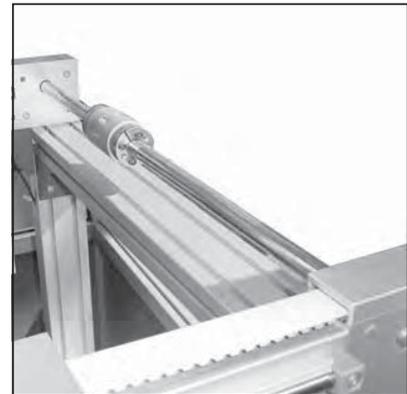
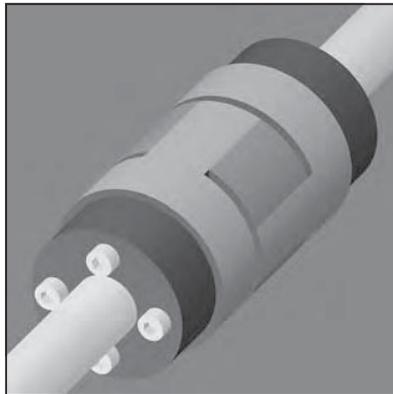
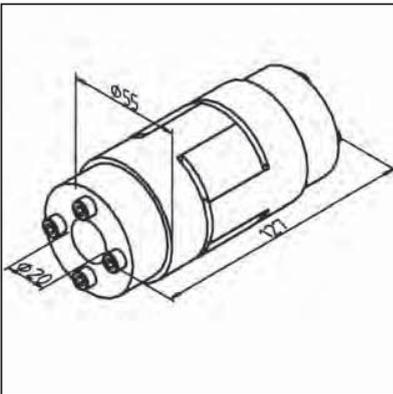
- Simultaneous transmission of 2 parallel linear guides
- For longer shafts use additional support bearing

### ASSEMBLY

- Fasten shaft with spring in timing belt pulley
- Connect both shaft pieces with clutch **part no. 28.0180/0**

## CLUTCH 20

part no. 28.0180/0



### TECHN. DATA / ITEMS SUPPLIED

- Clutch, steel with plastic inlay
- 2 tensioning sets, steel
- Weight 0,500 kg
- Locking torque max. 30 Nm

### APPLICATIONS

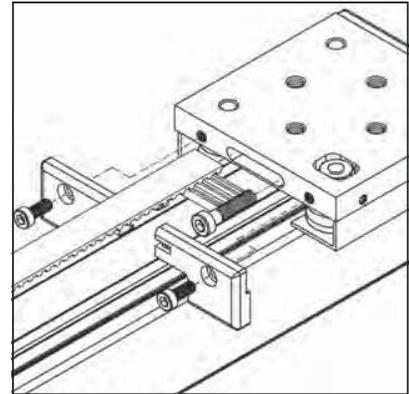
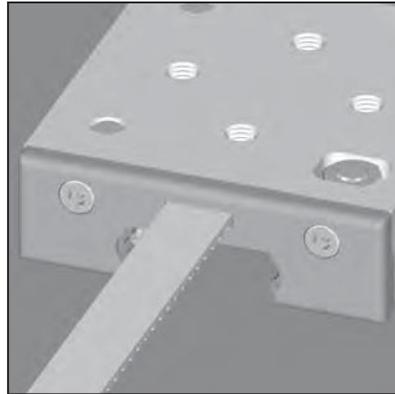
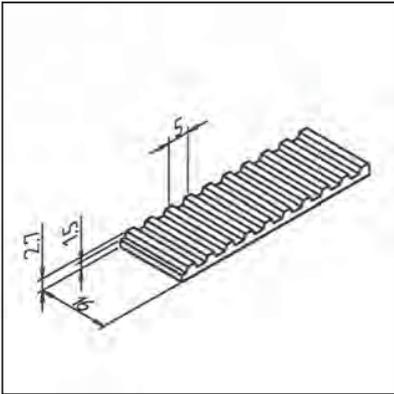
- Correction of motors to reverse unit
- Correction of misalignment for simultaneous transmission of 2 parallel linear guides with connecting shaft 45 a **part no. 17.1706/0** or connecting shaft **part no. 17.1706/1**

### ASSEMBLY

- Attachment with integrated tensioning device
- Position of both reverse units continuously adjustable

## TIMING BELT 16 AT 5

part no. 28.0502/0



### TECHN. DATA / ITEMS SUPPLIED

- PUR white, steel-wire reinforced	
- Type 16 AT 5	
- Weight	0,052 kg/m
- Load max.	1260 N

### APPLICATIONS

- Suitable for all MiniTec linear guides LR 6 Z

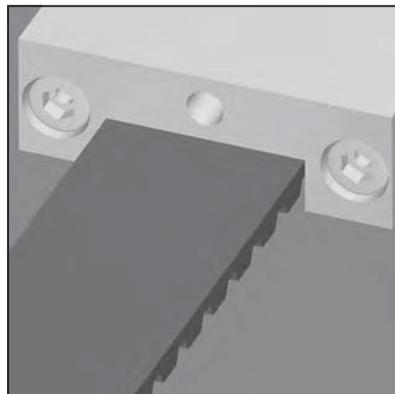
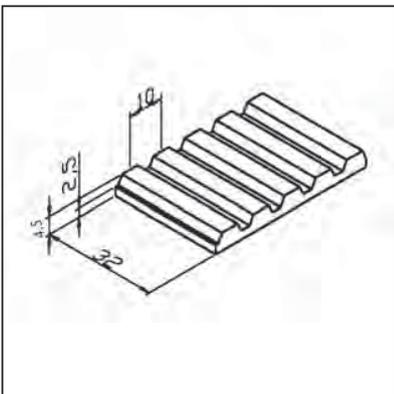
### ASSEMBLY

- Fix both sides in slide LR 6 Z

- Calculation of belt length:  
2 x rail length + 260 mm

## TIMING BELT 32 AT 10

part no. 28.0093/0



### TECHN. DATA / ITEMS SUPPLIED

- PUR white, reinforced with integrated wires	
- Type 32 AT 10	
- Weight	0,19 kg/m
- Load max.	4750 N

### APPLICATIONS

- For MiniTec linear guides LR 12 and LR 16

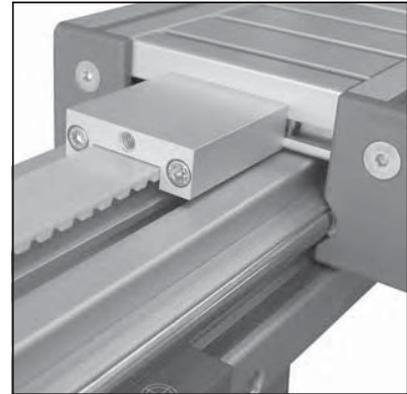
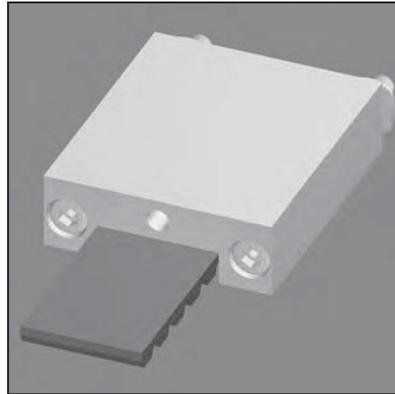
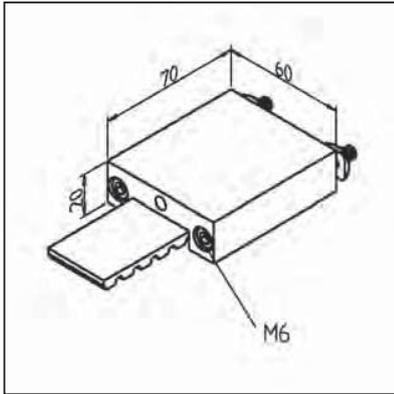
- For belt drives

### ASSEMBLY

- Fix timing belt on timing belt tensioner

## TIMING BELT TENSIONER

part no. 28.0090/0



### TECHN. DATA / ITEMS SUPPLIED

- Housing, aluminium, natural anodized
- Tensioning plug, steel, zinc plated with mateling with 3 teeth
- Fitting for timing belt AT 10
- Fastening kit
- Weight 0,236 kg
- **Stainless version part no. 28.0090/1**

### APPLICATIONS

- For each end of the timing belt a timing belt tensioner is required
- For MiniTec linear guides LR 12 and LR 16
- For MiniTec belt drive

### ASSEMBLY

- Subsequent fastening on the face of the slide with fastening kit
- After fixing on slide face, tension the belt central tensioning screw M8, 5 A/F
- Recommend stretching after assembly

## CONNECTION OF MOTORS

### TIMING BELT PULLEY LR 6 & LR 6 COMPACT

Rotary-current-, step or servo-motors with max. shaft diameter of 14 mm are suitable. Assemble directly on the timing belt pulley. The pulley bore with fitting key groove and the connection side of the reverse unit will be designed according to customer specification.

### TIMING BELT PULLEY T 45

Rotary-current-, step or servo-motors with max. shaft diameter of 16mm are suitable. Assemble directly on the timing belt pulley. The pulley bore with fitting key groove and the connection side of the reverse unit will be designed according to customer specification.

### TIMING BELT PULLEY T 90

Rotary-current-, step or servo-motors with max. shaft diameter of 24 mm are suitable. Assemble directly on the timing belt pulley. The pulley bore with fitting key groove and the connection side of the reverse unit will be designed according to customer-specification.

### CALCULATION OF TIMING BELT LENGTH

#### When using T 45 and T90

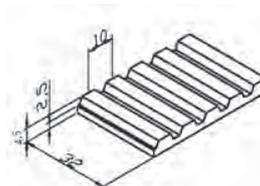
2 x rail length + 2 x 210 mm (Pulley)  
 - slide length - 2 x 20 mm (Belt tensioner)  
 = 2 x rail length - slide length + 380 mm

#### When using LR6

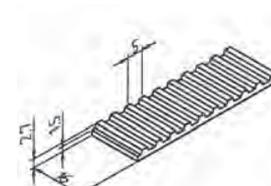
2 x rail length + 260 mm

#### When using LR6 compact (Timing belt 16 AT 5)

2 x rail length + 220 mm



Timing belt 32 AT 10  
 part no. 28.0093/0



Timing belt 16 AT 5  
 part no. 28.0502/0

### Technical data of the pulleys in the Timing belt pulley

TIMING BELT PULLEY	LR 6	T 45 (LR 12 & LR 16)	T 90 (LR 12 & LR 16)
Effective diameter	56.05 mm	58.6 mm	58.6 mm
Timing belt width	16 mm	32 mm	32 mm
Teeth	36	19	19
Bore for driving shaft	10 mm	8 mm	8 mm
Reborable to max.	14 mm	16 mm	30 mm
Traverse (1 rotation)	180 mm	190 mm	190 mm
Timing belt	16AT5	32AT10	32AT10
Belt length in pulley	160 mm	210 mm	210 mm

## COMPONENTS – LINEARSYSTEM LR

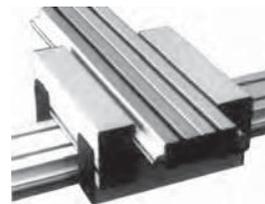
The linear system LR is based on double-row angular contact bearings made of bearing steel, hardened and ground precision shafts 1.1214 (Cf 53). Any required stroke length can be implemented. The slides are equipped with double-row roller bearings with gothic arch outer grooves. For very high loads multiple bearings are attached with steel-T-Slot bars directly to the slideplate giving the construction great rigidity. No special bearing profiles are required for the assembly. The clearance between bearings and shafts can be adjusted by eccentric bushings.

Both closed and open-frame slides with any desired length or width can be fabricated. Linear modul LR 6 X/Y-tables are easily constructed by the attachment of 4 bearings on to the top of the slide. The guide rails for this configuration are made from profile 45 x 32. End caps LR and cover profile AL also fit the Y-axis.

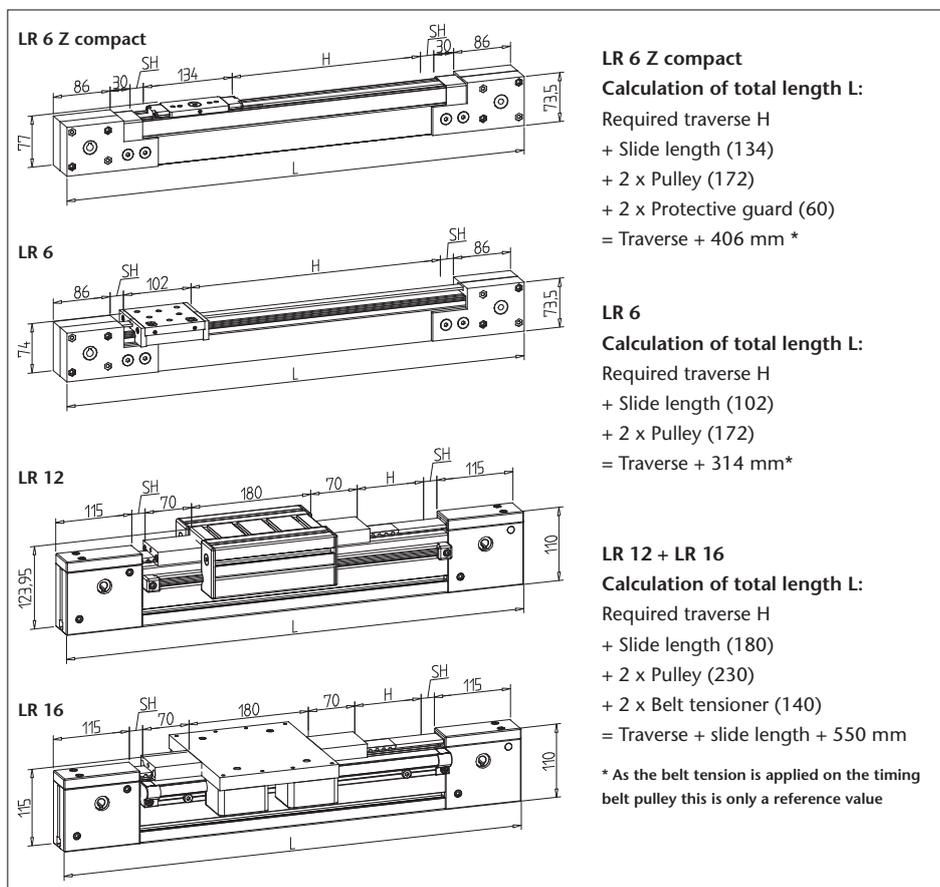
The slides are completely covered, lubrication felts are fitted in the endcaps which clean and grease the shafts. For maintenance purposes the felts can be exchanged quickly and easily without tools. This advantage is important for applications in rough working conditions

Both closed and open-frame slides with any desired length or width can be fabricated. Please specify the desired dimensions A and B when ordering.

X/Y-tables are easily constructed by the attachment of 4 bearings on to the top of the slide. The guide rails for this configuration are made from profile 45 x 32. End caps LR and cover profile AL also fit the yaxis.



X/Y-table



Optionally calculate and specify safety distances „SH“.

## RAILS

THE MINITEC PROFILE SYSTEM IS THE IDEAL CARRIER FOR LINEAR TECHNOLOGY.  
ALL MINITEC PROFILES (EXCEPT UL) CAN BE FITTED WITH A SHAFT SUPPORT AND A SHAFT.



**LR 6 compact**  
part no. 28.0119/0



**LR 6 S**  
part no. 28.0525/0



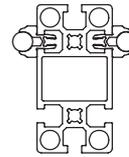
**LR 12**  
**Rail 19**  
part no. 28.0009/0



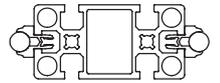
**LR 12**  
**Rail 32**  
part no. 28.0010/0



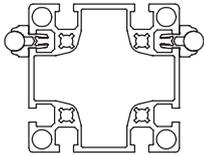
**LR 12**  
**Rail 45**  
part no. 28.0006/0



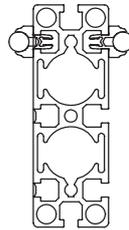
**LR 12**  
**Rail 45 x 90 H**  
part no. 28.0007/2



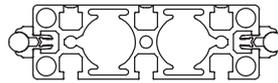
**LR 12**  
**Rail 45 x 90 F**  
part no. 28.0007/1



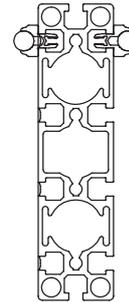
**LR 12**  
**Rail 90**  
part no. 28.0008/0



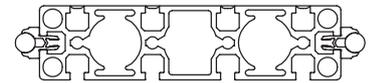
**LR 12**  
**Rail 135 H**  
part no. 28.0012/2



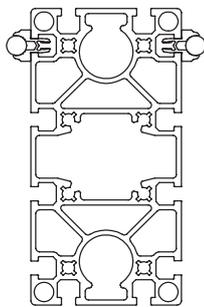
**LR 12**  
**Rail 135 F**  
part no. 28.0012/1



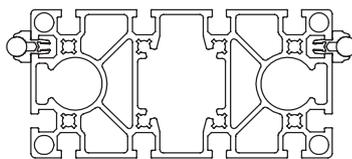
**LR 12**  
**Rail 45 x 180 H**  
part no. 28.0013/2



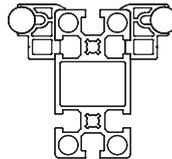
**LR 12**  
**Rail 45 x 180 F**  
part no. 28.0013/1



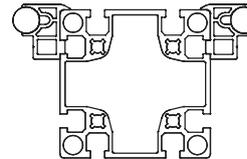
**LR 12**  
**Rail 180 H**  
part no. 28.0011/2



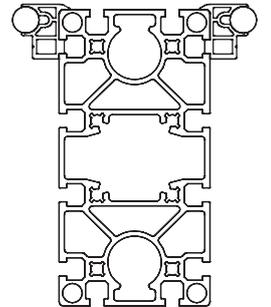
**LR 12**  
**Rail 180 F**  
part no. 28.0011/1



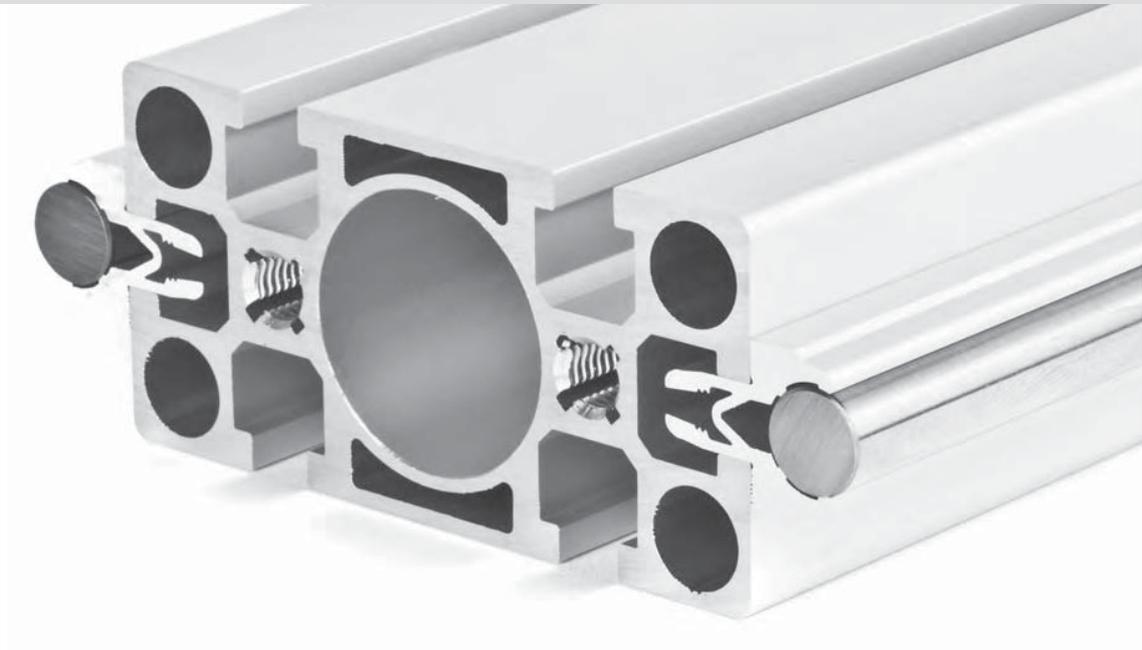
**LR 16**  
**Rail LR 16 45 x 90 H**  
part no. 28.0820/0



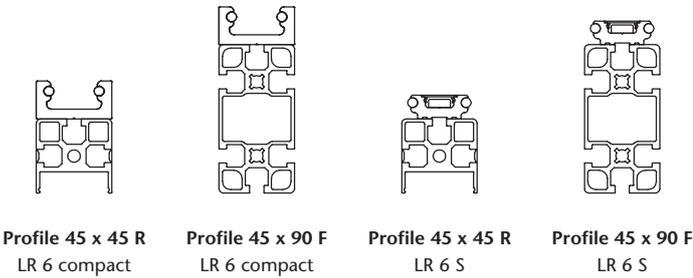
**LR 16**  
**Rail LR 16 90**  
part no. 28.0821/0



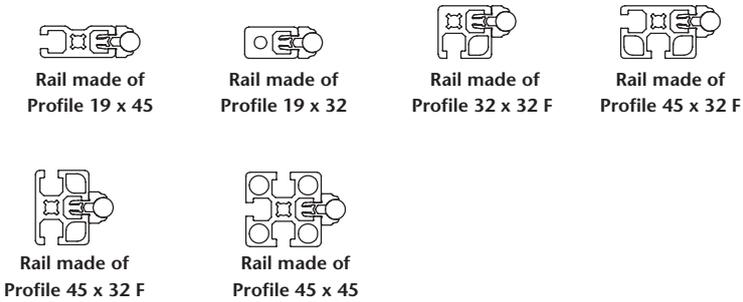
**LR 16**  
**Rail LR 16 90 x 180 H**  
part no. 28.0822/0



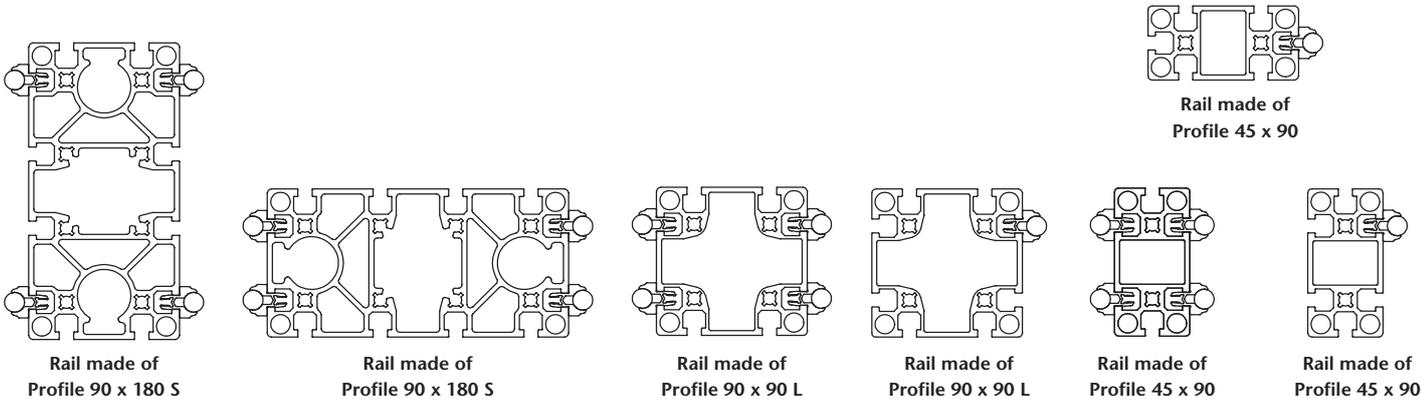
LR 6 compact and LR 6 S – other possible combinations:



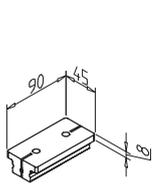
LR 12 – other possible combinations:



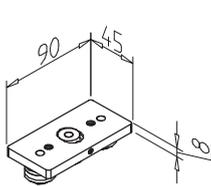
LR 12 – other possible combinations:



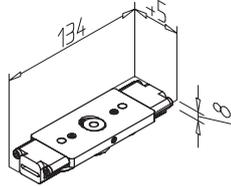
## CONSTRUCTION DESIGN OF SLIDES



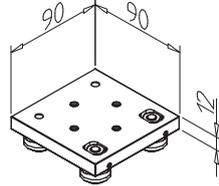
Slide  
LR 6 compact  
part no. 28.0127/0



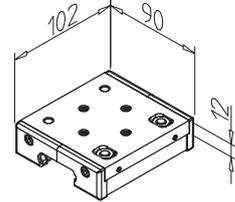
LR 6 compact  
part no. 28.0140/0



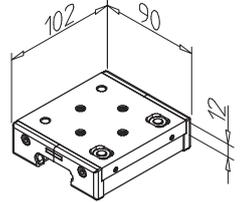
LR 6 Z compact  
part no. 28.0520/0



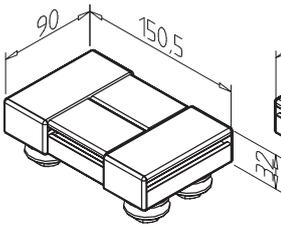
LR 6  
part no. 28.0138/0



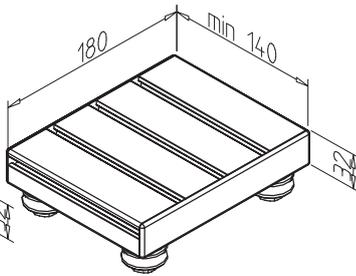
LR 6 with cover  
part no. 28.0138/1



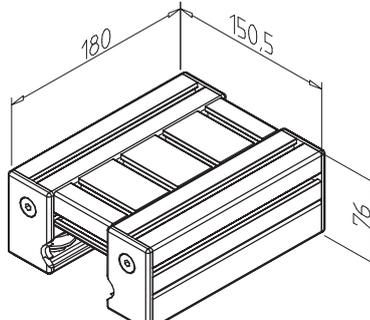
LR 6 Z  
part no. 28.0138/2



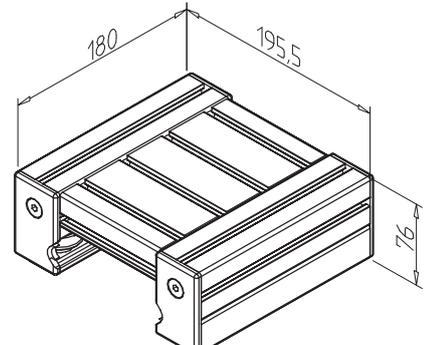
LW 32  
part no. 28.0088/0



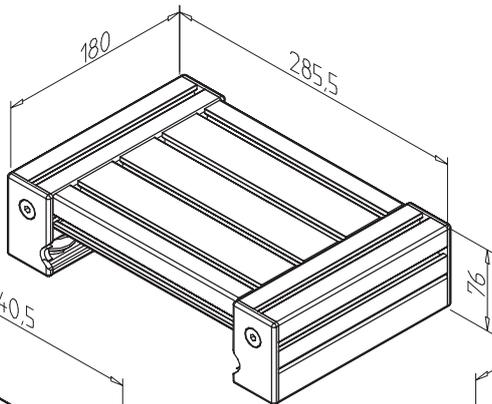
LW 32 E  
part no. 28.0089/0



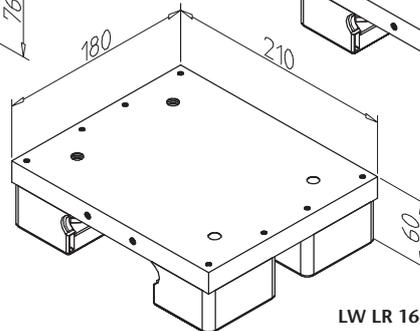
LW 45  
part no. 28.0091/0



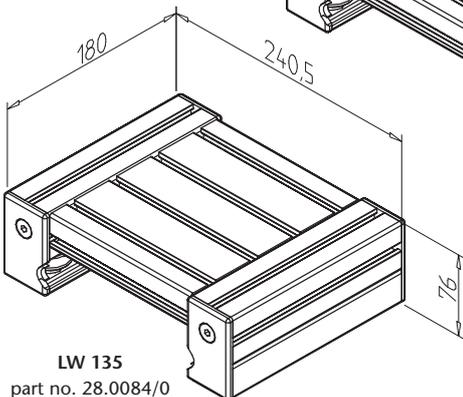
LW 90  
part no. 28.0092/0



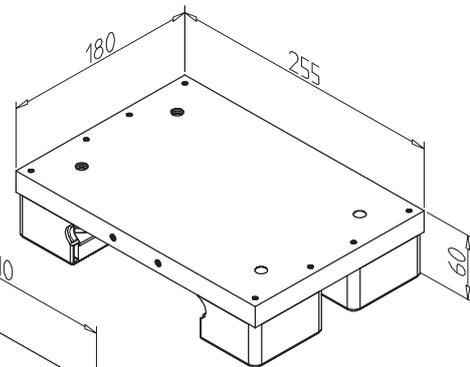
LW 180  
part no. 28.0087/0



LW LR 16-45  
part no. 28.0810/0

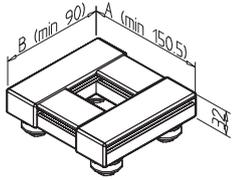


LW 135  
part no. 28.0084/0

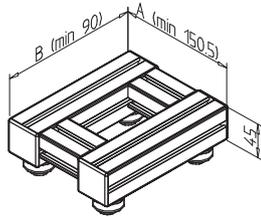


LW LR 16-90  
part no. 28.0822/0

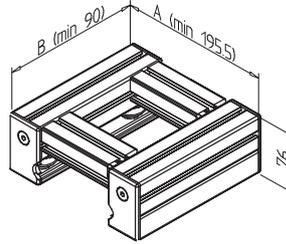
Special slide models:



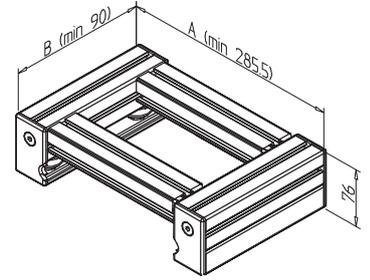
LW 32 special model  
(Open Frame)  
part no. 28.0089/25



LW 45 special model  
(Open Frame)  
part no. 28.0091/45



LW 90 special model  
(Open Frame)  
part no. 28.0092/35



LW 180 special model  
(Open Frame)  
part no. 28.0087/25



POSSIBLE COMBINATIONS OF RAILS AND SLIDES

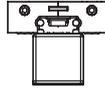
LW LR 6 compact  
Rail LR 6 compact



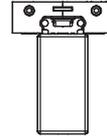
LW LR 6 compact  
Rail aus Profile 45x90F



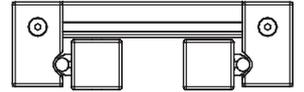
Slide LR 6  
Rail LR 6 S/45



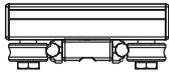
Slide LR 6  
Rail LR 6 S/90



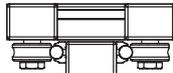
Slide LW 135  
2x special rail made  
of Profile 45x45



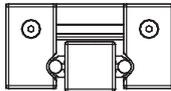
LW 32 E  
Rail 19



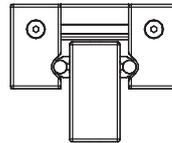
LW 32  
Rail 32



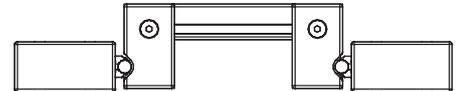
LW 45  
Rail 45



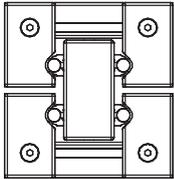
LW 45  
Rail 45x90H



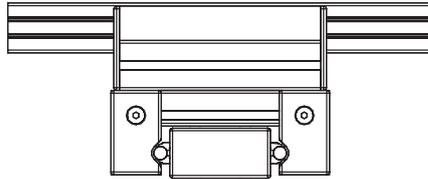
Special carriage  
2x special rail made of  
Profile 45x90



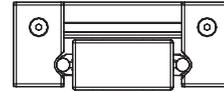
2x LW 45  
Special rail made of  
Profile 45x90



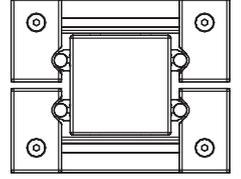
2x LW 90  
Rail 45x90F



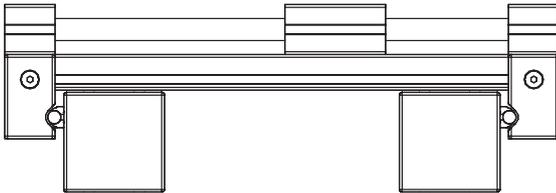
LW 90  
Rail 45x90F



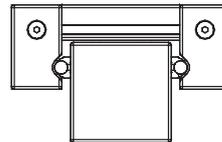
2x LW 90  
Special rail made of  
90x90L



