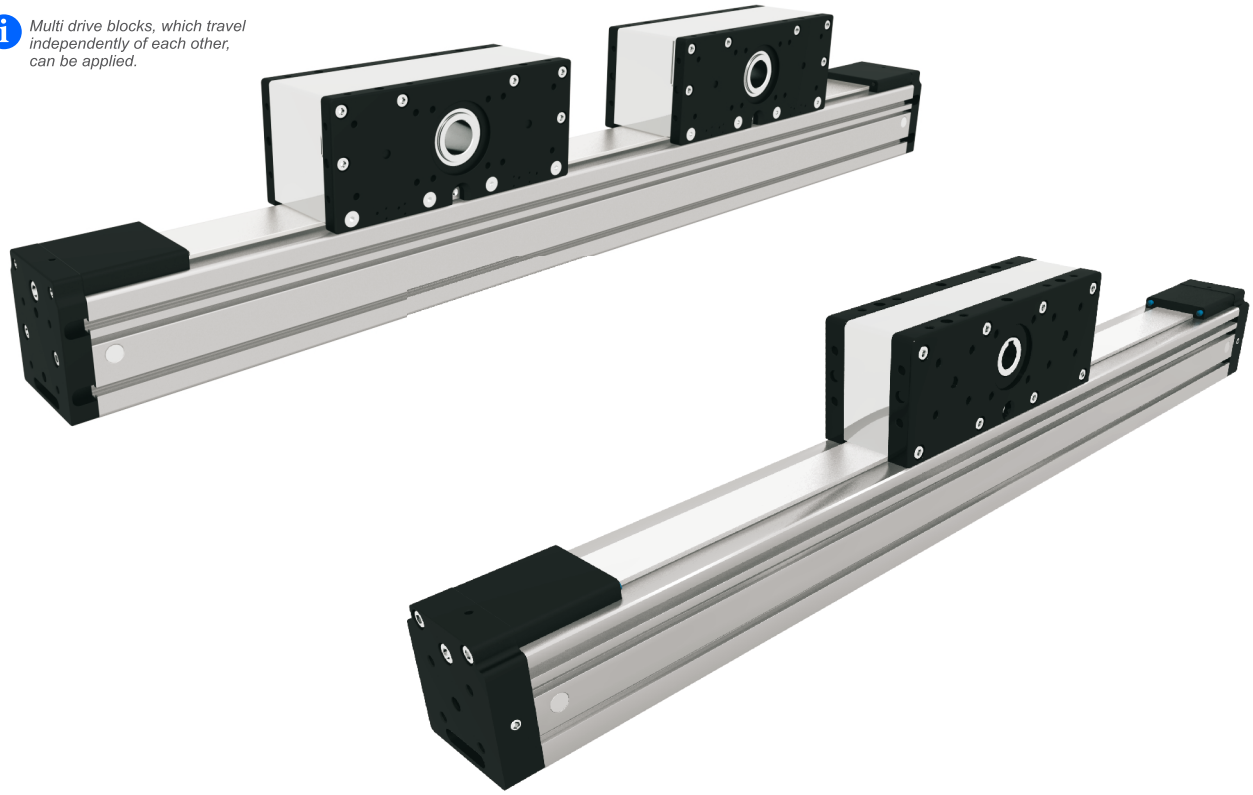
umotion.ru +7(499) 350-62-38 sales@umotion.ru

MTJZ

CHARACTERISTICS

The **MTJZ** series contains Z-axis Linear Units with toothed belt drive, integrated Ball rail system and compact dimensions. This Linear Units provide high performance features such as, high speed, good accuracy and repeatability by vertical applications.
They can easily be combined to multi-axis systems.
Excellent price-/performance ratio and quick delivery time are ensured.
The compact, precision-extruded aluminum Profile from 6063 AL with integrated Zero-backlash Ball rail guide system, allows high load capacities and optimal cycles for the movement of larger masses at high speed.
In the linear units MTJZ is used a pre-tensioned steel reinforced AT polyurethane timing toothed belt. In conjunction with a Zero-backlash drive pulley high moments with alternating loads with good positioning accuracy, low wear and low noise can be realized.
The in the Profile slot driving Polyurethane timing belt protects all the parts in the Profile from dust and other contaminations
The aluminum Profile includes T-slots for attaching sensors and switches. Also, a Reed switch can be used here.
The drive block provides the possibility to attach a Motor or Gearbox housing and additional accessories on it.
Central lubrication port on the drive block allows easy re-lubrication of the Ball rail guide.
For the linear units MTJZ various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.

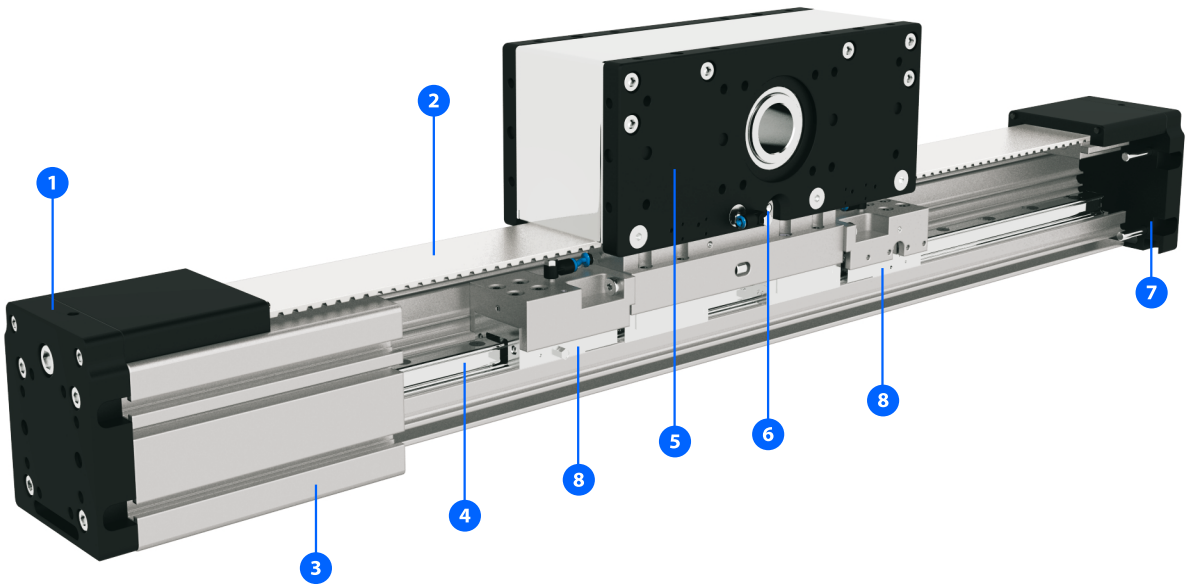
Multi drive blocks, which travel independently of each other, can be applied.



The aluminium profiles are manufactured according to the medium EN 12020-2 standard

Straightness = 0,35 mm/m; Max. torsion = 0,35 mm/m; Angular torsion = 0,2 mm/40 mm; Parallelism = 0,2 mm

STRUCTURAL DESIGN



1 - Tension End with integrated belt tensioning system
2 - AT polyurethane toothed belt with steel tension cords
3 - Aluminium profile-Hard anodized
4 - Linear Ball Guideway
5 - Drive block with pulley, Motor flange; with built in Magnets
6 - Central lubrication port; both sides
7 - Tension End with integrated belt tensioning system
8 - Clamping and braking element for linear guideway

HOW TO ORDER

Series :

MTJZ

Size :

40

65

80

110

Absolute Stroke [mm] :
(Absolute stroke = Effective stroke + 2 x Safety stroke)

Type of drive pulley :

0 : Pulley with through hole

1 : Pulley with journal

10 : Pulley with journal (without Keyway)

2 : Pulley with journal on both sides

20 : Pulley with journal on both sides (without Keyway)

MTJZ 110 only available with drive pulley with through hole

Clamping element :

0 : Without

1 : With (available only for MTJZ 110)

Only as emergency break!

Number of drive blocks :

The stated number specifies the number of drive blocks on one Linear unit (up to 5 drive blocks avaliable)

Distance between two drive blocks [mm] :

Leave blank : For the case of one drive block

TECHNICAL DATA

General technical data

Linear Unit	Drive block length Lv [mm]	Dynamic load capacity C [N]	Dynamic moment Mx [Nm]	My [Nm]	Mz [Nm]	Mass of drive block [kg]	Maximum Repeatability [mm]	[2] Max. length [3] (Version 1) Lmax [mm]	[2] Max. length [3] (Version 2) Lmax [mm]	[2] Max. Stroke [3] (Ver. 1) [mm]	[3] (Ver. 2) [mm]	[1] Min. Stroke [mm]
MTJZ 40	120	4610	28	120	120	0,95	±0,08	1000	3000	792	2792	25

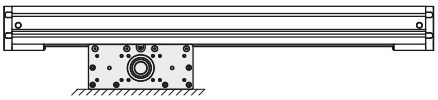
[1] *For minimum stroke below the stated value in the table above please contact us.*

[2] *For lengths / stroke over the stated value in the table above please contact us.*
Values for max. stroke are not valid for multiple drive blocks
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

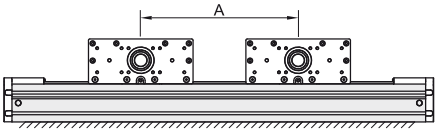
Linear Unit	Max. permissible loads Forces Fpy [N]	Fpz [N]	Moments Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJZ 40	2320	1510	14	40	62

[3] ***Mounting versions***

Version 1: *Mounting by the drive block, profile travels*



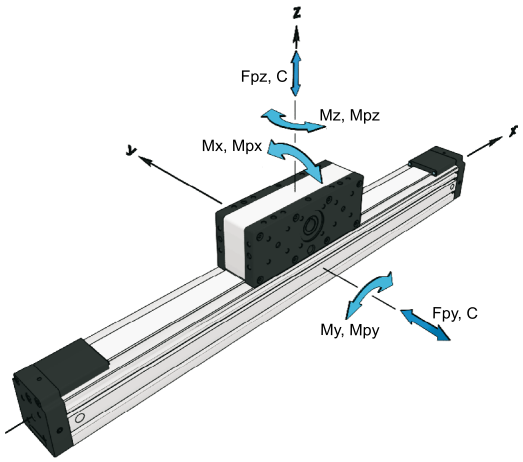
Version 2: *Mounting by the profile, drive blocks travel*



Multiple drive blocks, which travel independently of each other, can be applied.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

For operating temperature out of the presented range, please contact us.



