

# Linear Units

***"Control in motion"***



**LINEAIRTECHNIEK®**

by

**ALMOTION®**



# Linear Units

For nearly 20 years Almotion focuses on the development, design and production of linear units. In the industry of linear units we use the name LINEAIRTECHNIEK®, the only Dutch brand that manufactures and develops linear units, they are really "MADE IN HOLLAND".

This ensures that we can offer a high quality product with fast delivery time, excellent service and flexibility in technical solutions.

Because everything is in our own hands we can always offer a very convenient price-product ratio.

This allows us, as a specialist, to handle all challenges and make you a custom made proposal.

An extensive experience with mechanical drive-solutions in machine building provides the best technical structures.

These industrial linear units are based on aluminum profiles mounted with a guide based on track wheels or circulating ball bearing rails. The toothed belt drive is of the type proposition AT5 or AT10.

Our LT50 and LT2 kit systems are suitable for rail guides of size 15 respectively 20 of each manufacturer to assemble. It doesn't matter if you also prefer a STAR, IKO, THK Hiwin or what brand. It always fits our standard kit system.

Almotion can offer a unit with BRECOFLEX belt and any brand guide rail.

BRECO "M" 16AT10-11106 28690

**Almotion has its own engineering department, so we can target to the needs of the customer. This allows us to always be guaranty of a high level of service by fast delivery and flexibility in designs.**

# Overview of the linear units

## Robust Units

### LT50 series - External guide Linear Units, width of the profile 50 mm

- Hardened guide wheels on hardened shafts -8-, highly resistant to pollution
- Recirculating ball rail guide size -15- for heavy loads
- The G8 wheel guide is also available in stainless steel
- Toothed belt type 16 AT5



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### LT2 series - External guide Linear Units, width of the profile 60 mm

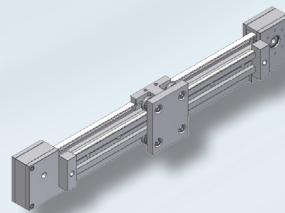
- Hardened guide wheels on hardened shafts -10-, highly resistant to pollution
- Recirculating ball rail guide size -20- for heavier loads
- The V8 wheel guide is also available in stainless steel
- Toothed belt type 16 AT10 or 16 AT5



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### LTC series - External guide Linear Units, basic profile 45x90, 90x90 or 45x135 mm

- Hardened guide wheels on hardened shafts -10- or -20-, highly resistant to pollution
- The V10-12-16 wheel guide is also available in stainless steel
- Modular system, many options possible
- Toothed belt type 16 AT10, 25 AT10 or 50 AT10



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## Compact Units

### LT55 series - Internal guide Linear Units, width of the profile 55 mm

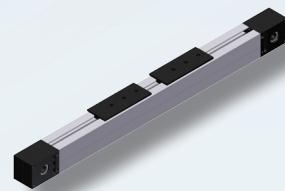
- Internal recirculating ball rail guide size -15- for heavy loads
- Magnetic switches in T-slot for position detection
- Toothed belt type 25 AT5



24

### LT60 series - Internal guide Linear Units, width of the profile 60 mm

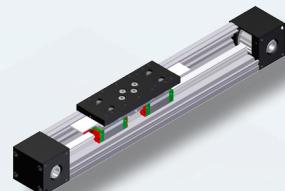
- Internal hardened guide wheels on hardened shafts -10-
- Toothed belt type 16 AT10
- Optional with 2 carriages with independent drive, belt type 8 AT5



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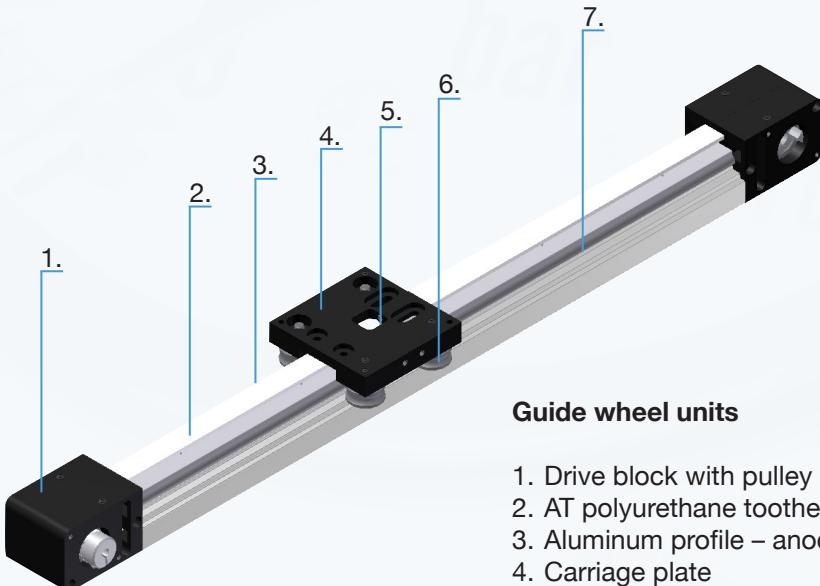
### LT80 series - Internal guide Linear Units, width of the profile 80 mm

- Hardened guide wheels on hardened shafts -10-, highly resistant to pollution
- Internal recirculating ball rail guide size -20- for heavy loads
- Magnetic switches in T-slot for position detection
- Toothed belt type 32 AT10



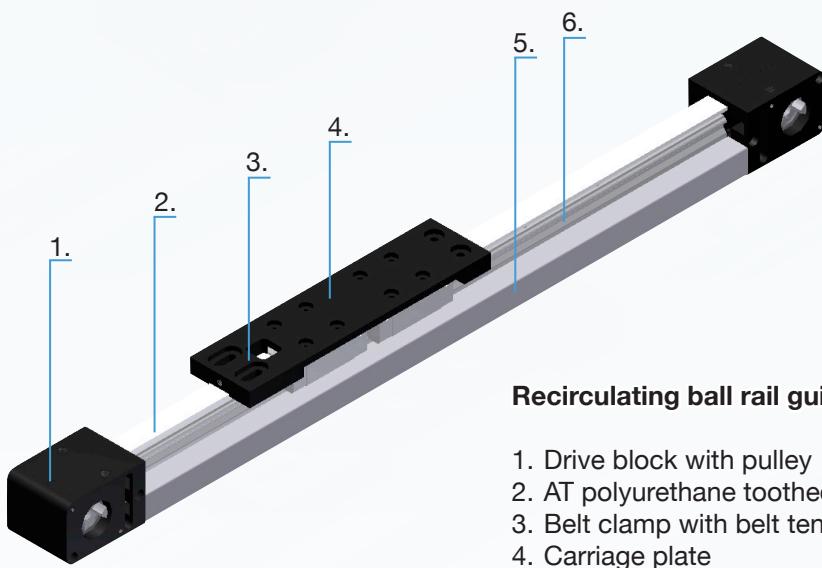
31

# Structural design external guide linear units



**Guide wheel units**

1. Drive block with pulley
2. AT polyurethane toothed belt with steel tension cords
3. Aluminum profile – anodized
4. Carriage plate
5. Belt clamp with belt tensioning system
6. Guide wheel
7. Two hardened steel shafts (60 HCR)



**Recirculating ball rail guide units**

1. Drive block with pulley
2. AT polyurethane toothed belt with steel tension cords
3. Belt clamp with belt tensioning system
4. Carriage plate
5. Aluminum profile – anodized
6. Linear ball guide

# Characteristics

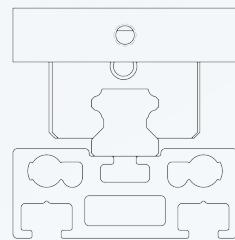
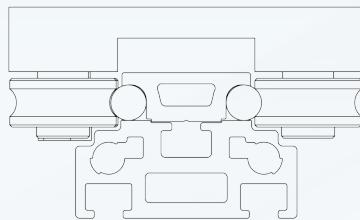
LT50, LT2 and LTC series are high performance and low cost Linear Units with a toothed belt drive and 2 options of guide system: hardened guide wheel- or ball rail system for simple and precise linear movements. These Linear Units can also be combined to various multi-axes linear systems and ensure an excellent price-performance ratio with short delivery time.

An extruded aluminum profile of anodized Al 6063 alloy with a mounted precision ball rail system enables high load moments and optimum running characteristics to move heavy loads at high speed. The aluminum profile contains T-slots for mounting or switch fixing. The linear units LT50, LT2 and LTC uses a pre-tensioned AT "proposition" polyurethane toothed belt with steel tension cords. This type of linear belt is used together with a zero-backlash pulley to archive an high precision, high load motion.

The carriage can be produced in a custom length with extra fixing holes according to customers wishes. Also available with pre-designed adapters for attachment of the motor and gear box.

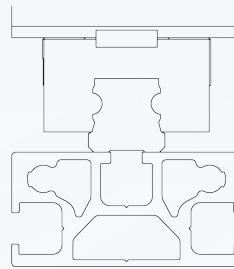
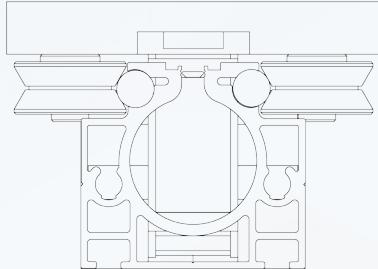
**LT50**

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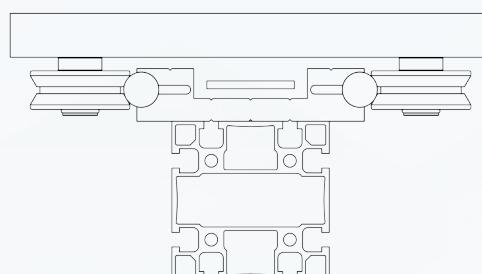
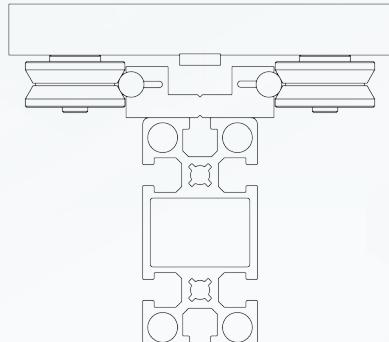
**LT2**

page 11



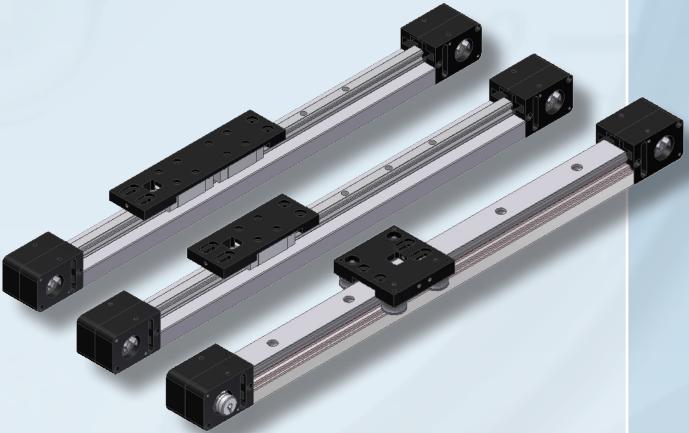
**LTC**

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# LT50 series

## Robust Linear Units with wheel- or rail guide



- Compact design, the width of the profile 50 mm
- Guide system of hardened wheels on hardened shafts or rail guide, size -15-
- Double carriage design for high load
- G8 guide wheel system is very resistant to pollution
- Recirculating ball rail guide for heavy loads