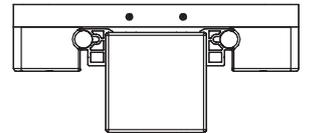
Special slide  
2x special rail made of  
Profile 90x90L



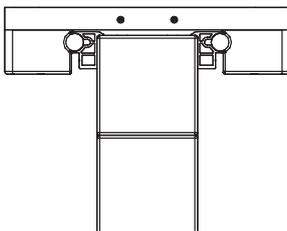
LW 90  
Rail 90



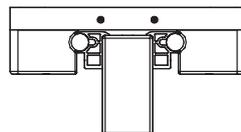
LW LR 16-90  
Rail LR 16-90



LW LR 16-90  
Rail LR 16-90x180H



LW LR 16-45  
Rail LR 16-45



## LOAD CAPACITY

LINEAR SYSTEM		LR 12						LR 16	
SLIDE	LR 6 COMPACT	SLIDE LR 6 WITH 4 BEARINGS L = 90 mm	SLIDE 45 WITH 4 BEARINGS L = 180 mm	SLIDE 90 WITH 4 BEARINGS L = 180 mm	SLIDE 135 WITH 4 BEARINGS L = 180 mm	SLIDE 180 WITH 4 BEARINGS L = 180 mm	SLIDE 180 WITH 8 BEARINGS L = 360 mm	SLIDE LR 16-45	SLIDE LR 16-90
Mx max.	40 Nm	30 Nm	79 Nm	107 Nm	130 Nm	165 Nm	240 Nm	158 Nm	214 Nm
My max.	40 Nm	75 Nm	120 Nm	120 Nm	120 Nm	120 Nm	275 Nm	288 Nm	288 Nm
Mz max.	40 Nm	40 Nm	202 Nm	202 Nm	202 Nm	202 Nm	470 Nm	323 Nm	323 Nm
Fy max.	700 N	800 N	3500 N	3500 N	3500 N	3500 N	7000 N	7000 N	7000 N
Fz max.	1100 N	640 N	1500 N	1500 N	1500 N	1500 N	3000 N	3000 N	3000 N

### Maximal Speed

Slide 45 - 180: 10 m/sec

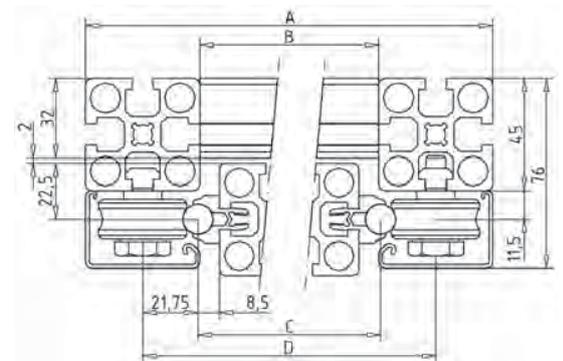
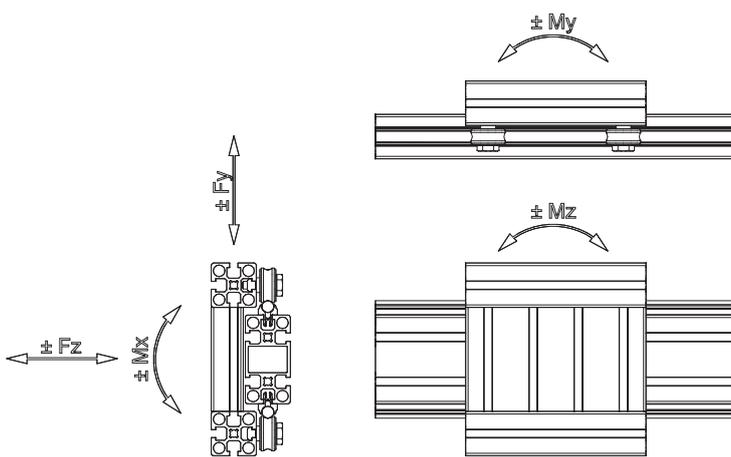
Slide LR 6: 5 m/sec

### CALCULATING THE PERMISSIBLE MOMENT LOAD DEPENDING ON THE CARRIAGE LENGTH, WITH 4 BEARINGS:

$$My \text{ max.} = 0.89 \cdot (L-45) \text{ Nm}$$

$$Mz \text{ max.} = 1.50 \cdot (L-45) \text{ Nm}$$

L = Slide length

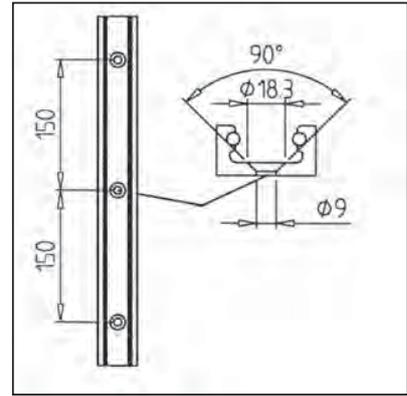
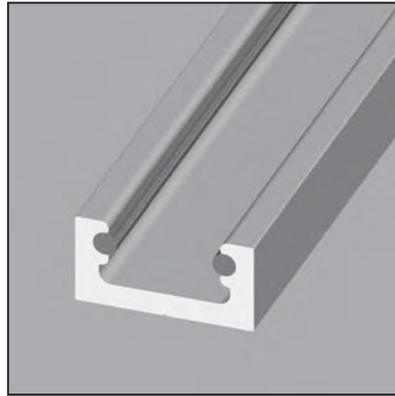
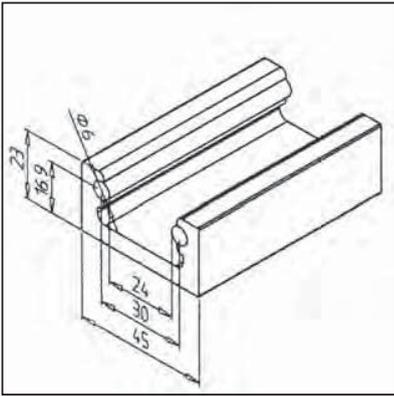


### REFERENCE VARIABLE

SLIDE TYPE / DIMENSION	LR 6 COMPACT	LR 6	LW 45	LW 90	LW 135	LW 180	LR 16-45	LR 16-90
A	45	90	150.5	195.5	240.5	285.5	210	255
B	-	-	60.5	105.5	150.5	195.5	-	-
C	30	32	62	107	152	197	85	130
D	2	60	105.5	150.5	195.5	240.5	149.5	194.5

## RAIL LR 6 COMPACT

part no. 28.0119/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, natural anodized E6/EV 1
- 2 Shafts  $\varnothing$  6 mm, Cf 53 h6, steel
- With fixing bores  $\varnothing$  8,5 mm, grid: 150 mm
- Weight 1,779 kg/m
- Length 6 m
- **Stainless version part no. 28.0149/0**

### APPLICATIONS

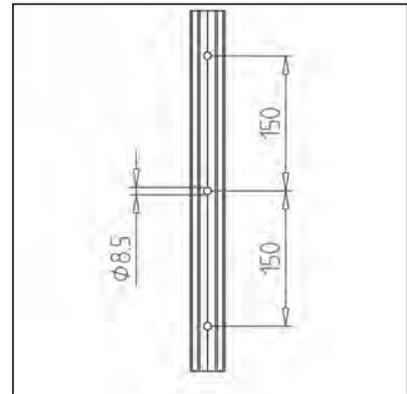
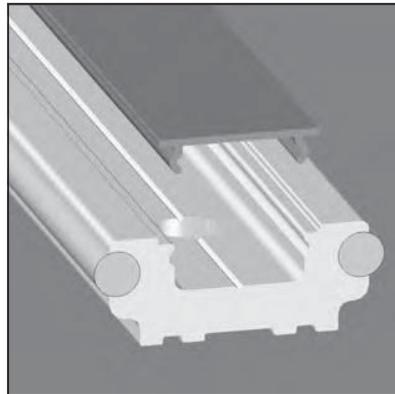
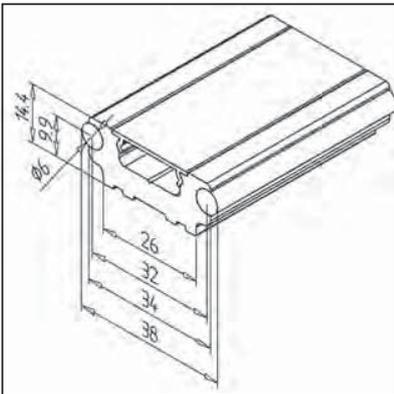
- Material-handling
- Measuring devices
- Doors

### ASSEMBLY

- Fasten rail with countersunk screws M8 x 20 and square nut M8 on MiniTec profile

## RAIL LR 6 S

part no. 28.0525/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, anodized E6/EV 1
- 2 shafts  $\varnothing$  6 h6
- Drilled ready for installation
- Weight 1,180 kg/m
- Length 6 m
- **Stainless version part no. 28.0526/0**

### APPLICATIONS

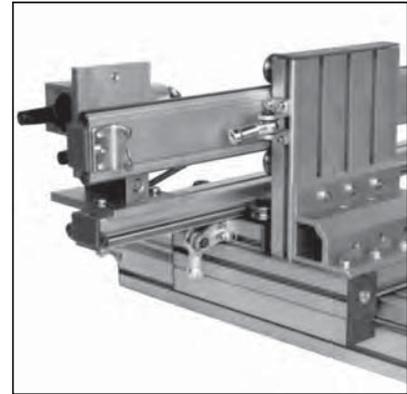
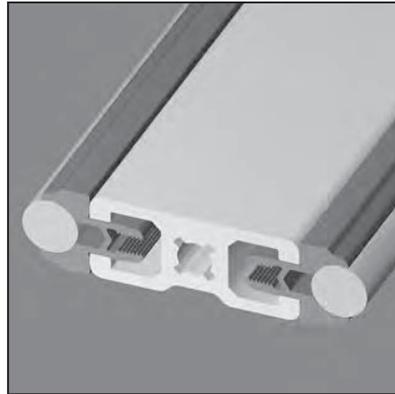
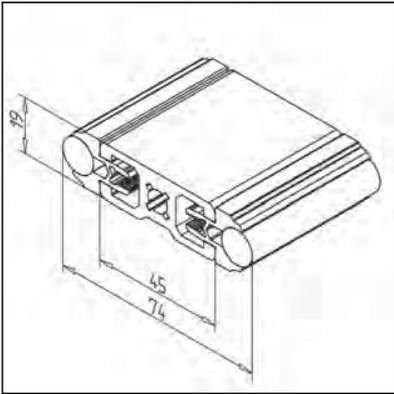
- MiniTec linear guide systems LR 6
- Material-handling
- Measuring devices
- Doors

### ASSEMBLY

- Fasten rail with hex socket cap screws M8 x 20 and square nut M8 on MiniTec profile
- Optionally: Cover profile **part no. 22.1160/0**

**RAIL 19**

part no. 28.0009/0

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 19 x 45
- Both sides with shaft supporting profile and shafts  $\varnothing 12$  h6, ready for use
- Without end caps
- Weight 3,666 kg/m
- Length 6 m
- **Stainless version part no. 28.0009/3**

**APPLICATIONS**

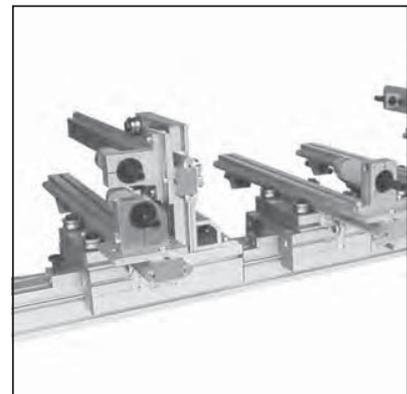
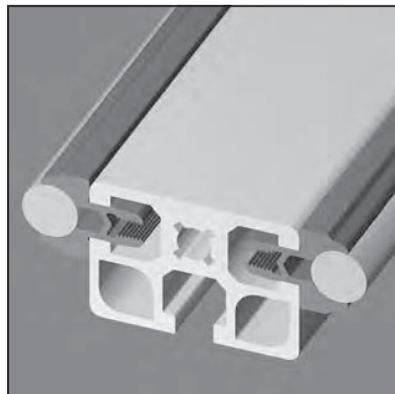
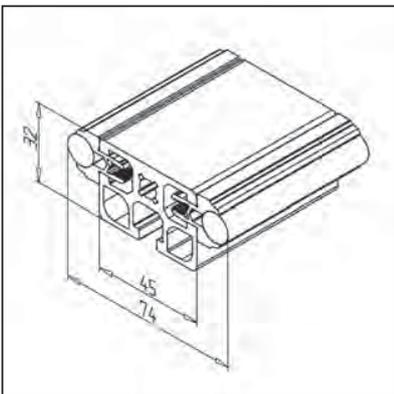
- Linear guides
- Longer rails with composite shafts possible

**ASSEMBLY**

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

**RAIL 32**

part no. 28.0010/0

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 45 x 32 F
- Both sides with shaft supporting profile and shafts  $\varnothing 12$  h6, ready for use
- Without end caps
- Weight 4,161 kg/m
- Length 6 m
- **Stainless version part no. 28.0010/3**

**APPLICATIONS**

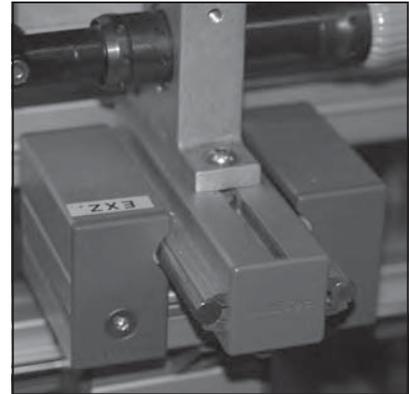
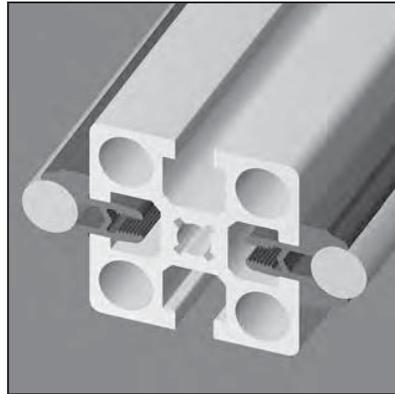
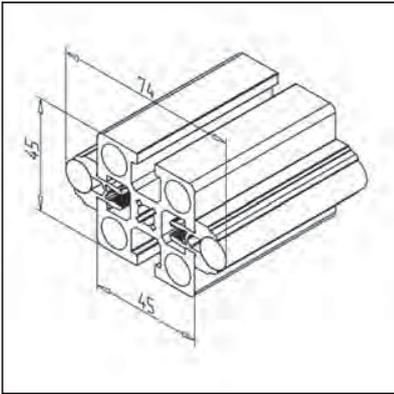
- Linear guides
- Longer rails with composite shafts possible

**ASSEMBLY**

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 45

part no. 28.0006/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 45
- Both sides with shaft supporting profile and shafts Ø 12mm, h6, ready for use
- Without end caps
- Weight 4,796 kg/m
- Length 6 m
- **Stainless version part no. 28.0006/3**

### APPLICATIONS

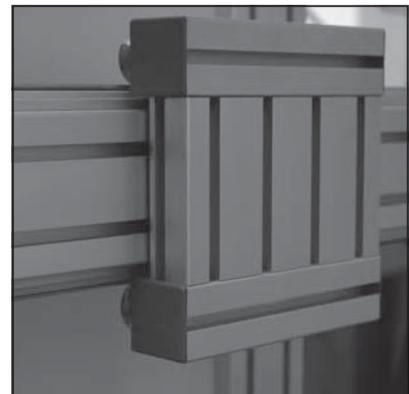
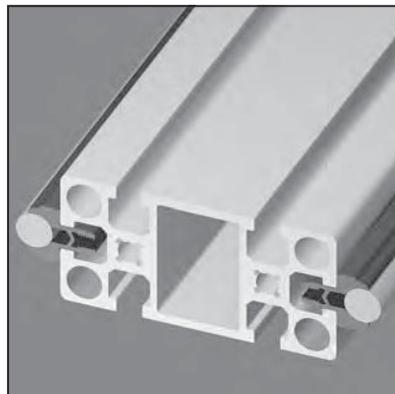
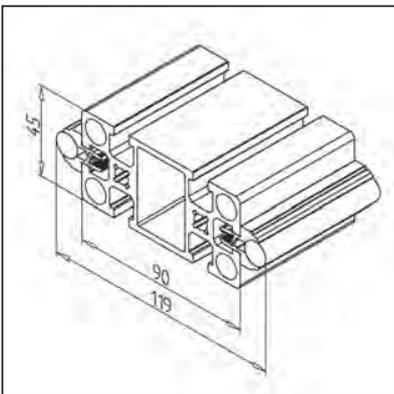
- Linear guides
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 45 X 90 F

part no. 28.0007/1



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 90
- Both sides with shaft supporting profile and shafts Ø 12 mm, h6, ready for use
- Without end caps
- Weight 6,190 kg/m
- Length 6 m
- **Stainless version part no. 28.0007/3**

### APPLICATIONS

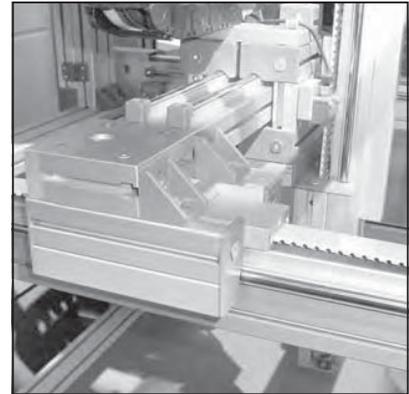
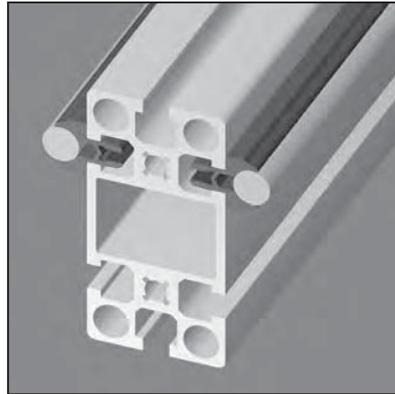
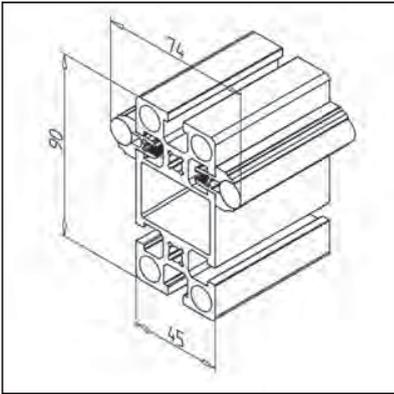
- Linear guides
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

**RAIL 45 X 90 H**

part no. 28.0007/2

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 45 x 90
- Both sides with shaft supporting profile and shafts  $\varnothing$  12 mm, h6, ready for use
- Without end caps
- Weight 6,190 kg/m
- Length 6 m
- **Stainless version part no. 28.0007/4**

**APPLICATIONS**

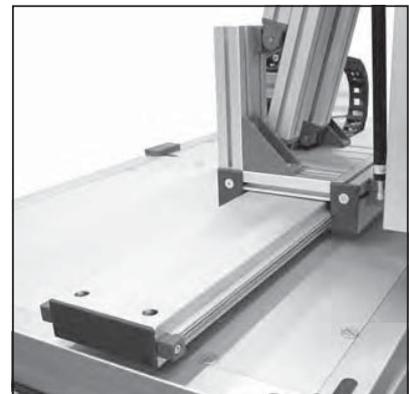
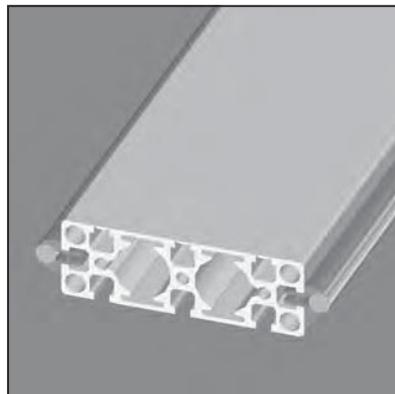
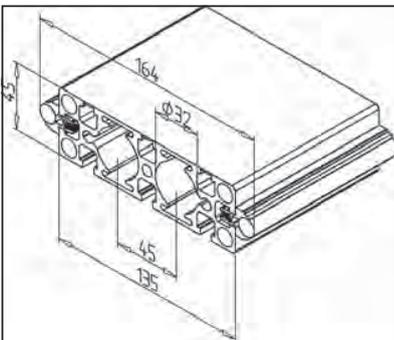
- Linear guides
- Belt return in profile
- Longer rails with shafts put together

**ASSEMBLY**

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

**RAIL 135 F**

part no. 28.0012/1

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 45 x 135 1G
- Both sides with shaft supporting profile and shafts  $\varnothing$  12 h6, ready for use
- Without end caps
- Weight 8,09 kg/m
- Length 6 m
- **Stainless version part no. 28.0012/3**

**APPLICATIONS**

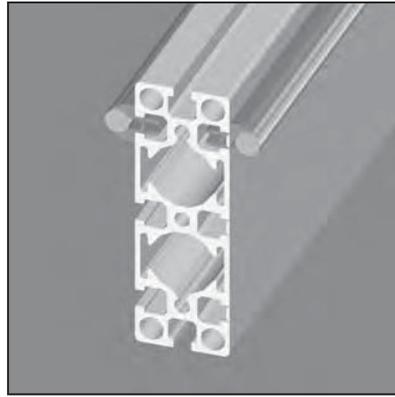
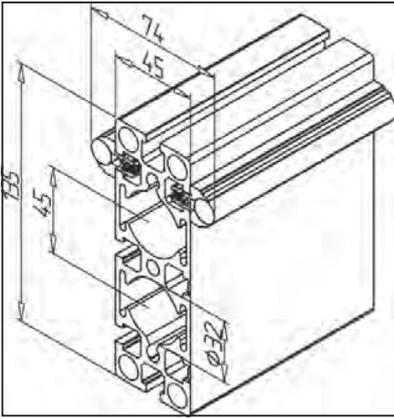
- Linear guides
- Longer rails with shafts put together

**ASSEMBLY**

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 135 H

part no. 28.0012/2



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 135 G
- Both sides with shaft supporting profile and shafts Ø 12 h6, ready for use
- Without end caps
- Weight 8,086 kg/m
- Length 6 m
- **Stainless version part no. 28.0012/4**

### APPLICATIONS

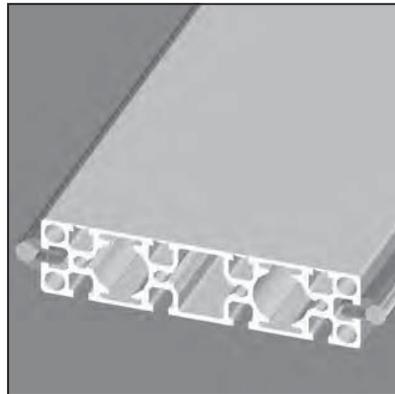
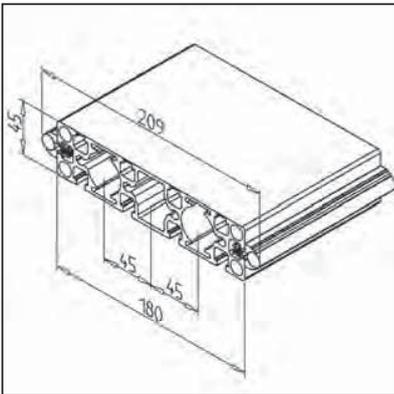
- Linear guides
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 45 X 180 F

part no. 28.0013/1



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 180 G
- Both sides with shaft supporting profile and shafts Ø 12 h6, ready for use
- Without end caps
- Weight 9,466 kg/m
- Length 6 m
- **Stainless version part no. 28.0013/3**

### APPLICATIONS

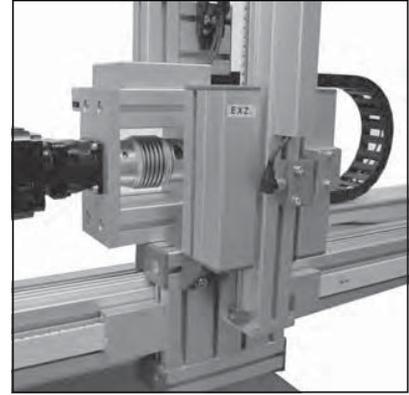
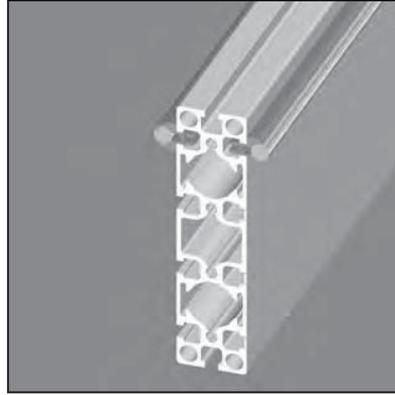
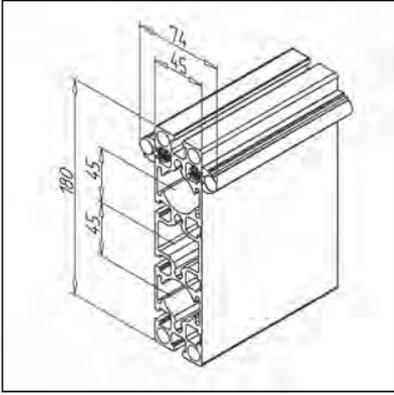
- Linear guides
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 45 X 180 H

part no. 28.0013/2



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 180 1G
- Both sides with shaft supporting profile and shafts  $\varnothing 12$  h6, ready for use
- Without end caps
- Weight 9,466 kg/m
- Length 6 m
- **Stainless version part no. 28.0013/4**

### APPLICATIONS

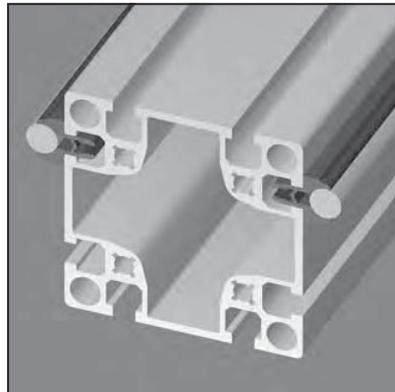
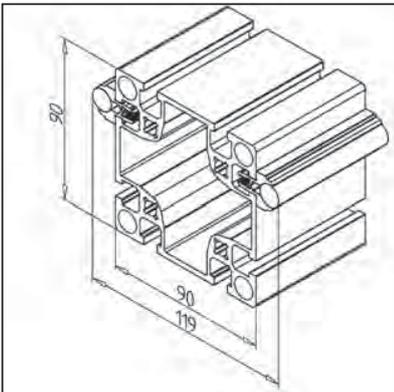
- Linear guides
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 90

part no. 28.0008/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 90 x 90 L
- Both sides with shaft supporting profile and shafts  $\varnothing 12$  mm, h6, ready for use
- Without end caps
- Weight 7,88 kg/m
- Length 6 m
- **Stainless version part no. 28.0008/3**

### APPLICATIONS

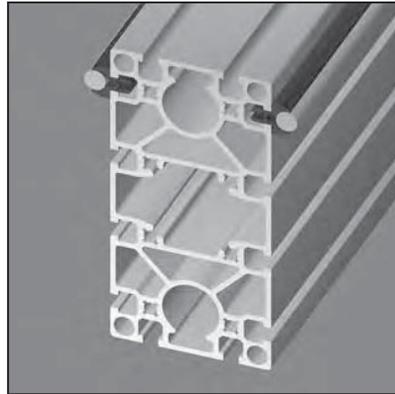
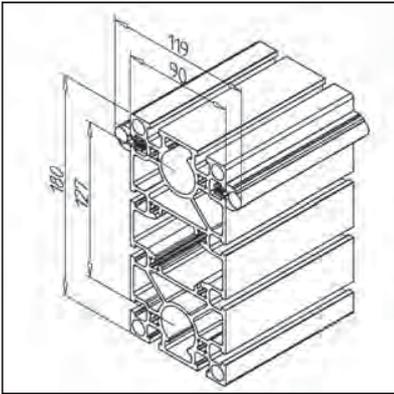
- Linear guides
- Timing belt return inside the profile
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 180 H

part no. 28.0011/2



### TECHN. DATA / ITEMS SUPPLIED

- Profile 90 x 180 S
- Both sides with shaft supporting profile and shafts  $\varnothing 12$  h6, ready for use
- Without end caps
- Weight 14,516 kg/m
- Length 6 m
- **Stainless version part no. 28.0011/4**

### APPLICATIONS

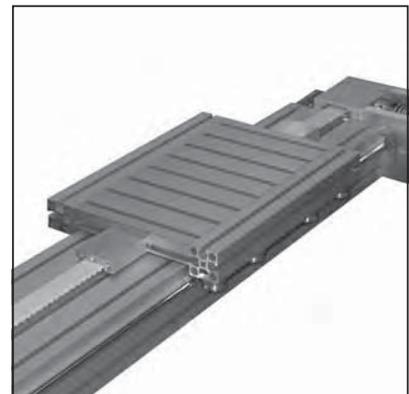
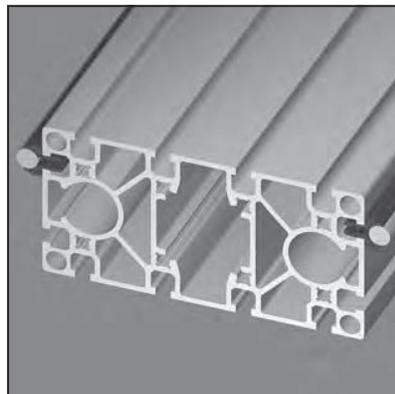
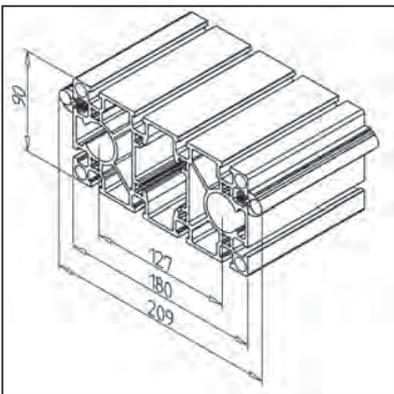
- Linear guides
- Timing belt return inside the profile
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

## RAIL 180 F

part no. 28.0011/1



### TECHN. DATA / ITEMS SUPPLIED

- Profile 90 x 180 S
- Both sides with shaft supporting profile and shafts  $\varnothing 12$  h6, ready for use
- Without end caps
- Weight 14,516 kg/m
- Length 6 m
- **Stainless version part no. 28.0011/3**

### APPLICATIONS

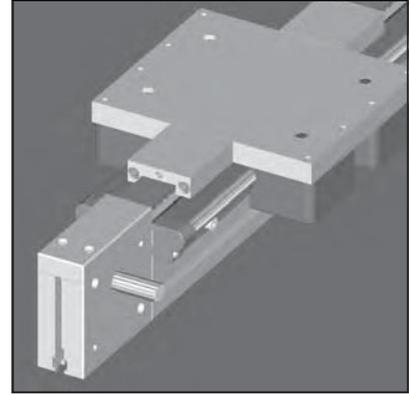
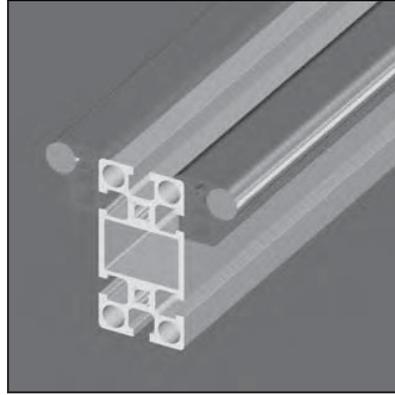
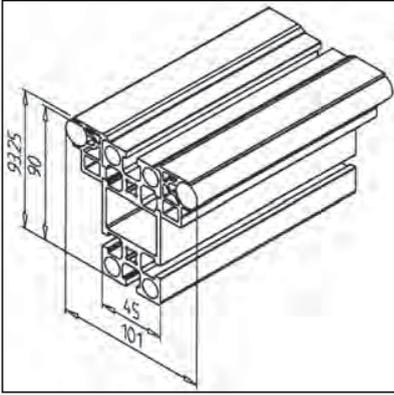
- Linear guides
- Timing belt return inside the profile
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or for high speed applications, we recommend the use of shaft retention devices **part no. 28.0052/0**
- Load capacity: see page 289

**RAIL LR 16 - 45 X 90 H**

part no. 28.0820/0

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 45 x 90
- With shaft supporting profile LR 16 and shaft with diameter  $\varnothing$  16 mm, h6 on both sides, assembled ready to fit
- Without end caps
- Weight 7,979 kg/m
- Length 6 m