Recommended values of loads

All the data of dynamic moments and load capacities stated in the upper table are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety. We recommend a minimum safety factor (fs =5.0)

Modulus of elasticity: *E = 70000 N / mm²*

Drive and belt data

Linear Unit	* Max. travel speed [m / s]	Max. drive torque [Nm]	No load torque of drive block [Nm]	Puley drive ratio [mm / rev]	Pulley diameter [mm]	Belt type	Belt width [mm]	Max. force transmited by belt [N]	Specific spring constant Cspec [N]	* Max. acceleration [m/s²]
MTJZ 40	5	3,6	0,2	99	31,51	AT3	20	230	225000	70

** For travel speed and acceleration over the stated value in the table above please contact us.*

Mass and planar moment of inertia

Linear Unit	* Mass of linear unit [kg]	Planar moment of inertia Iy [cm⁴]	Iz [cm⁴]
MTJZ 40	1,7 + 0,0023 × (Abs. stroke + (nb - 1) × A) + 0,95 × (nb - 1)	9,8	11,6

** Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
nb - Number of drive blocks

Mass calculation doesn´t include mass of motor, reduction gear, switches and clamps.

TECHNICAL DATA

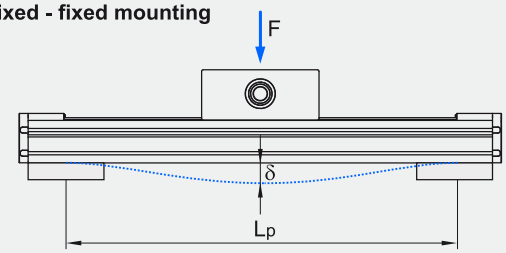
Mass moment of inertia

Linear Unit	* Mass moment of inertia *(Version 1)* [10^{-4} kg m^2]	Mass moment of inertia of drive block *(Version 2)* [10^{-4} kg m^2]
MTJZ 40	2,1 + 0,0058 × (Abs. stroke + (n_b - 1) × A) + 0,22 × (n_b - 1)	2,6

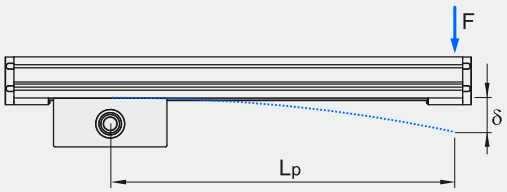
**Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
n_b - Number of drive blocks

Deflection of the linear unit

Fixed - fixed mounting



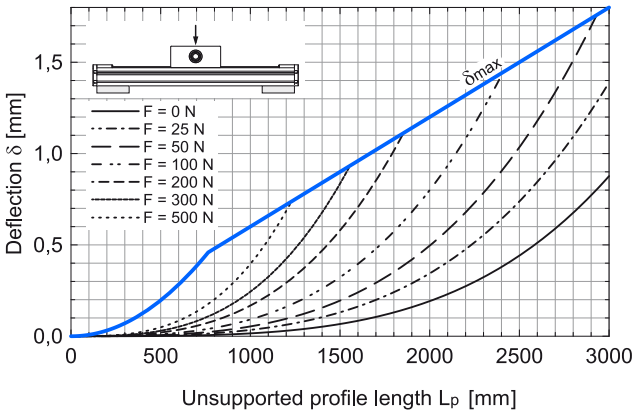
Fixed - free mounting

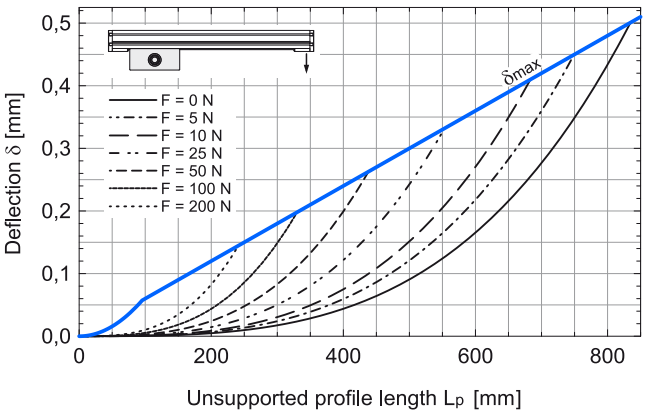


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

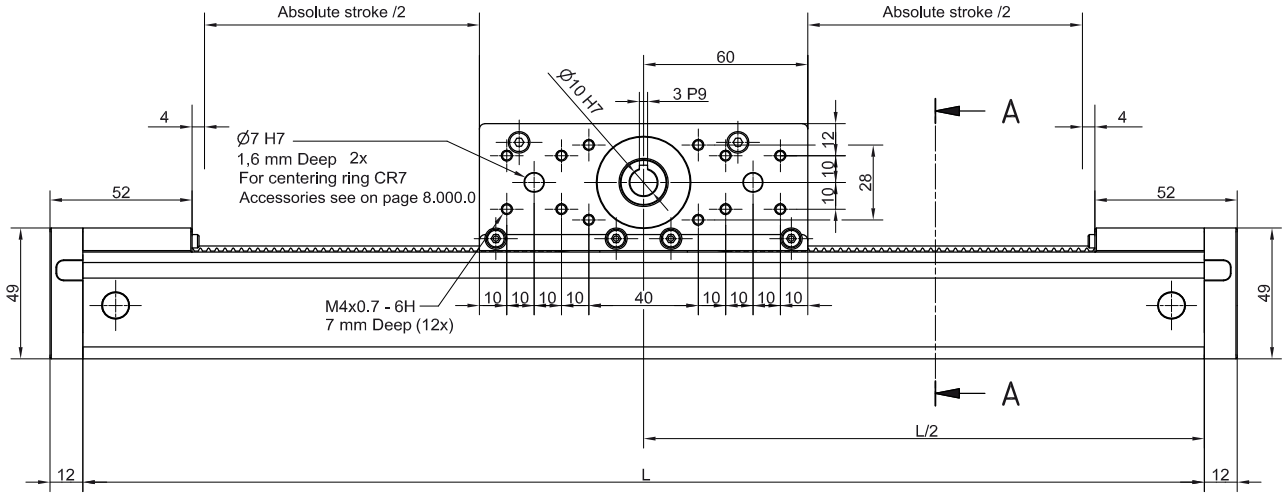
MTJZ 40

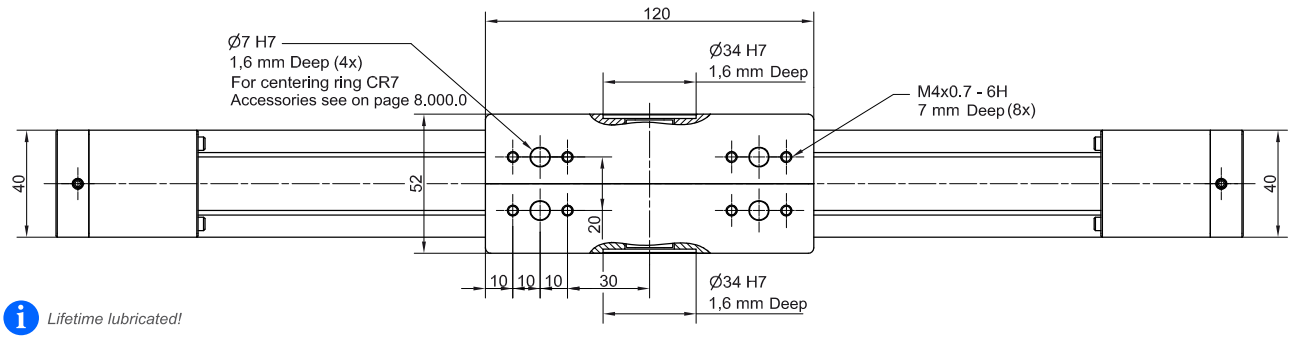




DIMENSIONS

Linear Unit doesn't include any safety
Absolute stroke = Effective stroke + 2 x Safety stroke.

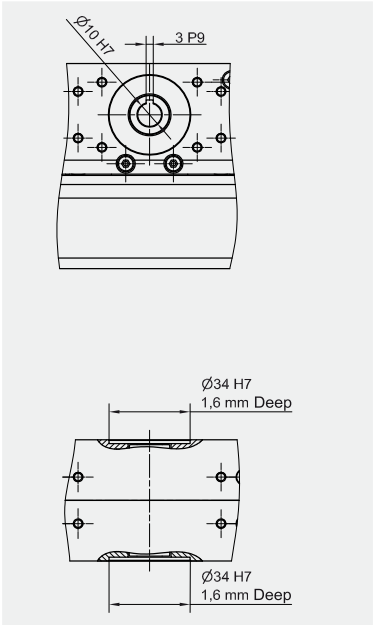




Lifetime lubricated!