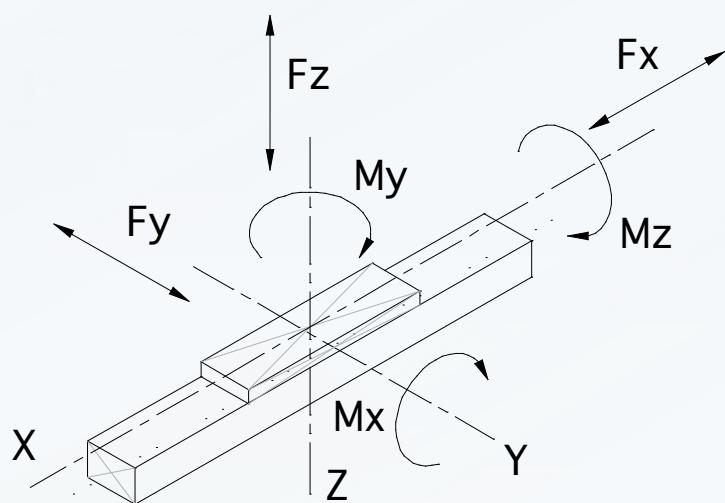
Technical Data	LT50-TR-G8	LT50-TR-S15	LT50-TR-S15D
Maximum stroke	5.900 mm	5.800 mm	5.730 mm
Maximum speed	5.000 mm/s	1.000 mm/s	1.000 mm/s
Maximum acceleration	50 m/s <sup>2</sup>	3 m/s <sup>2</sup>	3 m/s <sup>2</sup>
No load torque	0,2 Nm	0,6 Nm	0,9 Nm
Repeatability	± 0,1 mm	± 0,1 mm	± 0,1 mm
Movement per revolution	100 mm	100 mm	100 mm

# LT50 series

## Technical data

Load capacity	LT50-TR-G8	LT50-TR-S15	LT50-TR-S15D
Mx	11 Nm	14 Nm	106 Nm
My	11 Nm	14 Nm	106 Nm
Mz	8 Nm	20 Nm	40 Nm
Fx	1.000 N	1.000 N	1.000
Fy	980 N	1.700 N	3.400 N
Fz	850 N	1.800 N	3.600 N

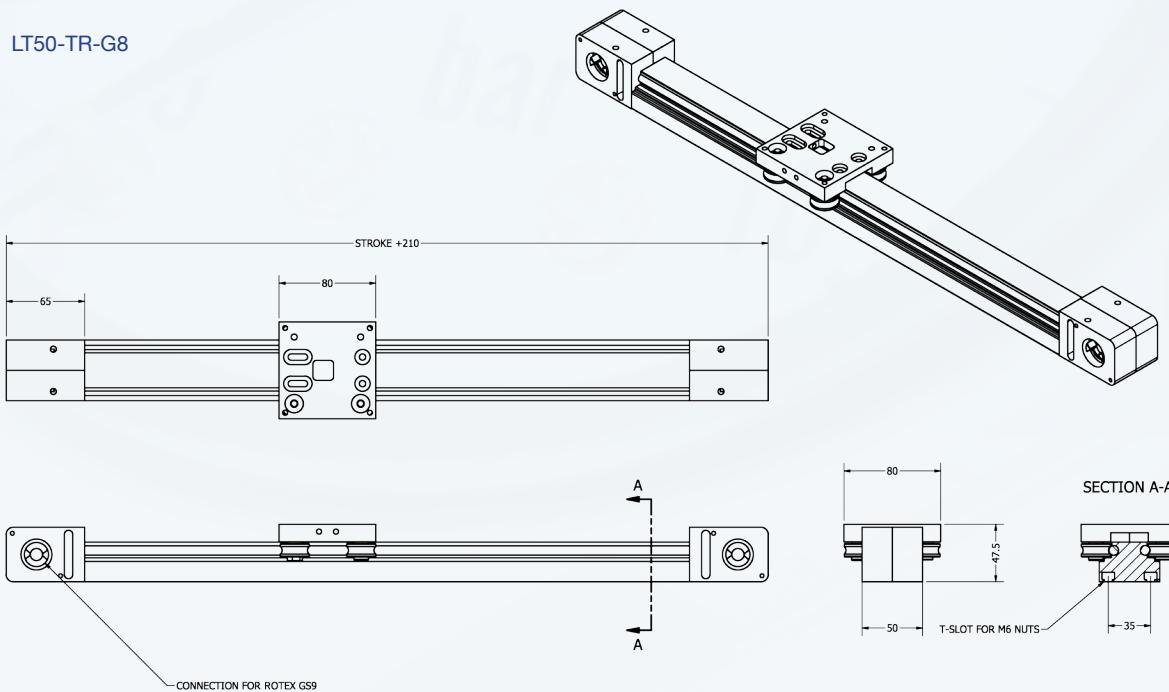
Note: G8 wheel guide also available in stainless steel. S15D is with double carriage



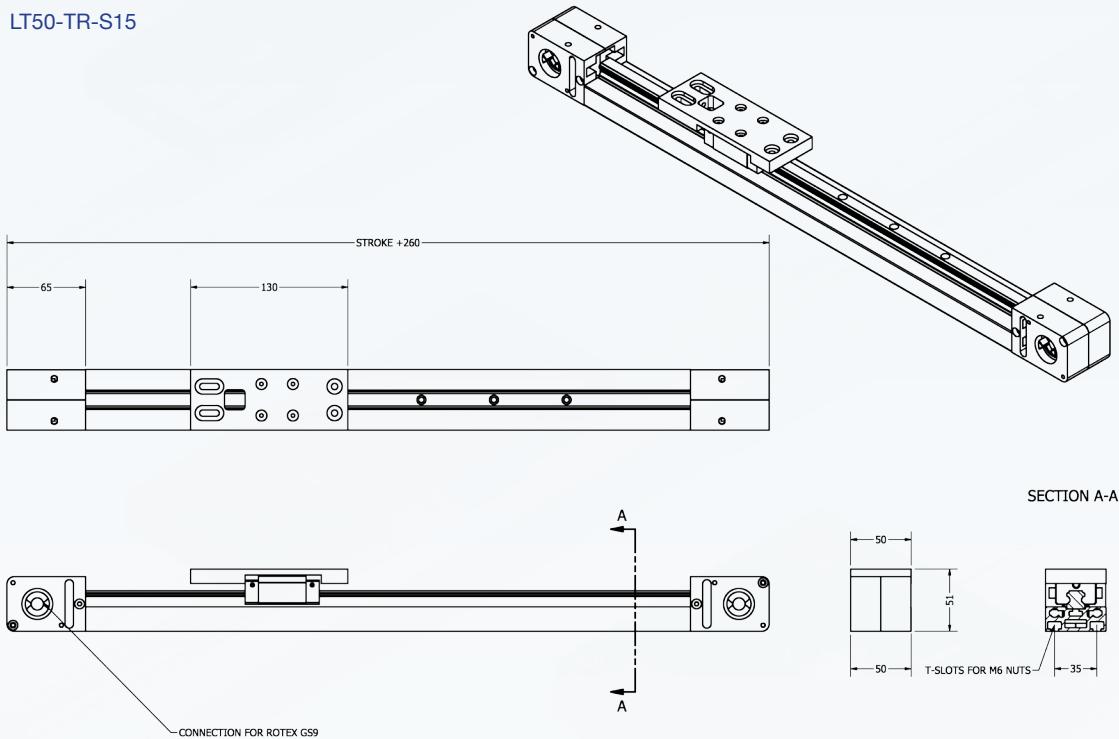
# LT50 series

## Dimensions LT50-TR-G8 en LT50-TR-S15

LT50-TR-G8



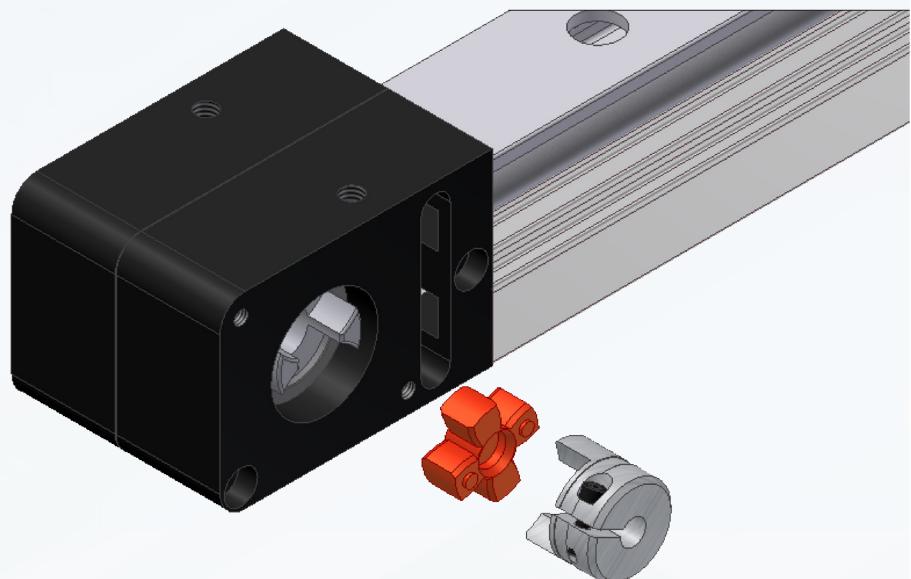
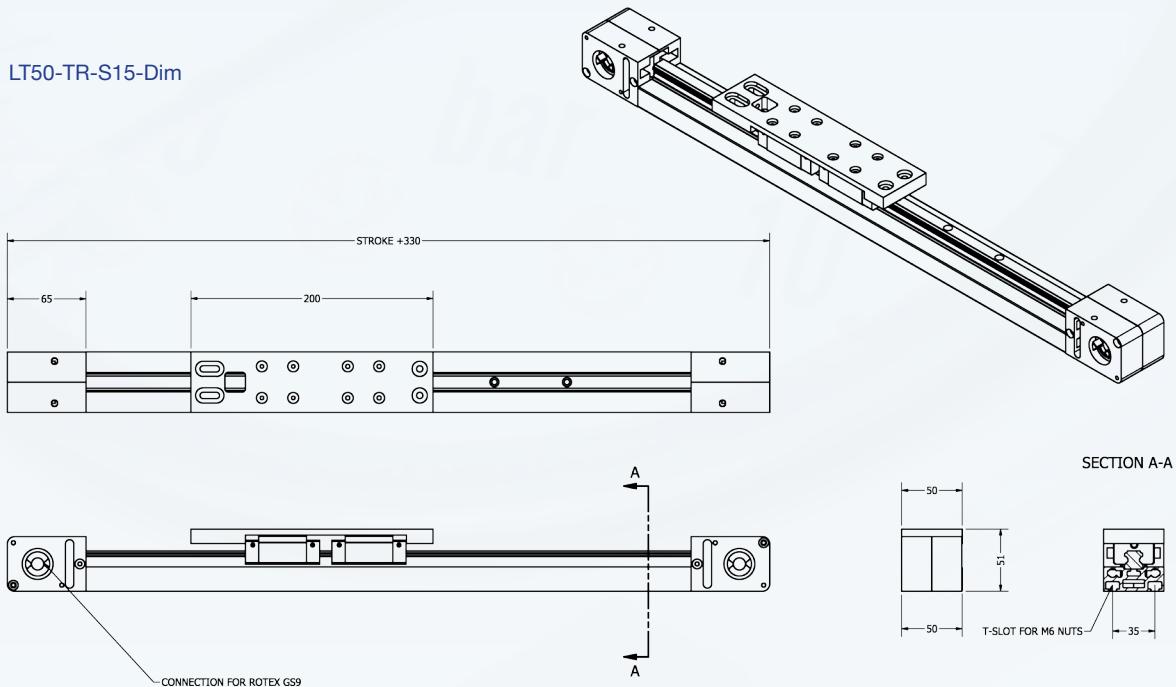
LT50-TR-S15



# LT50 series

## Dimensions LT50-TR-S15-Dim

LT50-TR-S15-Dim



The LT50 Series is equipped with pulley with connection for a Rotex GS9 flexible shaft coupling. This allows compact mounting of the gearbox / motor.

# LT50 series

## Accessories

### Mounting nuts

T-slot nuts are available in the size M6 for mounting the unit and accessories.

