

Linear Unit MTJZ 40

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.

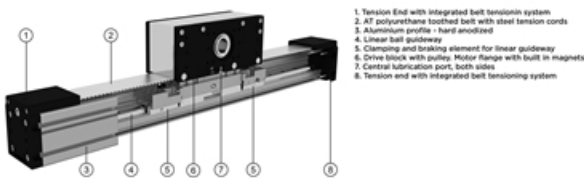
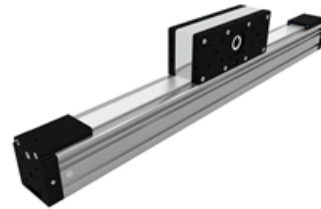
In the linear units MTJZ is used a pre-tensioned steel reinforced AT polyurethane timing toothed belt. In conjunction with a zero-backlash drive pulley high moments with alternating loads with good positioning accuracy, low wear and low noise can be realized.

The in the profile slot driving timing belt protects all the parts in the profile from dust and other contaminations. The drive block provides the possibility to attach a motor or gearbox housing and additional accessories on it.

For CAD-files please contact Rollco .

Dimensions in mm.

Modulus of elasticity: E = 70000 N / mm²
Operating Temperature (°C): 0 ~ +60 For operating temperature out of the presented range, please contact Rollco.
Duty cycle: 100%

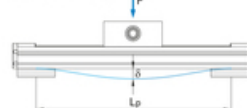


1. Tension End with integrated belt tensioning system
2. AT polyurethane toothed belt with steel tension cords
3. Aluminum profile - hard anodized
4. Linear ball guideway
5. Clamping and braking element for linear guideway
6. Drive block with pulley. Motor flange with built in magnets
7. Central lubrication port, both sides
8. Tension end with integrated belt tensioning system

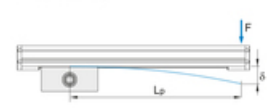
Deflection of the linear unit

MTJZ

Fixed - fixed mounting



Fixed - free mounting

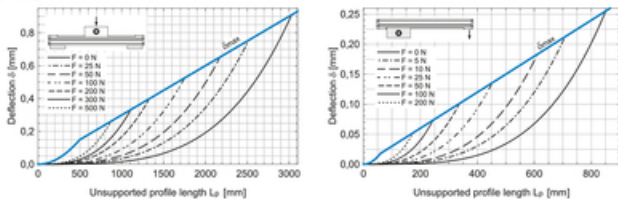


- delta: Maximum deflection of the linear unit [mm]
- delta_max: Maximum permissible deflection of the linear unit [mm]
- F: Applied force [N]
- Lp: Unsupported profile length [mm]

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

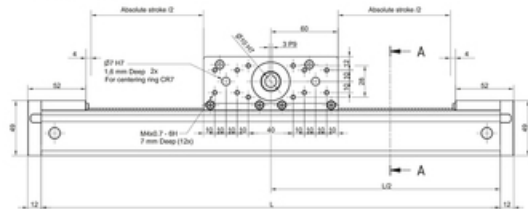
Deflection of the linear unit

MTJZ 40

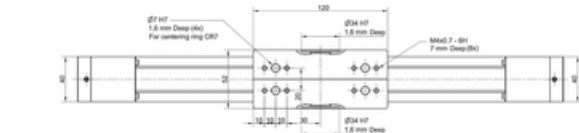


① The linear units do not include any safety stroke.
 Absolut stroke = Effective stroke + 2 x safety stroke.

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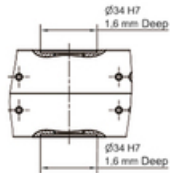
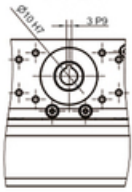
① Lifetime lubricated ② All dimensions in mm. Drawings scales are not equal.