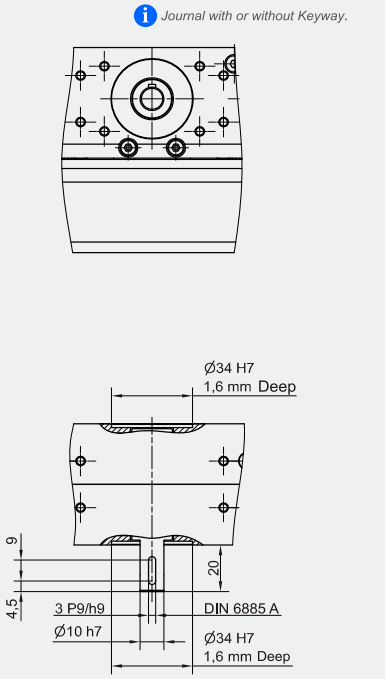
All dimensions in mm; Drawings scales are not equal.

TYPE 0



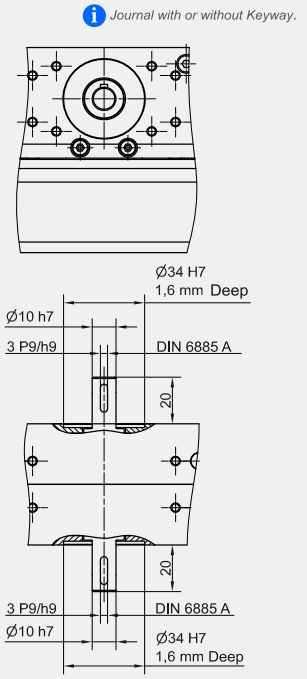
TYPE 1

Journal with or without Keyway.

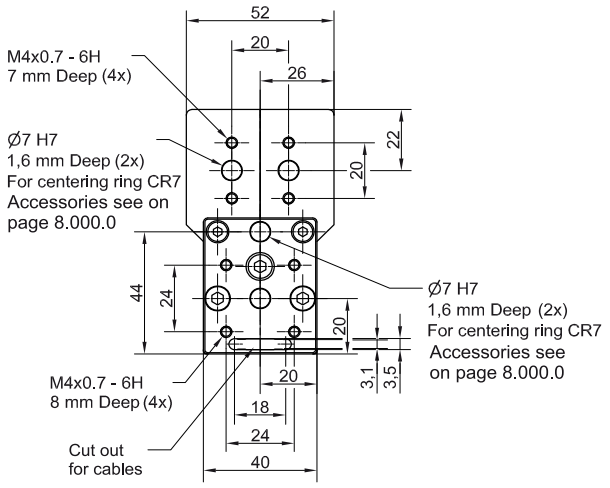


TYPE 2

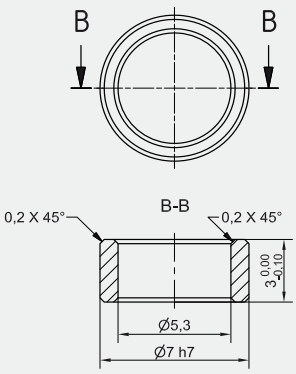
Journal with or without Keyway.

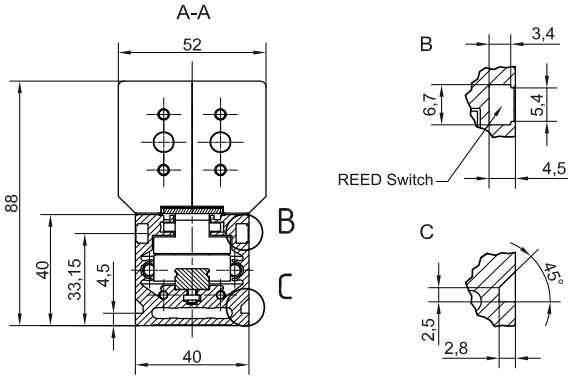


DIMENSIONS



CENTERING RING CR7
Material: 1.4305 (AISI303)



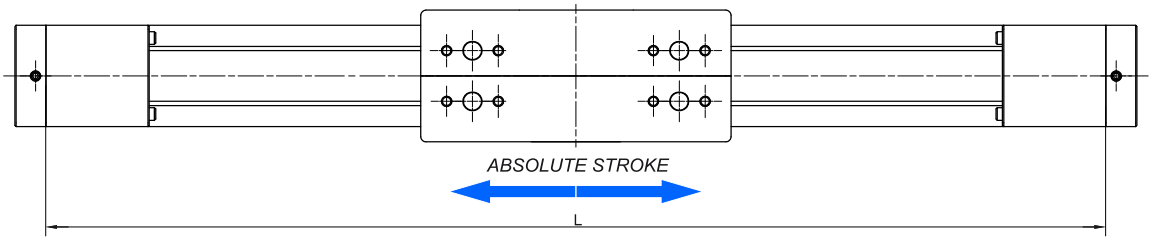


All dimensions in mm; Drawings scales are not equal.

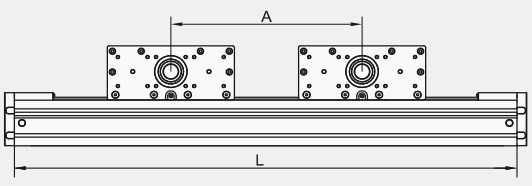
Defining of the linear unit length

L = Effective stroke + 2 × Safety stroke + 208 mm

Ltotal = L + 24 mm



Multiple drive blocks



L = Effective stroke + 2 × Safety stroke + A × (n_b - 1) + 208 mm

Ltotal = L + 24 mm

} **A** ≥ 120 mm

TECHNICAL DATA

General technical data

Linear Unit	Drive block length Lv [mm]	Dynamic load capacity C [N]	Dynamic moment Mx [Nm]	My [Nm]	Mz [Nm]	Mass of drive block [kg]	Maximum Repeatability [mm]	[2] Max. length [3] (Version 1) Lmax [mm]	[2] Max. length [3] (Version 2) Lmax [mm]	[2] Max. Stroke [3] (Ver. 1) [mm]	[3] (Ver. 2) [mm]	[1] Min. Stroke [mm]
MTJZ 65	200	19800	158	1025	1025	3,2	±0,08	1200	6000	880	5680	40

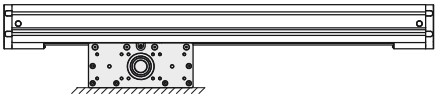
[1] *For minimum stroke below the stated value in the table above please contact us.*

[2] *For lengths / stroke over the stated value in the table above please contact us.*
Values for max. stroke are not valid for multiple drive blocks
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

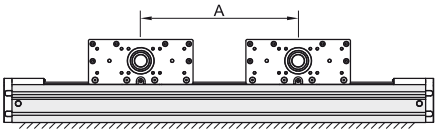
Linear Unit	Max. permissible loads Forces Fpy [N]	Fpz [N]	Moments Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJZ 65	6540	5870	60	305	340

[3] ***Mounting versions***

Version 1: *Mounting by the drive block, profile travels*



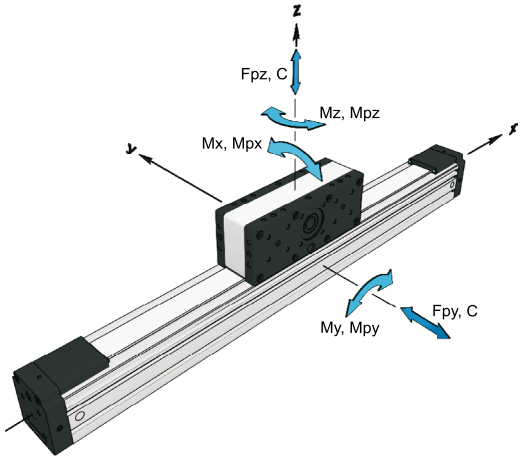
Version 2: *Mounting by the profile, drive blocks travel*



Multiple drive blocks, which travel independently of each other, can be applied.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

For operating temperature out of the presented range, please contact us.



Recommended values of loads

All the data of dynamic moments and load capacities stated in the upper table are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety. We recommend a minimum safety factor (fs =5.0)

Modulus of elasticity: *E = 70000 N / mm²*

Drive and belt data

Linear Unit	* Max. travel speed [m / s]	Max. drive torque [Nm]	No load torque of drive block [Nm]	Puley drive ratio [mm / rev]	Pulley diameter [mm]	Belt type	Belt width [mm]	Max. force transmited by belt [N]	Specific spring constant Cspec [N]	* Max. acceleration [m/s²]
MTJZ 65	5	13,1	0,9	165	52,52	AT5	32	500	600000	70

**For travel speed and acceleration over the stated value in the table above please contact us.*

Mass and planar moment of inertia

Linear Unit	* Mass of linear unit [kg]	Planar moment of inertia Iy [cm⁴]	Iz [cm⁴]
MTJZ 65	5,7 + 0,0054 × (Abs. stroke + (nb - 1) × A) + 3,2 × (nb - 1)	59,7	74,4

**Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
nb - Number of drive blocks

Mass calculation doesn´t include mass of motor, reduction gear, switches and clamps.