Article number:  
21.13220

Description:  
Square nut M6



### Mounting plates

For fastening of the motor-gear unit, there are flanges available, which can be made for different types motors and gearboxes.

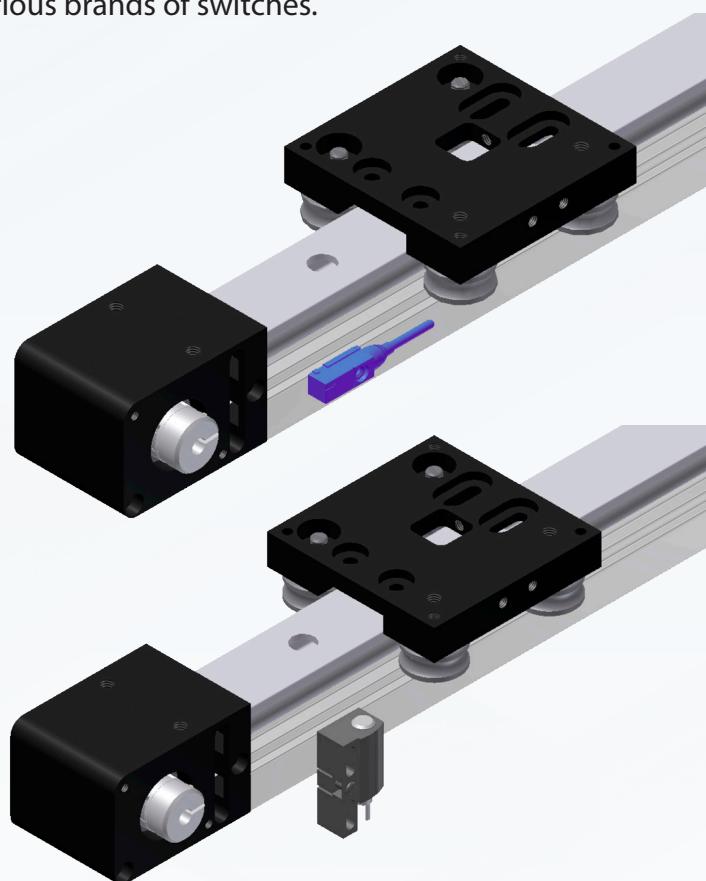
Article number:  
7050-BP  
7050-FL-Nema23

Fixing plate type:  
1mm stainless steel plate for closed end caps  
for Nema 23 stepper motor

Remark: mounting plates for other motors and gearboxes are available on request.

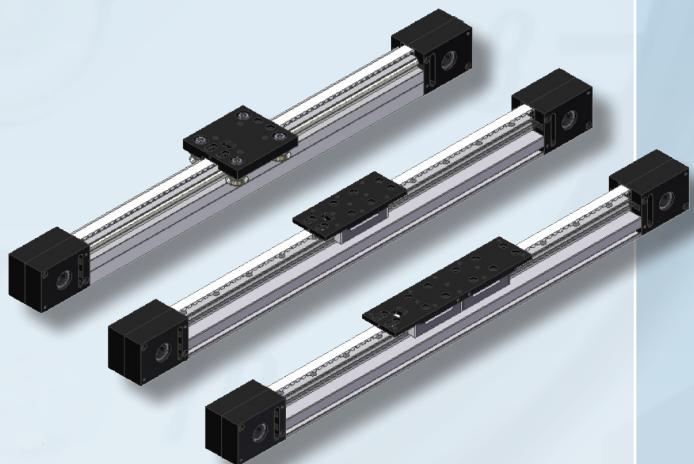
### Position Switches

Electronic switches may be mounted to the T-slots of the profile. The switches can detect on a steel block (inductive) or mechanical on a V-shaped plate. We can advise you in assembling various brands of switches.



# LT2 series

## Robust Linear Units with wheel- or rail guide



- Compact design, the width of the profile is 60 mm
- Guide system of hardened wheels on hardened shafts or recirculating rail guide, size -20-
- AT5 or toothed belt type AT10, 16 mm wide
- Double carriage design for high load
- C8 guide wheel system is very resistant to pollution
- Recirculating ball rail guide for heavy loads

Technical Data	LT2-TR-C8	LT2-TR-S20e
Maximum stroke*	5.500 mm	3.000 mm
Maximum speed	5.000 mm/s	1.000 mm/s
Maximum acceleration	50 m/s <sup>2</sup>	3 m/s <sup>2</sup>
Repeatability	± 0,1 mm	± 0,1 mm
Movement per revolution	180 mm	180 mm

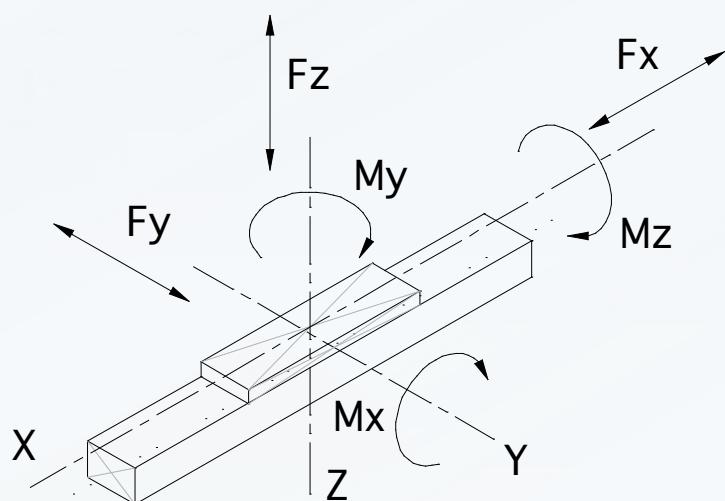
\* longer lengths on request

# LT2 series

## Technical data

Load capacity	LT2-TR-G8	LT2-TR-S20e / D*	LT2-TR-S20 / D*
Mx	5 Nm	35 Nm / 153 Nm	165 Nm / 726 Nm
My	6 Nm	40 Nm / 80 Nm	310 Nm / 620 Nm
Mz	7 Nm	35 Nm / 153 Nm	165 Nm / 726 Nm
Fx	2.100 N	2.100 N / 2.100 N	2.100 N / 2.100 N
Fy	1.000 N	1.700 N / 3.400 N	4.500 N / 9.000 N
Fz	4.000 N	1.700 N / 3.400 N	4.500 N / 9.000 N

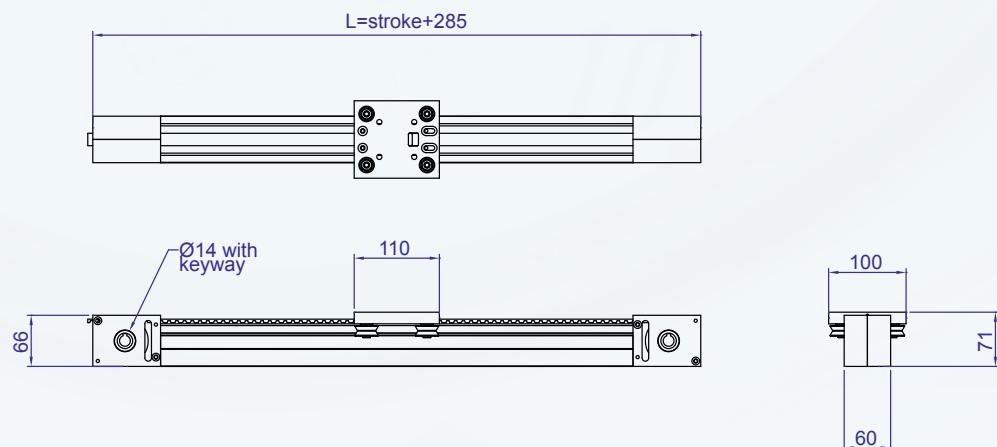
\* S20E = aluminum guide with hardened plates. S20 = steel guide. D = double carriage.



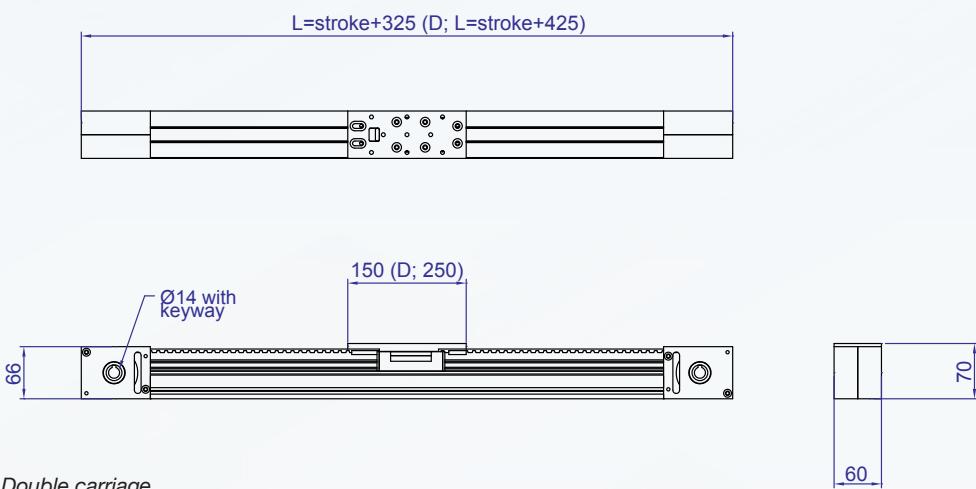
# LT2 series

## Dimensions LT2-TR-C8 / LT2-TR-S20e / LT2-TR-S20e-D\*

LT2-TR-C8



LT2-TR-S20e

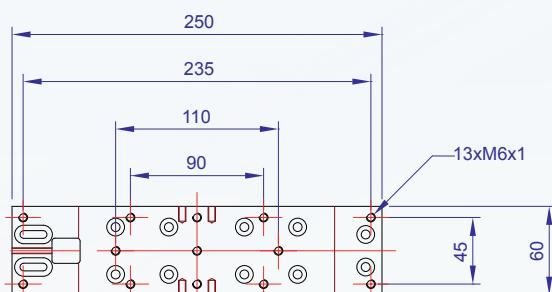
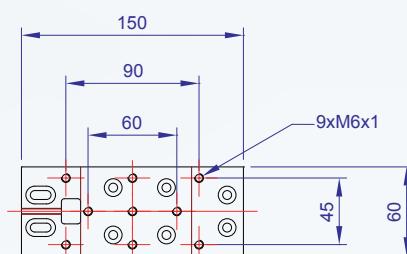
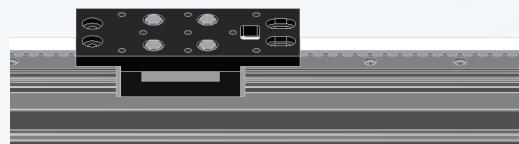
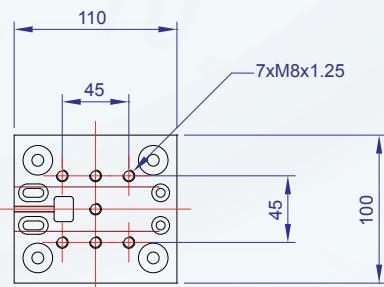
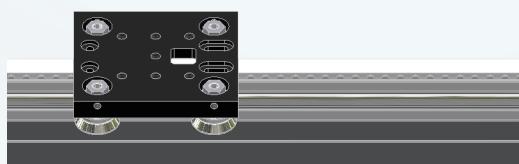


\* D: Double carriage

# LT2 series

## Technical data

### Carriage designs



# LT2 series

## Accessories

### Mounting accessories

For mounting of the motor-gearbox, there are flanges available, which can be made for different types of motors and gearboxes.

### Mounting plates

Article number:

7070-BP  
7070-FL-MP53  
7070-FL-MP60  
7070-VA-14

Mounting plate type:

1 mm stainless steel plate for closed end caps  
for gearbox MP53  
for gearbox MP60  
Incl. Rotex GS couplings maximum length 2 mtr

Note: mounting plates for other motor - gearboxes are available on request.