**APPLICATIONS**

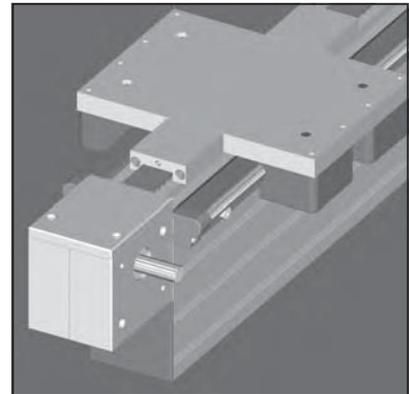
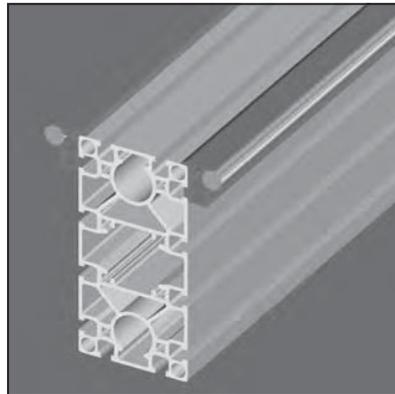
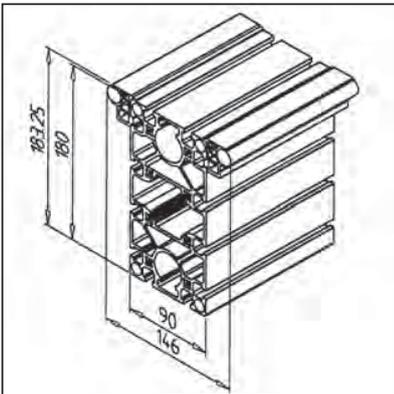
- Linear guides for high load capacity
- Timing belt return in profile
- Longer rails with composite shafts possible

**ASSEMBLY**

- For vertical use or high speed applications we recommend the use of shaft retention device LR 16 **part no. 28.0808/0 and part no. 28.0809/0**

**RAIL LR 16 - 90X180 H**

part no. 28.0822/0

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 90 x 180 S
- With shaft supporting profile and shaft with diameter 16 h6 on both sides, assembled ready to fit
- Without end caps
- Weight 16,278 kg/m
- Length 6 m

**APPLICATIONS**

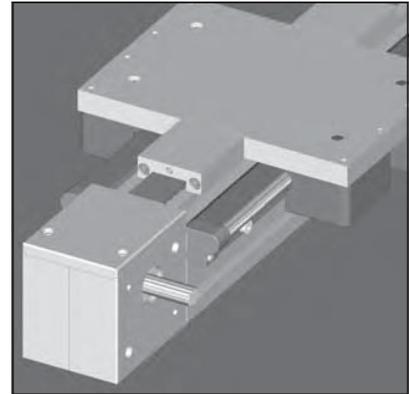
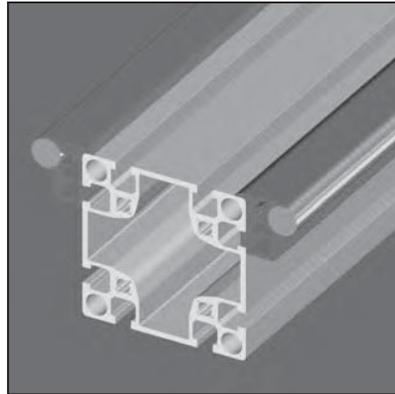
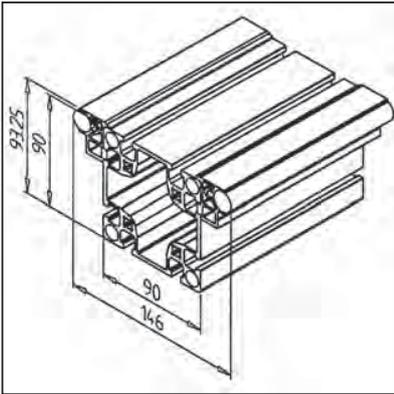
- Linear guides for high load capacity
- Timing belt return in profile
- Longer rails with composite shafts possible

**ASSEMBLY**

- For vertical use or high speed applications we recommend the use of shaft retention device LR 16 **part no. 28.0808/0 and 28.0809/0**

## RAIL LR 16 - 90

part no. 28.0821/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 90 x 90
- With shaft supporting profile LR 16 and shaft with diameter  $\varnothing$  16 mm, h6 on both sides, assembled ready to fit
- Without end caps
- Weight 10,067 kg/m
- Length 6 m

### APPLICATIONS

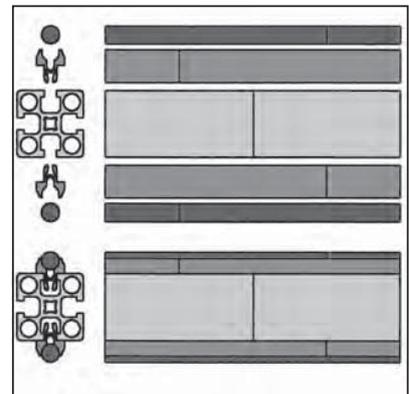
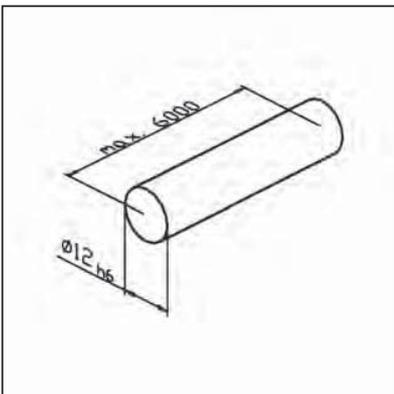
- Linear guides for high load capacity
- Toothed belt return in profile
- Longer rails with composite shafts possible

### ASSEMBLY

- For vertical use or high speed applications we recommend the use of shaft retention device LR 16 **part no. 28.0808/0 and part no. 28.0809/0**

## SHAFT 12

part no. 17.1741/0



### TECHN. DATA / ITEMS SUPPLIED

- Cf 53, hardened 60 + 5 HRC, precision ground h6
- Weight 0,888 kg/m
- max. Length 6 m
- **Stainless version part no. 17.1760/0**

### APPLICATIONS

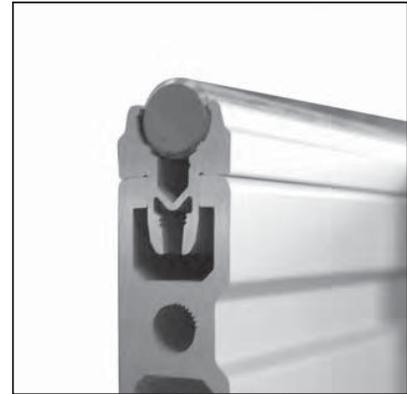
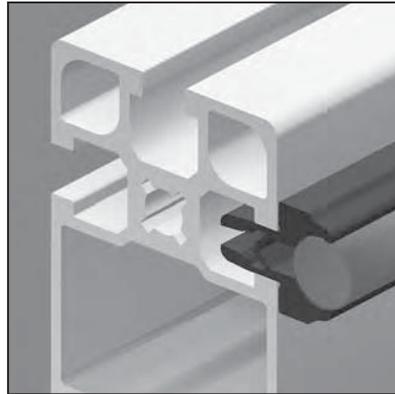
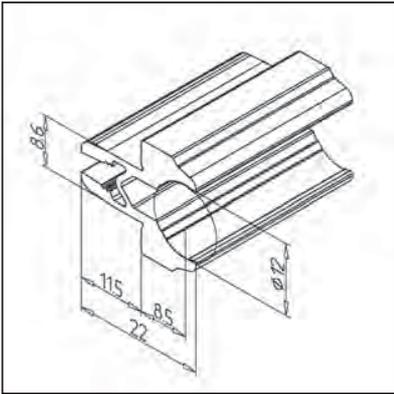
- All MiniTec linear guides LR

### ASSEMBLY

- Press shaft into supporting profile with appropriate tool (plastic mallet)
- For rails  $L > 6000$  mm assemble profile, shaft supporting profile and shaft with offset joints

## SHAFT SUPPORTING PROFILE

part no. 28.0002/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, natural anodized E6/EV1
- Weight 0,365 kg/m
- Length 6 m

### APPLICATIONS

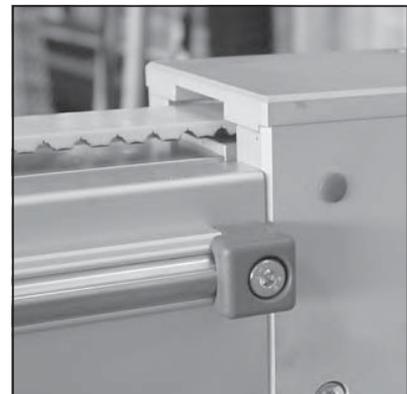
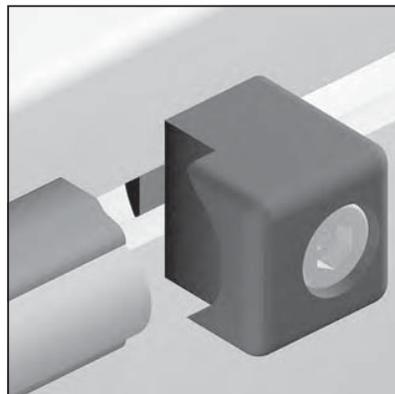
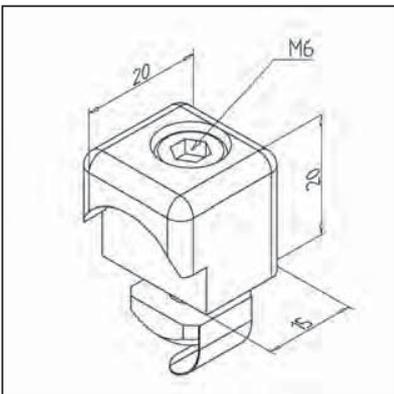
- MiniTec linear guides LR/LG

### ASSEMBLY

- Press into the groove of rail profile
- If necessary clamp with set screw M5 x 10 in position
- Press shaft into supporting profile with appropriate tool (plastic mallet)

## SHAFT RETENTION DEVICE

part no. 28.0052/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium , powder coated, grey
- Fastening kit
- Weight 0,03 kg
- Stainless version part no. 28.0053/0

### APPLICATIONS

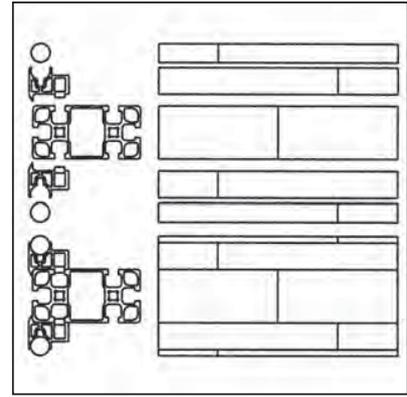
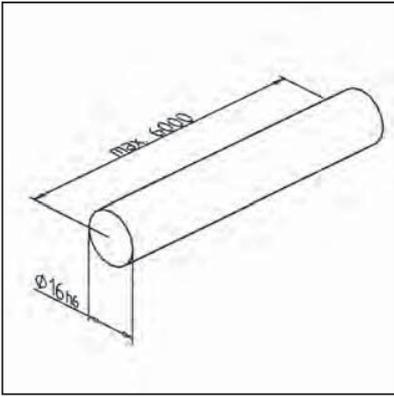
- Axial retention of shafts in dynamically stressed linear guides

### ASSEMBLY

- Fasten the retention device at both shaft ends with fastening kit
- No processing required

## SHAFT 16

part no. 17.1743/0



### TECHN. DATA / ITEMS SUPPLIED

- Cf 53, hardened  $60 \pm 5$  HRC, precision ground h6

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- Weight 1,578 kg/m

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- max. Length 6 m

### APPLICATIONS

- MiniTec linear guide LR 16

### ASSEMBLY

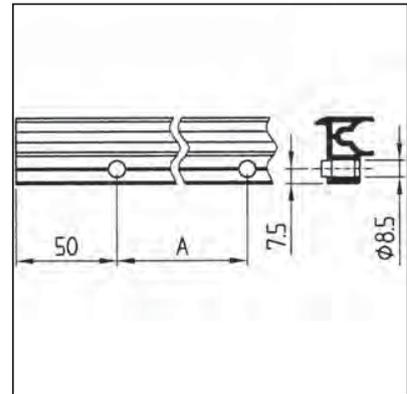
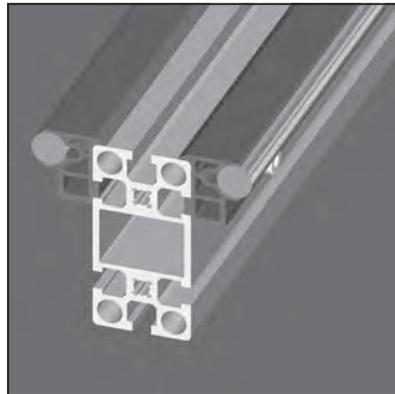
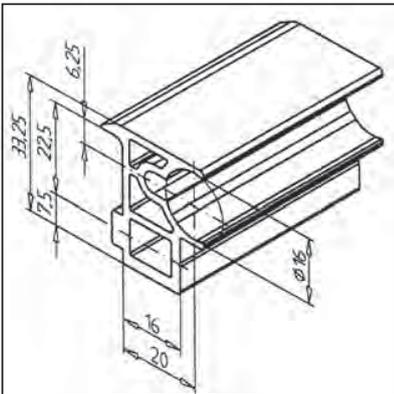
- Carefully hammer into the shaft carrier profile with a plastic-tipped hammer

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- On guides with  $L > 6000$  mm assemble profile, shaft support and shaft with offset joints

## SHAFT SUPPORTING PROFILE LR 16

part no. 28.0019/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium natur, eloxiert E6 / EV1

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- Weight 0,845 kg/m

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- Length 6 m

### APPLICATIONS

- MiniTec linear guide LR16

### ASSEMBLY

- Bore  $\varnothing 8.5$  in the shaft supporting profile

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- Recommended distance: 50 mm from the edge, then approximately every 200 - 300 mm

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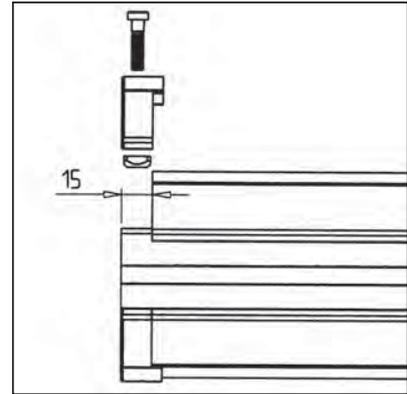
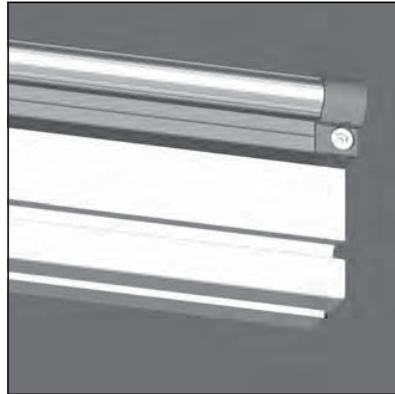
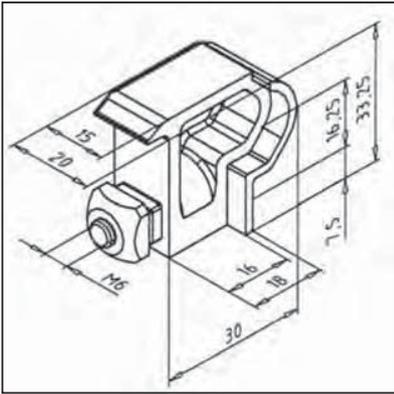
- Fasten to the supporting profile using M8 x 30 hex socket head screw and M8 square nut

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- Hammer the shaft into the shaft supporting profile with a plastic-tipped hammer

**SHAFT FASTENER LEFT LR 16**

part no. 28.0809/0

**TECHN. DATA / ITEMS SUPPLIED**

- Aluminium GD, powder coated, grey
- With fastening kit
- Weight 0,04 kg

**APPLICATIONS**

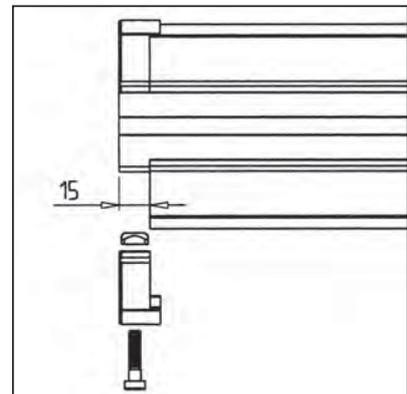
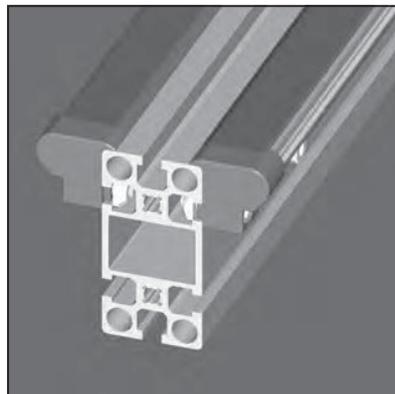
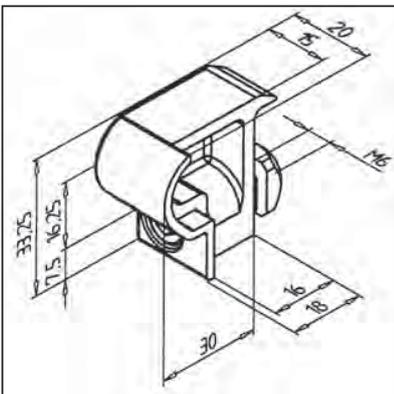
- Axial fastening of shafts in linear guides subject to heavy dynamic stress

**ASSEMBLY**

- Shaft carrier profile and shafts must be 15 mm shorter on each side than the supporting profile
- Attach the shaft fastener at both ends of the shaft with supplied fastening kit
- No processing necessary

**SHAFT RETENTION DEVICE RIGHT LR 16**

part no. 28.0808/0

**TECHN. DATA / ITEMS SUPPLIED**

- Aluminium GD, powder coated, grey
- Fastening kit
- Weight 0,04 kg

**APPLICATIONS**

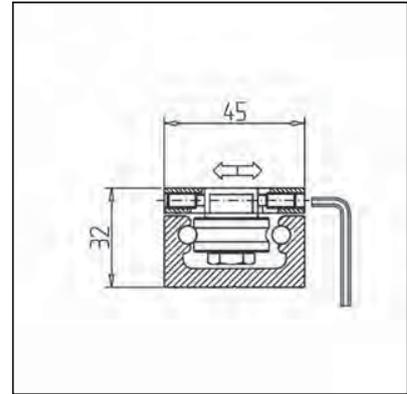
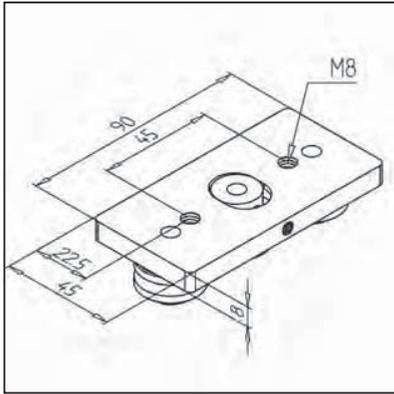
- Axial fastening of shafts in linear guides subject to heavy dynamic stress

**ASSEMBLY**

- Shaft carrier profile and shafts must be 15 mm shorter on each side than the supporting profile
- Attach the shaft fastener at both ends of the shaft with supplied fastening kit
- No processing necessary

## SLIDE LR6 COMPACT

part no. 28.0140/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, all faces machined
- 3 Double row, angular-contact bearings
- Assembled ready for use
- Weight 0,194 kg
- **Stainless version part no. 28.0148/0**

### APPLICATIONS

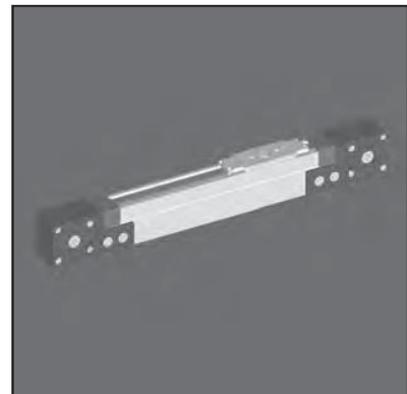
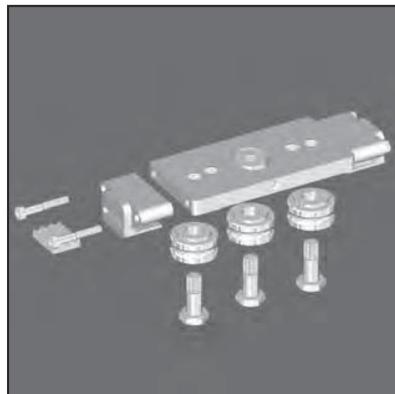
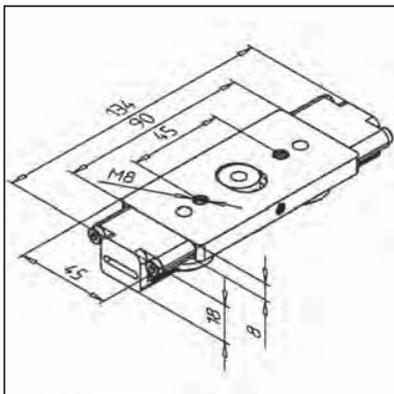
- MiniTec linear guide systems LR 6
- Material-handling
- Measuring devices
- Doors
- Rail **part no. 28.0119/0**

### ASSEMBLY

- Slip slide onto rail
- Adjust clearance with key 2,5 A/F

## SLIDE LR 6 Z COMPACT

part no. 28.0520/0



### TECHN. DATA / ITEMS SUPPLIED

- aluminium all faces processed
- triple row, angular-contact bearings
- mounted with concentric fixing bushes
- Weight 0,192 kg
- **Stainless version part no. 28.0524/0**

### APPLICATIONS

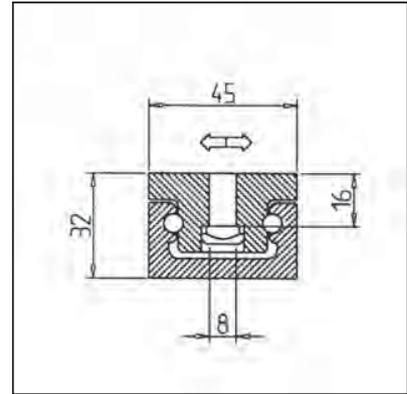
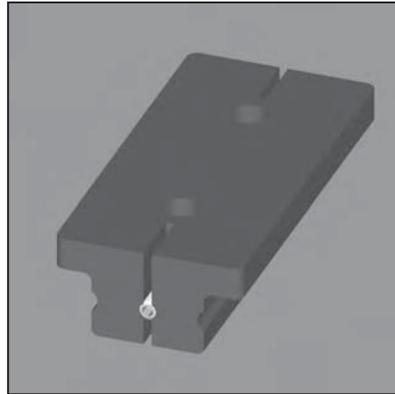
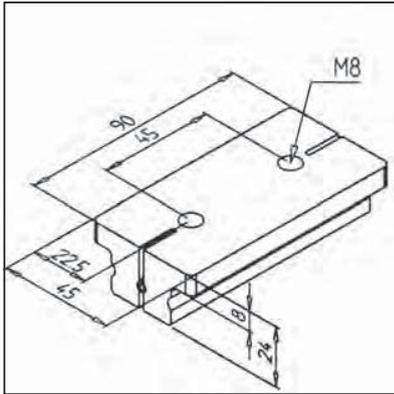
- MiniTec linear guide system LR6
- material-handling in areas with shortage of space
- use with rail LR6 compact **part no. 28.0119/0** and timing belt pulley LR6

### ASSEMBLY

- slip slide onto rail
- adjust clearance with key 2,5 A/F
- For simple equipment

**SLIDE LR 6 COMPACT**

part no. 28.0127/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide PEUHMW, black
- With square nut M8, steel zinc plated
- Weight 0,068 kg

**APPLICATIONS**

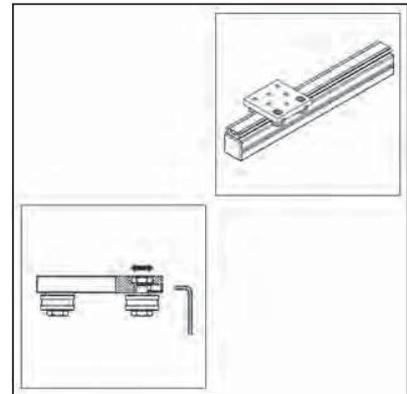
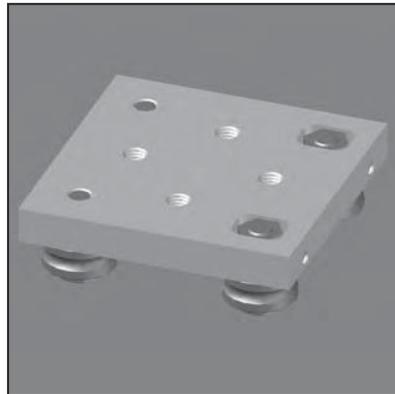
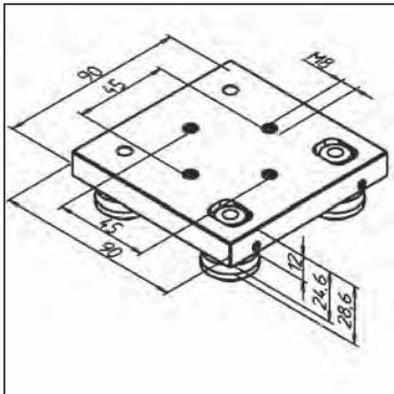
- Material-handling
- Measuring devices
- Doors
- For rail **part no. 28.0119/0**

**ASSEMBLY**

- Slip slide onto rail
- Adjust slide clearance with hexagon key

**SLIDE LR 6**

part no. 28.0138/0

**TECHN. DATA / ITEMS SUPPLIED**

- Aluminium, all faces machined
- Double row, angular-contact bearings
- Assembled ready for use
- Weight 0,396 kg
- **Stainless version part no. 28.0139/0**

**APPLICATIONS**

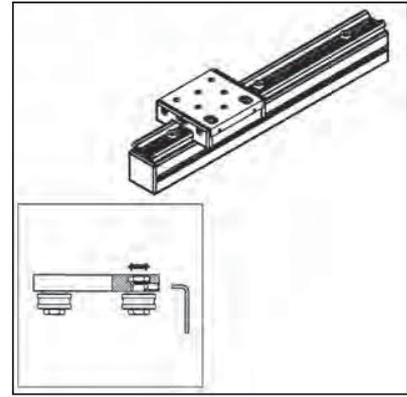
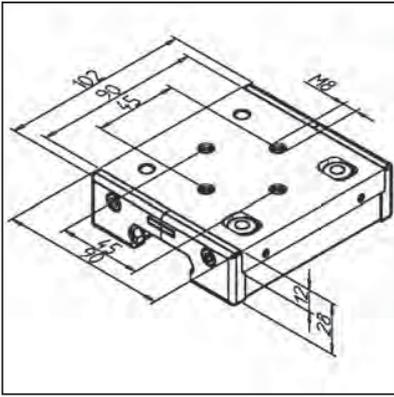
- MiniTec linear guide systems LR 6
- Material-handling
- Measuring devices
- Doors
- For rail **part no. 28.0119/0**

**ASSEMBLY**

- Slip slide onto rail
- Adjust clearance with key 2,5 A/F
- Tighten fixing screw with a torque of 15 Nm
- When used in extreme environment, use slide LR6 with cover, **part no. 28.0138/1**

## SLIDE LR 6 WITH COVER

part no. 28.0138/1



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, all faces machined
- Double row, angular-contact bearings LR6
- 4 concentric fixing bush
- 4 covers, plastic grey, with spring loaded greasing-felts
- Weight 0,458 kg
- **Stainless version part no. 28.0139/1**

### APPLICATIONS

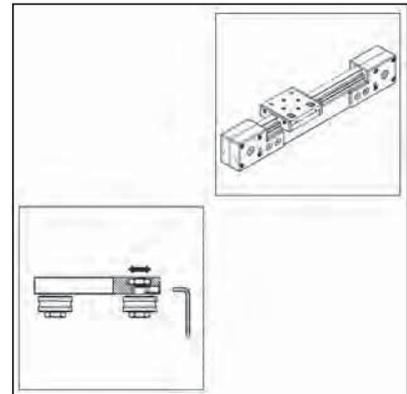
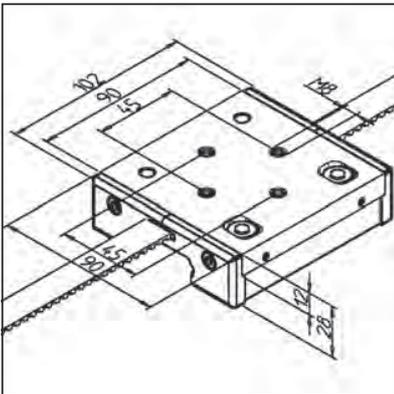
- MiniTec linear guide systems LR 6
- Jigs
- Sliding doors
- Large drawers
- For rail **part no. 28.0119/0**

### ASSEMBLY

- Slip slide onto rail
- Adjust clearance with key 2,5 A/F
- Recommended torque: 15 Nm
- Saturate greasing felts with appropriate oil

## SLIDE LR 6 Z

part no. 28.0138/2



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, all faces machined
- Double row, angular-contact bearings LR6
- 4 concentric fixing bush
- 4 covers, plastic grey, with spring loaded greasing-felts
- Belt fixing device integrated into slide-plate
- Weight 0,502 kg
- **Stainless version part no. 28.0139/2**

### APPLICATIONS

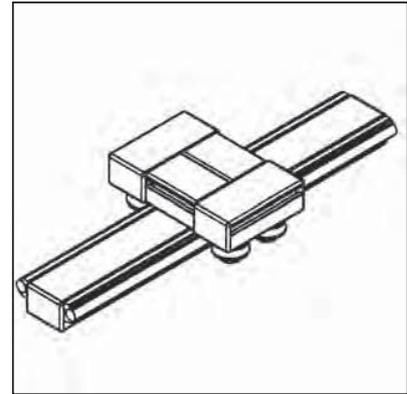
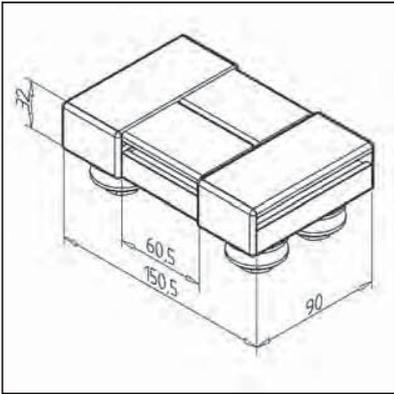
- MiniTec linear guide systems LR 6
- Material-handling devices
- For rail **part no. 28.0119/0**

### ASSEMBLY

- Slip slide onto rail
- Adjust clearance with key 2,5 A/F
- Recommended torque: 15 Nm
- Saturate greasing felts with appropriate oil
- Screw end caps clamping lower covers

## SLIDE LW 32

part no. 28.0088/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps
- Weight 1,06 kg
- **Stainless version part no. 28.0088/1**

### APPLICATIONS

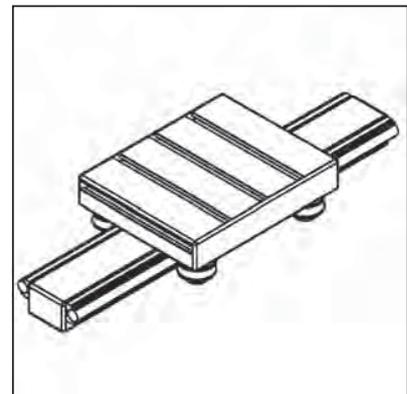
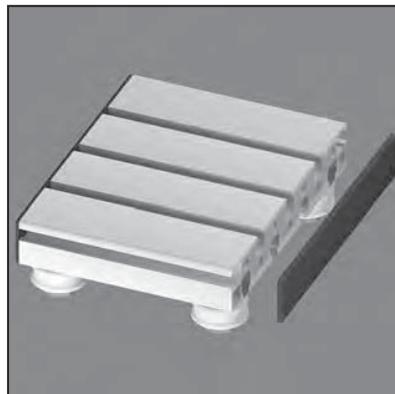
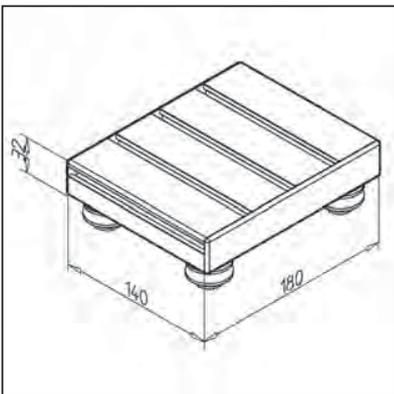
- Handling systems
- Measuring devices
- Automatic advance units
- For rails 19 and 32