TECHNICAL DATA

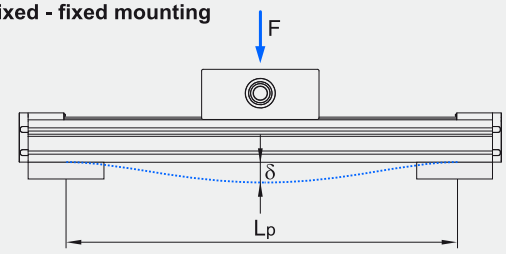
Mass moment of inertia

Linear Unit	* Mass moment of inertia *(Version 1)* [10^{-4} kg m^2]	Mass moment of inertia of drive block *(Version 2)* [10^{-4} kg m^2]
MTJZ 65	18,9 + 0,0374 × (Abs. stroke + (n_b - 1) × A) + 1,7 × (n_b - 1)	23,8

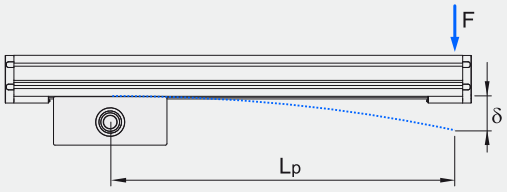
**Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
n_b - Number of drive blocks

Deflection of the linear unit

Fixed - fixed mounting



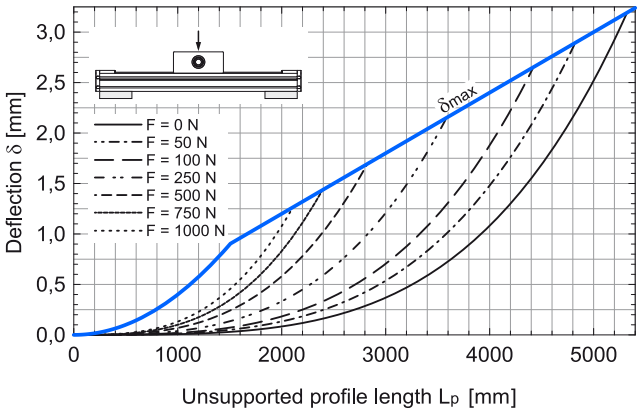
Fixed - free mounting

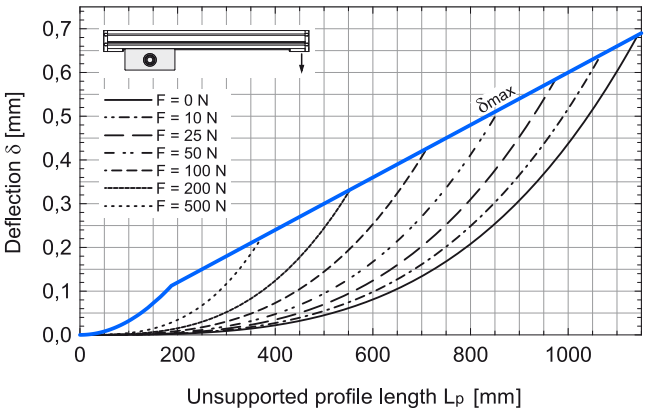


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

MTJZ 65

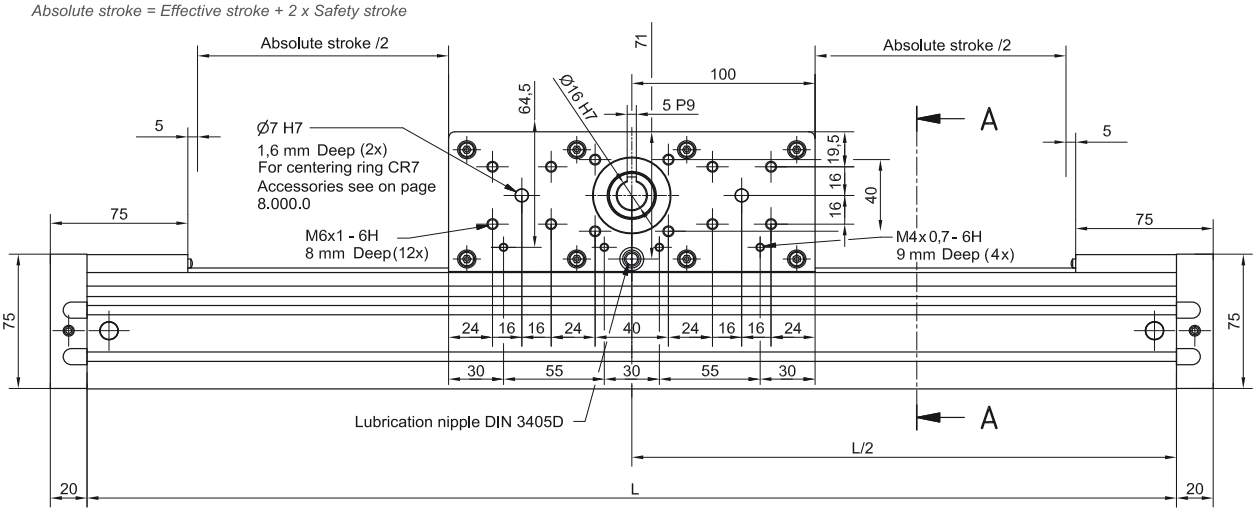


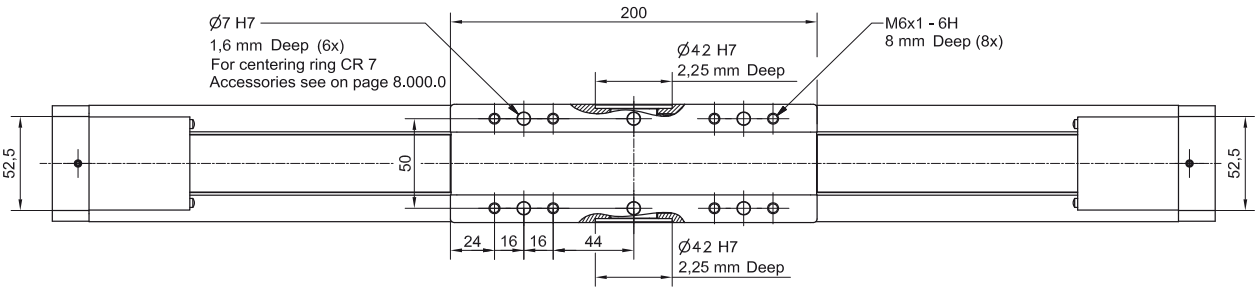


DIMENSIONS

Linear Unit doesn't include any safety stroke.

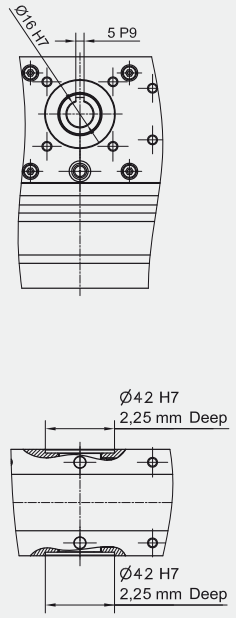
Absolute stroke = Effective stroke + 2 x Safety stroke





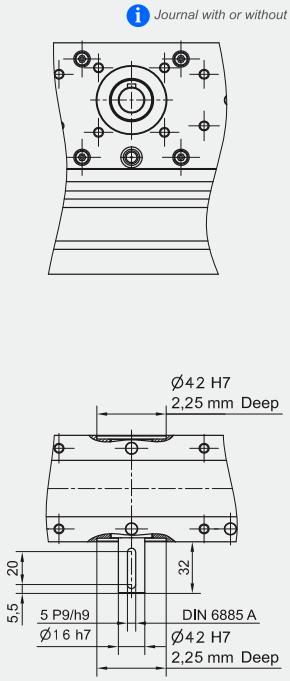
All dimensions in mm; Drawings scales are not equal.

TYPE 0



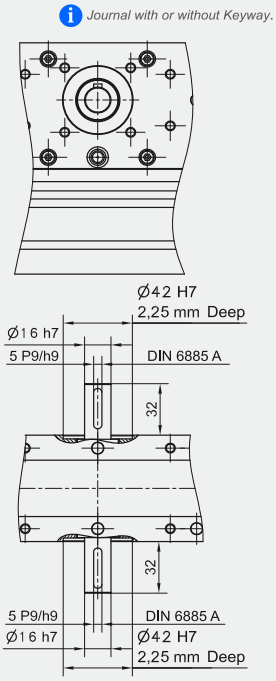
TYPE 1

Journal with or without Keyway.

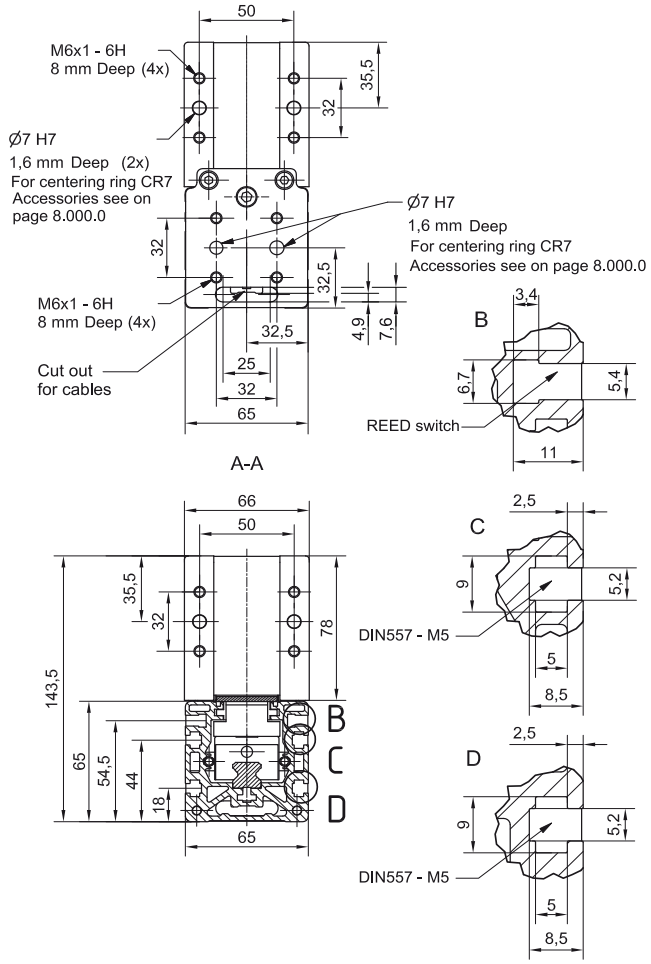


TYPE 2

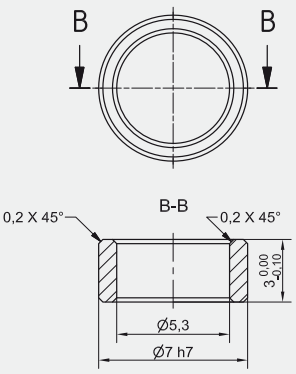
Journal with or without Keyway.