### Position Switches

Electronic and / or mechanical switches can be mounted to the T-slots in the profile. The switches can detect on a steel block (inductive) or on a V-shaped plate. We can advise you in assembling various brands of switches.

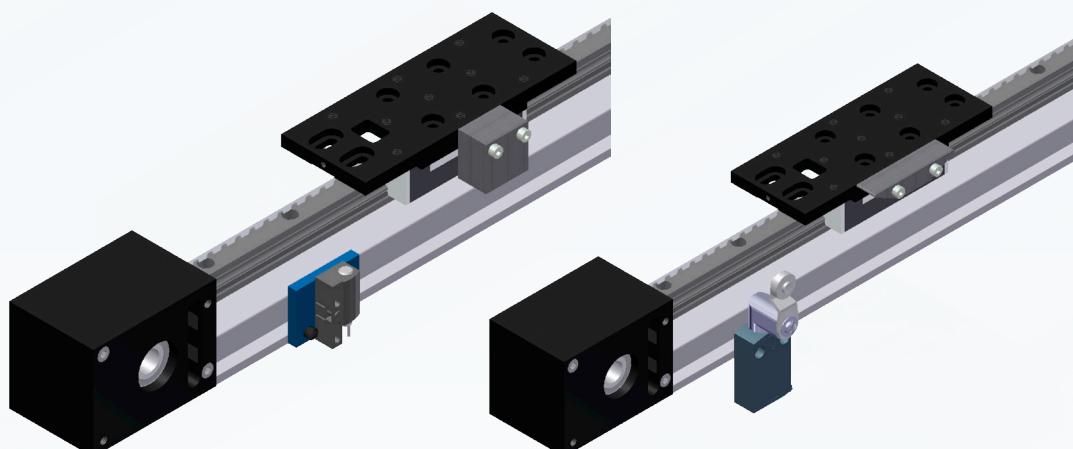
### Switch holders

Article number:

7070-SH-XS  
7070-DB4-IN  
7070-SD-ME

Description:

Mounting block for inductive sensor  
Sensor block for inductive sensor  
Sensor block for mechanical roll switch



# LT2 series

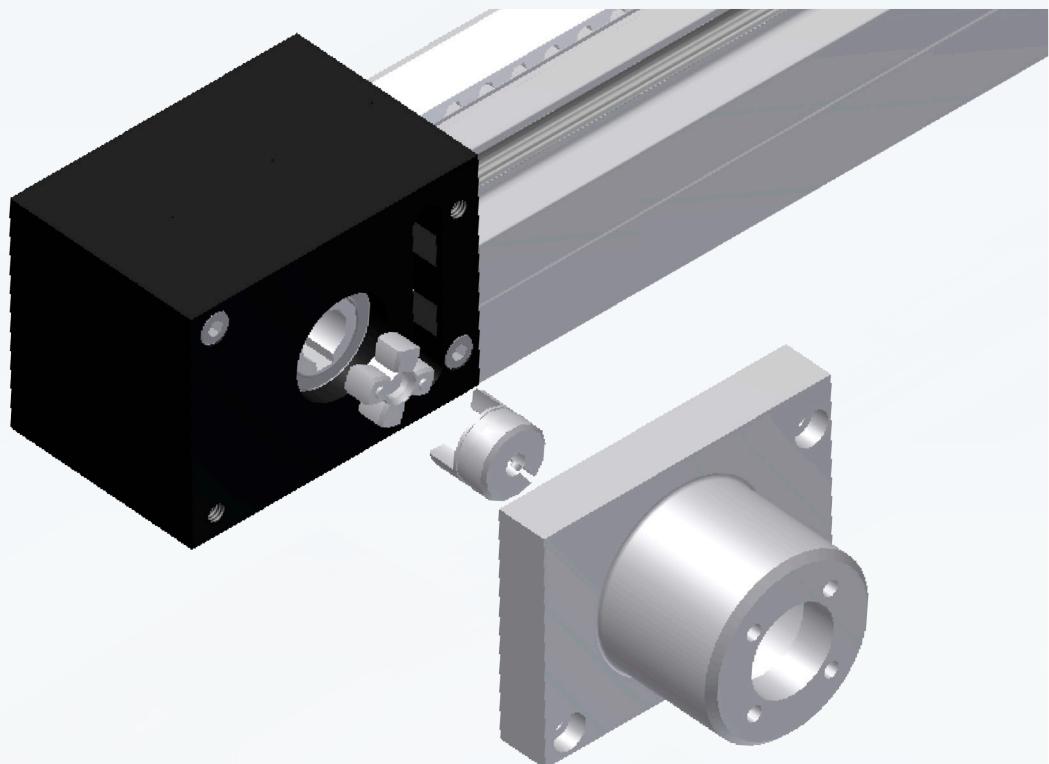
## Accessories

### Mounting nuts

T-slot nuts are available in the size M4, M5, M6 and M8 for mounting the unit and accessories.

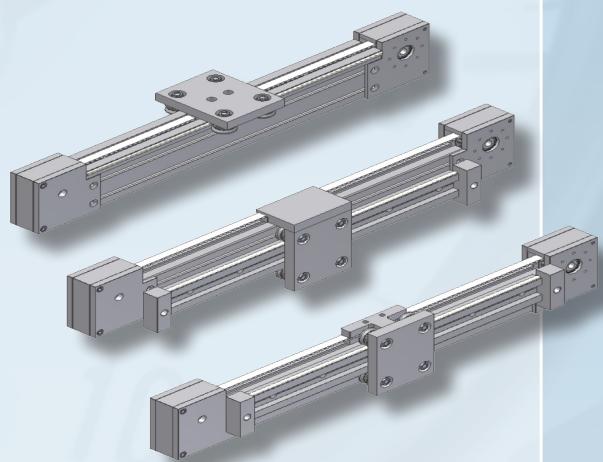


<u>Article number:</u>	<u>Description:</u>
21.1310	Square nut M4
21.1320	Square nut M5
21.1330	Square nut M6
21.1351	Square nut M8
21.1310F	Square nut M4 with feather
21.1320F	Square nut M5 with feather
21.1330F	Square nut M6 with feather
21.1350F	Square nut M8 with feather



# LTC series

**Linear Units with toothed belt drive  
and guide wheel system**

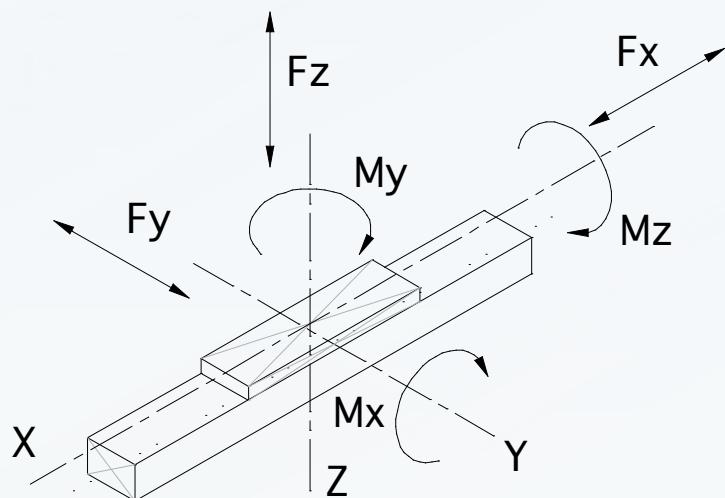


- Basic extrusion profile 45 x 90, 45 x 135 or 90 x 90 mm
- Guide system of hardened wheels on hardened shafts
- Toothed belt type AT10, 16, 25 or 50 mm wide
- Hardened and grinded V-shaped wheels
- Very resistant to pollution

Technical Data	LTC series
Maximum stroke length	12.000 mm
Maximum speed	5.000 mm/s
Maximum acceleration	200 m/s <sup>2</sup>
Repeatability	± 0,1 mm
Movement per revolution	200 mm

## Technical data

Load capacity	LTC-TR-C10	LTC-TR-C12	LTC-TR-C16
Mx	84 Nm	144 Nm	320 Nm
My	127 Nm	200 Nm	490 Nm
Mz	42 Nm	72 Nm	160 Nm
Fx	2.100 N	2.100 N	2.100 N
Fy	2.400 N	3.200 N	6.400 N
Fz	2.600 N	3.200 N	7.000 N

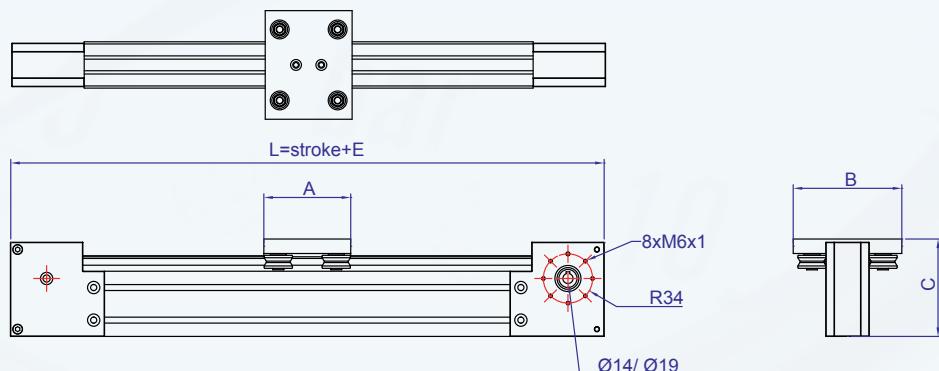


# LTC series

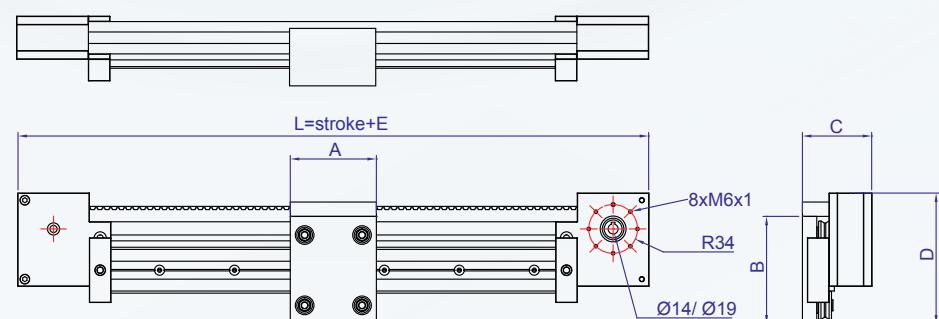
## Dimensions

### Dimensions LTC-TR-C10

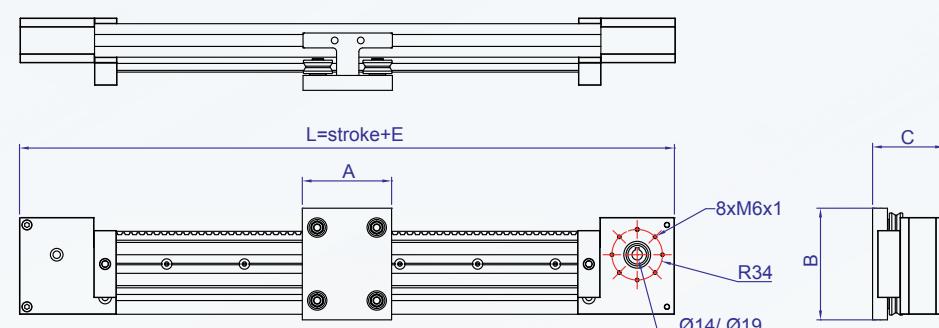
LTC-TR-C10-D1



LTC-TR-C10-S1



LTC-TR-C10-S2



# LTC series

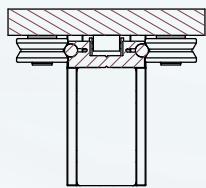
## Combinations

### LTC series

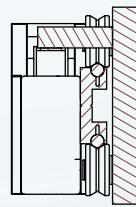
The LTC series is modular build, there are many possible combinations.  
The base is formed by an aluminum profile with a guide rail mounted.