### ASSEMBLY

- Slip slide on rail 19 or 32; adjust clearance with eccentric bush

## SLIDE LW 32 E

part no. 28.0089/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps
- Weight 1,92 kg
- **Stainless version part no. 28.0089/1**

### APPLICATIONS

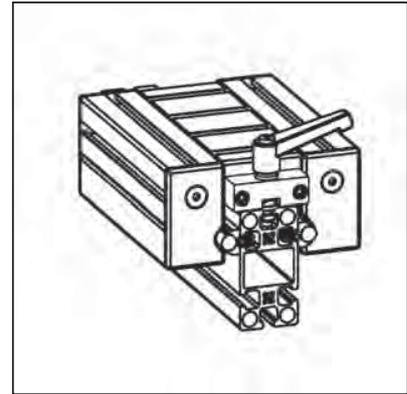
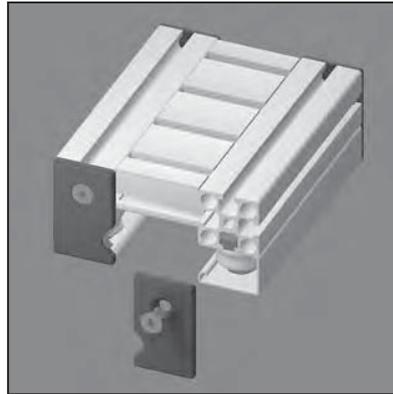
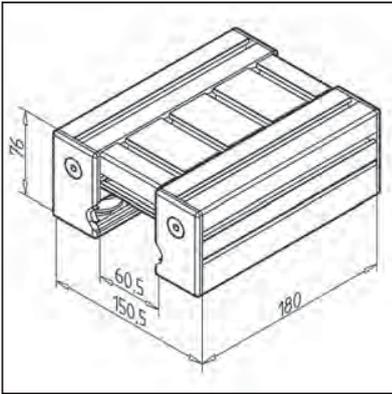
- 1- or multi-axis guides
- Handling systems
- Measuring devices
- For rails 19 and 32

### ASSEMBLY

- Slip slide on rail 19 or 32; adjust clearance with eccentric bush

## SLIDE LW 45

part no. 28.0091/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps LR and 2 cover profiles LR
- Weight 2,26 kg
- **Stainless version part no. 28.0091/3**

### APPLICATIONS

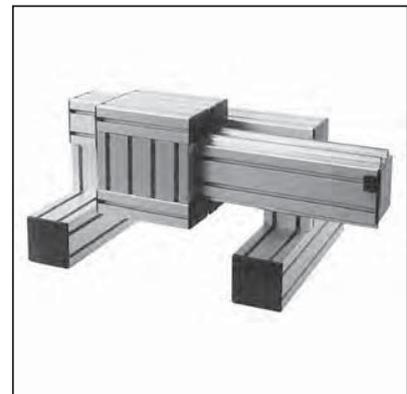
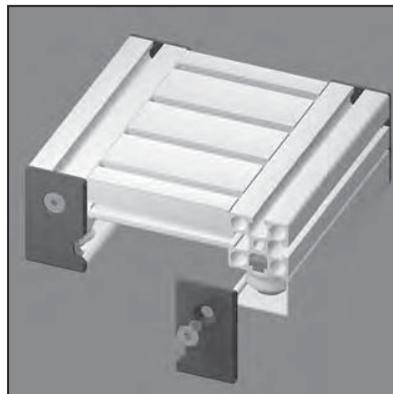
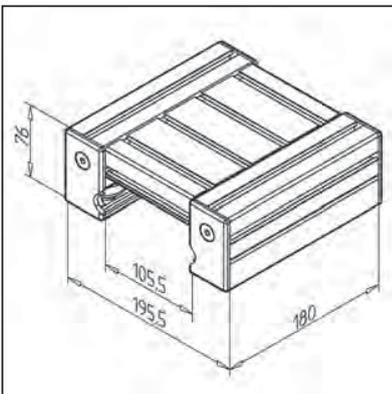
- 1- or multi-axis guides
- Linear robots
- Handling systems
- Measuring devices
- For rails 45, 45 x 90 H, 45 x 180 H and 135 H

### ASSEMBLY

- Assemble slide on rail 45 or 45 x 90 H, adjust clearance with eccentric bush
- Assemble cover and greasing system
- **OPTIONS:**
- Slide clamping unit **part no. 28.0270/0**

## SLIDE LW 90

part no. 28.0092/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps LR and Cover profiles LR
- Weight 2,7 kg
- **Stainless version part no. 28.0092/2**

### APPLICATIONS

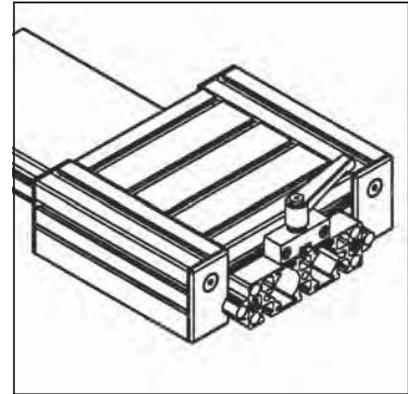
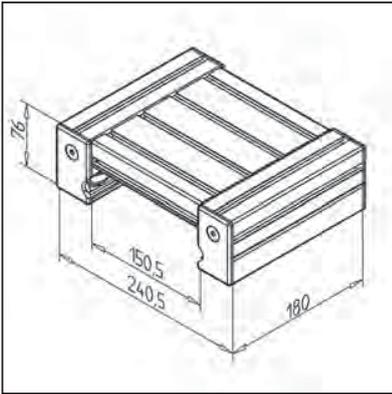
- 1- or multi-axis guides
- Linear robots
- Handling systems
- Measuring devices
- For rails 45 x 90 F, 90 x 90, 90 x 180 H

### ASSEMBLY

- Assemble slide on rail 45 x 90 F, rail 90 or rail 90 x 180 H; adjust clearance with eccentric bush
- Assemble cover and greasing system
- **OPTIONS:**
- Slide clamping **part no. 28.0270/0**

**SLIDE LW 135**

part no. 28.0084/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps LR and Cover profiles LR
- Weight 3,15 kg
- **Stainless version part no. 28.0084/1**

**APPLICATIONS**

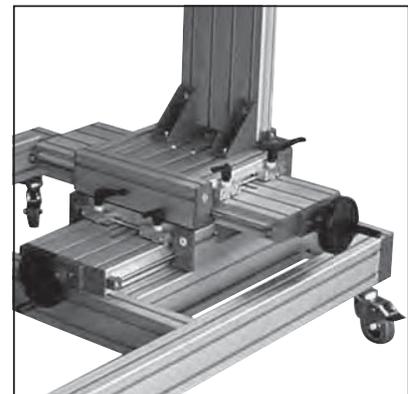
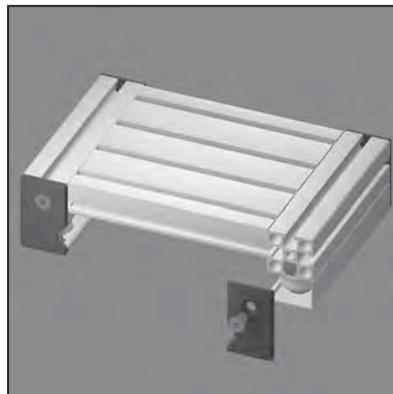
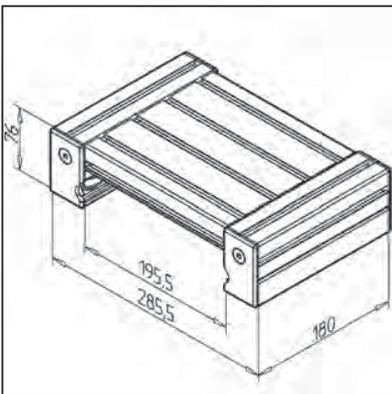
- 1- or multi-axis guides
- Linear robots
- Handling systems
- Measuring devices
- For rails 135 F

**ASSEMBLY**

- Assemble slide on rail 45 x 135; adjust clearance with eccentric bush
- Assemble cover and greasing system
- **OPTIONS:**
- Slide clamping unit **part no. 28.0270/0**

**SLIDE LW 180**

part no. 28.0087/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps LR and Cover profiles LR
- Weight 3,59 kg
- **Stainless version part no. 28.0087/1**

**APPLICATIONS**

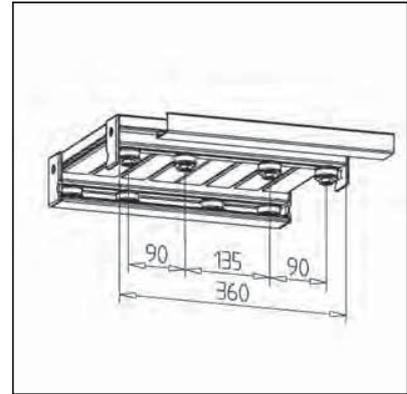
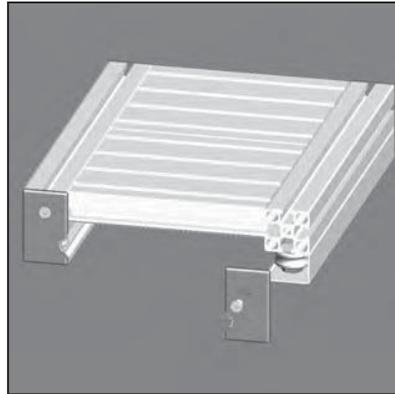
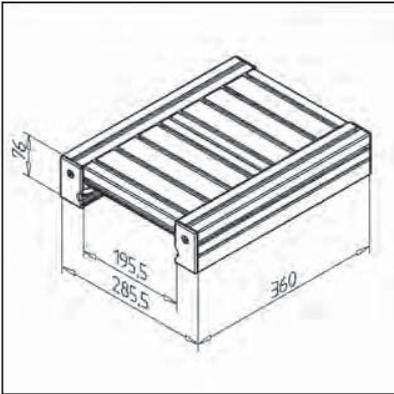
- 1- or multi-axis guides
- Linear robots
- Handling systems
- Measuring devices
- For rails 45 x 180 F and 90 x 180 F

**ASSEMBLY**

- Assemble slide on rail 90 x 180; adjust clearance with eccentric bush
- Assemble cover and greasing system
- **OPTIONS:**
- Slide clamping unit **part no. 28.0270/0**

## SLIDE LW 180

part no. 28.0087/3



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 concentric and 2 eccentric bearing units
- End caps LR and Cover profiles LR
- Weight 7,379 kg
- **Stainless version part no. 28.0087/1**

### APPLICATIONS

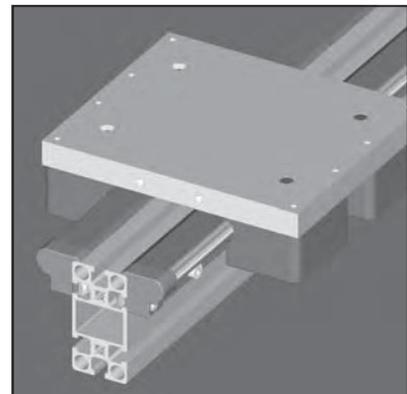
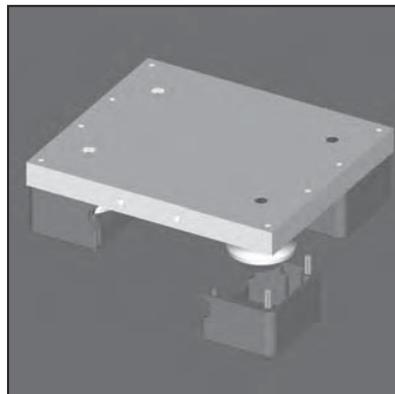
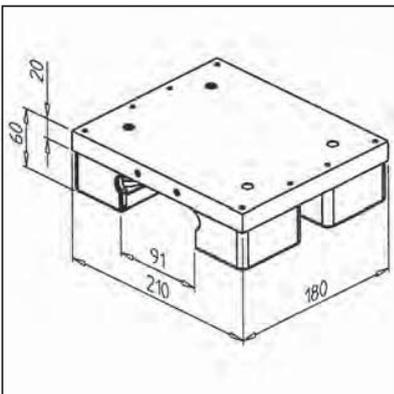
- 1- or multi-axis guides
- Linear robots
- Handling systems
- Measuring devices
- For rails 45 x 180 F and 90 x 180 F

### ASSEMBLY

- Assemble slide on rail 90 x 180; adjust clearance with eccentric bush
- Assemble cover and greasing system
- **OPTIONS:**
- Slide clamping unit **part no. 28.0270/0**

## SLIDE LR 16 - 45

part no. 28.0810/0



### TECHN. DATA / ITEMS SUPPLIED

- With 2 concentric and 2 eccentric bearing units

### APPLICATIONS

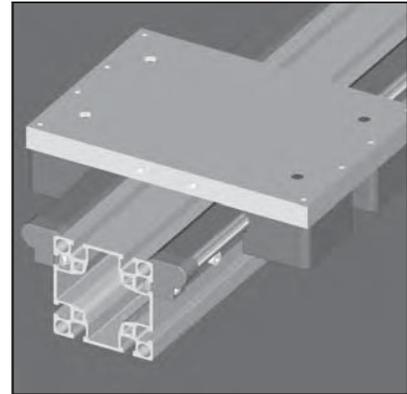
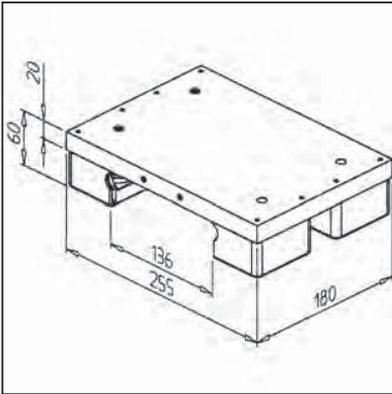
- Single and multi-axis guidance
- Linear robot
- Handling equipment
- Measuring equipment
- For rail LR16 45 x 90 H

### ASSEMBLY

- Push the trolley onto the rails, adjust for zero play with eccentric fastening set
- Mount the covering and lubrication system

## SLIDE LR 16 - 90

part no. 28.0811/0



### TECHN. DATA / ITEMS SUPPLIED

- Fully assembled trolley
- With 2 concentric and 2 eccentric bearing units

### APPLICATIONS

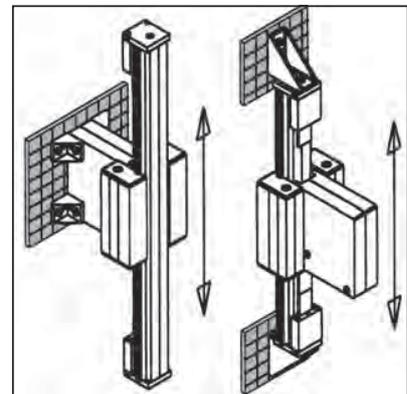
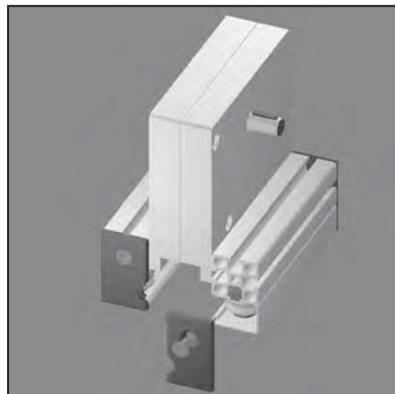
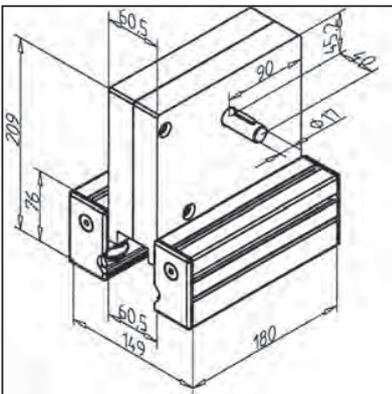
- Single and multi-axis guidance
- Linear robot
- Handling equipment
- Measuring equipment
- For rail LR16 90 and LR16 90x180 H

### ASSEMBLY

- Push the trolley onto the rails, adjust for zero play with eccentric fastening set
- Mount the covering and lubrication system

## BELT DRIVE 45

part no. 28.0248/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium
- Shaft end  $\varnothing 17$  for motor connection
- 2 idler pulleys aluminium, integrated in linear slide LW 45
- Weight 6,320 kg

### APPLICATIONS

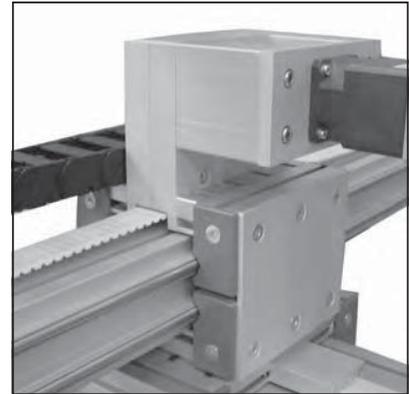
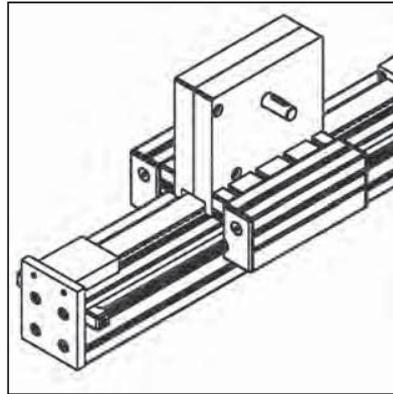
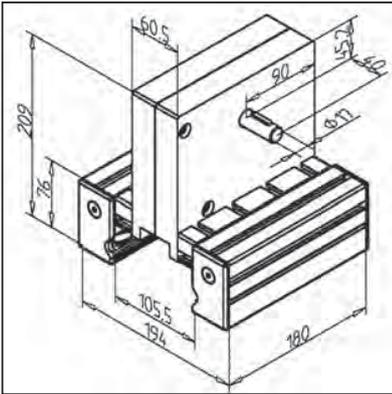
- MiniTec linear guides LR with extremely long travels, z-axis
- Use with rail 45, 45 x 90 H, 45 x 135 H and 45 x 180 H

### ASSEMBLY

- Push the timing belt through the drive, slide drive on the rail and adjust clearance
- Fasten timing belt ends with timing belt tensioner **part no. 28.0090/0** and fastening plate for rail 45 **part no. 28.0054/0** or for rail 45 x 90 H **part no. 28.0056/0** on the rail ends
- Tighten the timing belt
- Calculation of the timing belt: rail length + 212 mm

## BELT DRIVE 90

part no. 28.0249/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium
- Shaft end  $\varnothing$  17 for motor connection
- 2 idler pulleys aluminium, integrated in linear slide LW 90
- Weight 6,790 kg

### APPLICATIONS

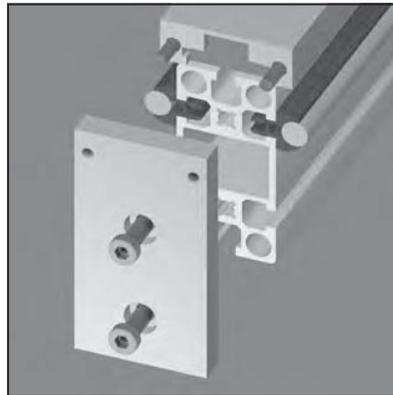
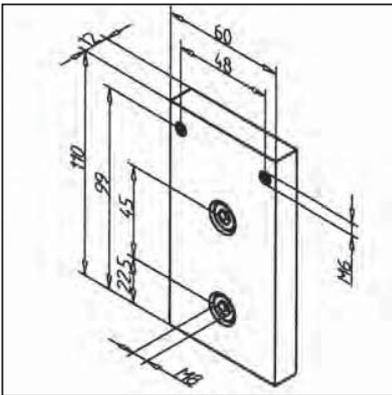
- MiniTec linear guides with extremely long travels, z-axis
- Use with rail 45 x 90 F, rail 90 or 90 x 180 H

### ASSEMBLY

- Push the timing belt through the drive, slide drive on the rail and adjust clearance
- Fasten timing belt ends with timing belt tensioner **part no. 28.0090/0** and fastening plate for rail 45 **part no. 28.0057/0** or for rail 45 x 90 F **part no. 28.0055/0** on the rail ends
- Tighten the timing belt
- Calculation of the timing belt: rail length + 212 mm

## FASTENING KIT FOR TIMING BELT TENSIONING DEVICE 45 X 90 H

part no. 28.0056/0



### TECHN. DATA / ITEMS SUPPLIED

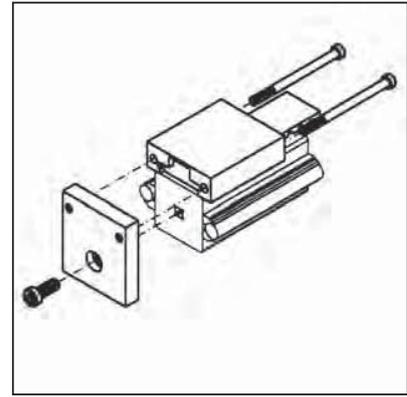
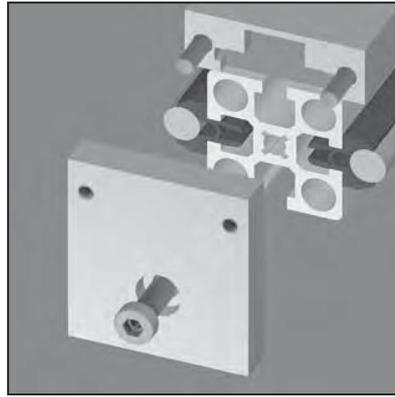
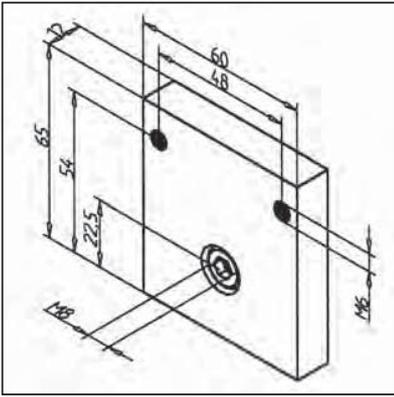
- Plate aluminium, natural anodized
- Fastening kit
- Weight 0,089 kg

### APPLICATIONS

- For each timing belt tensioner one fastening kit is necessary
- Attachment of timing belt tensioner on rail 45 x 90 H in connection with belt drive

### ASSEMBLY

- Fasten with fastening kit from supply schedule on rail end; thread M8 required
- Mount timing belt tensioner

**FASTENING KIT FOR TIMING BELT TENSIONING DEVICE 45**part no.  
28.0054/0**TECHN. DATA / ITEMS SUPPLIED**

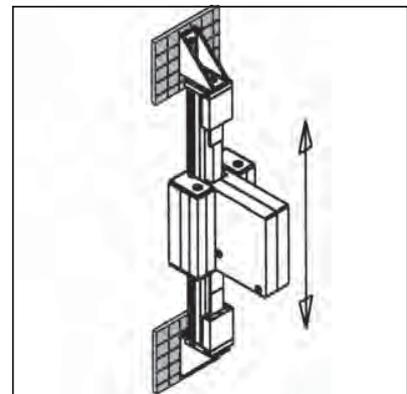
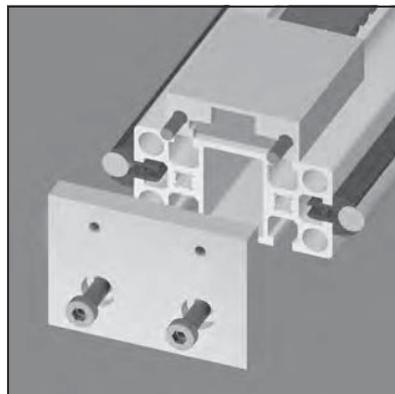
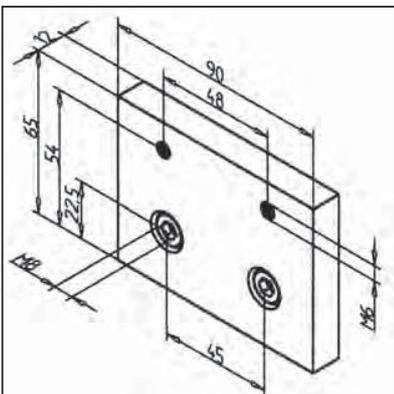
- Plate aluminium, natural anodized
- Fastening kit
- Weight 0,089 kg

**APPLICATIONS**

- **In connection with belt drive**
- For each timing belt tensioner one fastening kit is necessary
- Attachment of timing belt tensioner on rail 45

**ASSEMBLY**

- Fasten with fastening kit from supply schedule on rail end; thread M8 required
- Mount timing belt tensioner

**FASTENING KIT FOR TIMING BELT TENSIONING DEVICE 45 X 90 F** part no. 28.0055/0**TECHN. DATA / ITEMS SUPPLIED**

- Plate aluminium, natural anodized
- Fastening kit
- Weight 0,089 kg

**APPLICATIONS**

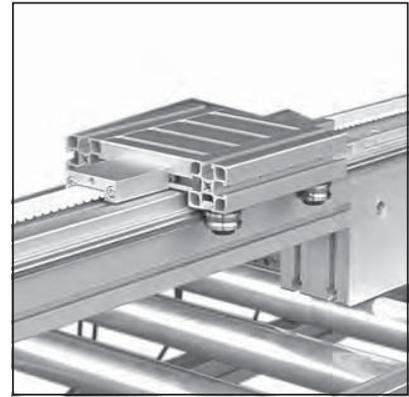
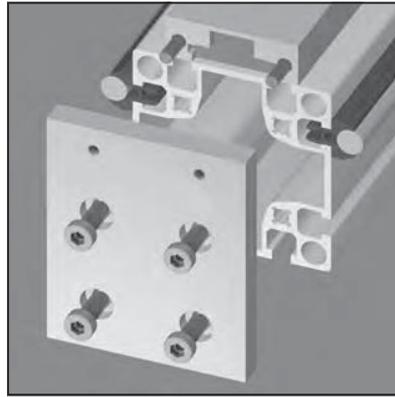
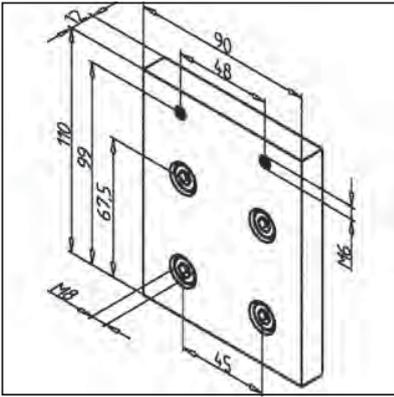
- For each timing belt tensioner one fastening kit is necessary
- Attachment of timing belt tensioner on rail 45 x 90 F in connection with belt drive

**ASSEMBLY**

- Fasten with fastening kit from supply schedule on rail end; thread M8 required
- Mount timing belt tensioner

## FASTENING KIT FOR TIMING BELT TENSIONING DEVICE 90

part no. 28.0057/0



### TECHN. DATA / ITEMS SUPPLIED

- Plate aluminium, natural anodized
- Fastening kit
- Weight 0,089 kg

### APPLICATIONS

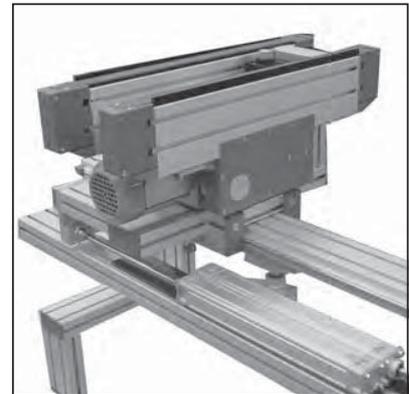
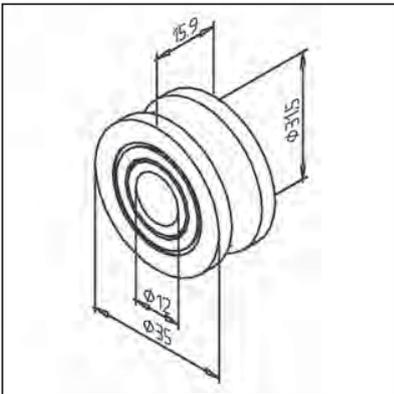
- For each timing belt tensioner one fastening kit is necessary
- Attachment of timing belt tensioner on rail 90 in connection with belt drive

### ASSEMBLY

- Fasten with fastening kit from supply schedule on rail end; thread M8 required
- Mount timing belt tensioner

## BALL BEARING LR 12

part no. 28.0001/0



### TECHN. DATA / ITEMS SUPPLIED

- Double-row angular contact bearing
- For shaft 12
- Load capacity:
- dyn. C = 10.50 kN
- stat. C<sub>0</sub> = 6.00 kN
- Weight 0,068 kg
- **Stainless version part no. 28.0001/1**

### APPLICATIONS

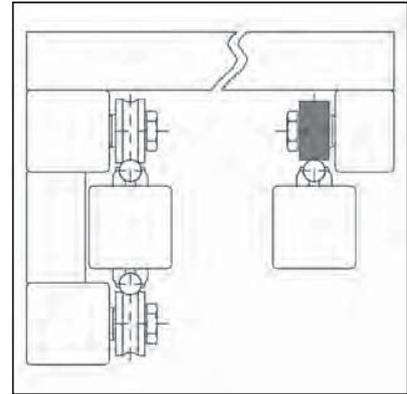
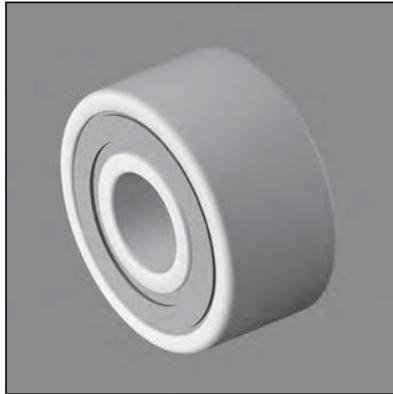
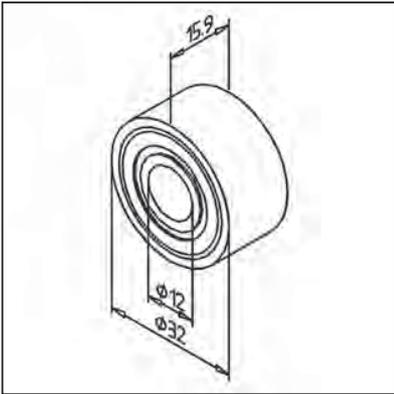
- All MiniTec linear guides LR

### ASSEMBLY

- With fastening kit LRK **part no. 28.0021/0** or LRE **part no. 28.0022/0**

**BALL BEARING LR 12 L**

part no. 28.0005/0

**TECHN. DATA / ITEMS SUPPLIED**

- Double-row angular contact bearing	
- Load capacity:	
- dyn. C =	8.60 kN
- stat. C <sub>0</sub> =	5.10 kN
- Weight	0,06 kg

**APPLICATIONS**

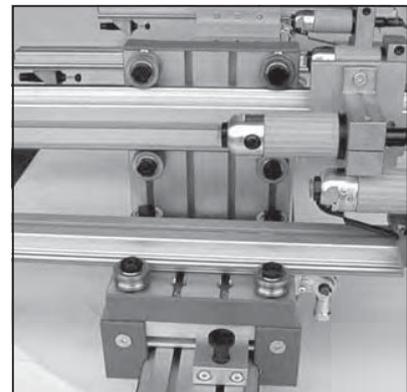
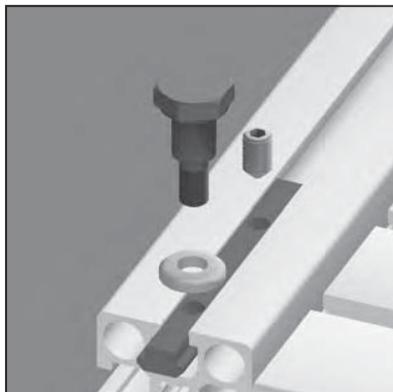
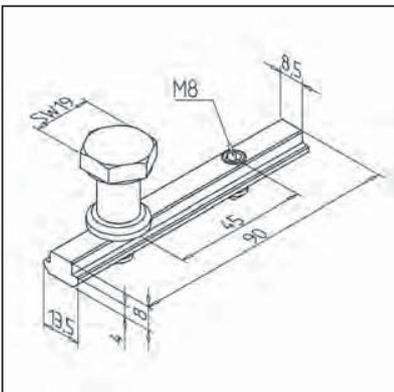
- MiniTec linear guides with movable and fixed bearing side
- Balancing deviations in distance in parallel linear systems