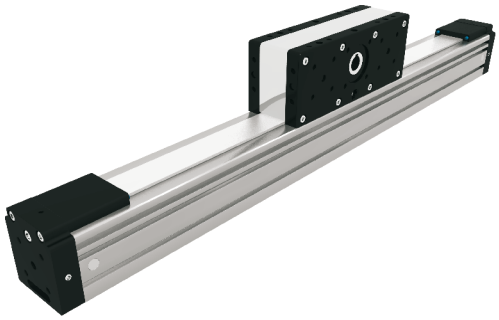


DIMENSIONS



CENTERING RING CR7
Material: 1.4305 (AISI303)



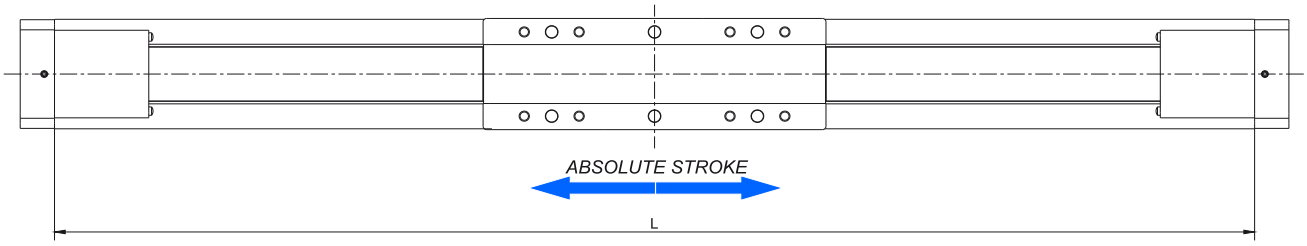


All dimensions in mm; Drawings scales are not equal.

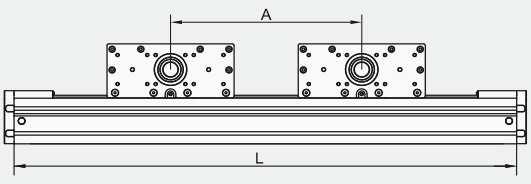
Defining of the linear unit length

L = Effective stroke + 2 × Safety stroke + 320 mm

Ltotal = L + 40 mm



Multiple drive blocks



L = Effective stroke + 2 × Safety stroke + A × (n_b - 1) + 320 mm

Ltotal = L + 40 mm

} **A** ≥ 200 mm

TECHNICAL DATA

General technical data

Linear Unit	Drive block length Lv [mm]	Dynamic load capacity C [N]	Dynamic moment Mx [Nm]	My [Nm]	Mz [Nm]	Mass of drive block [kg]	Maximum Repeatability [mm]	[2] Max. length [3] (Version 1) Lmax [mm]	[2] Max. length [3] (Version 2) Lmax [mm]	[2] Max. Stroke [3] (Ver. 1) [mm]	[3] (Ver. 2) [mm]	[1] Min. Stroke [mm]
MTJZ 80	250	34200	370	2565	2565	4,9	±0,08	1500	6000	1118	5618	55

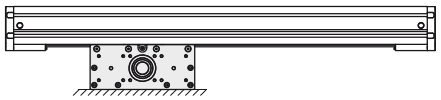
[1] *For minimum stroke below the stated value in the table above please contact us.*

[2] *For lengths / stroke over the stated value in the table above please contact us.*
Values for max. stroke are not valid for multiple drive blocks
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

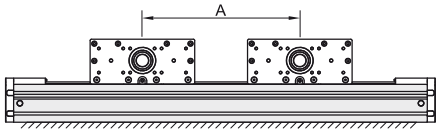
Linear Unit	Max. permissible loads Forces Fpy [N]	Fpz [N]	Moments Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJZ 80	8930	7130	150	535	670

[3] ***Mounting versions***

Version 1: *Mounting by the drive block, profile travels*



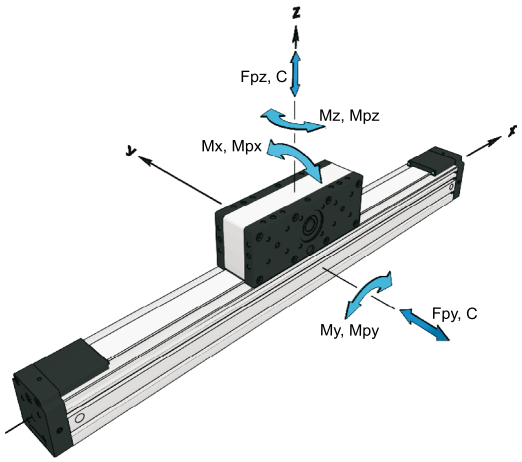
Version 2: *Mounting by the profile, drive blocks travel*



Multiple drive blocks, which travel independently of each other, can be applied.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

For operating temperature out of the presented range, please contact us.



Recommended values of loads

All the data of dynamic moments and load capacities stated in the upper table are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety. We recommend a minimum safety factor (fs =5.0)

Modulus of elasticity: *E = 70000 N / mm²*

Drive and belt data

Linear Unit	* Max. travel speed [m / s]	Max. drive torque [Nm]	No load torque of drive block [Nm]	Puley drive ratio [mm / rev]	Pulley diameter [mm]	Belt type	Belt width [mm]	Max. force transmited by belt [N]	Specific spring constant Cspec [N]	* Max. acceleration [m/s²]
MTJZ 80	5	29,4	1,4	210	66,84	AT5	50	880	960000	70

**For travel speed and acceleration over the stated value in the table above please contact us.*

Mass and planar moment of inertia

Linear Unit	* Mass of linear unit [kg]	Planar moment of inertia Iy [cm⁴]	Iz [cm⁴]
MTJZ 80	9,7 + 0,0083 × (Abs. stroke + (nb - 1) × A) + 4,9 × (nb - 1)	129,1	173,4

**Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
nb - Number of drive blocks

Mass calculation doesn´t include mass of motor, reduction gear, switches and clamps.

TECHNICAL DATA

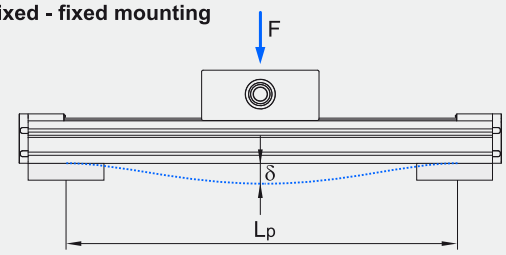
Mass moment of inertia

Linear Unit	* Mass moment of inertia *(Version 1)* [10^{-4} kg m^2]	Mass moment of inertia of drive block *(Version 2)* [10^{-4} kg m^2]
MTJZ 80	60,0 + 0,0922 × (Abs. stroke + (n_b - 1) × A) + 6,4 × (n_b - 1)	61,1

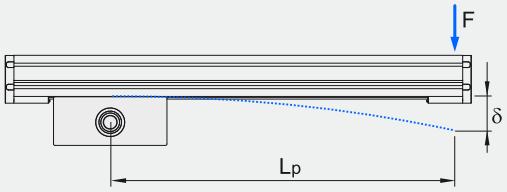
*Absolute stroke [mm]
A - Distance between two drive blocks [mm]
n_b - Number of drive blocks