### Standard combinations

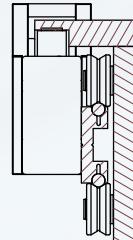
C10-D1



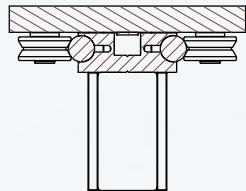
C10-S2



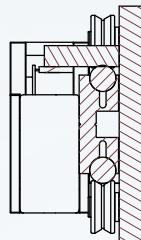
C10-S1



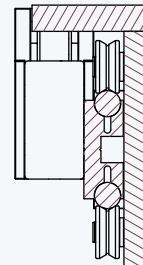
C12-D1



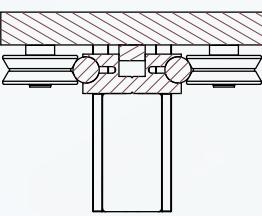
C12-S2



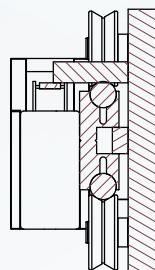
C12-S1



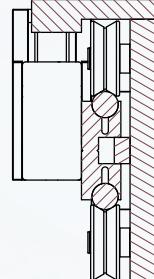
C16-D1



C16-S2



C16-S1



# LTC series

## Accessories

### Mounting nuts

**Article number:**

21.1310

21.1320

21.1330

21.1351

21.1310F

21.1320F

21.1330F

21.1350F

**Description:**

Square nut M4

Square nut M5

Square nut M6

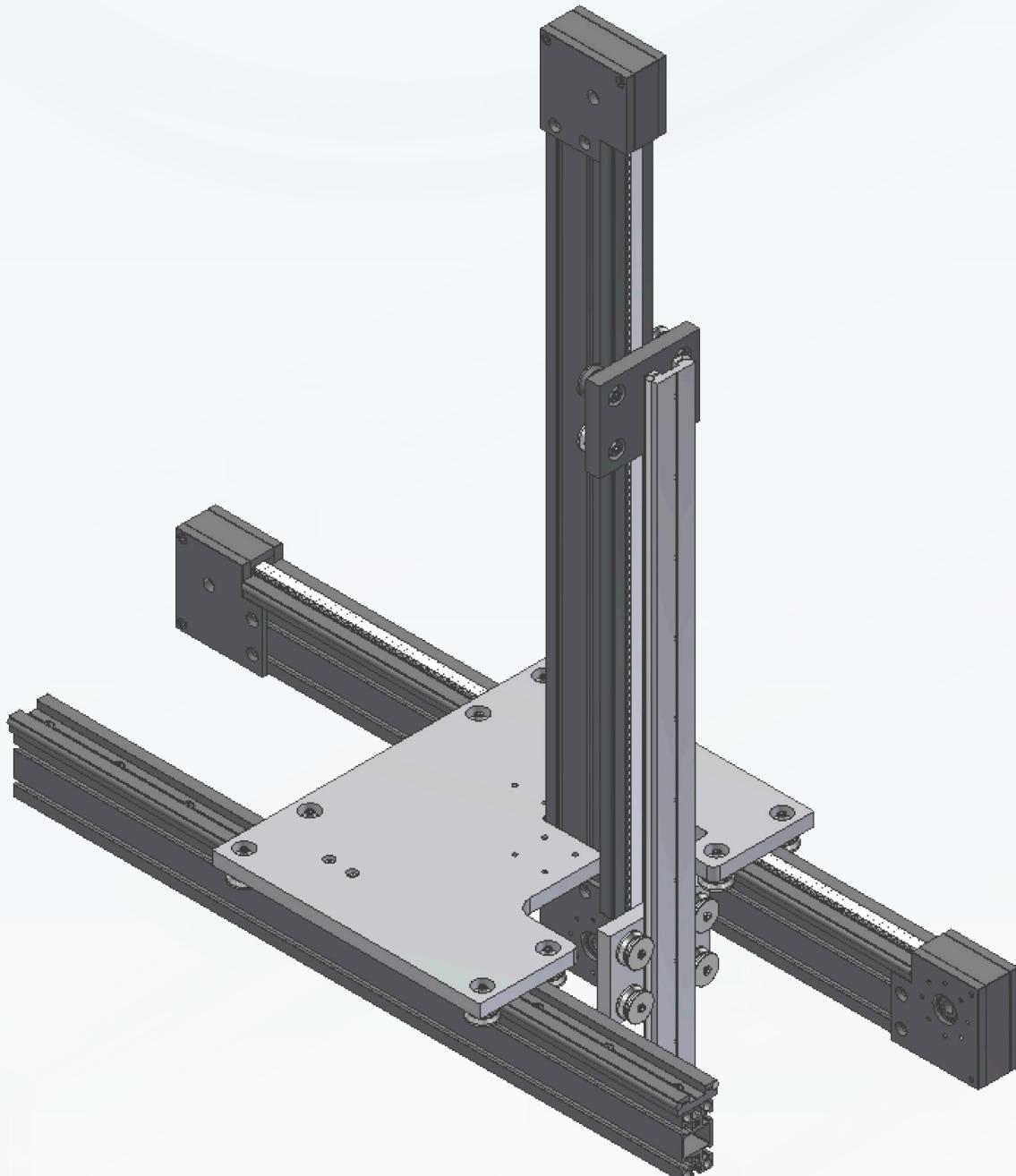
Square nut M8

Square nut M4 with feather

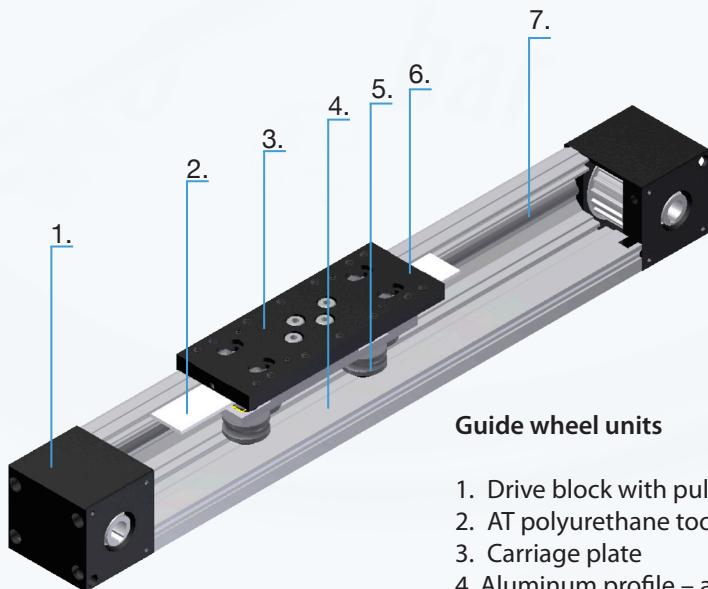
Square nut M5 with feather

Square nut M6 with feather

Square nut M8 with feather

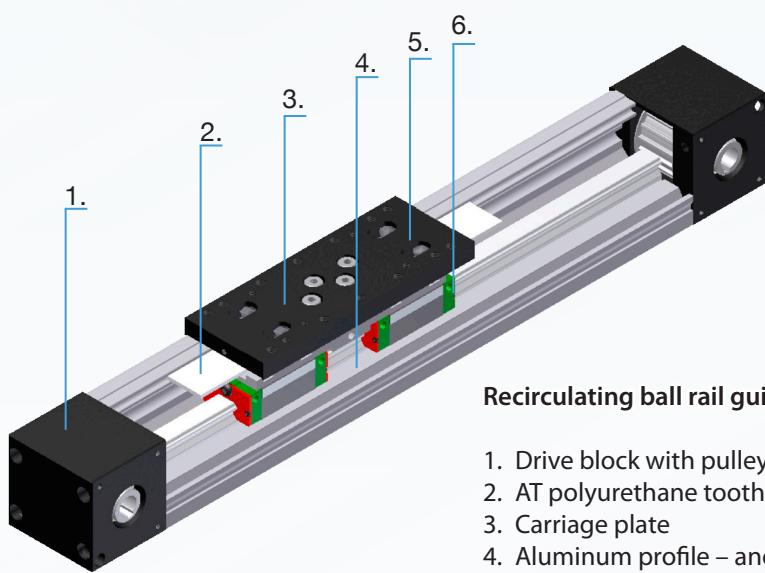


# Structural design internal guide linear units



**Guide wheel units**

1. Drive block with pulley
2. AT polyurethane toothed belt with steel tension cords
3. Carriage plate
4. Aluminum profile – anodized
5. Guide wheel
6. Belt clamp with belt tensioning system
7. Two hardened steel shafts (60 HCR)



**Recirculating ball rail guide units**

1. Drive block with pulley
2. AT polyurethane toothed belt with steel tension cords
3. Carriage plate
4. Aluminum profile – anodized
5. Belt clamp with belt tensioning system
6. Linear ball guide

# Characteristics

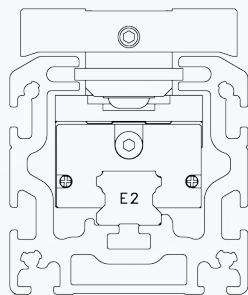
LT55, LT60 and LT80 series are Linear Units with a toothed belt drive and compact dimensions that provide high load capacities, high-speed, accuracy and repeatability. These Linear units can also be combined to various multi-axes linear systems and ensure an excellent price-performance ratio with short delivery time. An accurate extruded aluminum anodized profile with an integrated recirculating ball rail system or guide wheels enables high load capacity and optimum movement for large loads at high speed. The guide wheels makes the LT60 and LT80 ideal for very high speed up to 10 m/s. The aluminum profile contains T-slots for mounting and proximity switch fixing. Also a T-slot suitable for reed switches. An internal magnet is provided with the LT55 and LT80.

The linear Units LT55, LT60 and LT80 are equipped with a AT5 or AT10 polyurethane tooth belt with steel tension cords. This "proposition" belt is used together with a Zero-backlash pulley to achieve a high precision and high load capacity. The belt also has the function of protecting the internal parts against dust. Also the internal parts such as the guide are not visible from outside.

The carriage can be produced in a custom length with extra fixing holes according to customer wishes. Also available with pre-designed adapters for mounting of the motor and gearbox.