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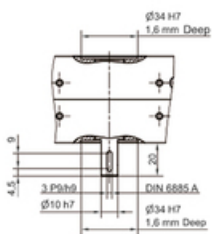
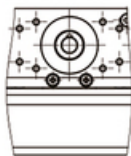
Linear Unit MTJZ 40

TYPE 0



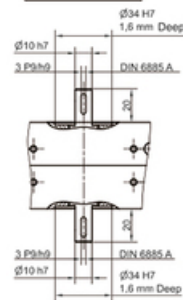
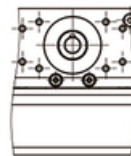
TYPE 1

① Journal with or without keyway.

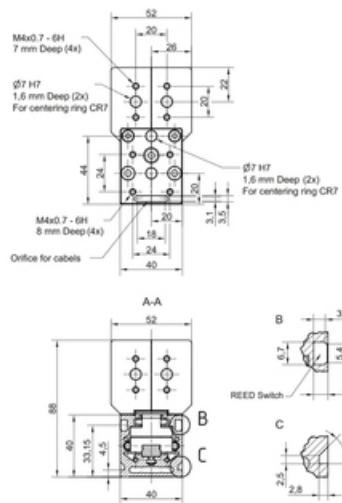


TYPE 2

① Journal with or without keyway.



Linear Unit MTJZ 40

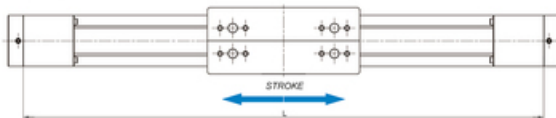


① All dimensions in mm. Drawings scales are not equal.

Defining of the linear unit length

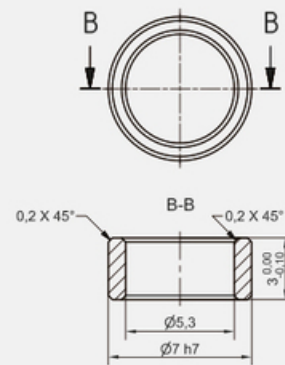
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 208 \text{ mm}$$

$$L_{\text{total}} = L + 24 \text{ mm}$$

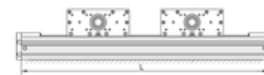


CENTERING RING CR7

Material: 1.4305 (AISI303)



Multi drive block

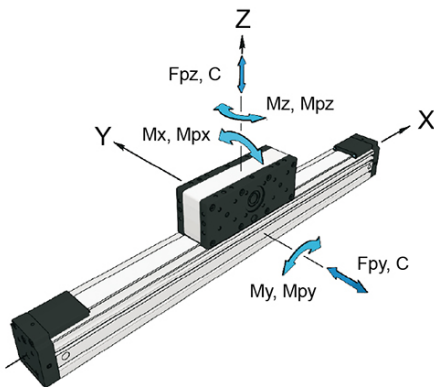


$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 120 \times n_b + 88 \text{ mm}$$

n_b - number of drive blocks

$$L_{\text{total}} = L + 24 \text{ mm}$$

Variant Data



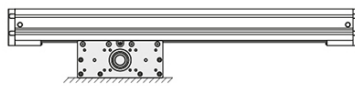
For minimum stroke below the stated value, please contact Rollco.

For length/stroke over the stated value, please contact Rollco. Values for max. stroke are not valid for multi drive box (equation of defining the linear unit length for particular size of the linear unit needs to be used).

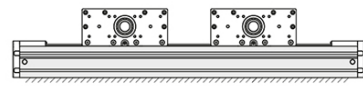
Recommended values of loads

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

Version 1: Mounting by the drive block, profile travels



Version 2: Mounting by the profile, drive block travels



On request, multi drive blocks, which travel independently of each other, can be applied.