Deflection of the linear unit

Fixed - fixed mounting



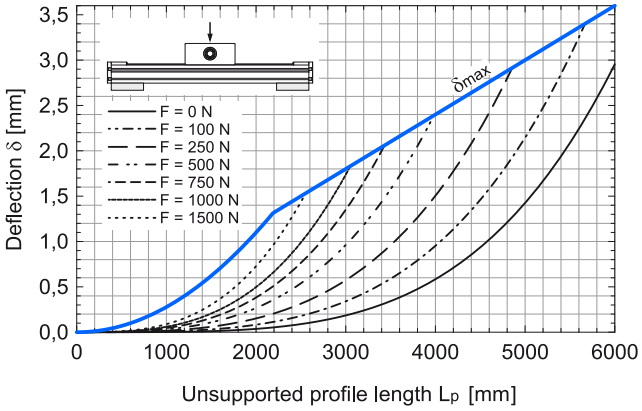
Fixed - free mounting

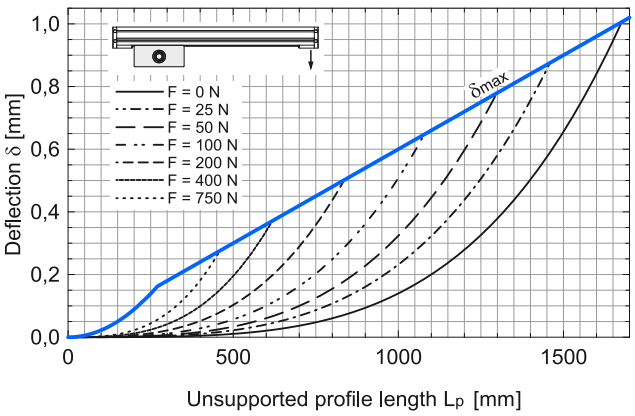


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

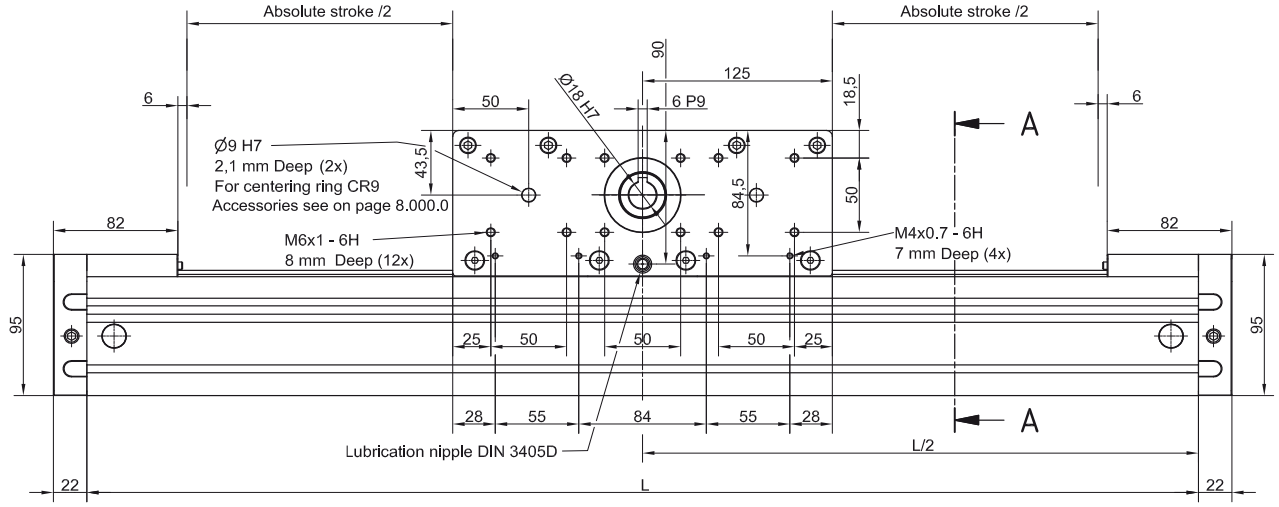
MTJZ 80

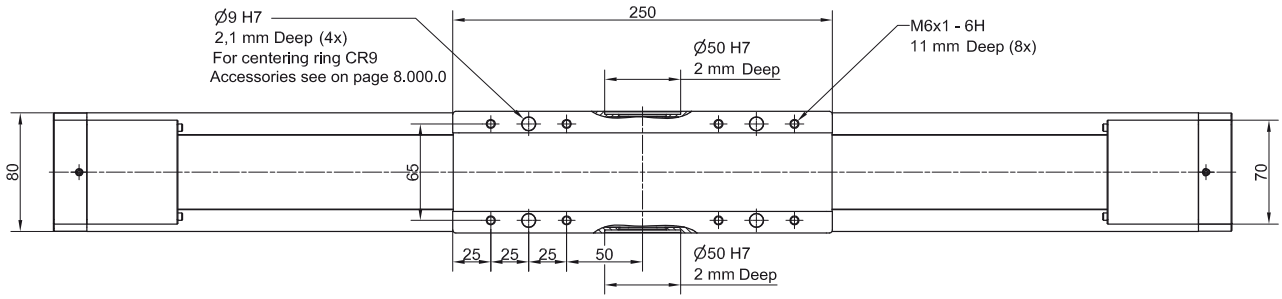




DIMENSIONS

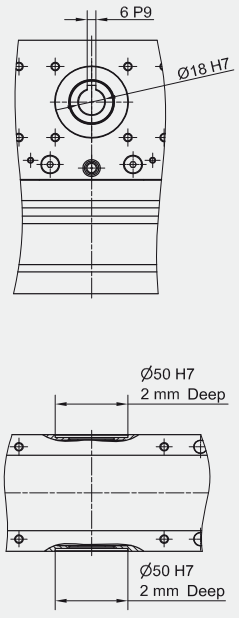
Linear Unit doesn't include any safety stroke.
Absolute stroke = Effective stroke + 2 x Safety stroke



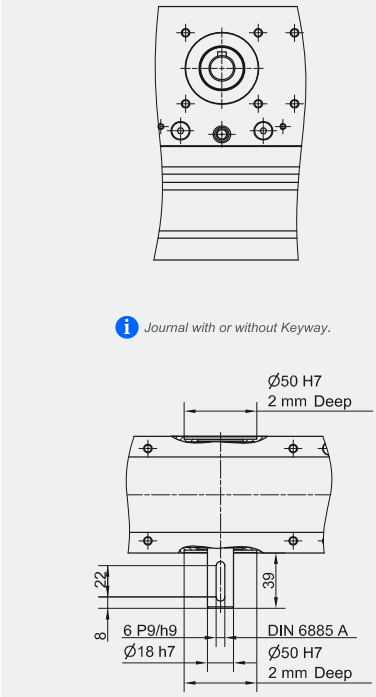


All dimensions in mm; Drawings scales are not equal.

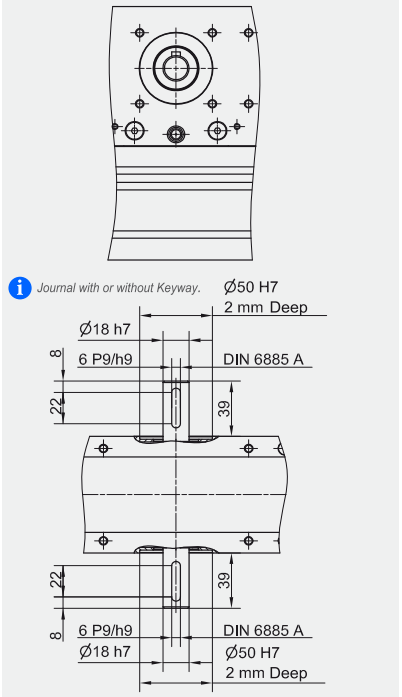
TYPE 0



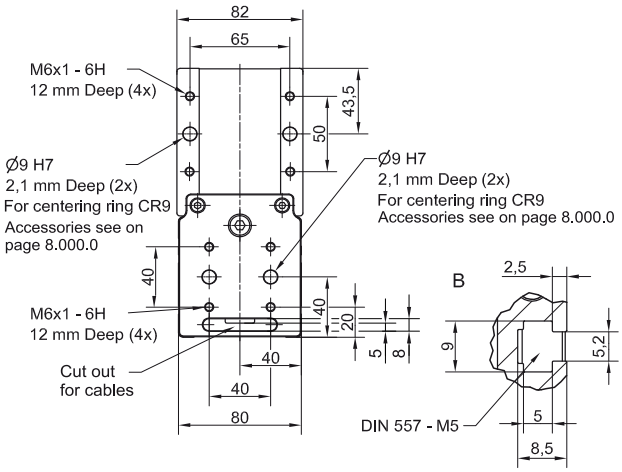
TYPE 1

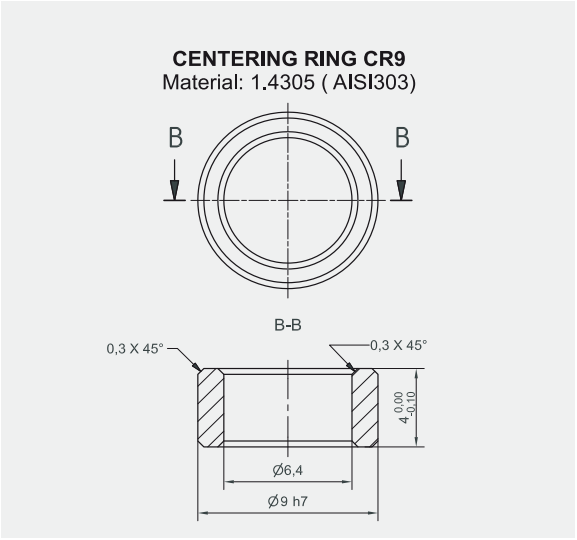


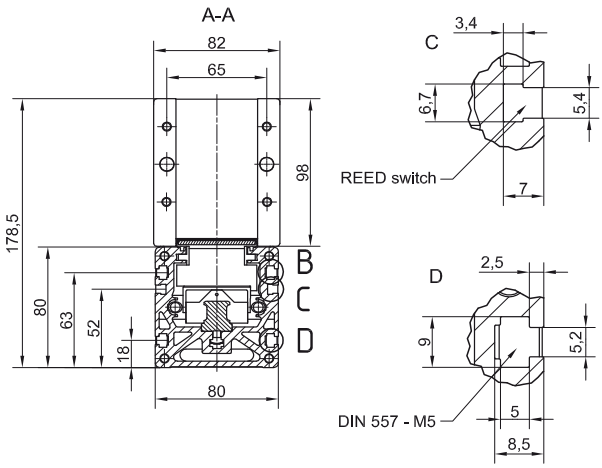
TYPE 2



DIMENSIONS





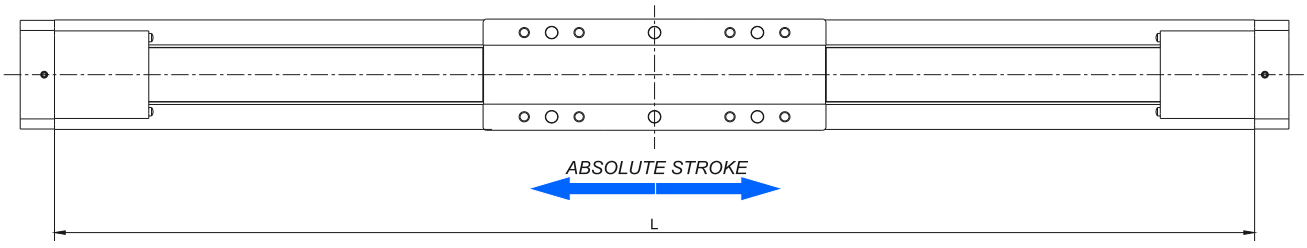


All dimensions in mm; Drawings scales are not equal.