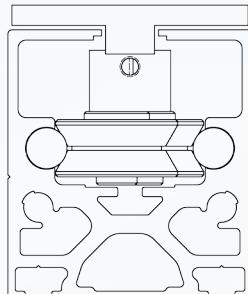
## LT55

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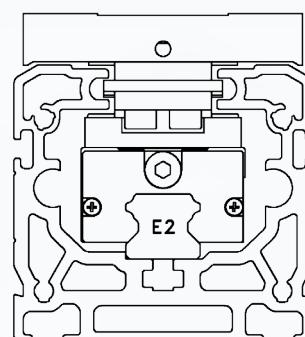
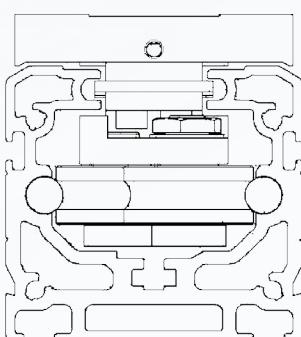
## LT60

page 29



## LT80

page 32



# LT55 series

## Compact Linear Units with internal rail guide



- Compact design, the width of the profile 55 mm
- Internal recirculating ball rail guide size -15 -
- Double carriage design for heavier loads
- Magnetic switches in T-slot for position detection
- Toothed belt type 25 AT5

### Technical Data

### LT55-TR-S15D

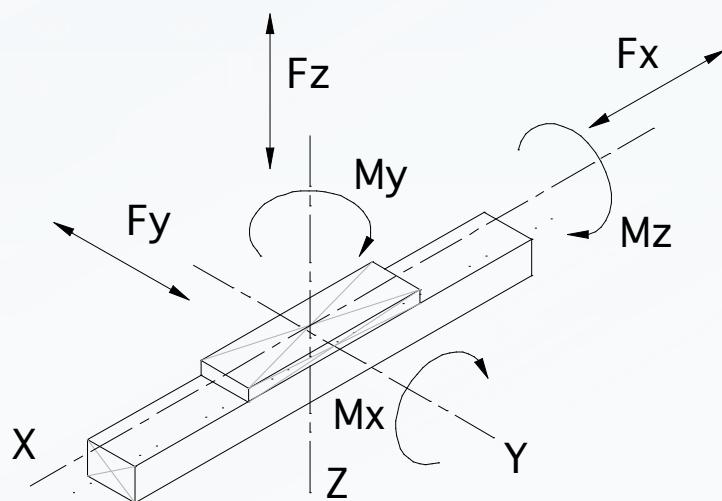
Maximum stroke length	5.750 mm
Maximum speed	2.000 mm/s
Maximum acceleration	3 m/s <sup>2</sup>
Empty load moment	0,9 Nm
Repeatability	± 0,1 mm
Movement per revolution	150 mm

# LT55 series

## Technical data

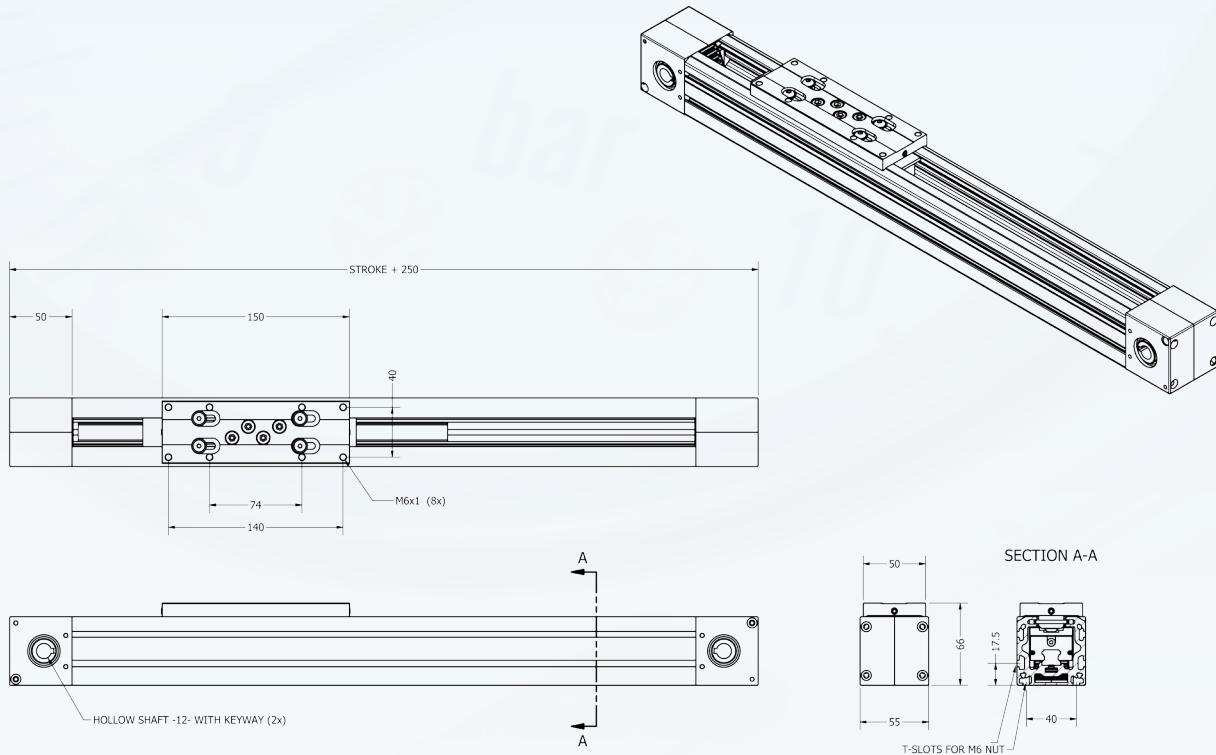
Load capacity	LT55-TR-S15D
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Mx	106 Nm
My	106 Nm
Mz	40 Nm
Fx	1.200 N
Fy	3.400 N
Fz	3.600 N

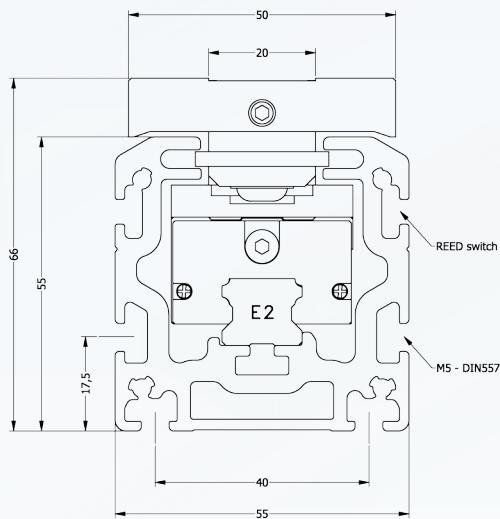


# LT55 series

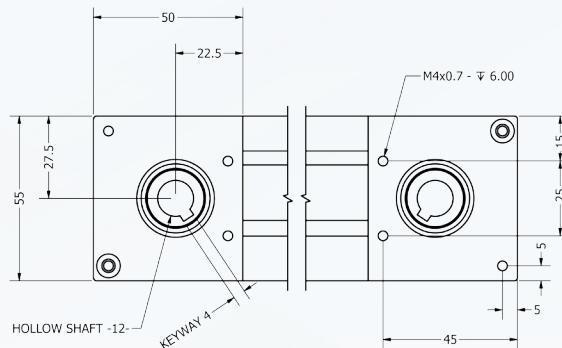
## Dimensions LT55-TR-S150



Dimensions For Mounting



Dimensions for Motor Attachment



# LT55 series

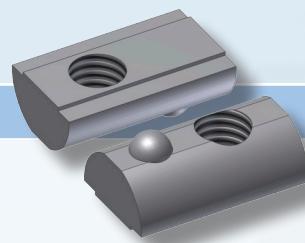
## Accessories

### Mounting nuts

T-slot nuts are available in the size M5 for mounting the unit and accessories.

**Article number:**  
111-012

**Description:**  
Square nut M5



### Mounting plates

For mounting the motor-gearbox unit, there are flanges available, which can be made for different types motors and gearboxes.

**Article number:** 5050-BP      **Fixingplate type:** 1mm stainless steel plate for closed end caps  
**Article number:** 5050-FL-Nema23      **Fixingplate type:** for Nema 23 steppermotor  
Remark: mounting plates for other engines and gearboxes are available on request.

### Electronic Switches

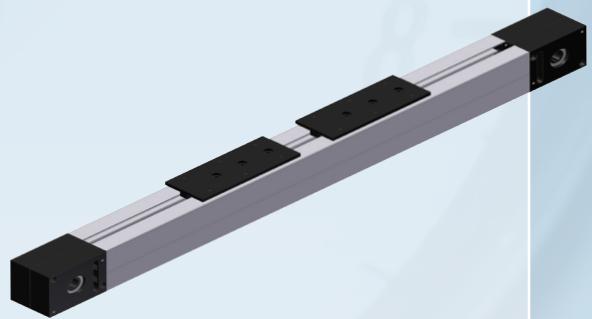
Electronic Magnet switches may be mounted into the T-slots of the profile. The switches will be activate by internal magnets.

**Article number:** ASC1C525      **Type:** Reedswitch with LED and 2,5 mtr cable (2 wires)  
**Article number:** ASC7N2M8      **Type:** Electronic switch PNP with M8 connector (3 wires)



# LT60 series

Compact Linear Units with  
internal guide wheel system



- Compact design, the width of the profile is 60 mm
- Internal guide wheel system size -10 -
- V shaped wheels type 208
- Highly resistant to pollution
- Optionally available with two carriages with independent drive
- Toothed belt type 16 AT10

## Technical Data

Maximum stroke length*	3.000 mm
Maximum speed	3.000 mm/s
Movement per revolution	180 mm/s <sup>2</sup>
Repeatability	± 0,1 mm

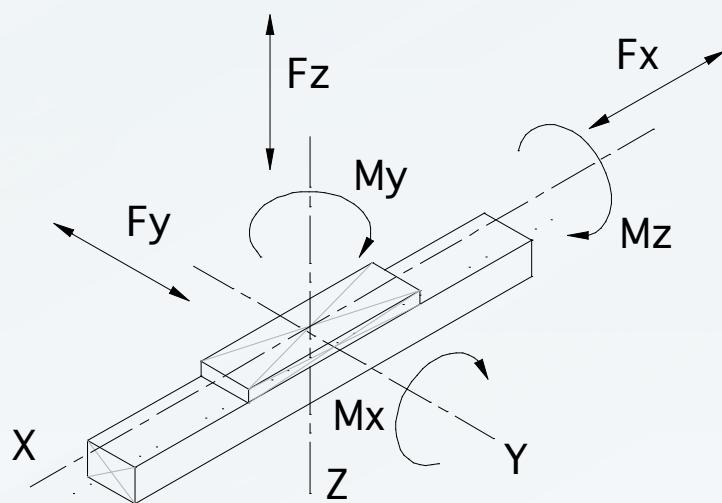
\*Longer lengths on request

# LT60 series

## Technical Data

Load capacity	LT60-C8	LT60-S15
Mx	6 Nm	45 Nm
My	1 Nm	52 Nm
Mz	5 Nm	45 Nm
Fx	2.100 N	2.100 N
Fy	600 N	1.800 N
Fz	300 N	1.800 N

LT60 with two toothed belts on customer request available.