**ASSEMBLY**

- With fastening kit LRK part no. 28.0021/0 or LRE part no. 28.0022/0

**FIXING KIT LRK**

part no. 28.0021/0

**TECHN. DATA / ITEMS SUPPLIED**

- 1 T-slot bar, steel, zinc plated with set screw	
- 1 Bolt M8 concentric, steel, black-finished	
- 1 Washer 3,5 mm, steel, precision ground, back finished	
- Weight	0,1 kg
- Stainless version part no. 28.0021/1	

**APPLICATIONS**

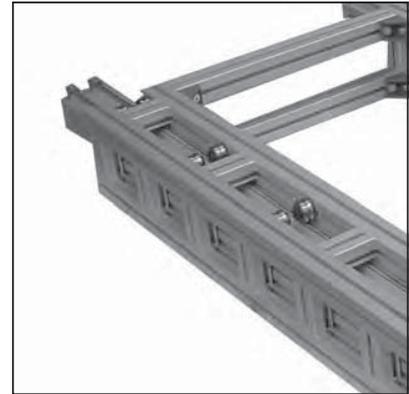
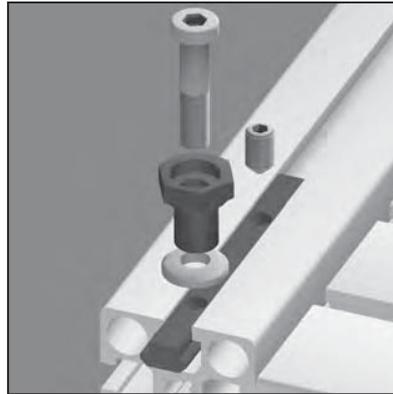
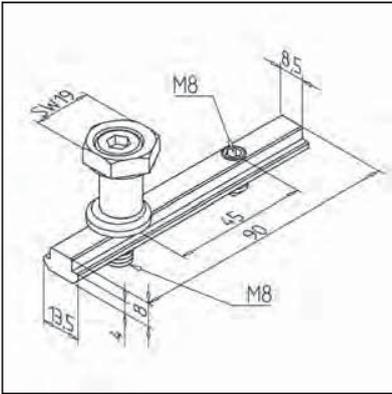
- All MiniTec linear guides LR
- Concentric attachment of ball bearings LR 12

**ASSEMBLY**

- Fix T-slot bar in groove of lower slide side with the set screws at inner position
- Threads M8 without set screws are used for the fixing bolts
- Insert bolt in the bearing and washer bore, Tighten firmly on T-slot bar with spanner 19 A/F
- Recommend locking torque: 25 Nm

## FIXING KIT LRE

part no. 28.0022/0



### TECHN. DATA / ITEMS SUPPLIED

- T-slot bar, steel, zinc plated with set screw
- Eccentric bush, steel, black-finished
- Bolt M8, steel, black
- Washer 3,5 mm, steel, precision ground, black finished
- Weight 0,1 kg
- **Stainless version part no. 28.0022/1**

### APPLICATIONS

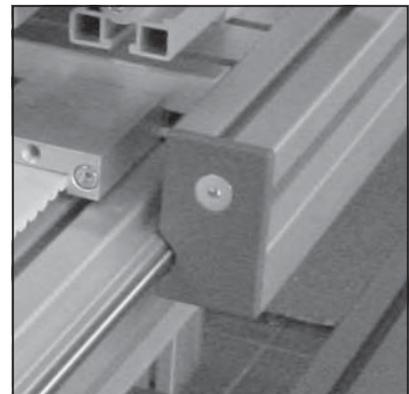
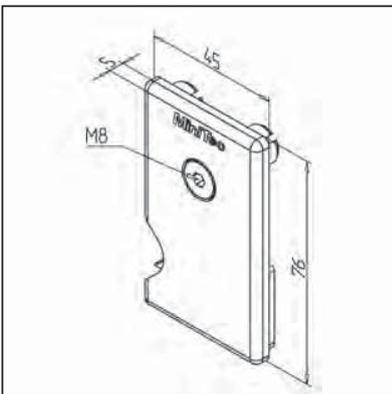
- All MiniTec linear guides LR
- Eccentric attachment of ball bearings LR 12

### ASSEMBLY

- Mounting of T-slot bar: see fastening kit LRK
- Insert eccentric bush in the bearing and washer bore, retighten T-slot bar with key 4 A/F
- Adjust bush with ring spanner width 19 mm (turn for freedom from clearance with 0,9 - 1 Nm) and fix bolt
- Recommend locking torque: 25 Nm

## END CAP LR (RIGHT)

part no. 28.0004/1



### TECHN. DATA / ITEMS SUPPLIED

- ABS with integrated, spring-mounted stripping and greasing felt
- Fastening kit
- Weight 0,03 kg
- Also deliverable in black, **part no. 28.0004/0**

### APPLICATIONS

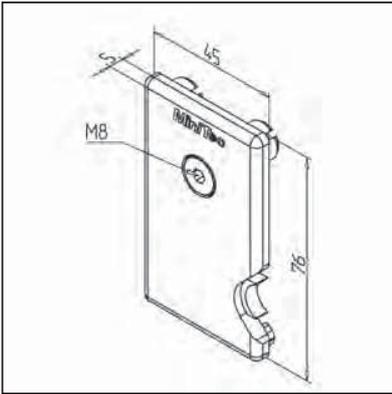
- All MiniTec linear guides LR

### ASSEMBLY

- Insert cover profile between the end caps
- Insert the lubricated felts and press fastening peg in profile 45 x 45 of the slide plate
- Use fastening kit
- Clean and relubricate the felt or replace it when necessary **part no. 28.0004/8**

**END CAP LR (LEFT)**

part no. 28.0004/3

**TECHN. DATA / ITEMS SUPPLIED**

- ABS with integrated, spring-mounted stripping and greasing felt

- Fastening kit

- Weight 0,03 kg

- Also deliverable in black,  
**part no. 28.0004/2**

**APPLICATIONS**

- All MiniTec linear guides LR

**ASSEMBLY**

- Insert cover profile between the end caps

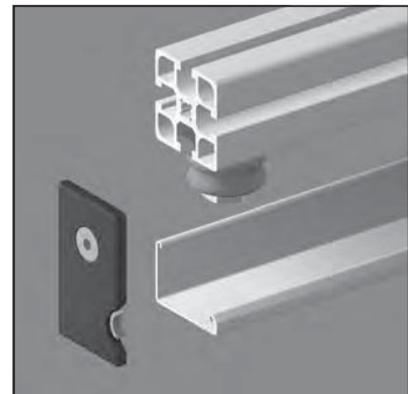
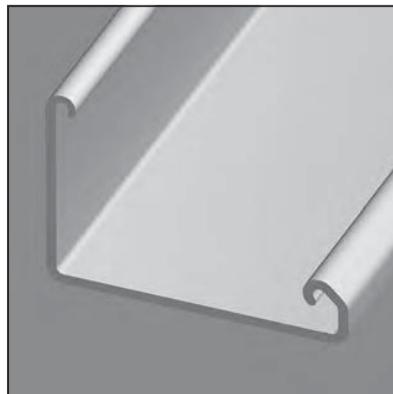
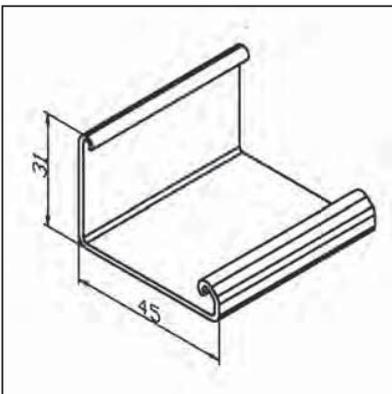
- Insert the lubricated felts and press fastening peg in profile 45 x 45 of the slide plate

- Use fastening kit

- Clean and relubricate the felt or replace it  
**part no. 28.0004/8** when necessary

**COVER PROFILE LR**

part no. 28.0049/0

**TECHN. DATA / ITEMS SUPPLIED**

- Aluminium, natural anodized E6/EV1

- Weight 0,362 kg/m

- Length 6,000 m

**APPLICATIONS**

- All MiniTec linear guides LR

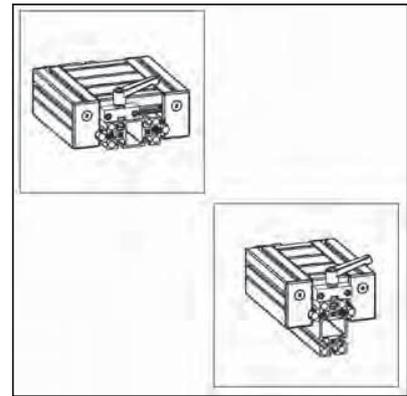
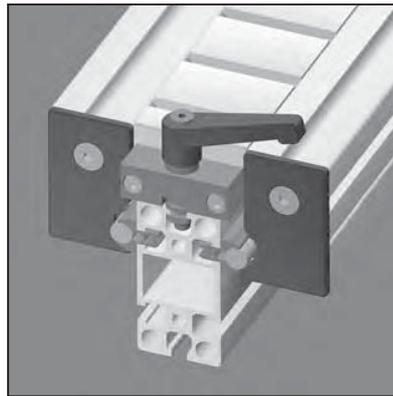
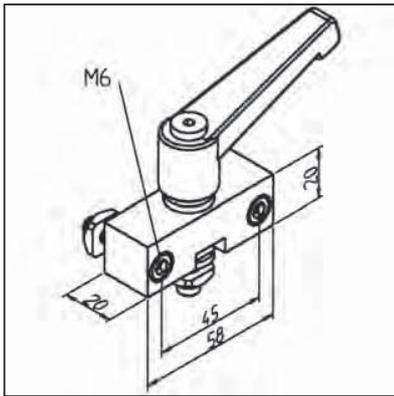
**ASSEMBLY**

- Cut profile according to the length of the slide

- Insert the cover profile between the end caps; insert the felts; fasten the end caps LR on the slide by means of the supplied screws

## SLIDE CLAMPING UNIT (TOP) LWG / LWN / LW

part no. 28.0270/0



### TECHN. DATA / ITEMS SUPPLIED

- Housing, aluminium, anodized E2/E6/EV1
- Clamp
- Fastening kit
- Weight 0,225 kg

### APPLICATIONS

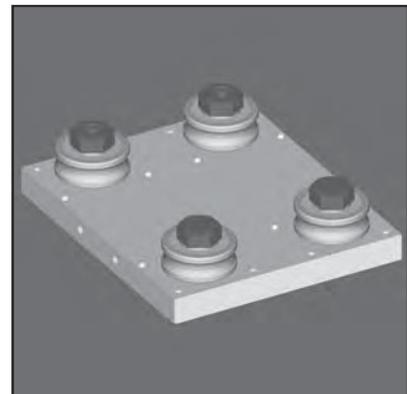
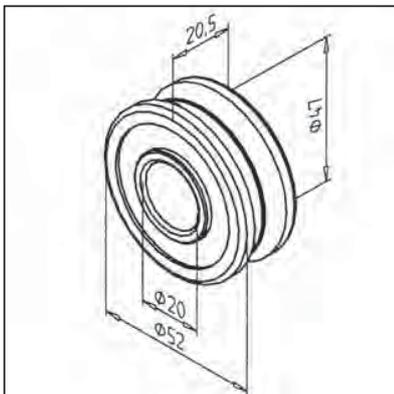
- Clamping of MiniTec slide LW and slides LWN / LWG on rail surface
- Clamping of MiniTec adjusting units

### ASSEMBLY

- Preadjust clamping shaft and lead it in profile groove
- Insert plastic element
- Mount housing block
- Secure clamping lever with mounting adhesive on clamping shaft

## BALL BEARING LR 16

part no. 50.1726/0



### TECHN. DATA / ITEMS SUPPLIED

- Double-row angular contact bearing
- For shaft  $\varnothing 16$
- Load capacity:
- dyn. C = 19.90 kN
- stat. C<sub>0</sub> = 12.60 kN
- Weight 0,2 kg

### APPLICATIONS

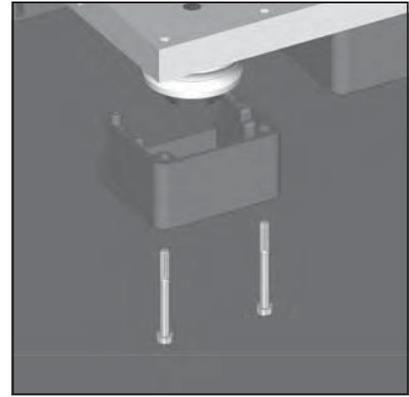
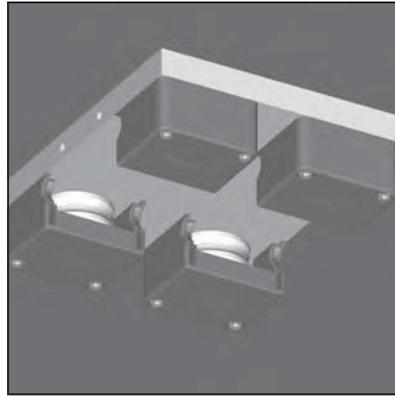
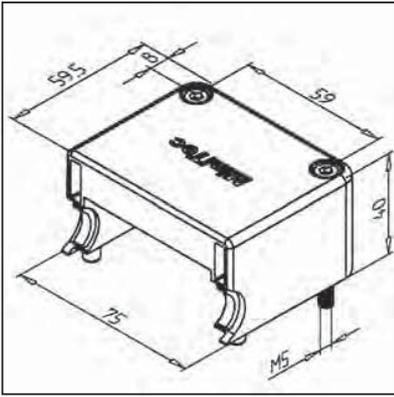
- MiniTec linear guides LR 16

### ASSEMBLY

- Fastening with central bush **part no. 28.0814/0** or adjustable with eccentric bush **part no. 28.0813/0** and M 12 x 40 bolt **part no. 21.1257/0**

**END CAP LR 16**

part no. 28.0815/0

**TECHN. DATA / ITEMS SUPPLIED**

- ABS with integrated, spring-mounted stripping and greasing felt
- Fastening kit
- Weight 0,055 kg

**APPLICATIONS**

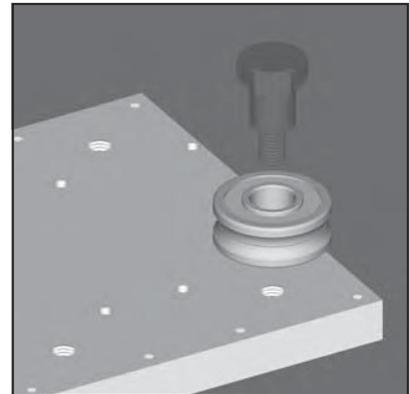
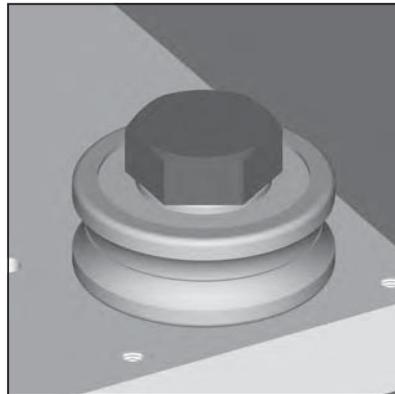
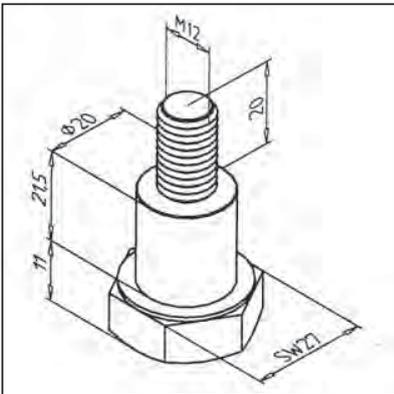
- MiniTec linear guides LR 16

**ASSEMBLY**

- Use fastening kit
- Depending on the conditions, clean and relubricate the felt or insert a replacement felt **part no. 28.0816/0**

**BOLT CONCENTRIC LR 16**

part no. 28.0814/0

**TECHN. DATA / ITEMS SUPPLIED**

- Bolt M12 concentric, steel, black-finished
- Weight 0,12 kg

**APPLICATIONS**

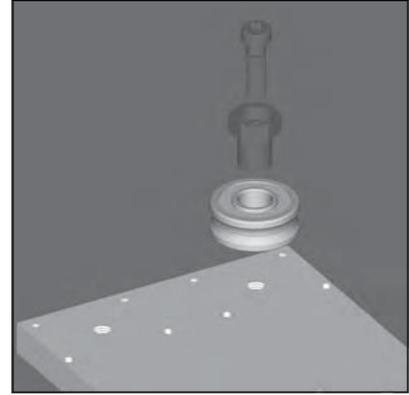
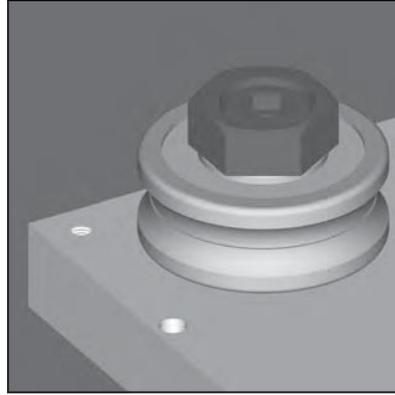
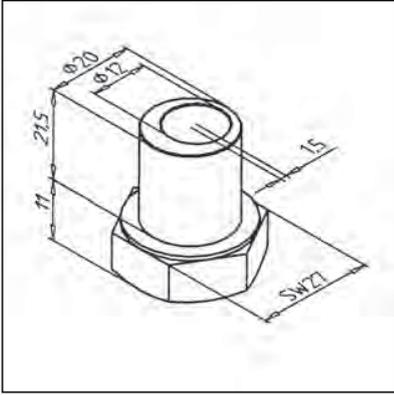
- MiniTec linear guides LR 16
- Concentric fastening of ball bearings LR 16

**ASSEMBLY**

- MiniTec linear guides LR 16
- Recommended tightening torque: 50Nm

## ECCENTRIC BUSH

part no. 28.0813/0



### TECHN. DATA / ITEMS SUPPLIED

- Eccentric bush, steel, black-finished
- Weight 0,059 kg

### APPLICATIONS

- MiniTec linear guides LR 16
- Eccentric fastening of ball bearings LR 16

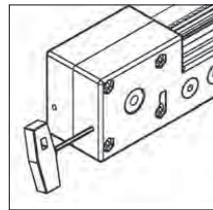
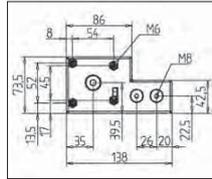
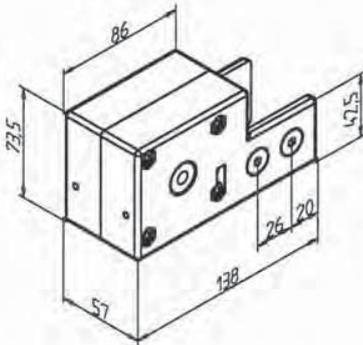
### ASSEMBLY

- Insert screw M12 x 40 **part no. 21.1257/0** into eccentric bush and assemble loosely with bearing
- Adjust the bearing by turning the eccentric bush with the spanner (wrench size 27) for zero play (with 0.9 - 1 Nm torque resistance) and hold the eccentric bush in this position. Tighten the bolt.
- Recommended tightening torque:50Nm

## TIMING BELT PULLEY

LR 6 & LR 6 COMPACT  
T 45 (LR 12 + LR 16)

## LR 6 &amp; LR 6 COMPACT

**Techn. data/items supplied**

- Aluminium GD, power coated, grey
- Assembled ready for use

**Applications**

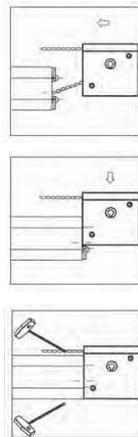
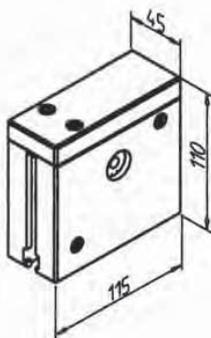
- For MiniTec linear guides LR 6 Z

**Assembly**

- Insert square-nuts M8 in rail
- Lead timing belt through reverse unit
- Slip reverse unit on rail and prefix screws
- Fix timing belt on slide
- Tighten timing belt at reverse unit with key 3 A/F - if necessary from both sides
- Tighten fixing screws

BORE FOR DRIVING SHAFT	WEIGHT	PART NO.	PART NO. STAINLESS STEEL VERSION
without	0.96 kg	28.0510/0	28.0509/0
Ø 10 mm	0.96 kg	28.0510/1	28.0509/1
Ø 11 mm	0.96 kg	28.0510/2	28.0509/2
Ø 14 mm	0.96 kg	28.0510/3	28.0509/3

## T 45 (LR 12 + LR 16)

**Techn. data/items supplied**

- Aluminium, anodized E6/EV1
- Completely assembled with pulley
- 2 ball bearings
- top cover is mounted

**Applications**

- For MiniTec linear guides LR, freely combinable

**Assembly**

- Form threads M8 in both rail ends and mount power-lock fastener **part no. 21.1018/0**
- Pass belt through the rail and through pulley unit
- Insert pulley unit from top
- Tighten set screw
- Tighten timing belt with timing belt tensioner
- Use profile connector H **part no. 21.1018/1** when mounting the stainless steel version.

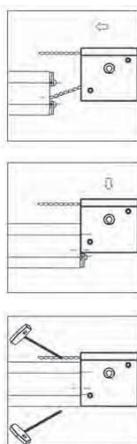
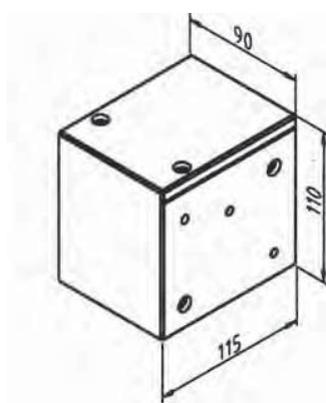
BORE FOR DRIVING SHAFT	WEIGHT	PART NO.	PART NO. STAINLESS STEEL VERSION
without	1.170 kg	28.0083/0	28.0046/0
Ø 11 mm	1.168 kg	28.0083/2	28.0046/2
Ø 12 mm	1.168 kg	28.0083/6	28.0046/6
Ø 14 mm	1.167 kg	28.0083/3	28.0046/3
Ø 15 mm	1.165 kg	28.0083/5	28.0046/5
Ø 16 mm	1.165 kg	28.0083/4	28.0046/4

## TIMING BELT PULLEY

## T 90 (LR 12 + LR 16)

## T 90 (LR 12 + LR 16)

## TIMING BELT PULLEY T 90 (LR 12 + LR 16)

**Techn. data/items supplied**

- Aluminium, anodized E6/EV1
- Completely assembled with pulley
- 2 ball bearings
- top cover is mounted

**Applications**

- For MiniTec linear guides LR 45 x 90 F, LR 90, LR 180

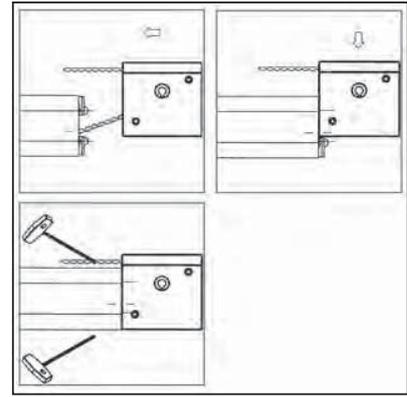
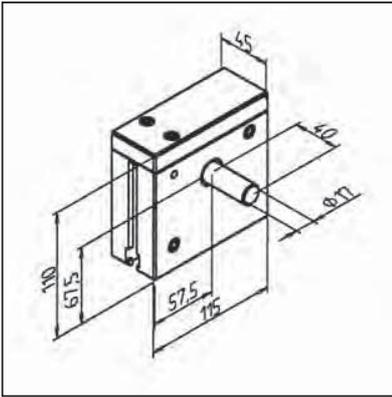
**Assembly**

- Form threads M8 in both rail ends and mount power-lock fastener **part no. 21.1018/0**
- Pass belt through the rail and through pulley unit
- Insert pulley unit from top
- Tighten set screw
- Tighten timing belt with timing belt tensioner
- Use profile connector H **part no. 21.1018/1** when mounting the stainless steel version.

BORE FOR DRIVING SHAFT	WEIGHT	PART NO.	PART NO. STAINLESS STEEL VERSION
without	2.800 kg	28.0082/0	28.0045/0
Ø 11 mm	2.798 kg	28.0082/2	28.0045/2
Ø 14 mm	2.795 kg	28.0082/3	28.0045/3
Ø 16 mm	2.789 kg	28.0082/4	28.0045/4
Ø 19 mm	2.775 kg	28.0082/5	28.0045/5
Ø 20 mm	2.773 kg	28.0082/7	28.0045/7
Ø 24 mm	2.164 kg	28.0082/6	28.0045/6

## TIMING BELT PULLEY T 45 Z

part no. 28.0083/1



## TECHN. DATA / ITEMS SUPPLIED

- Anodized E6 / EV1
- Completely assembled with pulley and shaft end
- 2 ball-bearings
- Top cover mounted
- Weight 1,200 kg
- **Stainless version part no. 28.0046/1**
- Drive pin available in differing diameter, length, and with feather key groove

## APPLICATIONS

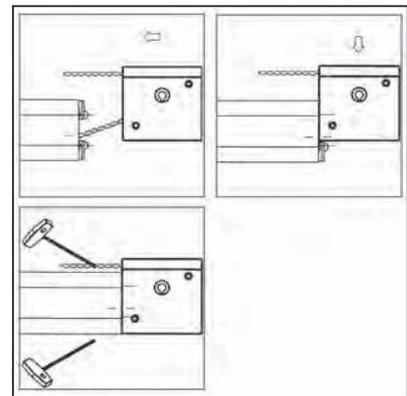
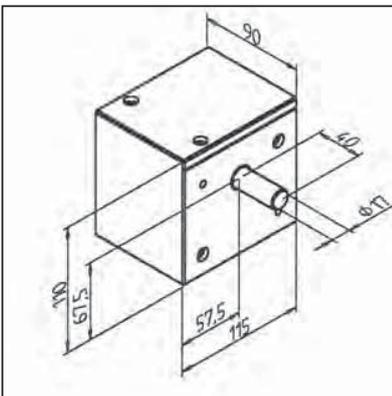
- All MiniTec linear guides

## ASSEMBLY

- Form thread M8 and mount MiniTec power-lock fastener **part no. 21.1018/0**
- Pass belt through the rail and through pulley unit
- Insert pulley unit from top
- Tighten power-lock fastener
- Tighten the timing belt
- Use to mount stainless version power lock fastener H **part no. 21.1018/1**

## TIMING BELT PULLEY T 90 Z

part no. 28.0082/1



## TECHN. DATA / ITEMS SUPPLIED

- Aluminium, anodized E6 / EV1
- Main casting completely assembled with pulley and shaft end
- 2 ball-bearings
- Top cover mounted
- Weight 2,850 kg
- **Stainless version part no. 28.0045/1**
- Drive pin available in differing diameter, length, and with feather key groove

## APPLICATIONS

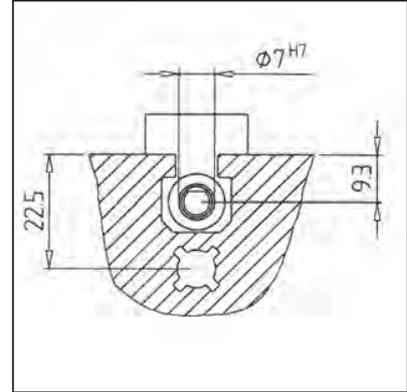
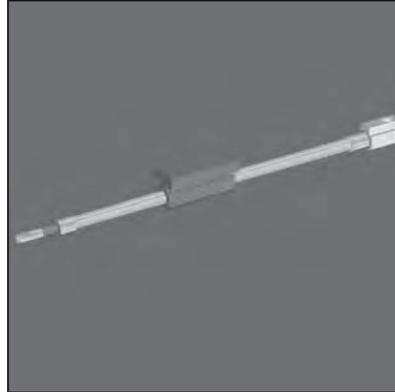
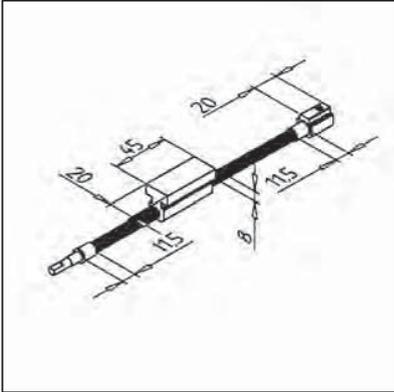
- All MiniTec linear guides

## ASSEMBLY

- Form thread M8 and mount MiniTec power-lock fastener **part no. 21.1018/0**
- Pass belt through the rail and through pulley unit
- Insert pulley unit from top
- Tighten power-lock fastener
- Tighten the timing belt
- Use to mount stainless version power lock fastener H **part no. 21.1018/1**

## MINI ADJUSTING UNIT FITTING KIT

part no. 28.0350/0



### TECHN. DATA / ITEMS SUPPLIED

- Without carrier profile, handwheel and bearing block for mounting into existing equipment
- VA spindle M8 x 1.25
- Brass slide
- Max. load 1 - 2 kg
- **Please quote stroke length**

### APPLICATIONS

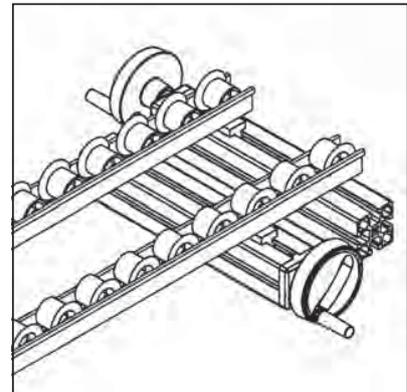
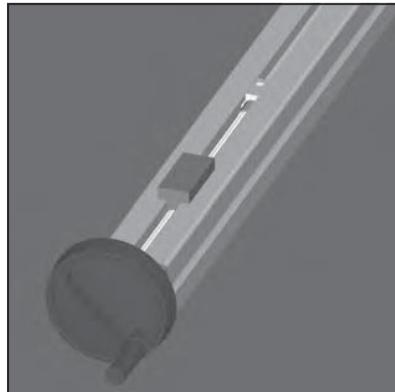
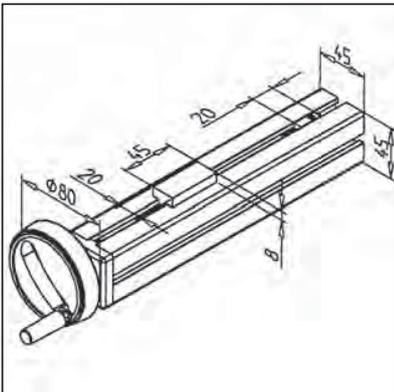
- For adjustment of the lateral guides on conveying equipment
- For adjusting sensor holders or light barriers
- For simple equipment

### ASSEMBLY

- With MiniTec power-lock fastener
- Push into the profile groove and fasten the end block

## MINI ADJUSTING UNIT WITH PROFILE 45 X 45

part no. 28.0354/0



### TECHN. DATA / ITEMS SUPPLIED

- With carrier profile 45 x 45 F
- VA spindle M8 x 1.25
- Brass slide
- Max. loading 1 - 2 kg
- **Please quote stroke length**

### APPLICATIONS

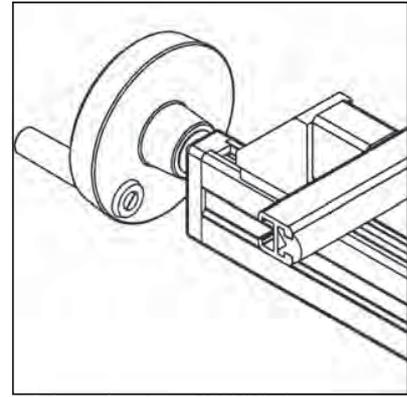
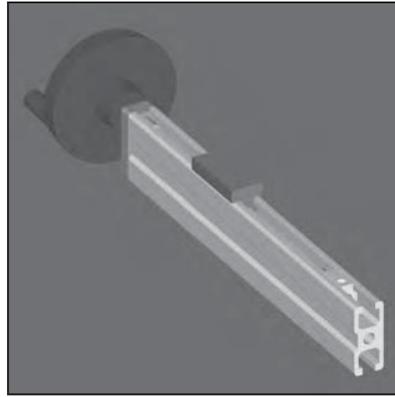
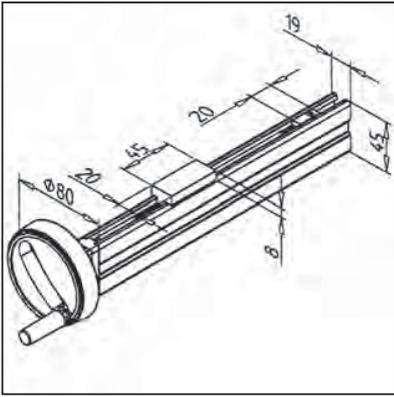
- For adjustment of the lateral guides on conveying equipment
- For adjusting sensor holders or light barriers
- For simple equipment