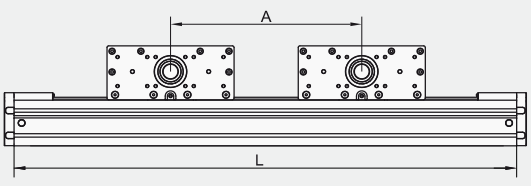
Defining of the linear unit length

L = Effective stroke + 2 × Safety stroke + 382 mm

Ltotal = L + 44 mm



Multiple drive blocks



L = Effective stroke + 2 × Safety stroke + A × (n_b - 1) + 382 mm

Ltotal = L + 44 mm

A ≥ 250 mm

TECHNICAL DATA

General technical data

Linear Unit	Drive block length Lv [mm]	Dynamic load capacity C [N]	Dynamic moment Mx [Nm]	My [Nm]	Mz [Nm]	Mass of drive block [kg]	Maximum Repeatability [mm]	[2] Max. length [3] (Version 1) Lmax [mm]	[2] Max. length [3] (Version 2) Lmax [mm]	[2] Max. Stroke [3] (Ver. 1) [mm]	[3] (Ver. 2) [mm]	[1] Min. Stroke [mm]
MTJZ 110	300	49600	630	3470	3470	11,3	±0,08	1800	6000	1304	5504	65

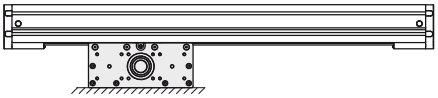
[1] *For minimum stroke below the stated value in the table above please contact us.*

[2] *For lengths / stroke over the stated value in the table above please contact us.*
Values for max. stroke are not valid for multiple drive blocks
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

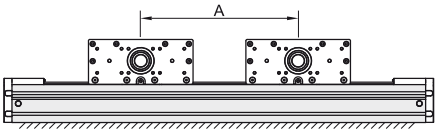
Linear Unit	Max. permissible loads Forces Fpy [N]	Fpz [N]	Moments Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJZ 110	10000	14290	260	1000	700

[3] ***Mounting versions***

Version 1: *Mounting by the drive block, profile travels*



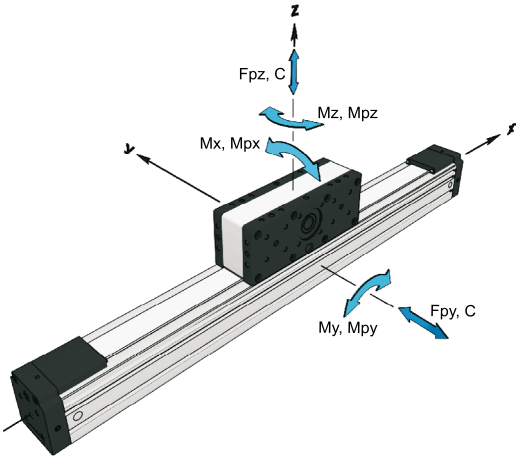
Version 2: *Mounting by the profile, drive blocks travel*



Multiple drive blocks, which travel independently of each other, can be applied.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

For operating temperature out of the presented range, please contact us.



Recommended values of loads

All the data of dynamic moments and load capacities stated in the upper table are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety. We recommend a minimum safety factor (fs =5.0)

Modulus of elasticity: *E = 70000 N / mm²*

Drive and belt data

Linear Unit	* Max. travel speed [m / s]	Max. drive torque [Nm]	No load torque of drive block [Nm]	Puley drive ratio [mm / rev]	Pulley diameter [mm]	Belt type	Belt width [mm]	Max. force transmited by belt [N]	Specific spring constant Cspec [N]	* Max. acceleration [m/s²]
MTJZ 110	5	110,0	2,6	300	95,49	AT10	70	2300	2450000	70

**For travel speed and acceleration over the stated value in the table above please contact us.*

Mass and planar moment of inertia

Linear Unit	* Mass of linear unit [kg]	Planar moment of inertia Iy [cm⁴]	Iz [cm⁴]
MTJZ 110	21,7 + 0,0147 × (Abs. stroke + (nb - 1) × A) + 11,3 × (nb - 1)	513,0	620,0

**Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
nb - Number of drive blocks

Mass calculation doesn´t include mass of motor, reduction gear, switches and clamps.

TECHNICAL DATA

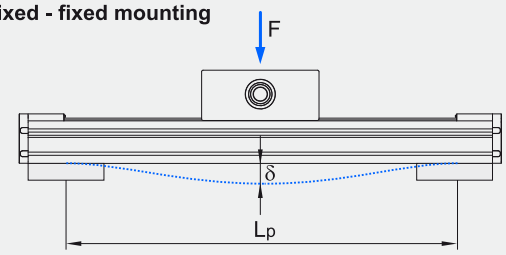
Mass moment of inertia

Linear Unit	* Mass moment of inertia *(Version 1)* [10^{-4} kg m^2]	Mass moment of inertia of drive block *(Version 2)* [10^{-4} kg m^2]
MTJZ 110	282,4 + 0,3358 × (Abs. stroke + (n_b - 1) × A) + 45,3 × (n_b - 1)	302,9

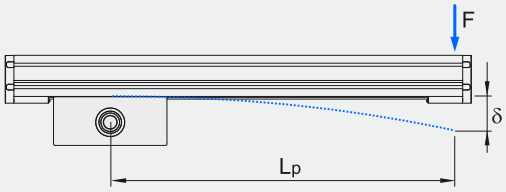
Absolute stroke [mm]
A - Distance between two drive blocks [mm]
n_b - Number of drive blocks