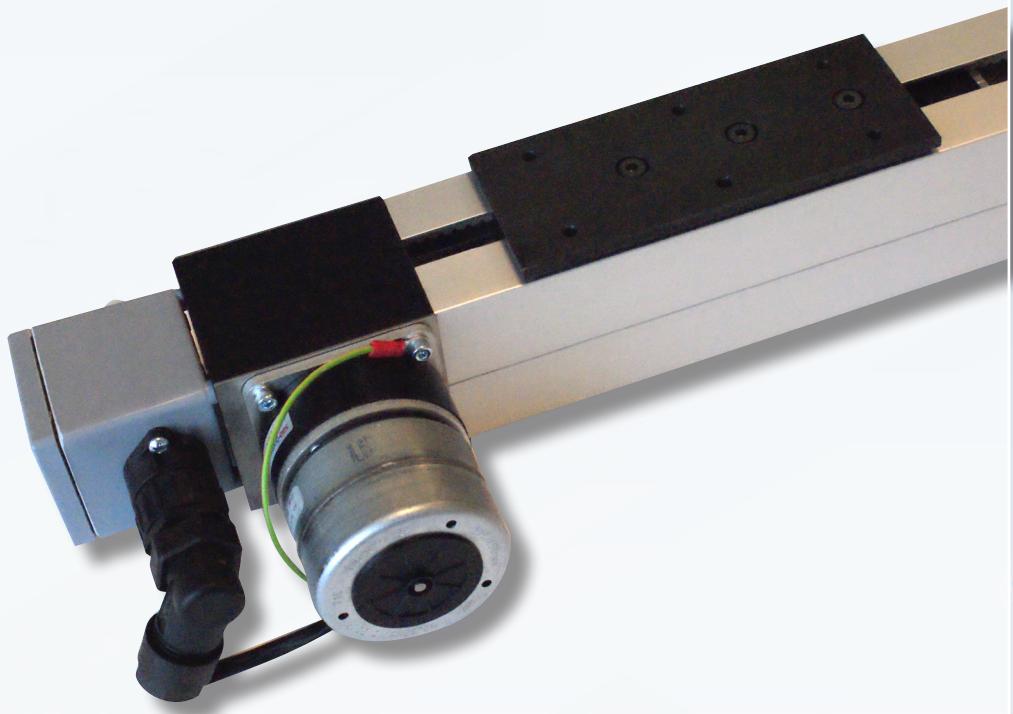
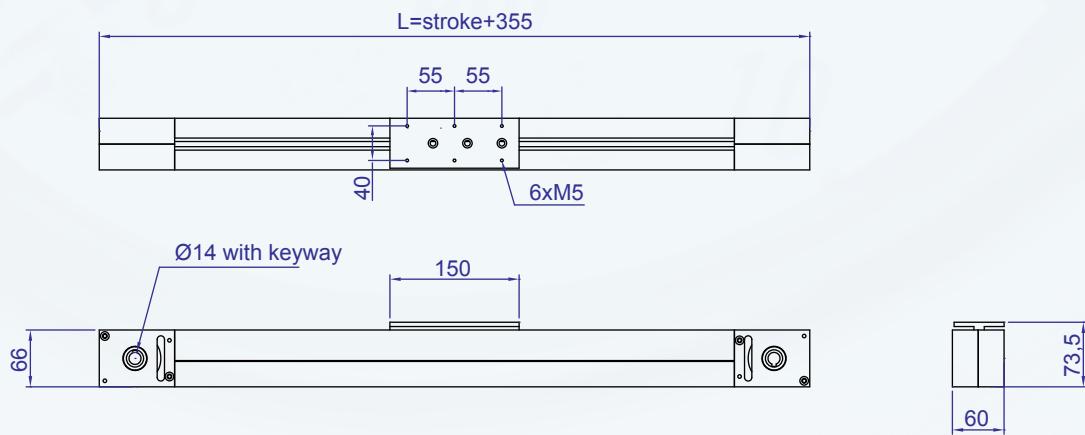


# LT60 series

Compact Linear Units with internal guide wheel system

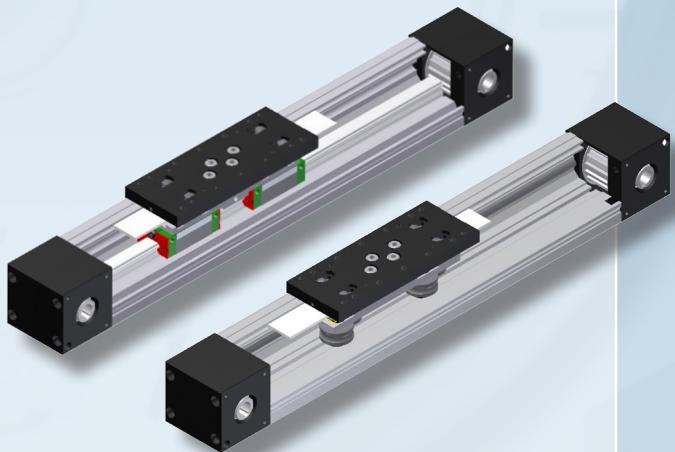
## Dimensions LT60

LT60



# LT80 series

Compact linear units with  
internal wheel- or rail guide



- Internal guide linear units, width of the profile 80 mm
- Hardened guide wheels on hardened shafts -10-, highly resistant to pollution
- Internal recirculating ball rail guide size -20- for heavy loads
- Magnetic switches in T-slot for position detection
- Toothed belt type 32 AT10

## Technical Data

### LT80-TR-G10

### LT80-TR-S20D

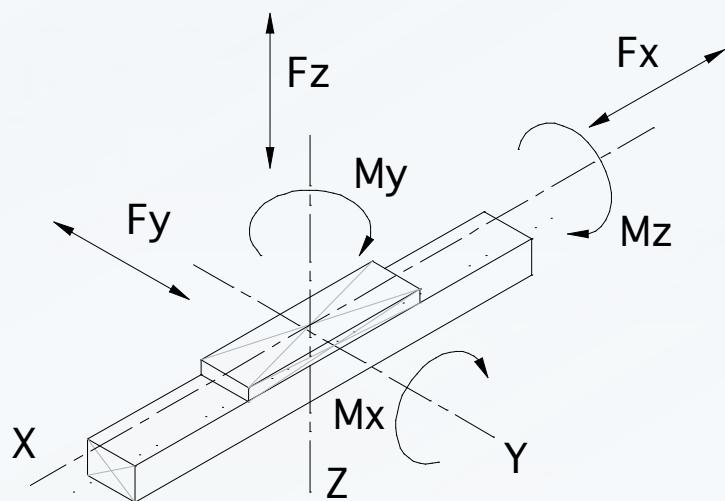
Maximum stroke length	5.750 mm	5.750 mm
Maximum speed	5.000 mm/s	2.000 mm/s
Maximum acceleration	8 m/s <sup>2</sup>	3 m/s <sup>2</sup>
Empty load moment	0,6 Nm	0,9 Nm
Repeatability	± 0,1 mm	± 0,1 mm
Displacement per revolution	200 mm	200 mm

# LT80 series

## Technical Data

Load capacity	LT80-TR-G10	LT80-TR-S20D
Mx	86 Nm	720 Nm
My	126 Nm	960 Nm
Mz	50 Nm	220 Nm
Fx	4.400 N	4.400 N
Fy	1.400 N	7.400 N
Fz	1.400 N	7.400 N

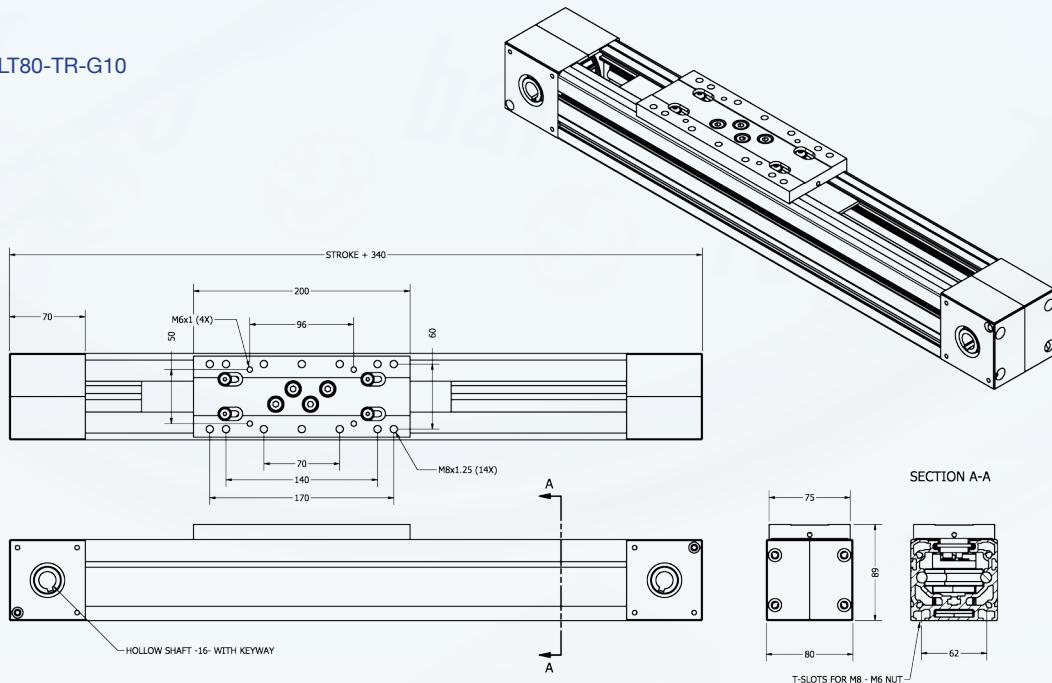
Note: G10 wheel guide also available in stainless steel.