### ASSEMBLY

- With MiniTec power-lock fastener
- Can also be fastened with a mounting bracket
- Also available without carrier profile, **part no. 28.0354/1**

## MINI ADJUSTING UNIT WITH PROFILE 19 X 45

part no. 28.0352/0



### TECHN. DATA / ITEMS SUPPLIED

- With carrier profile 19 x 45
- VA spindle M8 x 1.25
- Brass slide
- Max. loading 1 - 2 kg
- **Please quote stroke length**

### APPLICATIONS

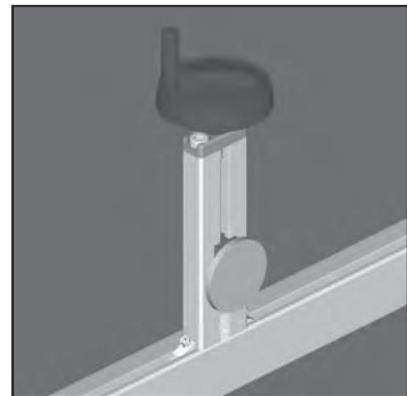
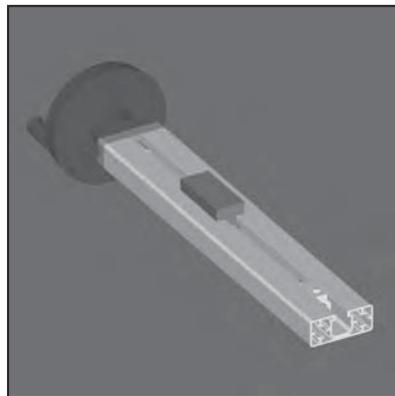
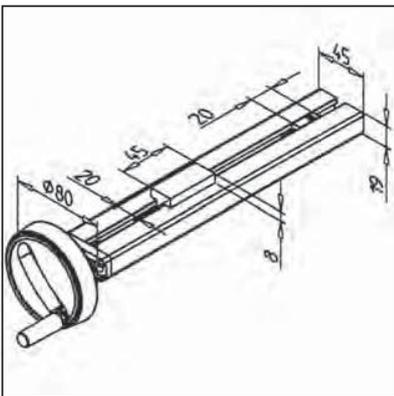
- For adjustment of the lateral guides on conveying equipment
- For adjusting sensor holders or light barriers
- For simple equipment

### ASSEMBLY

- With MiniTec power-lock fastener
- Can also be fastened with a mounting bracket
- Also available without carrier profile, **part no. 28.0352/1**

## MINI ADJUSTING UNIT WITH PROFILE 19 X 45

part no. 28.0359/0



### TECHN. DATA / ITEMS SUPPLIED

- With carrier profile 19 x 45
- VA spindle M8 x 1.25
- Brass slide
- Max. loading 1 - 2 kg
- **Please quote stroke length**

### APPLICATIONS

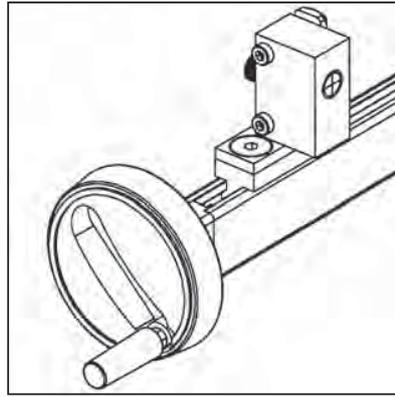
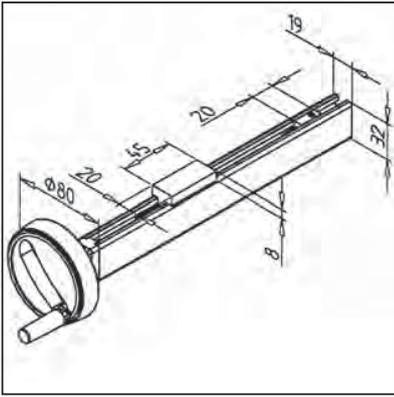
- For adjustment of the lateral guides on conveying equipment
- For adjusting sensor holders or light barriers
- For simple equipment

### ASSEMBLY

- With MiniTec power-lock fastener
- Mounting possible also by angle
- Also available without carrier profile, **part no. 28.0352/1**

## MINI ADJUSTING UNIT WITH PROFILE 19 X 32

part no. 28.0351/0



### TECHN. DATA / ITEMS SUPPLIED

- With carrier profile 19 x 32
- VA spindle M8 x 1.25
- Brass slide
- Max. loading 1 - 2 kg
- **Please quote stroke length**

### APPLICATIONS

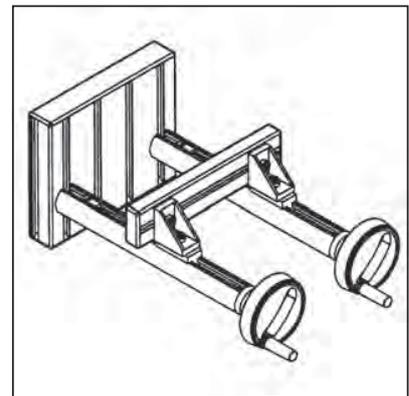
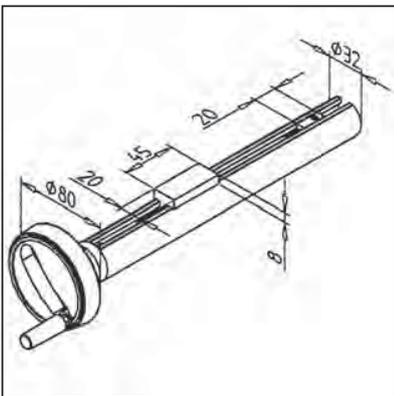
- For adjustment of the lateral guides on conveying equipment
- For adjusting sensor holders or light barriers
- For simple equipment

### ASSEMBLY

- With MiniTec power-lock fastener
- Can also be fastened with a mounting bracket
- Also available without carrier profile, **part no. 28.0351/1**

## MINI ADJUSTING UNIT WITH HANDLE PROFILE 32

part no. 28.0353/0



### TECHN. DATA / ITEMS SUPPLIED

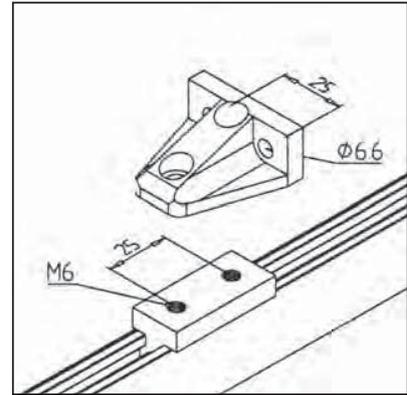
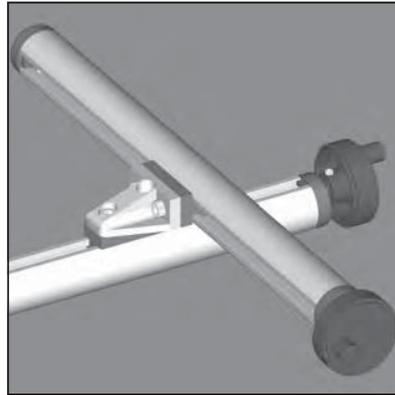
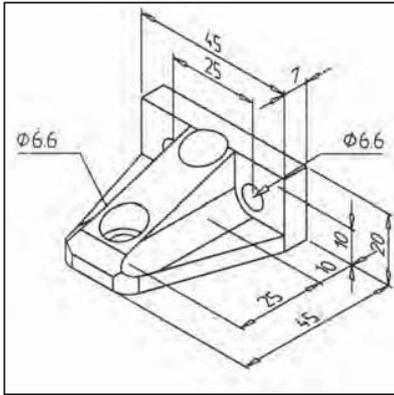
- With carrier profile handle profile 32
- VA spindle M8 x 1.25
- Brass slide
- Max. loading 1 - 2 kg
- **Please quote stroke length**

### APPLICATIONS

- For adjustment of the lateral guides on conveying equipment
- For adjusting sensor holders or light barriers
- For simple equipment

### ASSEMBLY

- With MiniTec power-lock fastener
- Can also be fastened with a mounting bracket
- Fasten with strap handle profile 32, **part no. 22.1022/0**
- Also available without carrier profile, **part no. 28.0353/1**

**BRACKET CONSOLE FOR MINIATURE ADJUSTMENT UNIT**part no.  
28.0371/0**TECHN. DATA / ITEMS SUPPLIED**

- Console aluminium, natural anodized
- Without fastening kit
- Weight 0,044 kg

**APPLICATIONS**

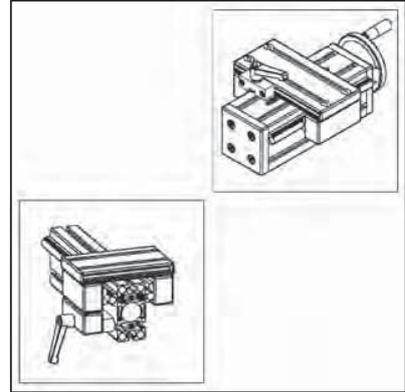
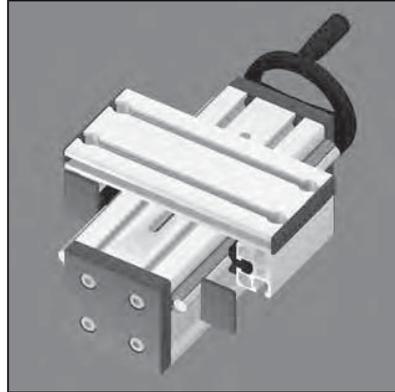
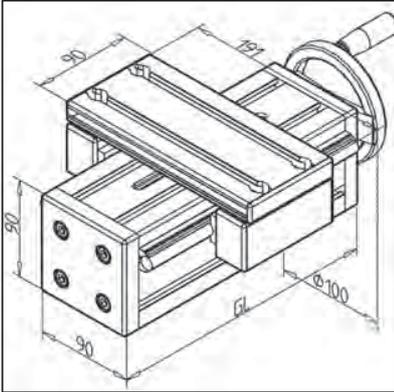
- For connection of two adjustment units  
**part no. 28.0351/0, 28.0352/0 and 28.0353/0**
- For connecting small loads, such as light barriers, sensors etc.

**ASSEMBLY**

- Each with two M6 threads, 10 mm deep, grid 25 mm placed into slides
- Connect adjustment units with cylinder head screws M6x15

## ADJUSTING UNIT VIEW 90

part no. 28.0183/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide plate of profile 19 x 90
- ACME screw 16 x 4
- Basic length 120 mm (0 mm stroke)
- Basic weight 3,03 kg
- Weight/100 mm stroke 1,12 kg
- Please indicate desired length of stroke

### APPLICATIONS

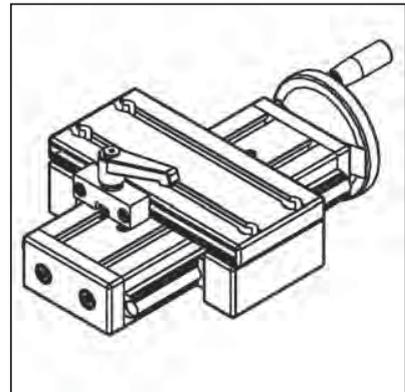
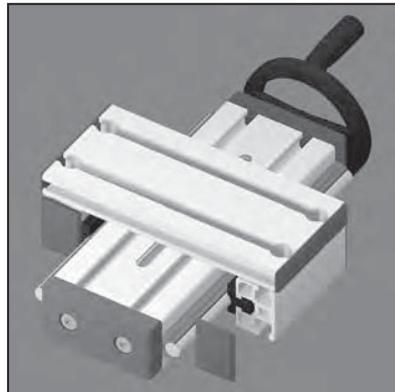
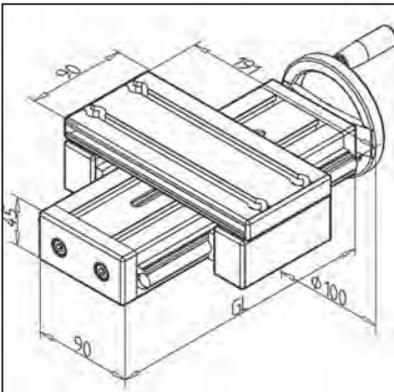
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

### SPECIAL DESIGNS

- Slide plate made of profile 32 x 180
- Different length of stroke
- Digital display
- Angular drive
- Spindle adapter
- Shafts stainless
- Options:  
With slide clamping unit (Top)  
**part no. 28.0183/1**  
With slide clamping unit (Lateral)  
**part no. 28.0183/2**

## ADJUSTING UNIT VIEW 45 X 90 F

part no. 28.0181/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide plate of profile 19 x 90
- ACME screw 16 x 4
- Basic length (GL) 120 mm (0 mm stroke)
- Basic weight 2,31 kg
- Weight/100 mm stroke 0,75 kg
- Please indicate desired length of stroke

### APPLICATIONS

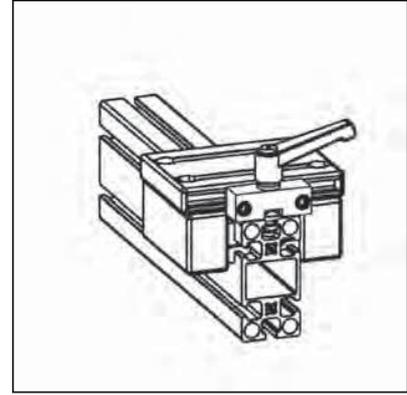
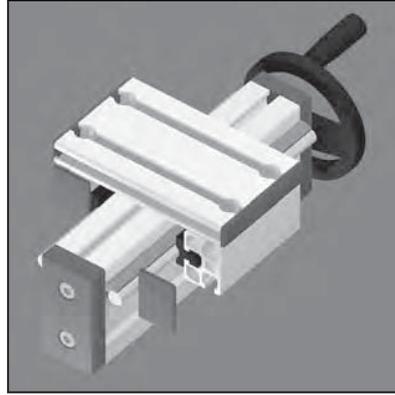
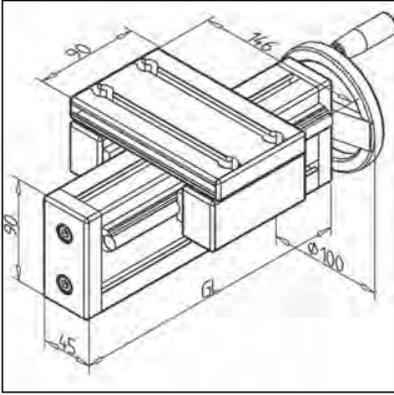
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

### SPECIAL DESIGNS

- Slide plate made of profile 32 x 180
- Different slide lengths
- Digital display
- Angular drive
- Spindle adapter
- Shafts stainless
- OPTIONS:  
With slide clamping unit (Top)  
**part no. 28.0181/1**

## ADJUSTING UNIT VEW 45 X 90 H

part no. 28.0182/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide plate of profile 19 x 90
- ACME screw 16 x 4
- Basic length (GL) 120 mm (0 mm stroke)
- Basic weight 2,109 kg
- Weight/100 mm stroke 0,74 kg
- Please indicate desired length of stroke

### APPLICATIONS

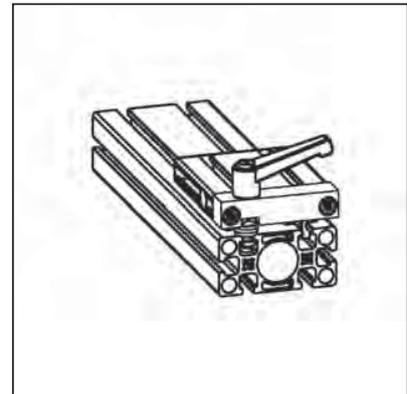
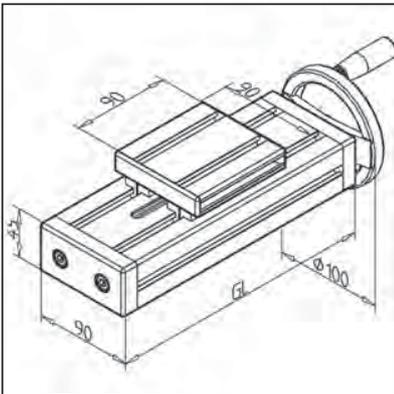
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

### SPECIAL DESIGNS

- Slide plate made of profile 32 x 180
- Different slide lengths
- Digital display
- Angular drive
- Shafts stainless
- OPTIONS:  
With slide clamping unit (Top)  
**part no. 28.0182/1**  
With slide clamping unit (Lateral)  
**part no. 28.0182/2**

## ADJUSTING UNIT VEN 45 X 90 S

part no. 28.0187/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide plate of profile 19 x 90
- ACME screw 16 x 4
- Basic length (GL) 120 mm (0 mm stroke)
- Basic weight 2,280 kg
- Weight/100 mm stroke 0,5 kg
- Please indicate desired length of stroke

### APPLICATIONS

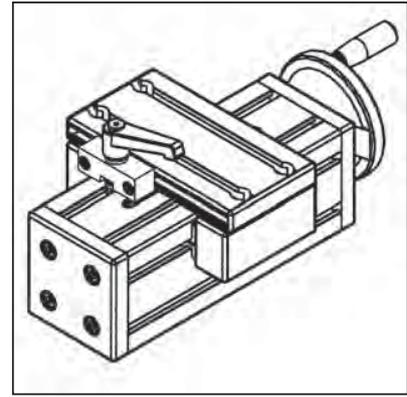
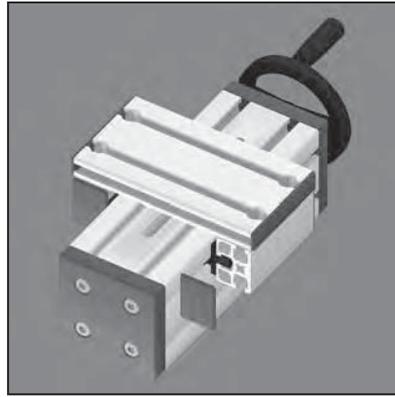
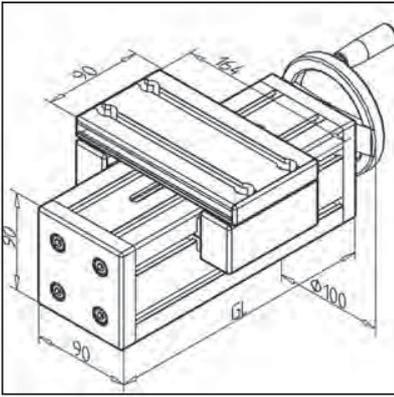
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

### SPECIAL DESIGNS

- Slide plate made of profile 32 x 180
- Different slide lengths
- Digital display
- Angular drive

## ADJUSTING UNIT VEN 90

part no. 28.0186/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide plate of profile 19 x 90
- ACME screw 16 x 4
- Basic length (GL) 120 mm (0 mm stroke)
- Basic weight 2,75 kg
- Weight/100 mm stroke 0,87 kg
- Please indicate desired length of stroke

### APPLICATIONS

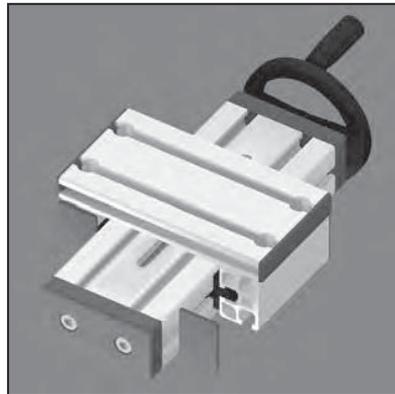
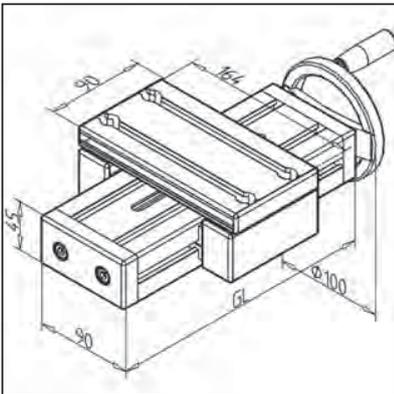
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

### SPECIAL DESIGNS

- Slide plate made of profile 32 x 180
- Different slide lengths
- Digital display
- Angular drive
- Spindle adapter

## ADJUSTING UNIT VEN 45 X 90 F

part no. 28.0188/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide plate of profile 19 x 90
- ACME screw 16 x 4
- Basic length (GL) 120 mm (0 mm stroke)
- Basic weight 2,05 kg
- Weight/100 mm stroke 0,5 kg
- Please indicate desired length of stroke

### APPLICATIONS

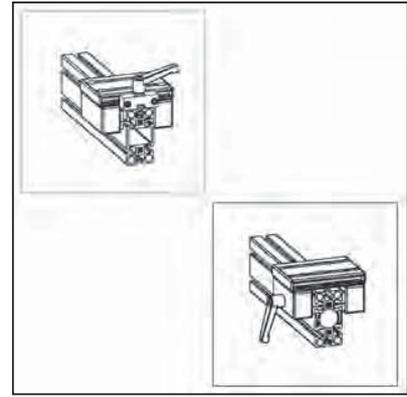
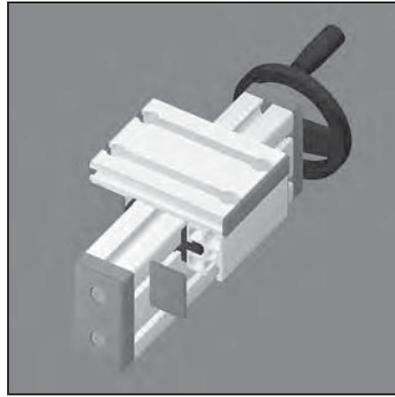
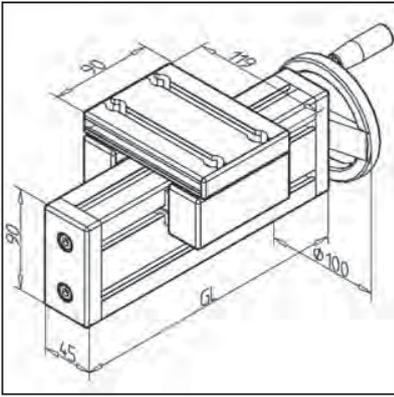
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

### SPECIAL DESIGNS

- Slide plate made of profile 32 x 180
- Different slide lengths
- Digital display
- Angular drive
- Spindle adapter

**ADJUSTING UNIT VEN 45 X 90 H**

part no. 28.0185/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide plate made of profile 19 x 90
- ACME screw 16 x 4
- Basic length (GL) 120 mm (0 mm stroke)
- Basic weight 1,97 kg
- Weight/100 mm stroke 0,49 kg
- Please indicate desired length of stroke

**APPLICATIONS**

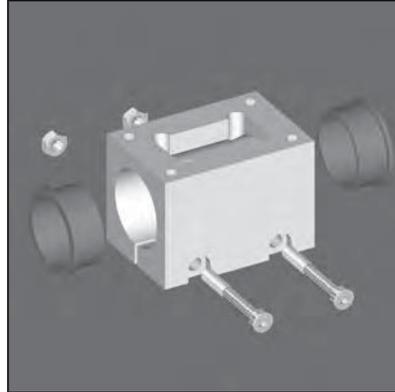
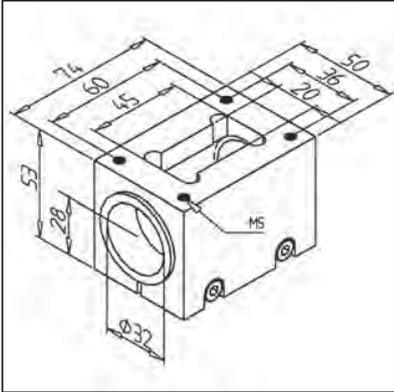
- Adjustment of conveyor systems
- Adjustment of feeders
- Adjustable devices

**SPECIAL DESIGNS**

- Slide plate made of profile 32 x 180
- Different slide lengths
- Digital display
- Angular drive

## SLIDE G 32

part no. 28.0355/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide aluminium anodized
- Slide bearing, plastic
- Without adjusting units
- Weight 0,314 kg

### APPLICATIONS

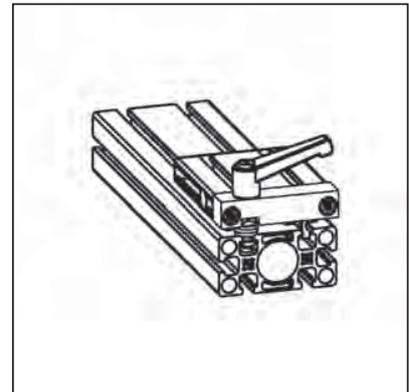
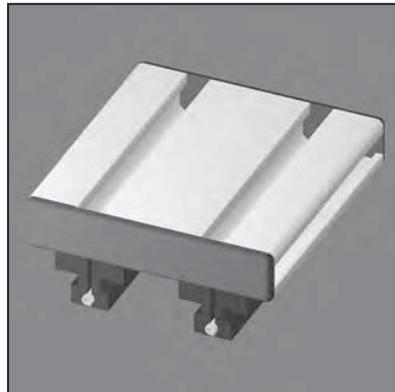
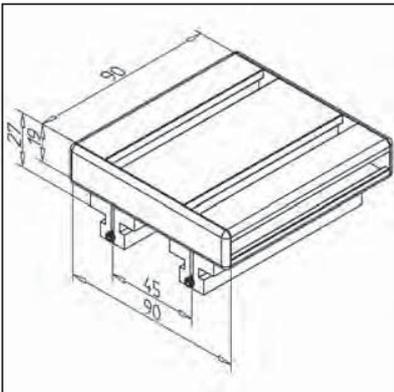
- To adjust light barriers, reflectors, lateral guides etc.

### ASSEMBLY

- Insert the slides of the mini adjustment unit into the sliding guides and turn the spindle
- Adjust clearance by M6 tensioning screw
- Fasten the spindle bearing to the handle profile 32

## SLIDE LWN-S

part no. 28.0170/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 slide rails LN-S
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,261 kg

### APPLICATIONS

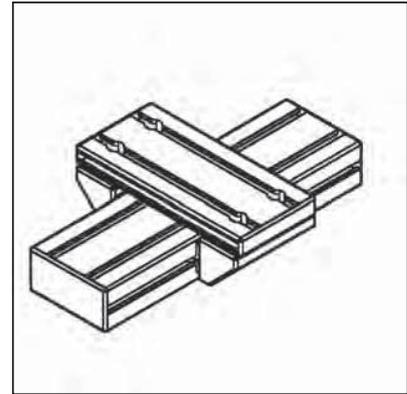
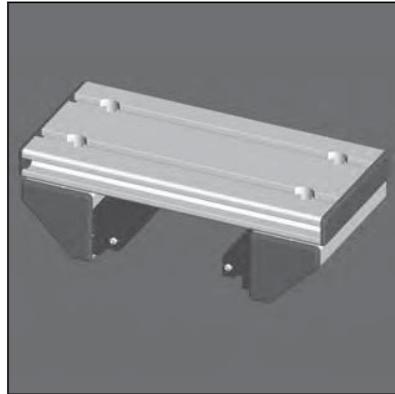
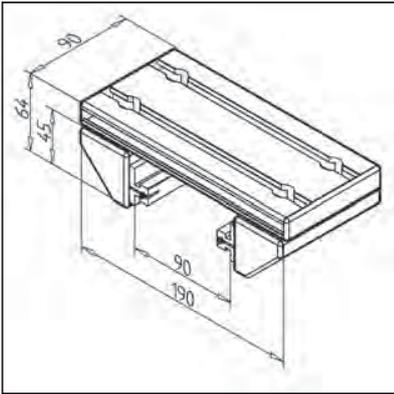
- Simple linear guides
- Automatic advance units

### SPECIAL DESIGNS

- With slide clamping unit (Top) **part no. 28.0170/1**
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

**SLIDE LWN 45/45° - 90**

part no. 28.0197/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide completely assembled
- 2 slide rails LN
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,782 kg

**APPLICATIONS**

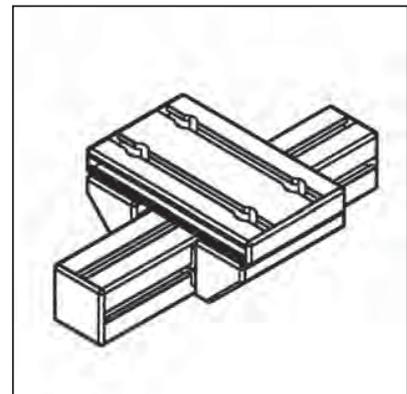
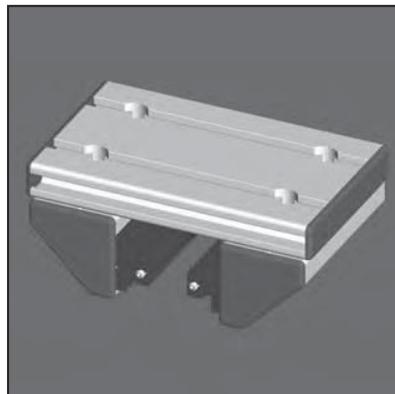
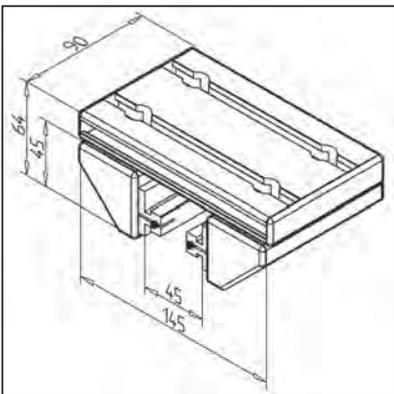
- Simple linear guides
- Automatic advance units

**SPECIAL DESIGNS**

- With slide clamping unit (Top) <b>part no. 28.0197/1</b>
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

**SLIDE LWN 45/45° - 45**

part no. 28.0196/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide completely assembled
- 2 slide rails LN
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,699 kg

**APPLICATIONS**

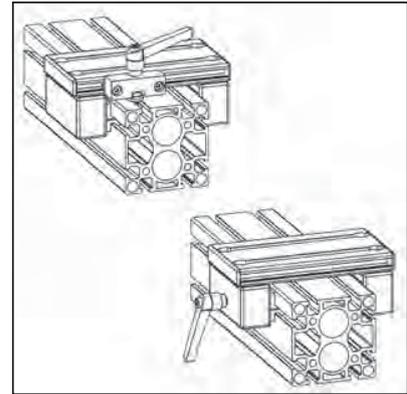
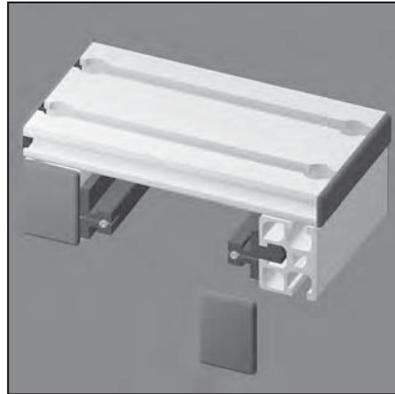
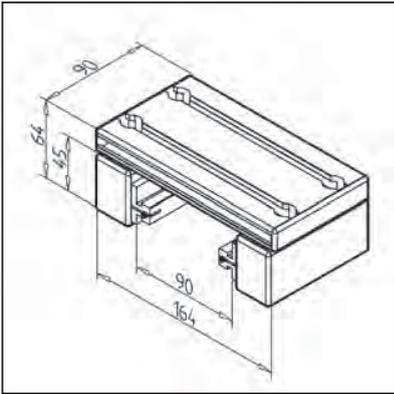
- Simple linear guides
- Automatic advance units

**SPECIAL DESIGNS**

- With slide clamping unit (Top) <b>part no. 28.0196/1</b>
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

## SLIDE LWN 32 X 45 - 90

part no. 28.0193/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 slide rails LN
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,762 kg

### APPLICATIONS

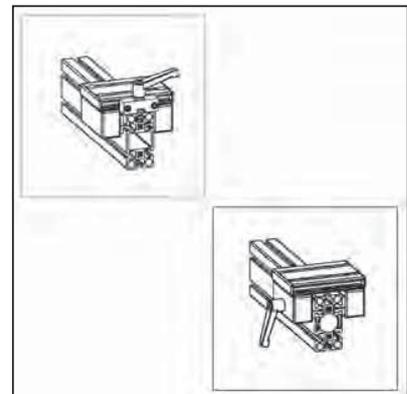
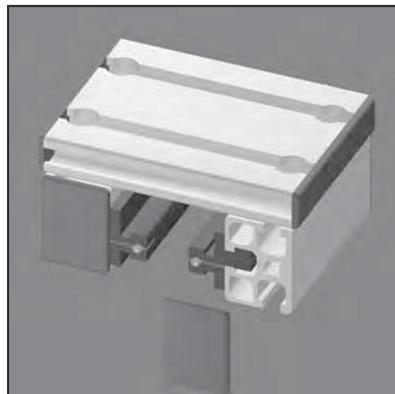
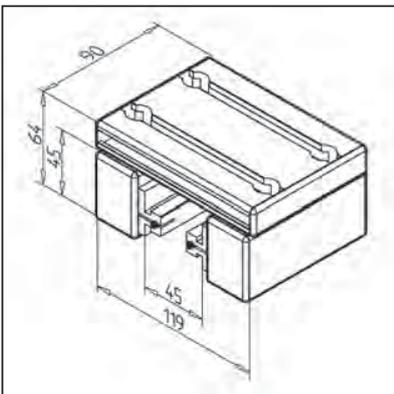
- Simple linear guides
- Automatic advance units