Deflection of the linear unit

Fixed - fixed mounting



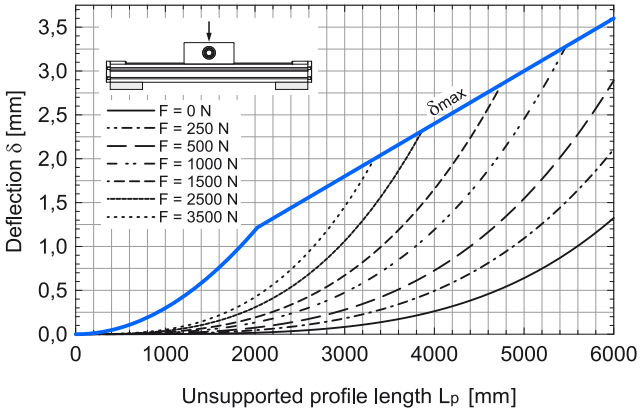
Fixed - free mounting

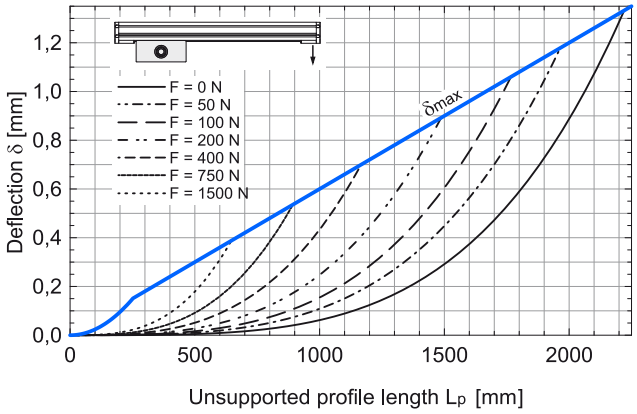


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

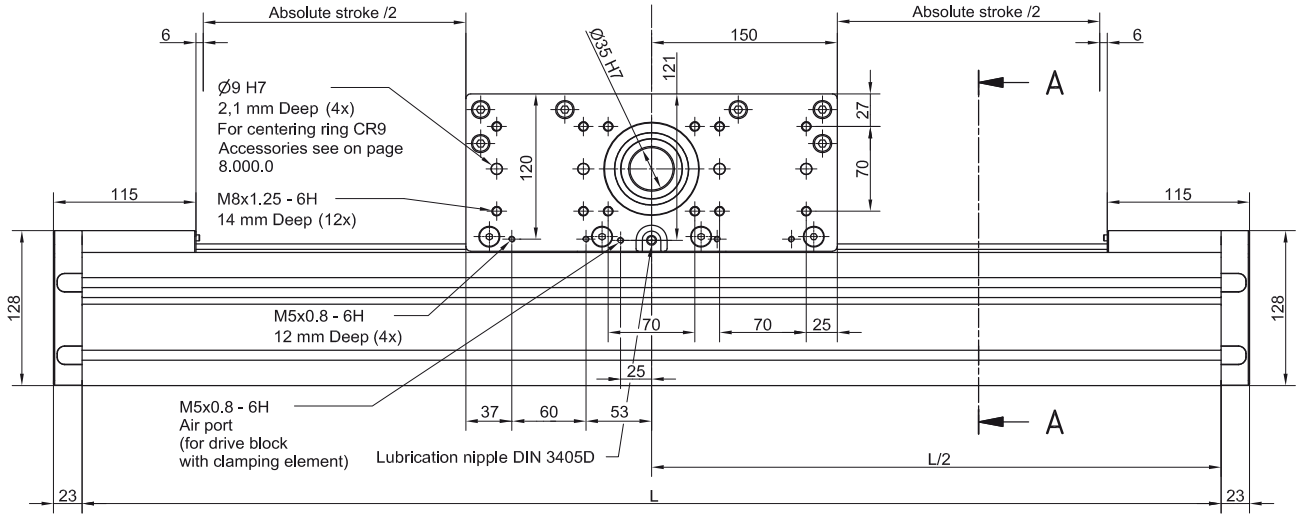
MTJZ 110

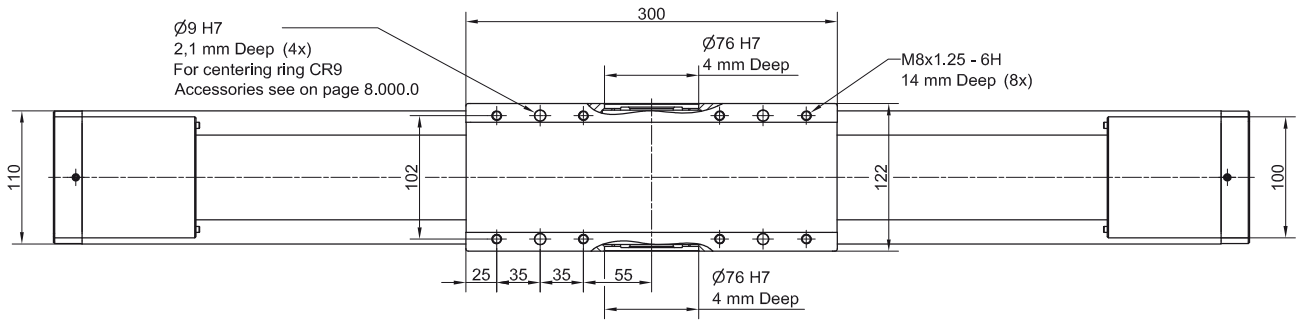




DIMENSIONS

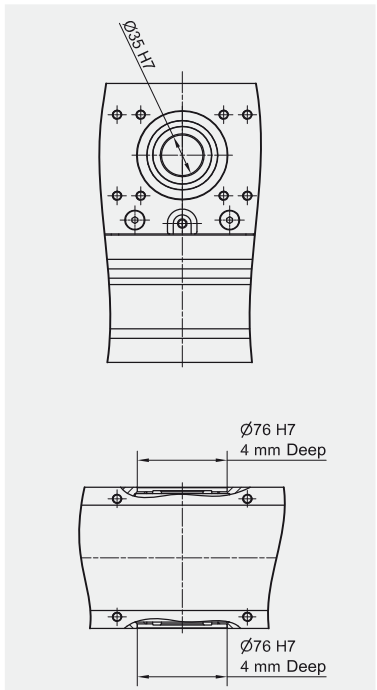
Linear Unit doesn't include any safety stroke.
Absolute stroke = Effective stroke + 2 x Safety stroke





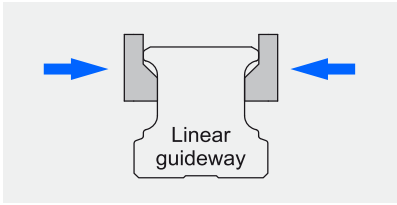
All dimensions in mm; Drawings scales are not equal.

TYPE 0



Drive block with clamping element

Clamping by spring-loaded energy

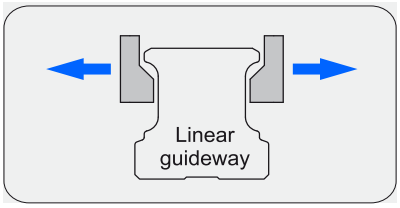


Air pressure = 0 bar

Holding force = 1400 N

Holding force is tested on clamping element using a slightly lubricated rail (ISO VG 68).

Opened by air pressure



Opening air pressure = 5,5 - 8 bar

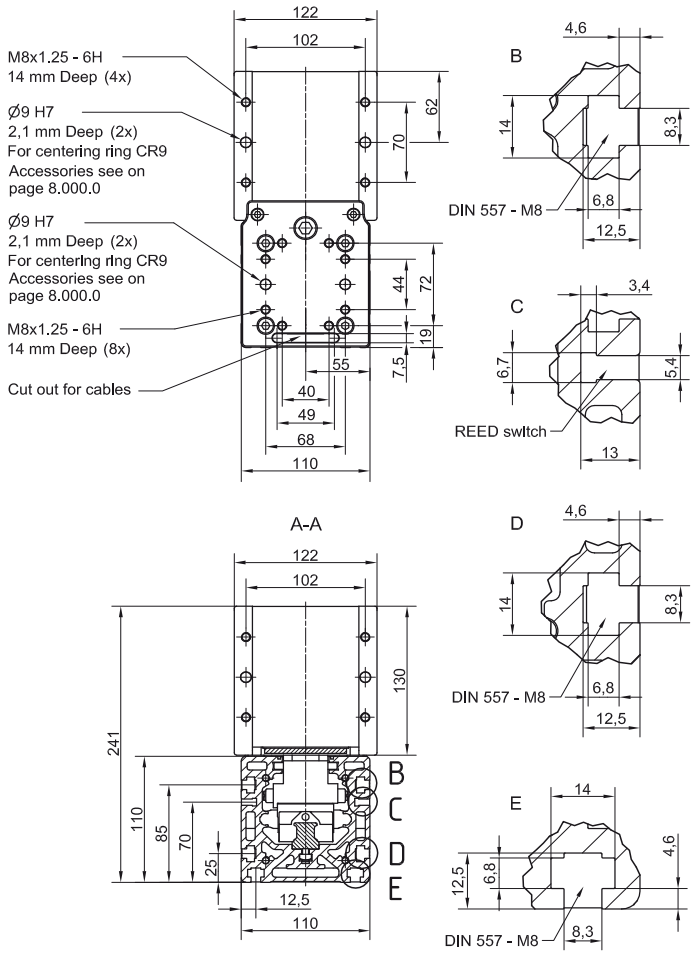
The air pressure opens clamping pistons. Free movement is allowed.

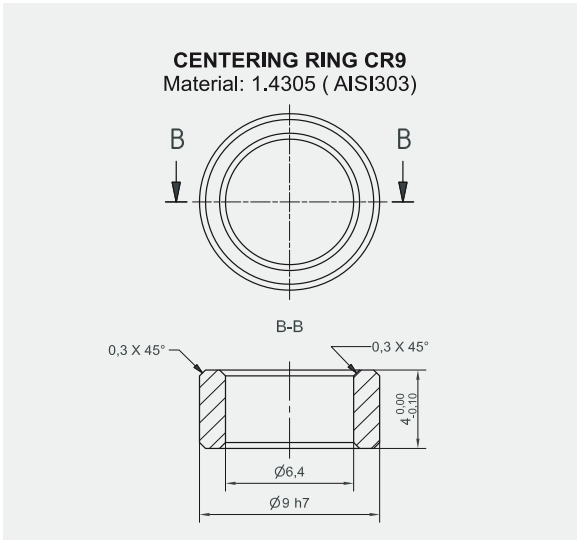
Purified and oiled air shall be used (according to ISO 8573-1 Class 4). Recommended filter size is 25 µm.

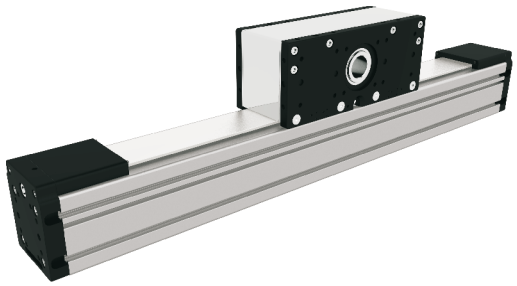
Linear Unit	Mass of drive block [kg]	* Mass of linear unit [kg]
MTJZ 110	12,9	23,3 + 0,0147 × (Abs. stroke + (nb - 1) × A) + 12,9 × (nb - 1)

**Absolute stroke [mm]*
A - Distance between two drive blocks [mm]
nb - Number of drive blocks

DIMENSIONS





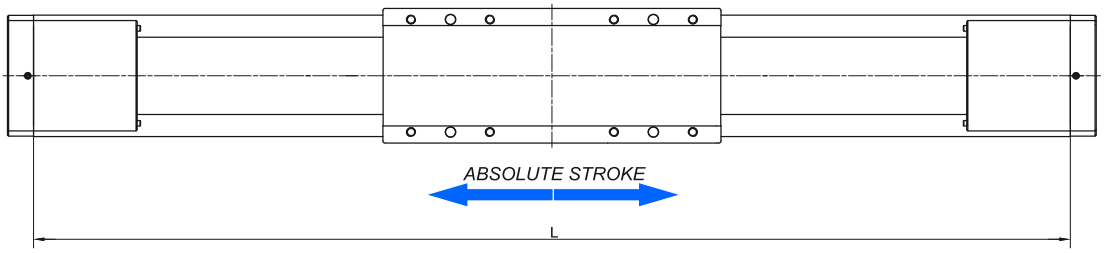


All dimensions in mm; Drawings scales are not equal.

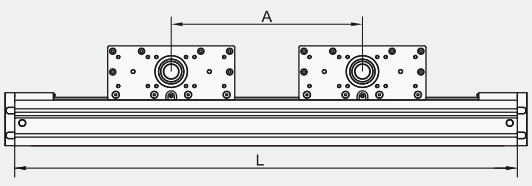
Defining of the linear unit length

L = Effective stroke + 2 × Safety stroke + 496 mm

Ltotal = L + 46 mm



Multiple drive blocks



L = Effective stroke + 2 × Safety stroke + A × (n_B - 1) + 496 mm

Ltotal = L + 46 mm

A ≥ 300 mm
***A** ≥ 410 mm

* *In case of using the drive blocks with clamping element*