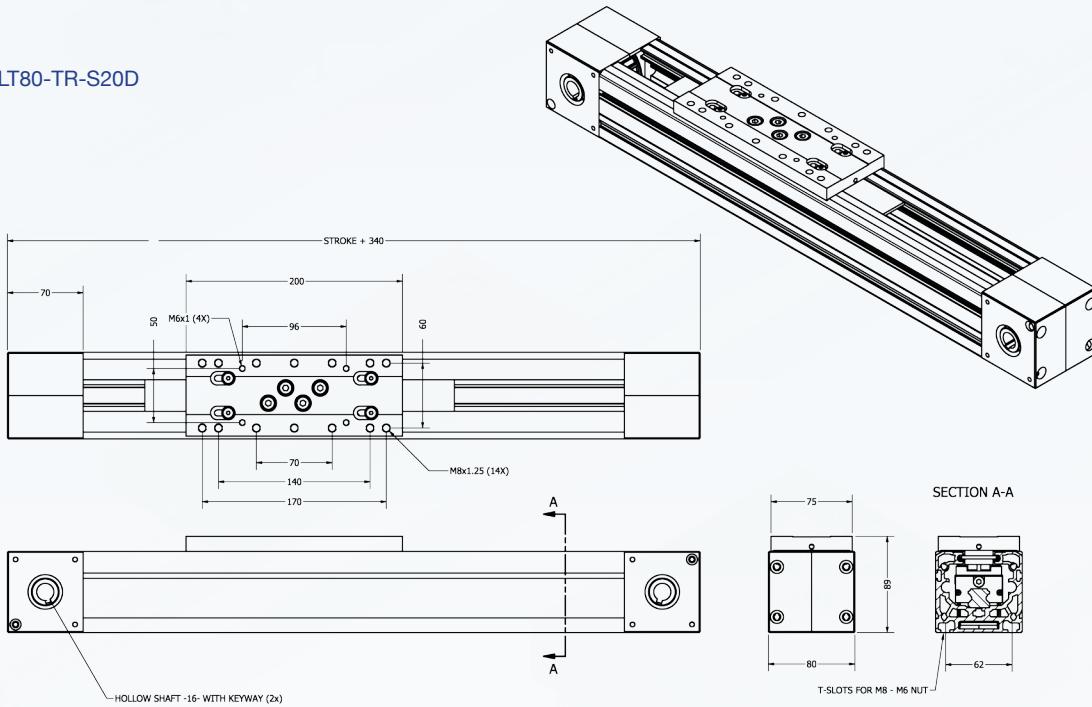
# LT80 series

## Dimensions LT80-TR-G10 en LT80-TR-S20D

LT80-TR-G10



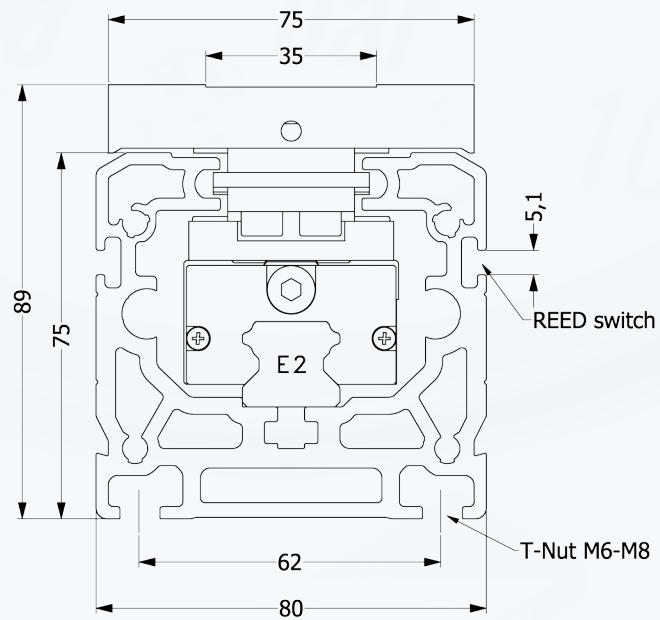
LT80-TR-S20D



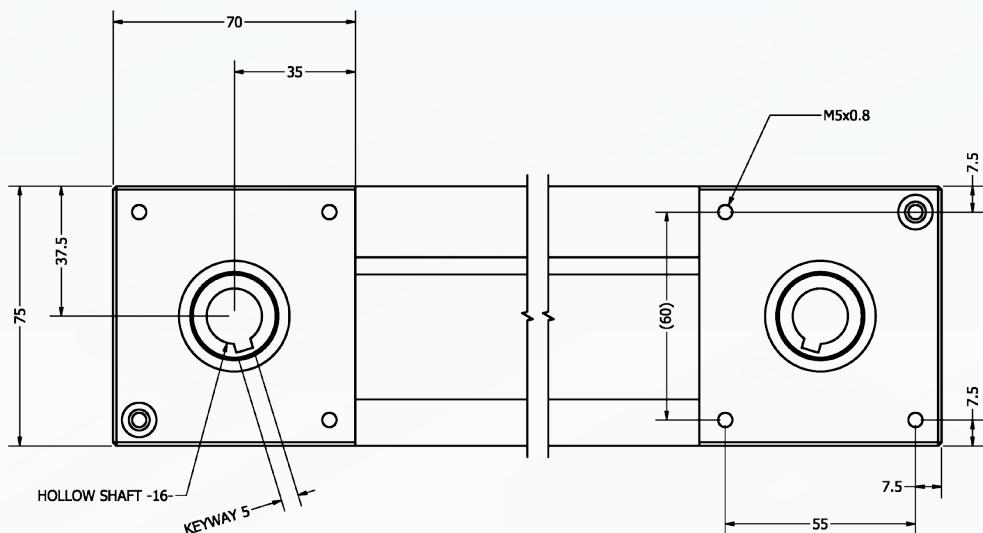
# LT80 series

## Dimensions

### Dimensions for mounting



### Dimensions for motor attachment

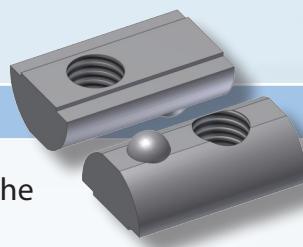


# LT80 series

## Accessories

### Mounting nuts

T-slot nuts are available in the size M5, M6 and M8 for mounting the unit and accessories.



#### Article number:

111-036

111-028

111-029

172-710

172-711

172-713

172-714

#### Description:

M5 nut with fixing ball

M6 nut with fixing ball

M8 nut with fixing ball

2x M8 plate L=26

2x M8 plate L=66

2x M6 plate L=40

2x M8 plate L=40



### Electronic Switches

Electronic Magnet switches may be mounted into the T-slots of the profile.

The switches will be activated by internal magnets.

#### Article number:

ASC1C525

ASC7N2M8

#### Description:

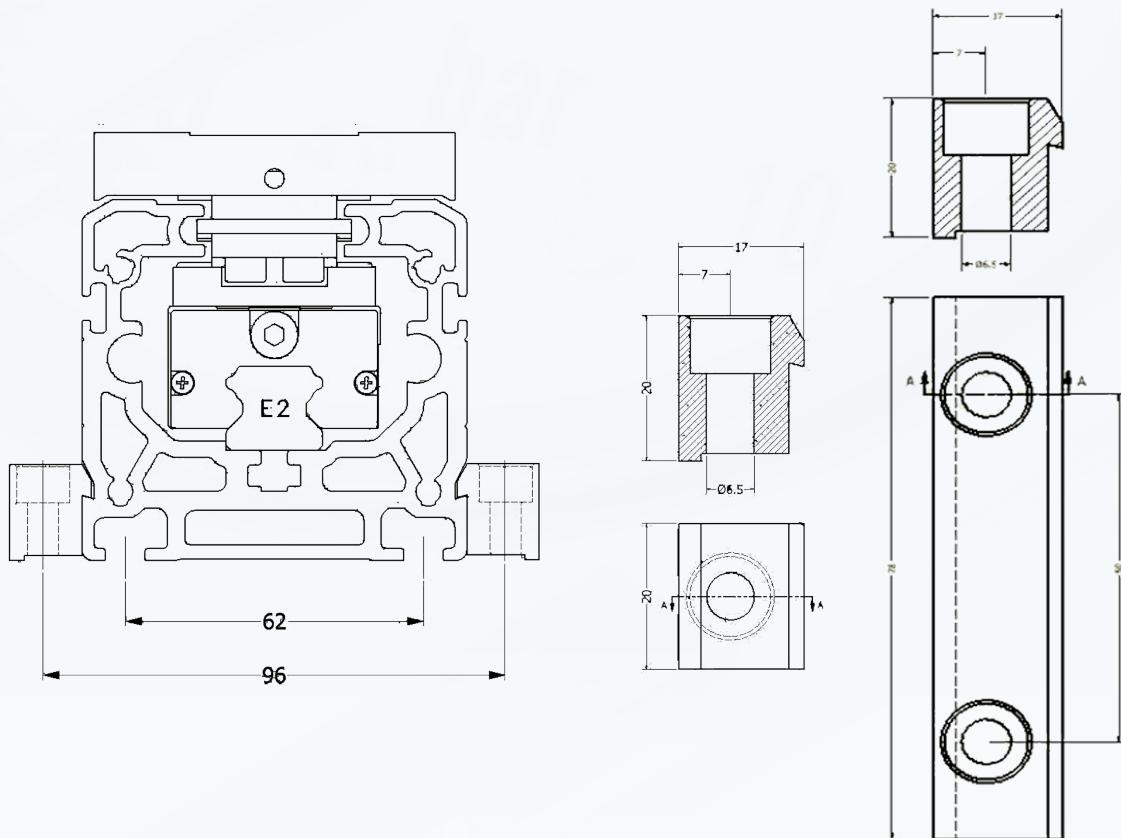
Reedswitch with LED and 2,5 mtr cable (2 wires)

Electronic switch PNP with M8 connector (3 wires)



# Mounting the LT80 linear units

## Mounting block



## Mounting with clamping blocks

For rigid mounting of the LT80 units clamping blocks can be used with holes for M6 bolts.

**Article number:**

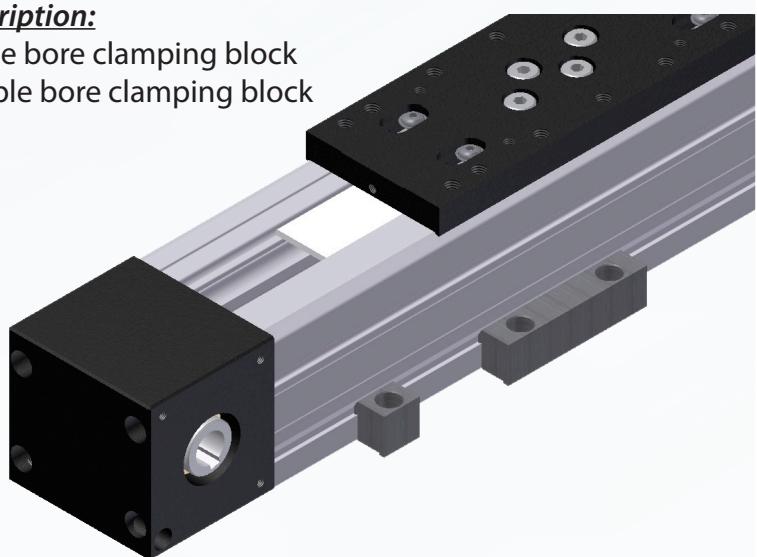
88121

88122

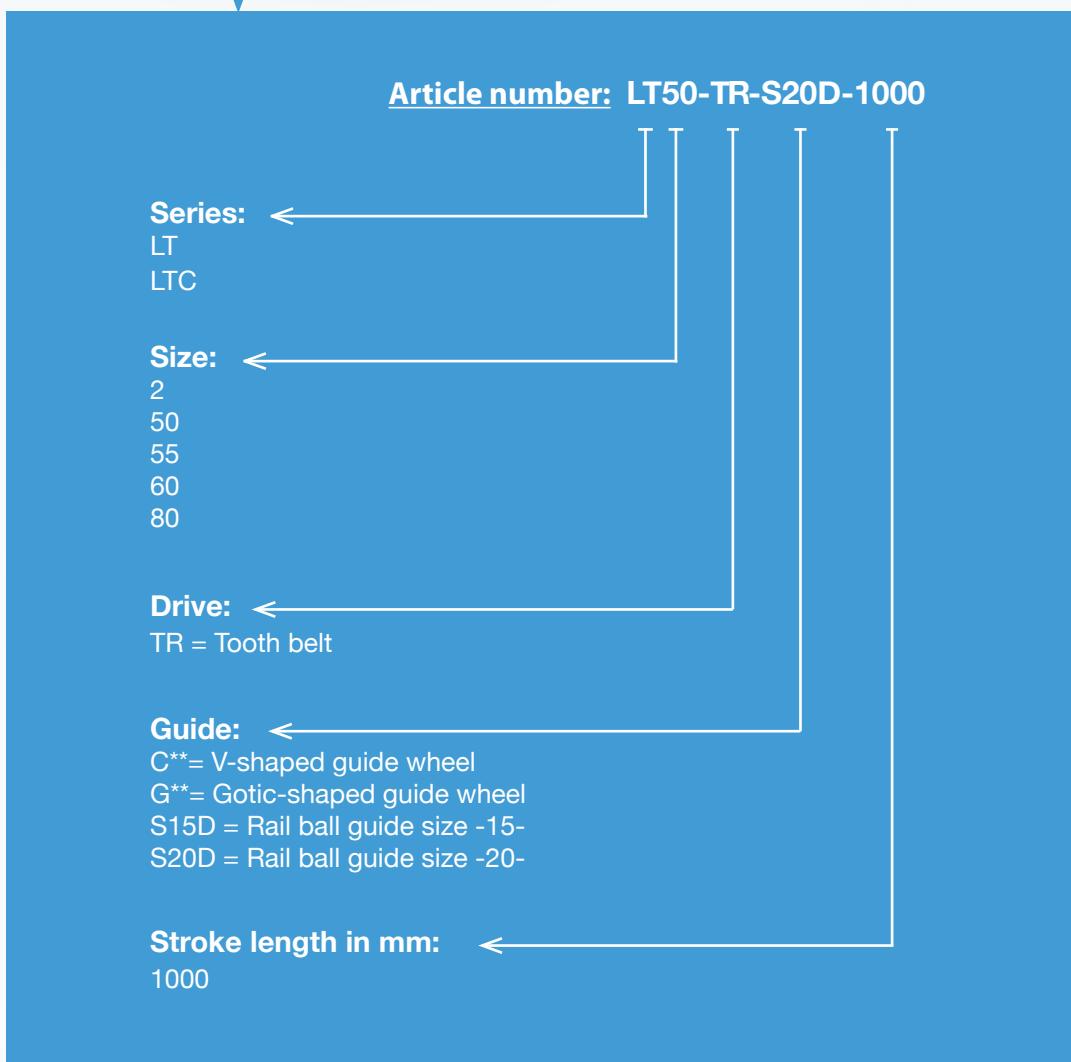
**Description:**

Single bore clamping block

Double bore clamping block



# How to order:



# Linear units customized

**Linear Units to measure your demands and according to your wishes.**

Almotion® is the only Dutch manufacturer of Linear Units. Since 1996 the brand LINEAR TECHNOLOGY® exists, whose linear units are designed and made in our own production department.

We also develop entirely new units together with our customers. Our long time experience and high level engineering department can combine your requirements and develop this into the best driven solution.

**For more information please do contact us!**



# Your support for solutions with Linear Units

The unit range also includes various mountings parts to have easy assembling of unit into a full configuration. Custom-fit brackets can be produced.



Our team of technical specialists assist in designing the Linear Units into your machine/construction.

Worldwide support for  
Linear Units.

Please contact us for your  
local technical assistant.



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