### SPECIAL DESIGNS

- With slide clamping unit (Top)  
**part no. 28.0193/1**
- With slide clamping unit (Lateral)  
**part no. 28.0193/2**
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

## SLIDE LWN 32 X 45 - 45

part no. 28.0192/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 slide rails LN
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,678 kg

### APPLICATIONS

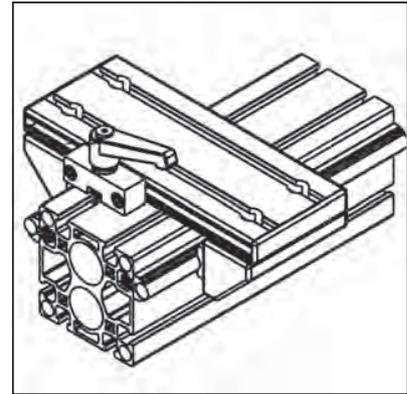
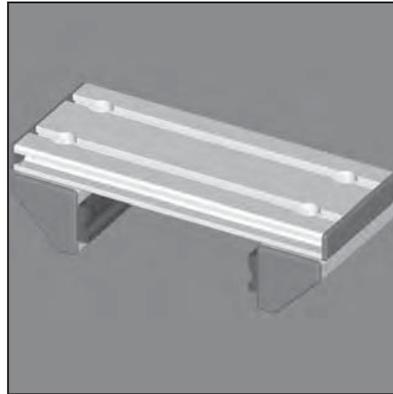
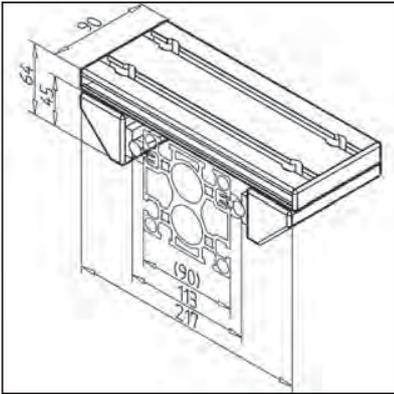
- Simple linear guides
- Automatic advance units

### SPECIAL DESIGNS

- With slide clamping unit (Top)  
**part no. 28.0192/1**
- With slide clamping unit (Lateral)  
**part no. 28.0192/2**
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

**SLIDE LWG 45/45° - 90**

part no. 28.0137/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide completely assembled
- 2 slide rails LG
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,849 kg

**APPLICATIONS**

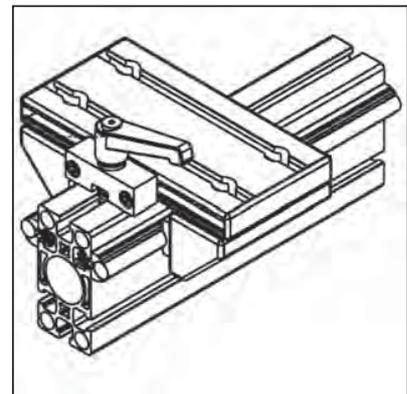
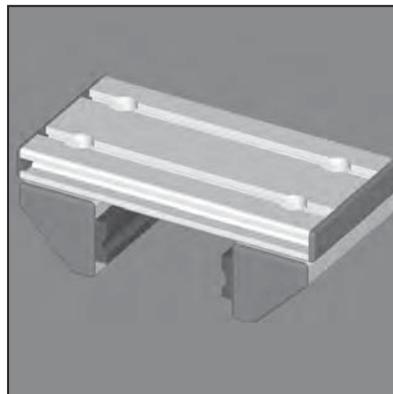
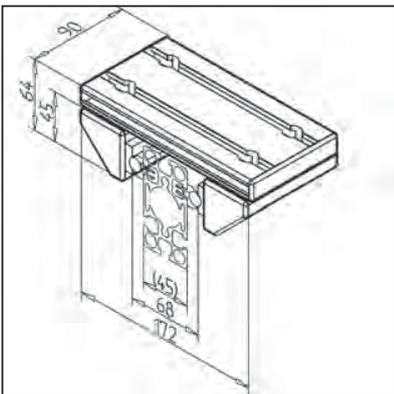
- Simple linear guides
- Automatic advance units
- For rail 90 with shafts Ø 12 mm

**SPECIAL DESIGNS**

- With slide clamping unit (Top)  
**part no. 28.0137/1**
- Slide plate made of aluminium profile  
32 x 180
- Different slide lengths

**SLIDE LWG 45/45° - 45**

part no. 28.0136/0

**TECHN. DATA / ITEMS SUPPLIED**

- Slide completely assembled
- 2 slide rails LG
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,759 kg

**APPLICATIONS**

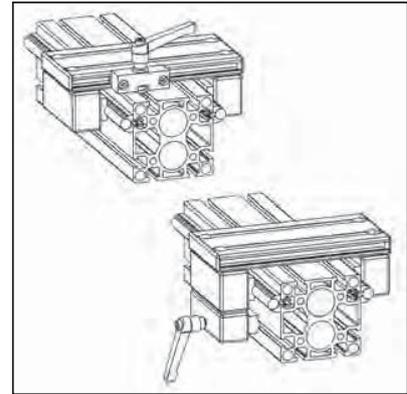
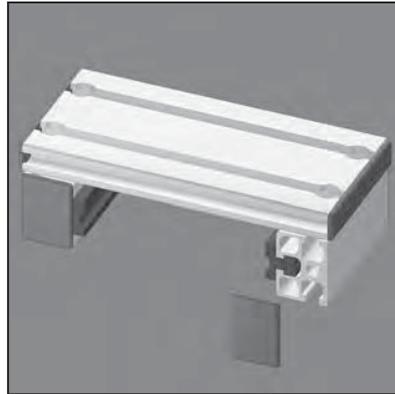
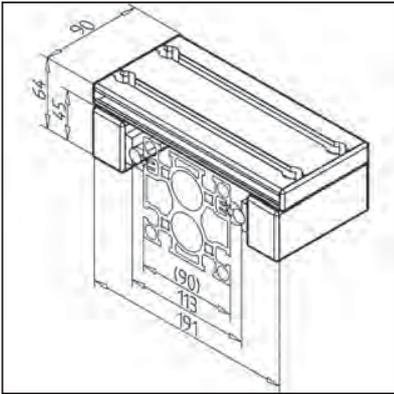
- Simple linear guides
- Automatic advance units
- For rail 45 with shafts Ø 12 mm

**SPECIAL DESIGNS**

- With slide clamping unit (Top)  
**part no. 28.0136/1**
- Slide plate made of aluminium profile  
32 x 180
- Different slide lengths

## SLIDE LWG 32 X 45 - 90

part no. 28.0133/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 slide rails LG
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,762 kg

### APPLICATIONS

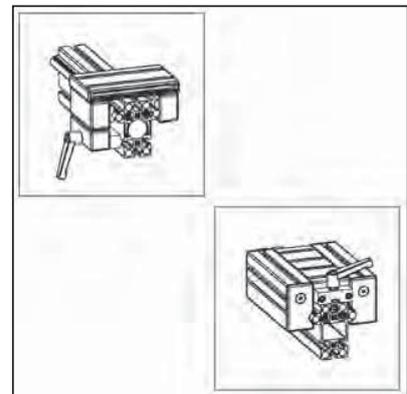
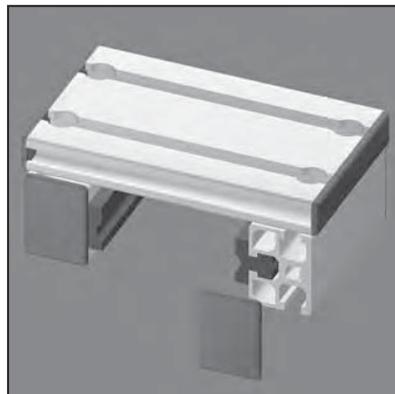
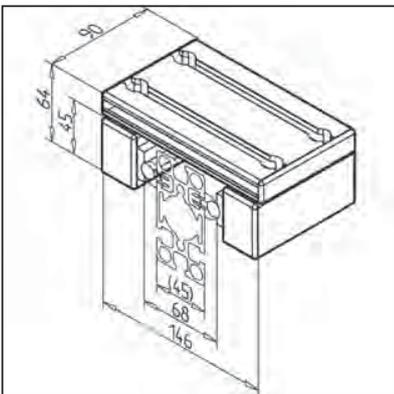
- Simple linear guides
- Automatic advance units
- For rail 90 with shafts Ø 12 mm

### SPECIAL DESIGNS

- With slide clamping unit (Top)  
**part no. 28.0133/1**
- With slide clamping unit (Lateral)  
**part no. 28.0133/2**
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

## SLIDE LWG 32 X 45 - 45

part no. 28.0132/0



### TECHN. DATA / ITEMS SUPPLIED

- Slide completely assembled
- 2 slide rails LG
- End caps
- Clearance adjusted
- Load max. 450 N
- Weight 0,726 kg

### APPLICATIONS

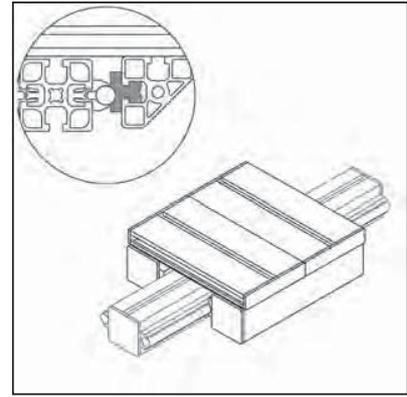
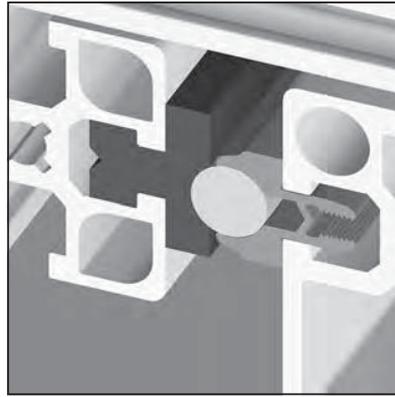
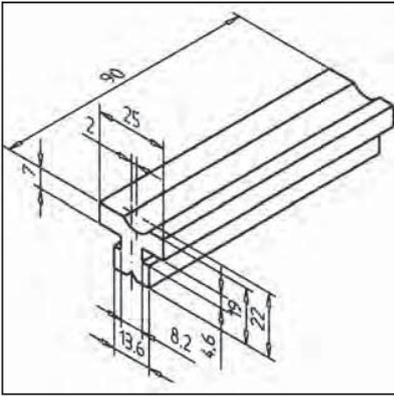
- Simple linear guides
- Automatic advance units
- For rail 45 with shafts Ø 12 mm

### SPECIAL DESIGNS

- With slide clamping unit (Top)  
**part no. 28.0132/1**
- With slide clamping unit (Lateral)  
**part no. 28.0132/2**
- Slide plate made of aluminium profile 32 x 180
- Different slide lengths

## SLIDE RAIL LG

part no. 22.1094/0



### TECHN. DATA / ITEMS SUPPLIED

- Hard plastic PE-UHMW, black
- 2 set screws
- Max. surface pressure: 10 N/mm<sup>2</sup>
- Weight 0,032 kg

### APPLICATIONS

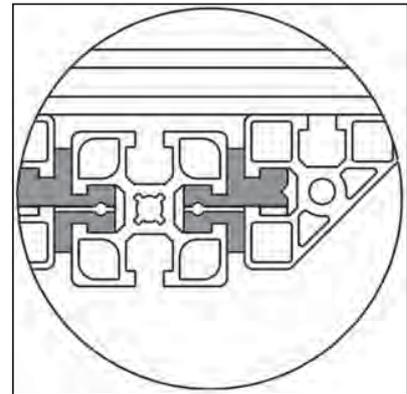
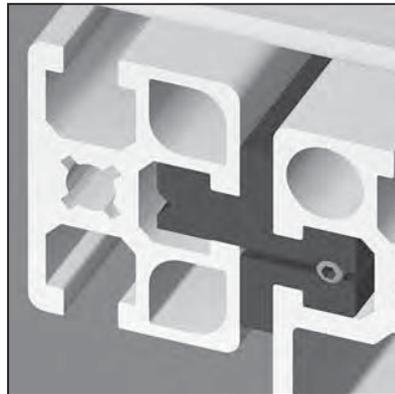
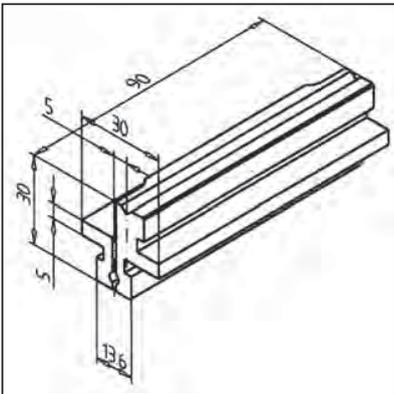
- Slide guides LG

### ASSEMBLY

- Insert into groove of lateral guide profile
- Secure with set screw

## SLIDE RAIL LN

part no. 22.1095/0



### TECHN. DATA / ITEMS SUPPLIED

- Hard plastic PE-UHMW, black
- Fastening kit
- Max. surface pressure: 10 N/mm<sup>2</sup>
- Weight 0,03 kg

### APPLICATIONS

- Slide guides LN
- Adjusting units
- Heavy sliding doors
- Drawers

### ASSEMBLY

- Connect with slide plate
- Insert into grooves of the guide profile
- Adjust without clearance, use fastening kit



## LINEARSYSTEM LB



The LB design is based on LME 20 linear ball bearings that are built into our construction profile in the specially provided bore holes. Precision shafts D 20 mm provide the high load capacity of this guide. The LB design offers substantial advantages for short travelling distances and high stroke frequencies.

Especially compact and economical, the guide elements are based on our solid precision ball bushings from the LME series with integrated sealing rings to provide high reliability under rough conditions.

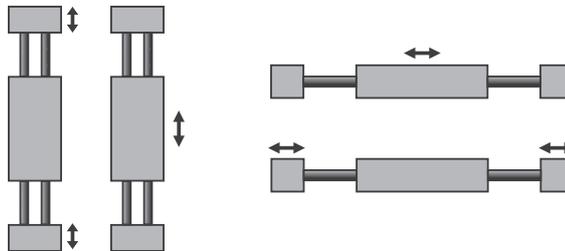
## Calculation of lifetime

$$L = \frac{C}{F} \cdot 10^5$$

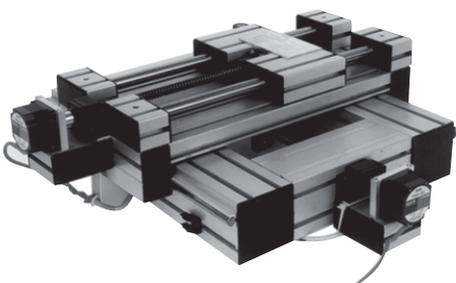
L = lifetime

C = dynamic load rating

F = resultant external forces



MiniTec LB series linear guides are particularly suitable for short strokes of up to 1 meter. The modular system provides absolute flexibility in the design of the guide. The ball bushings with solid outer ring made from hardened and ground bearing steel are mounted directly into the profile  $\varnothing$  32 bores of the extra strong profile 45 x 135, 45 x 180, 90 x 180, 90 x 45 S and 90 x 90 S.



The axial position of the bushes is secured with one-component glue. The ball-bushing combines low friction, limited clearance, low noise and long life.

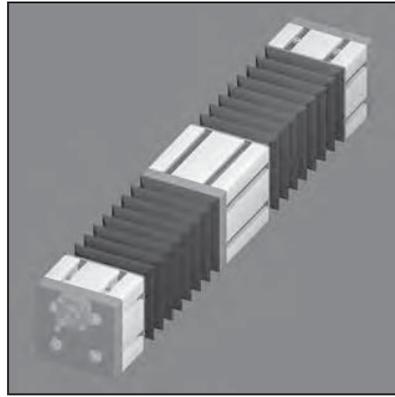
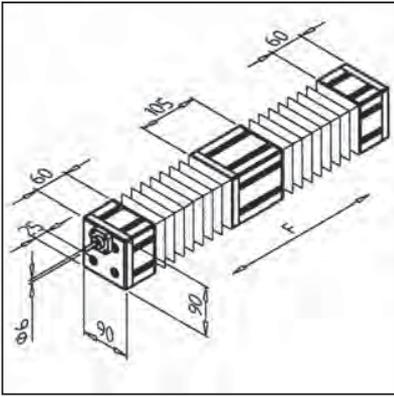
When designing a linear system LB, shaft deflection under load of max.  $0.5^\circ$  must be considered.

Linear guides LB are available completely assembled with ball-screw on request.

All components are also available in stainless versions.

## LINEAR MODULE LB 90

part no. 28.0178/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear module made of profile 90 x 90; ready for use
- Drive unit with rolled circulating ball spindle RNCT 1003 Ø 10 mm, incline 3
- Incline fault / 300: 12 µm (class C3)
- Slide guidance on 4 linear ball bearings with hardened ground precision shafts Ø 20 mm, total length max. 760 mm

### TECHN. DATA / ITEMS SUPPLIED

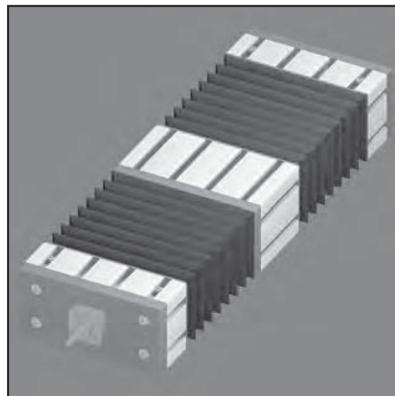
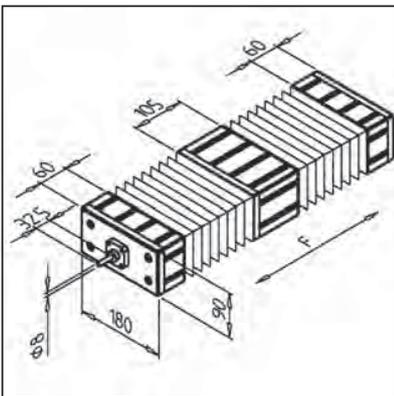
- Shaft end processed at fixed bearing side according to customer specification for motor and crank connection
- Shafts and spindles covered with protective bellows
- Positioning accuracy: ± 0,1 mm

### APPLICATIONS

- Handling systems
- Z-axis in portals
- Multiple axis systems
- Grabbing units

## LINEAR MODULE LB 180

part no. 28.0179/0



### TECHN. DATA / ITEMS SUPPLIED

- Linear module made of profile 90 x 180; ready for use
- Drive unit with rolled circulated ball spindle RNCT 1404-3,4 Ø 14 mm, incline 4
- Incline fault / 300: 12 µm (class C3)
- Slide guidance on 4 linear ball bearings with hardened ground precision shafts Ø 20 mm, total length max. 950 mm

### TECHN. DATA / ITEMS SUPPLIED

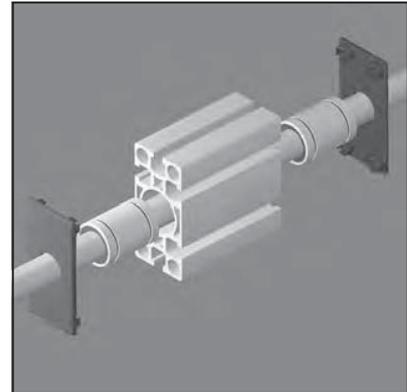
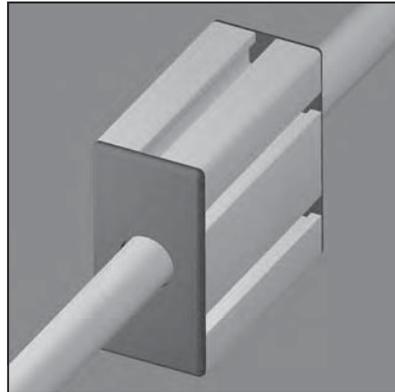
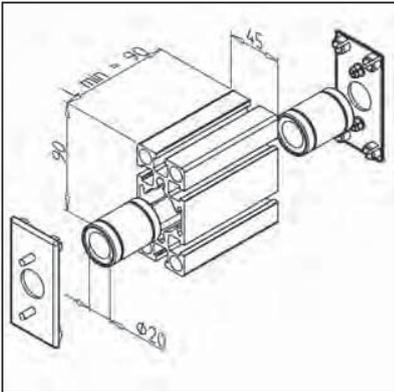
- Shaft end processed at fixed bearing side according to customer specification for motor and crank connection
- Shafts and spindles covered with protective bellows
- Positioning accuracy: ± 0,1 mm

### APPLICATIONS

- Handling systems
- Z-axis in portals
- Multiple axis systems
- Grabbing units

## SLIDE LB 45

part no. 28.0150/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 90 S
- Completely assembled with 2 ball bushings LME 20 UU
- Profile face covered with end caps LB 45, grey
- Weight 0,550 kg
- Other length on request

### APPLICATIONS

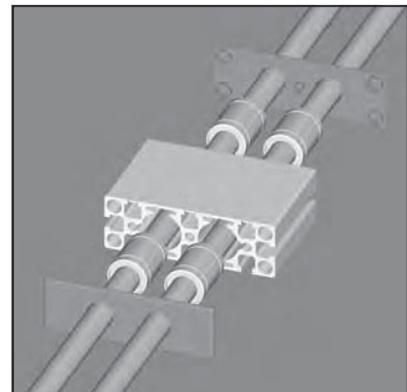
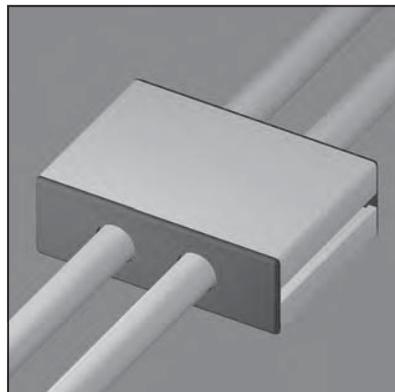
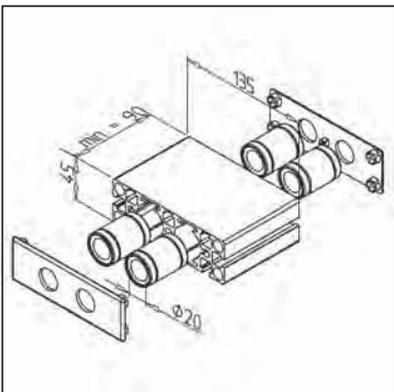
- All MiniTec linear systems LB

### ASSEMBLY

- Lead shaft through slide

## SLIDE LB 45 X 135

part no. 28.0155/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 135
- Completely assembled with 2 ball bushings LME 20 UU
- Profile face covered with end caps LB 45 x 135, grey
- Weight 0,865 kg
- Other length on request

### APPLICATIONS

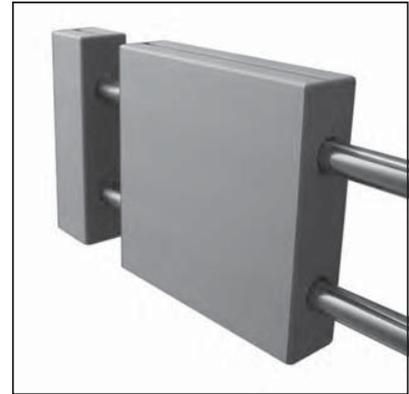
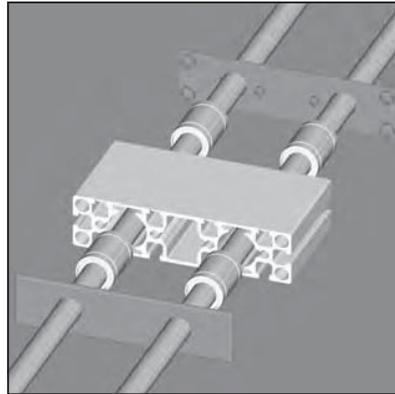
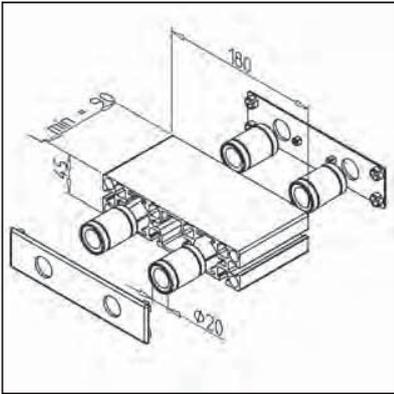
- All MiniTec linear systems LB

### ASSEMBLY

- Lead shaft through slide

## SLIDE LB 45 X 180

part no. 28.0156/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 180
- Completely assembled with 2 ball bushings LME 20 UU
- Profile face covered with end caps LB 45 x 180, grey
- Weight 1,007 kg
- **Other length on request**

### APPLICATIONS

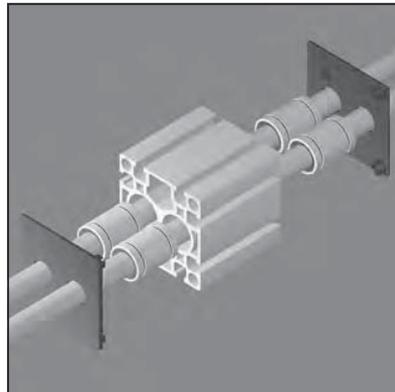
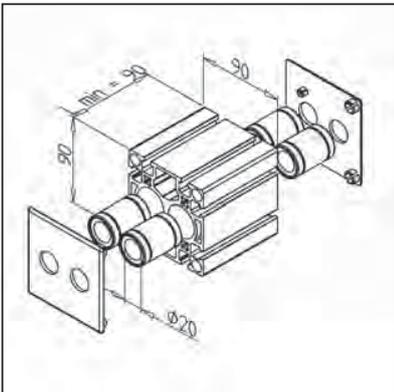
- All MiniTec linear systems LB

### ASSEMBLY

- Lead shaft through slide

## SLIDE LB 90

part no. 28.0152/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 90 x 90 S
- Completely assembled with 4 ball bushings LME 20 UU
- Profile face covered with end caps LB 90, grey
- Weight 1,070 kg
- **Other length on request**

### APPLICATIONS

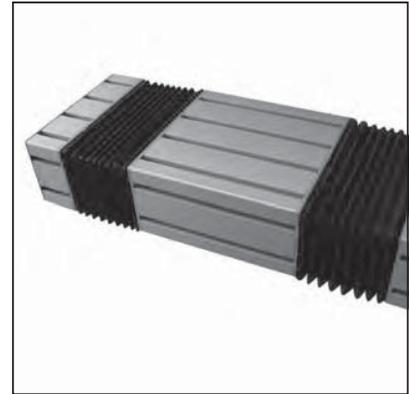
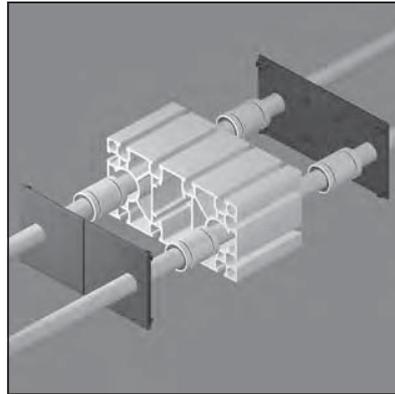
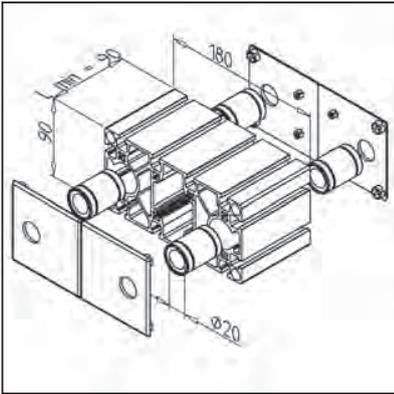
- All MiniTec linear systems LB

### ASSEMBLY

- Lead shaft through slide

## SLIDE LB 180

part no. 28.0143/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 90 x 180 S
- Completely assembled with 4 ball bushings LME 20 UU
- Profile face covered with end caps LB 180, grey
- Weight 1,500 kg
- Other length on request

### APPLICATIONS

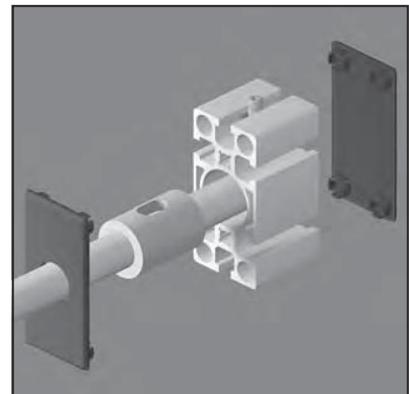
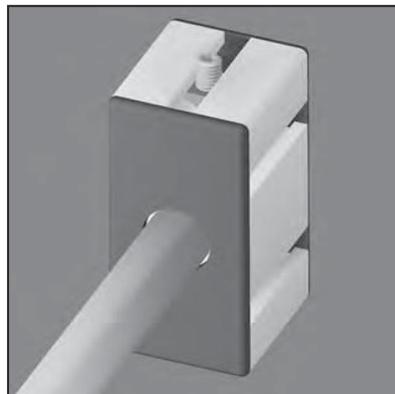
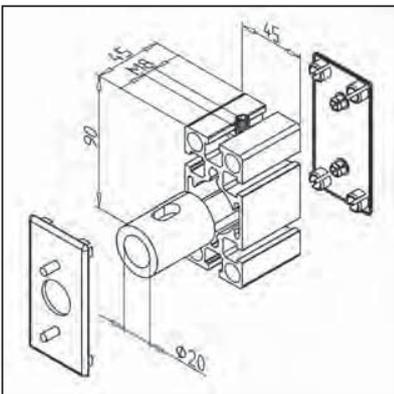
- All MiniTec linear systems LB

### ASSEMBLY

- Lead shaft through slide

## SHAFT SUPPORT BLOCK WB 45

part no. 28.0151/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 90 S
- Completely assembled with centering bush
- Shaft side with end cap LB 45, grey
- Outer side with end cap 45 x 90, grey
- Weight 0,526 kg

### APPLICATIONS

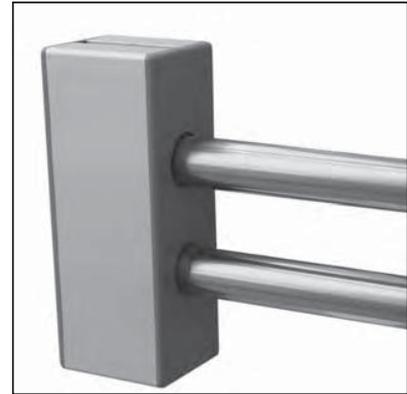
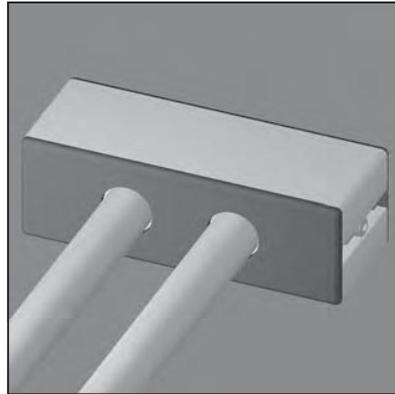
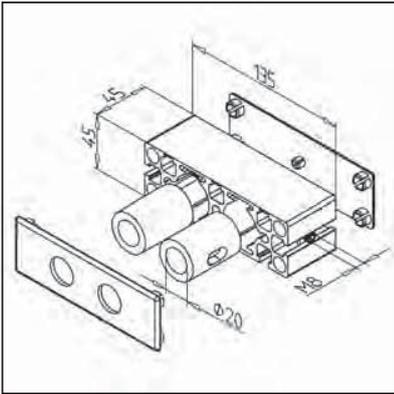
- Fastening shafts Ø 20 in MiniTec linear systems LB 45

### ASSEMBLY

- Insert shaft
- Tighten with set screw M8 x 35

## SHAFT SUPPORT BLOCK WB 45 X 135

part no. 28.0157/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 135
- Completely assembled with centering bush
- Shaft side with end cap LB 45 x 135, grey
- Outer side with end cap 45 x 135, grey
- Weight 0,530 kg