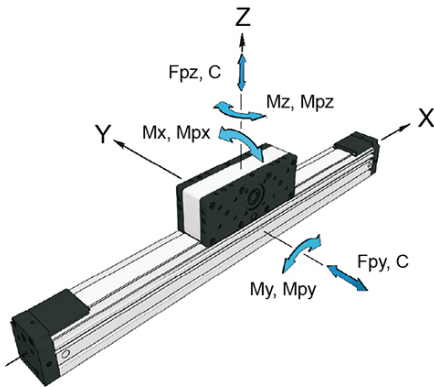
Designation	Drive block length L_v	Dynamic Load Capacity C (N)	Static Load Capacity C_0 (N)	Dynamic Moment M_x (Nm)	Dynamic Moment M_y (Nm)
MTJZ 40	120	4610	6930	28	120

Designation	Dynamic Moment M_z (Nm)	Mass of drive block	Max. Permissible Loads Forces F_{py} (N)	Max. Permissible Loads Forces F_{pz} (N)	Max. Permissible Loads Moments M_{px} (Nm)	Max. Permissible Loads Moments M_{py} (Nm)
MTJZ 40	120	0.95 kg	2320	1510	14	40

Designation	Max. Permissible Loads Moments M_{pz} (Nm)	Max. Repeatability (mm)	Max. length version 1 (L_{max})	Max. length version 2 (L_{max})	Max. stroke version 1	Max. stroke version 2
MTJZ 40	62	± 0.08	1000	3000	792	2792

Designation	Min. stroke
MTJZ 40	25

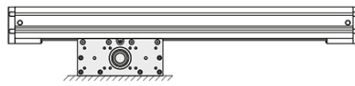
Drive Data



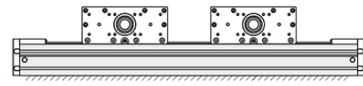
Max. acceleration (m/s²): 70*

For acceleration over the stated value, please contact Rollco.

Version 1: Mounting by the drive block, profile travels



Version 2: Mounting by the profile, drive block travels

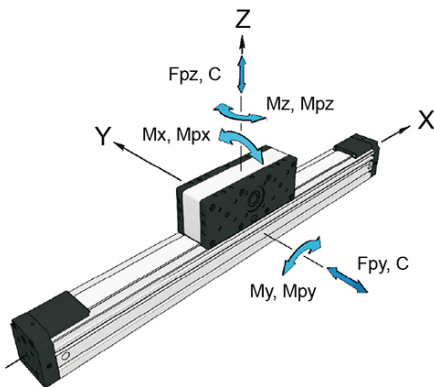


On request, multi drive blocks, which travel independently of each other, can be applied.

Designation	Max. Drive Torque (Nm)	Pulley Drive Ratio (mm/rev)	Pulley diameter	Min. stroke	Planar moment of inertia Iy cm ⁴
MTJZ 40	3.60	99	31.51	25	9.80

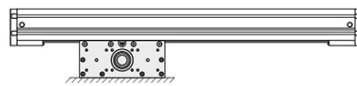
Designation	Planar moment of inertia Iz cm ⁴	Belt type	Belt width	Max. Force Transmitted by Belt (N)	Specific Spring Constant Cspec (N)
MTJZ 40	11.60	AT3	20	230	225000

Mass and Mass Moment

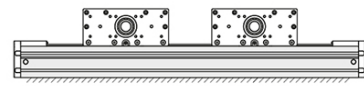


Mass calculation does not include mass of motor, reduction gear, switches and clamps.

Version 1: Mounting by the drive block, profile travels



Version 2: Mounting by the profile, drive block travels



On request, multi drive blocks, which travel independently of each other, can be applied.

Designation	Mass of Linear Unit (kg)	Mass moment of inertia of drive block ($10^{-4} \text{ kg} \cdot \text{m}^2$)	Planar moment of inertia $I_y \text{ cm}^4$	Planar moment of inertia $I_z \text{ cm}^4$
MTJZ 40	$1.7 + 0.0023 \cdot \text{Stroke (mm)}$	$2.3 + 0.0058 \cdot \text{Stroke (mm)}$	9.80	11.60