### APPLICATIONS

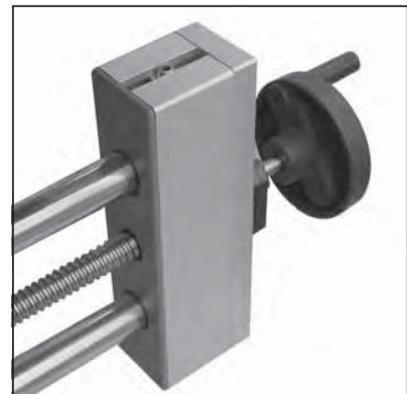
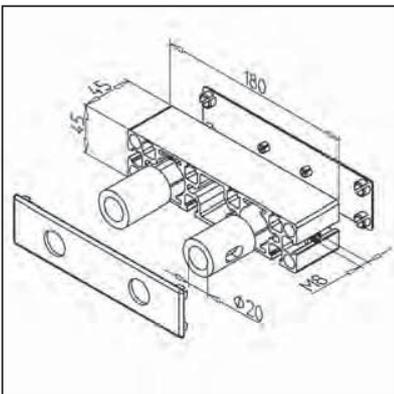
- Fastening shafts Ø 20 in MiniTec linear systems LB 45

### ASSEMBLY

- Insert shaft
- Tighten with set screw M8 x 35

## SHAFT SUPPORT BLOCK WB 45 X 180

part no. 28.0159/0



### TECHN. DATA / ITEMS SUPPLIED

- Profile 45 x 180
- Completely assembled with centering bush
- Shaft side with end cap LB 45 x 180, grey
- Outer side with end cap 45 x 180, grey
- Weight 0,770 kg

### APPLICATIONS

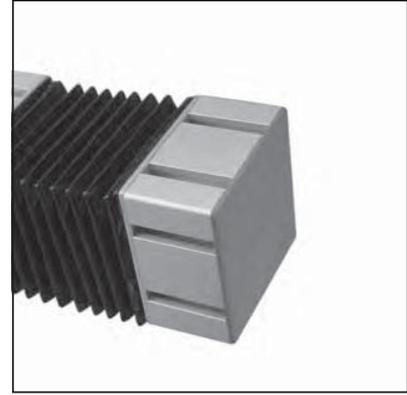
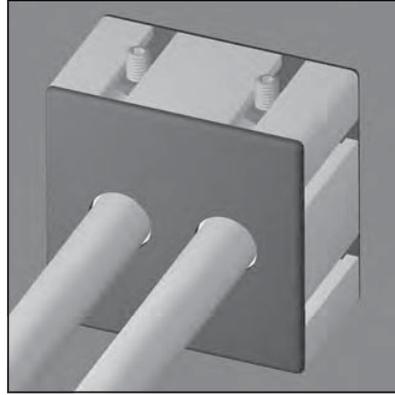
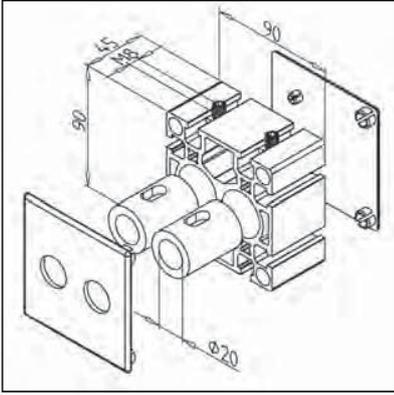
- Fastening shafts Ø 20 in MiniTec linear systems LB 45

### ASSEMBLY

- Insert shaft
- Tighten with set screw M8 x 35

**SHAFT SUPPORT BLOCK WB 90**

part no. 28.0153/0

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 90 x 90 S
- Completely assembled with 2 centering bush
- Shaft side with end cap LB 90, grey
- Outer side with end cap 90 x 90, grey
- Weight 0,410 kg

**APPLICATIONS**

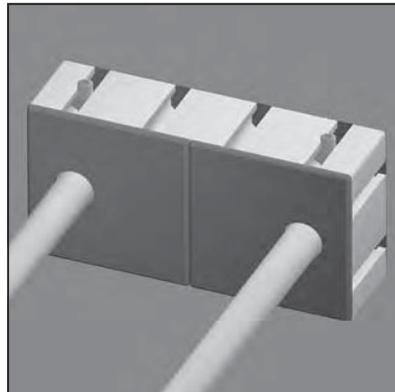
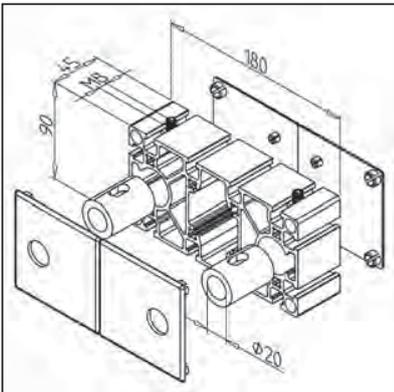
- Fastening shafts Ø 20 in MiniTec linear systems LB 90

**ASSEMBLY**

- Insert shaft
- Tighten with set screw M8 x 35

**SHAFT SUPPORT BLOCK WB 180**

part no. 28.0144/0

**TECHN. DATA / ITEMS SUPPLIED**

- Profile 90 x 180 S
- Completely assembled with 2 centering bush
- Shaft side with end cap LB 180, grey
- Outer side with 2 end cap 90 x 90, grey
- Weight 0,650 kg

**APPLICATIONS**

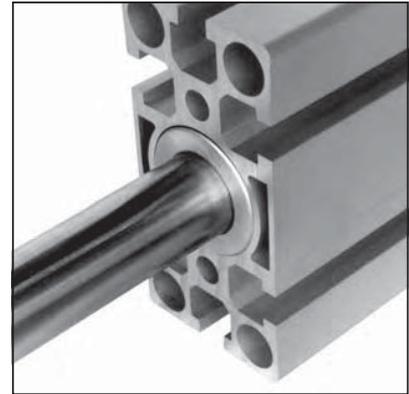
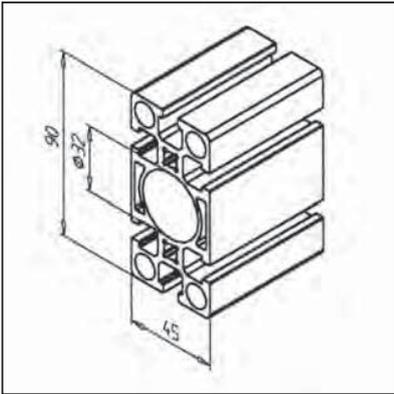
- Fastening shafts Ø 20 in MiniTec linear systems LB 180

**ASSEMBLY**

- Insert shaft
- Tighten with set screw M8 x 35

## PROFILE 45 X 90 S

part no. 20.1017/0



### TECHN. DATA / ITEMS SUPPLIED

- lx =	113,487 cm <sup>4</sup>
- ly =	30,719 cm <sup>4</sup>
- wx =	25,219 cm <sup>3</sup>
- wy =	13,653 cm <sup>3</sup>
- Weight	3,860 kg/m
- Length	6 m
- Packing unit	24 m

### APPLICATIONS

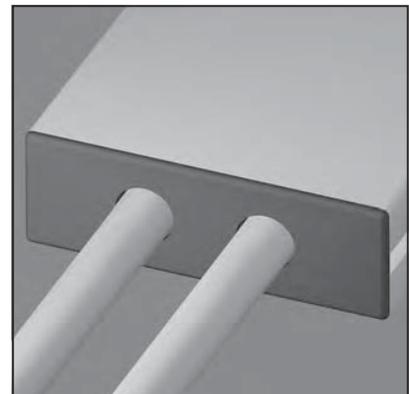
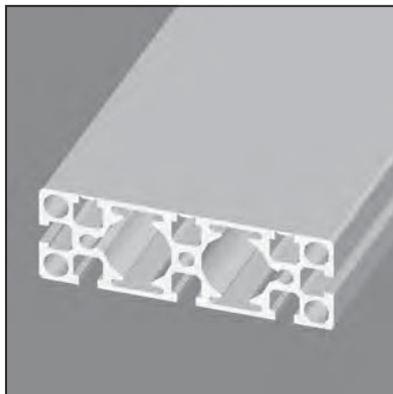
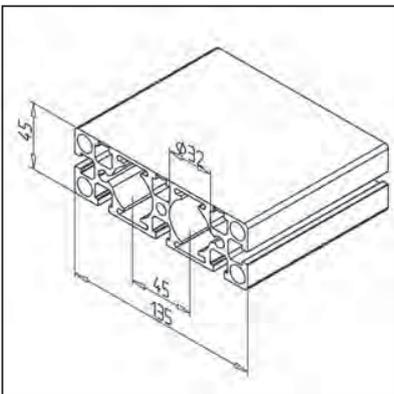
- General constructions
- Linear guides LB as slide
- Pillar guides
- Use as a compressed air line with connecting plate and seal kit
- Central bore Ø 32 mm for ball-bushings LME 20, for ball-bearings 6201 or 6002, for compressed air piping or guiding of hydraulic add-in cylinders

### ASSEMBLY

- MiniTec power-lock fastener
- Cross bolt-fastener
- Angle 45 / 90
- Screw connection

## PROFILE 45 X 135 1G

part no. 20.1078/0



### TECHN. DATA / ITEMS SUPPLIED

- lx =	47,064 cm <sup>4</sup>
- ly =	359,242 cm <sup>4</sup>
- wx =	20,618 cm <sup>3</sup>
- wy =	53,221 cm <sup>3</sup>
- Weight	5,570 kg/m
- Length	6 m
- Packing unit	12 m

### APPLICATIONS

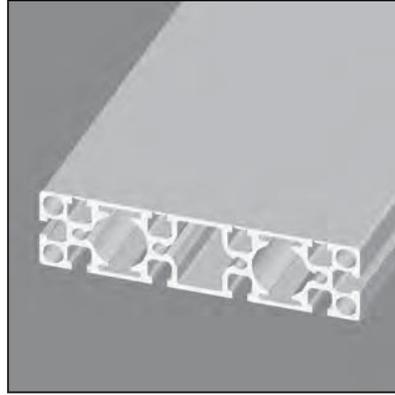
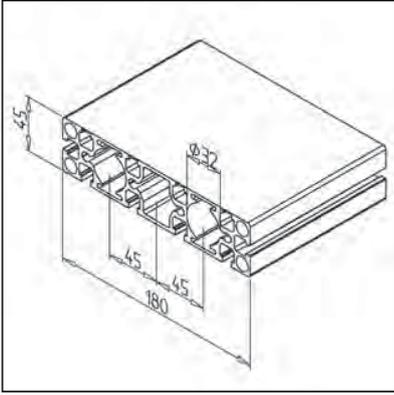
- General constructions, particularly useful in the food industry, in medical engineering and for the filling of beverages, where strict hygienic standards are set
- Linear guides as slide
- Central bore Ø 32 mm for ball-bushings LME 20, for ball-bearings 6201 or 6002, for compressed air piping or guiding of hydraulic add-in cylinders

### ASSEMBLY

- MiniTec power-lock fastener
- 3 closed t-slots can be opened up to any length with the tear-off lever  
**part no. 26.0815/0**

**PROFILE 45 X 180 1G**

part no. 20.1079/0

**TECHN. DATA / ITEMS SUPPLIED**

- I <sub>x</sub> =	61,015 cm <sup>4</sup>
- I <sub>y</sub> =	810,885 cm <sup>4</sup>
- w <sub>x</sub> =	26,704 cm <sup>3</sup>
- w <sub>y</sub> =	90,097 cm <sup>3</sup>
- Weight	6,954 kg/m
- Length	6 m
- Packing unit	12 m

**APPLICATIONS**

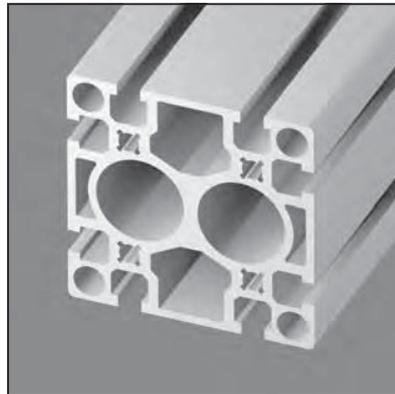
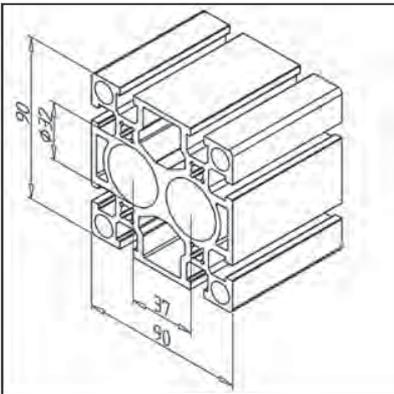
- General constructions, particularly useful in the food industry, in medical engineering and for the filling of beverages, where strict hygienic standards are set
- Linear guides LB as slide
- Central bore Ø 32 mm for ball-bushings LME 20, for ball-bearings 6201 or 6002, for compressed air piping or guiding of hydraulic add-in cylinders

**ASSEMBLY**

- MiniTec power-lock fastener
- 4 closed t-slots can be opened up to any length with the tear-off lever **part no. 26.0815/0**

**PROFILE 90 X 90 S**

part no. 20.1019/0

**TECHN. DATA / ITEMS SUPPLIED**

- I <sub>x</sub> =	223,949 cm <sup>4</sup>
- I <sub>y</sub> =	208,888 cm <sup>4</sup>
- w <sub>x</sub> =	49,766 cm <sup>3</sup>
- w <sub>y</sub> =	46,419 cm <sup>3</sup>
- Weight	7,514 kg/m
- Length	6 m
- Packing unit	12 m

**APPLICATIONS**

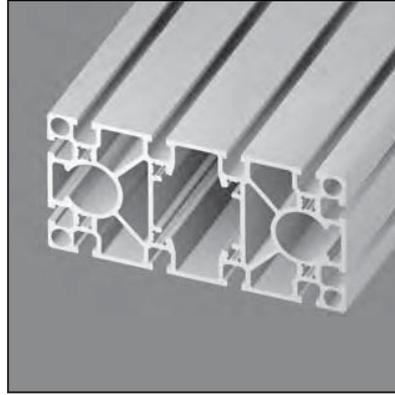
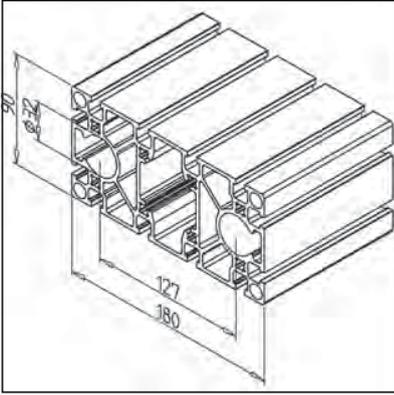
- General heavy duty constructions
- Linear guides LB as slide
- Central bore Ø 32 mm for ball-bushings LME 20, for ball-bearings 6201 or 6002, for compressed air piping or guiding of hydraulic add-in cylinders

**ASSEMBLY**

- MiniTec power-lock fastener
- Angle 45 or 90
- Screw connection

## PROFILE 90 X 180 S

part no. 20.1013/0



### TECHN. DATA / ITEMS SUPPLIED

- I <sub>x</sub> =	376,784 cm <sup>4</sup>
- I <sub>y</sub> =	1421,865 cm <sup>4</sup>
- w <sub>x</sub> =	83,729 cm <sup>3</sup>
- w <sub>y</sub> =	157,983 cm <sup>3</sup>
- Weight	11,482 kg/m
- Length	6 m
- Packing unit	6 m

### APPLICATIONS

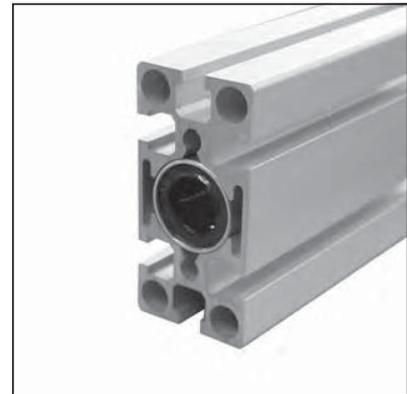
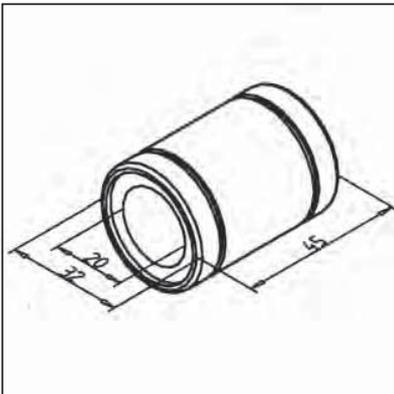
- General heavy duty constructions
- Linear guiding LB as slide
- Central bore Ø 32 mm for ball-bushings LME 20, for ball-bearings 6201 or 6002, for compressed air piping or guiding of hydraulic add-in cylinders

### ASSEMBLY

- MiniTec power-lock fastener
- Angle 45 or 90
- Screw connection

## BALL BUSHING LME 20 UU

part no. 10.1745/0



### TECHN. DATA / ITEMS SUPPLIED

- Housing	100 Cr6
-	2 integrated sealing rings, heat resistant up to 110°C, for higher temperatures up to 180°C use ball bushing with steel cage
- Load:	
- dyn. C =	880 N
- stat. C <sub>0</sub> =	1.400 N
- Weight	0,090 kg

### APPLICATIONS

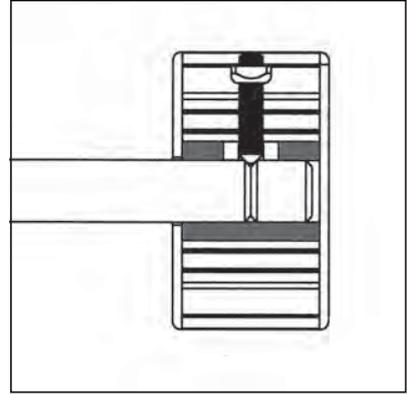
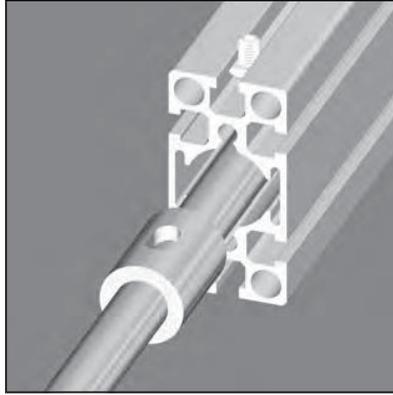
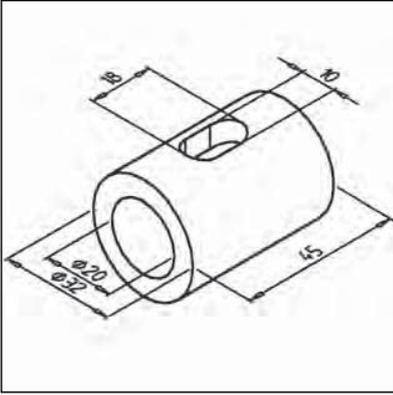
- Precision linear guides
- Linear guide system LB
- Lifting-tables
- Quattro-units

### ASSEMBLY

- Push in bore 32 of the profile
- Axial securing with housing adhesive

## CENTERING BUSH

part no. 28.0146/0



### TECHN. DATA / ITEMS SUPPLIED

- Aluminium, natural

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- Weight 0,067 kg

### APPLICATIONS

- Central clamping of shafts for all shaft supporting blocks of the MiniTec-linear system LB

### ASSEMBLY

- Insert centering bush in bore  $\varnothing$  32 mm

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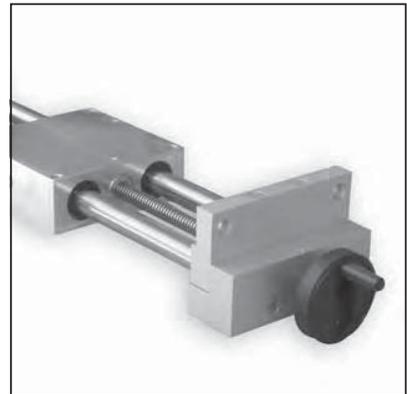
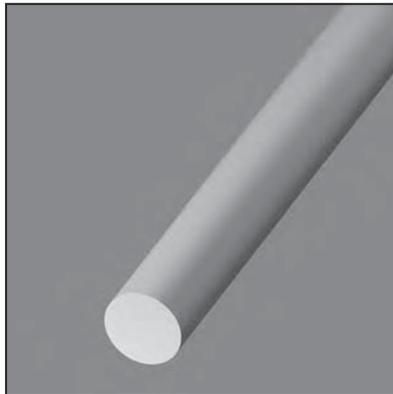
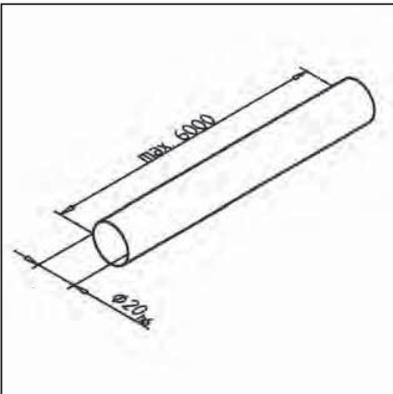
- Insert shaft

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- Attachment with set screw M8 x 35

## SHAFT 20

part no. 17.1744/0



### TECHN. DATA / ITEMS SUPPLIED

- Cf53, inductive hardened 60 +5 HRC ground h6

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- Weight 2,466 kg/m

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- Length 6 m

### APPLICATIONS

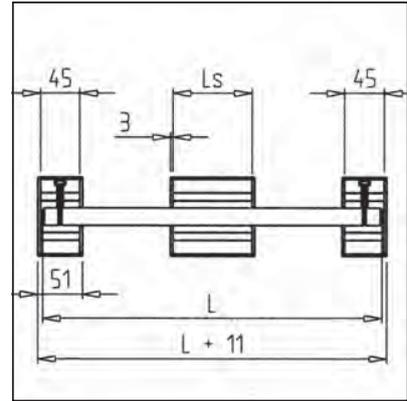
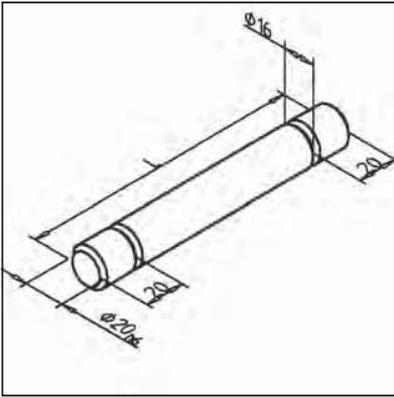
- Linear guide system LB

### ASSEMBLY

- With centering bush in shaft support block

## SHAFT 20 FOR LB-SYSTEM

part no. 28.0154/0



### TECHN. DATA / ITEMS SUPPLIED

- Steel Cf53, inductive hardened 60 +5 HRC grinded
- Tolerance h6
- Processed for shaft support block WB
- Weight 0,067 kg/m
- Please indicate measure L

### APPLICATIONS

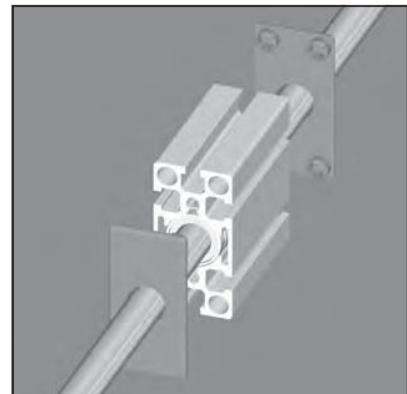
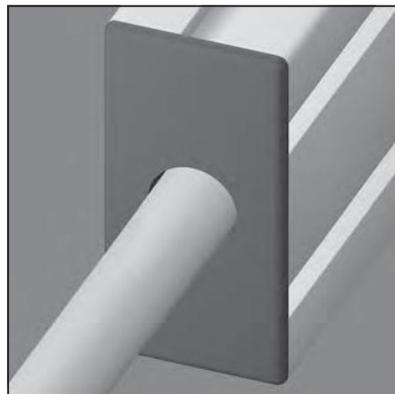
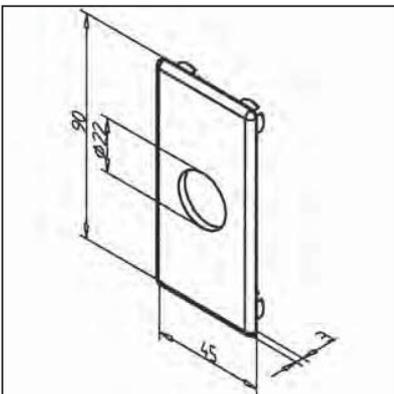
- MiniTec linear guides LB
- In each direction usable

### ASSEMBLY

- Insert in shaft support
- Clamp with set screw M8 x 35

## END CAP LB 45

part no. 28.0094/1



### TECHN. DATA / ITEMS SUPPLIED

- ABS, non-aging and oil resistant, grey
- On request also deliverable in black
- 1 centric bore Ø 22 mm
- Weight 0,095 kg/m

### APPLICATIONS

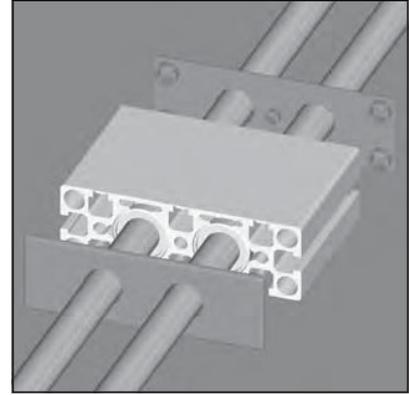
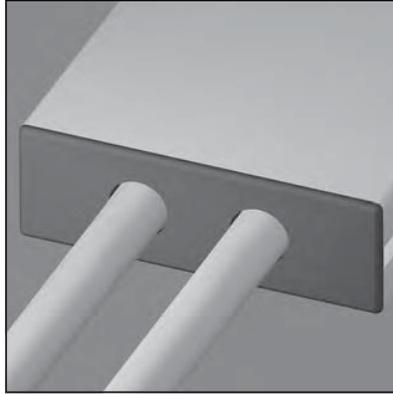
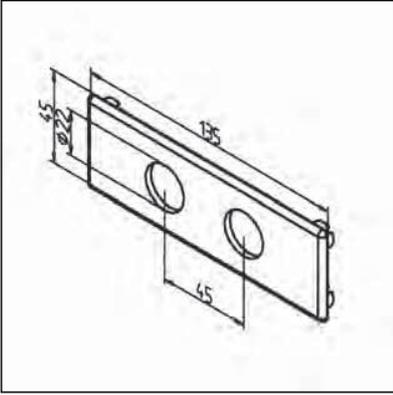
- Face covering of linear slides LB 45
- Face covering of shaft support block WB 45 (shaft side)

### ASSEMBLY

- Press into profile bores

**END CAP LB 45 X 135**

part no. 28.0101/1

**TECHN. DATA / ITEMS SUPPLIED**

- ABS, non-aging and oil resistant, grey
- On request also deliverable in black
- 2 bores  $\varnothing$  22 mm
- Weight 0,017 kg

**APPLICATIONS**

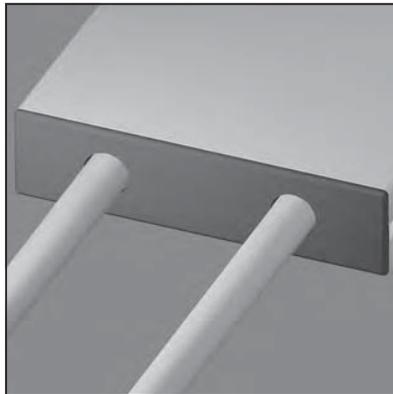
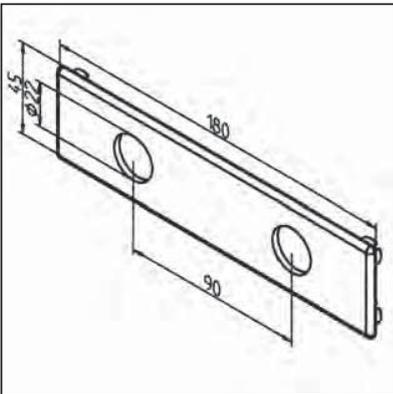
- Face covering of linear slides LB 45 x 135
- Face covering of shaft support blocks WB 45 x 135

**ASSEMBLY**

- Press into profile bores

**END CAP LB 45 X 180**

part no. 28.0102/1

**TECHN. DATA / ITEMS SUPPLIED**

- ABS, non-aging and oil resistant, grey
- On request also deliverable in black
- 2 bores  $\varnothing$  22 mm
- Weight 0,020 kg

**APPLICATIONS**

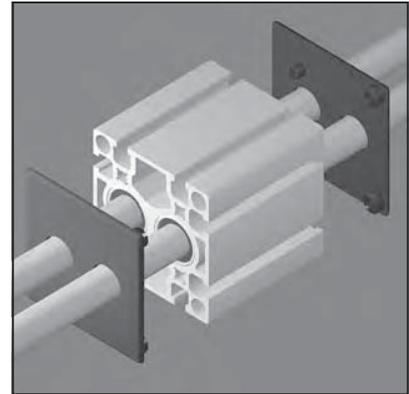
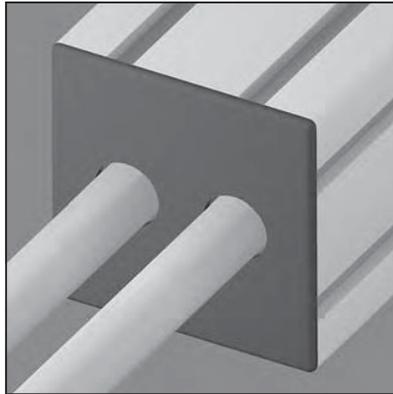
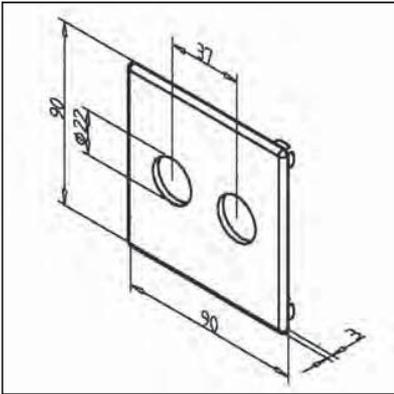
- Face covering of linear slides LB 45 x 180
- Face covering of shaft support blocks WB 45 x 180

**ASSEMBLY**

- Press into profile bores

## END CAP LB 90

part no. 28.0095/1



### TECHN. DATA / ITEMS SUPPLIED

- ABS, non-aging and oil resistant, grey
- On request also deliverable in black,  
**part no. 28.0095/0**
- 2 bores Ø 22 mm
- Weight 0,0165 kg

### APPLICATIONS

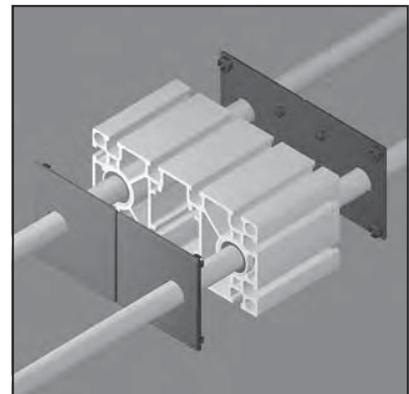
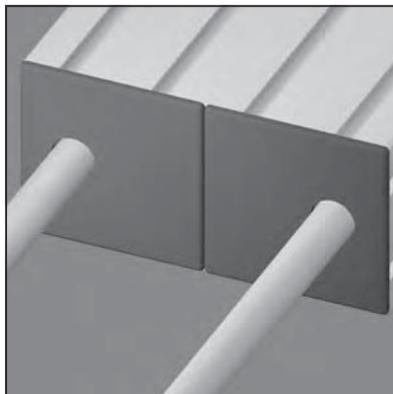
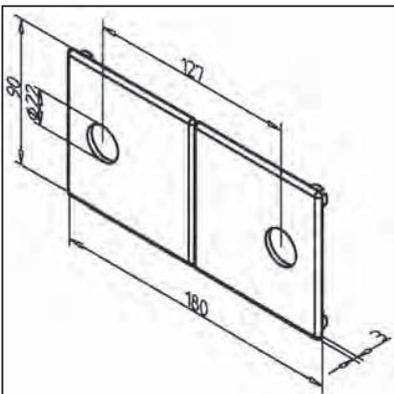
- Face covering of linear slides LB 90
- Face covering of shaft support blocks WB 90

### ASSEMBLY

- Press into profile bores

## END CAP LB 180

part no. 28.0103/1



### TECHN. DATA / ITEMS SUPPLIED

- ABS, non-aging and oil resistant, grey
- On request also deliverable in black,  
**part no. 28.0103/0**
- 2 bores Ø 22 mm
- Weight 0,037 kg

### APPLICATIONS

- Face covering of linear slides LB 180
- Face covering of shaft support blocks WB 180

### ASSEMBLY

- Press into profile bores