

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.

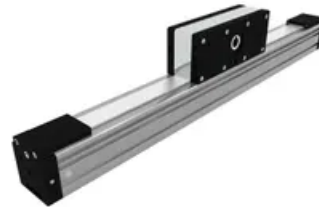
Modulus of Elasticity: $E = 70000 \text{ N / mm}^2$

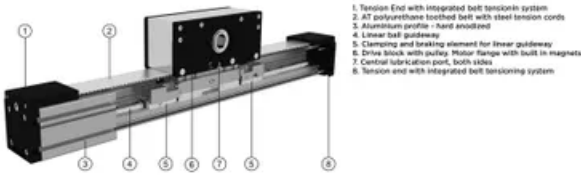
Operating Temperature (°C): 0 ~ +60 For operating temperature out of the presented range, please contact Rollco.

Duty Cycle: 100%

Max. Acceleration (m/s²): 70

Max. Travel Speed (m/s): 5



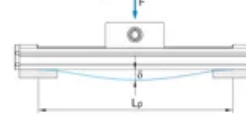


1. Tension End with integrated belt tensioning system
2. AT polyurethane toothed belt with steel tension cords
3. Aluminum profile - hard anodized
4. Linear ball guideway
5. Clamping and braking element for linear guideway
6. Drive block with pulley Motor flange with built in magnets
7. Central lubrication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

Deflection of the linear unit

MTJZ

Fixed - fixed mounting



Fixed - free mounting

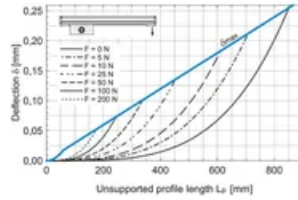
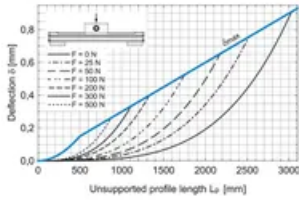


- δ Maximum deflection of the linear unit [mm]
- δ_{max} Maximum permissible deflection of the linear unit [mm]
- F Applied force [N]
- L_0 Unsupported profile length [mm]

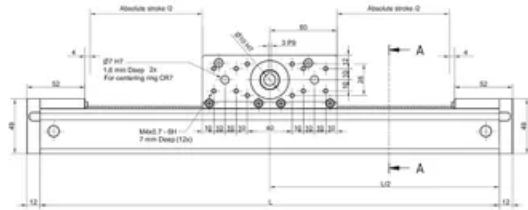
The maximum permissible deflection δ_{max} must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δ_{max} additional profile supports are needed.

Deflection of the linear unit

MTJZ 40

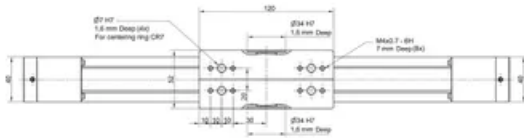


- ① The linear units do not include any safety stroke.
- Absolute stroke = Effective stroke + 2 x safety stroke.



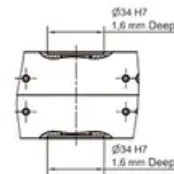
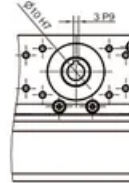
- ① Lifetime lubricated.
- ① All dimensions in mm. Drawings scales are not equal.

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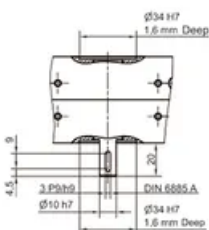
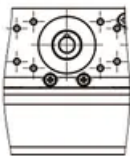
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TYPE 0



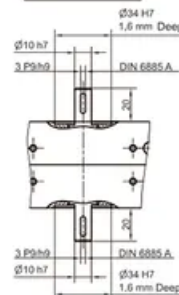
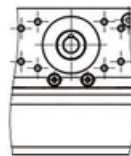
TYPE 1

- ① Journal with or without keyway.



TYPE 2

- ① Journal with or without keyway.



| Designation | Max. Repeatability (mm) | Max. Length Version 1 Lmax (mm) | Max. Length Version 2 Lmax (mm) | Max. Stroke Version 1 (mm) | Max. Stroke Version 2 (mm) | Min. Stroke (mm) |
|-------------|-------------------------|---------------------------------|---------------------------------|----------------------------|----------------------------|------------------|
| MTJZ 40 | ± 0.08 | 1000 | 3000 | 792 | 2792 | 25 |

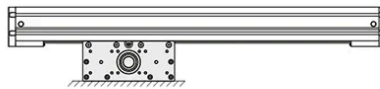
Drive Data



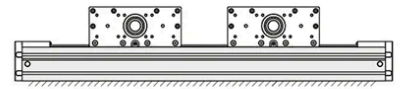
Max. acceleration (m/s²): 70*

For acceleration over the stated value, please contact Rolco.

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 | Planar Moment of Inertia Iy (cm ⁴) | Planar Moment of Inertia Iz (cm ⁴) |
|-------------|------------------------|-----------------------------|-----------------|--|--|
| MTJZ 40 | 3.6 | 99 | 31.51 | 9.8 | 11.6 |

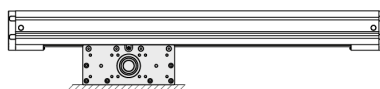
| Designation | Belt Type | Belt Width | Max. Force Transmitted by Belt (N) | Specific Spring Constant Cspec (N) |
|-------------|-----------|------------|------------------------------------|------------------------------------|
| MTJZ 40 | AT3 | 20 | 230 | 225000 |

Mass and Mass Moment

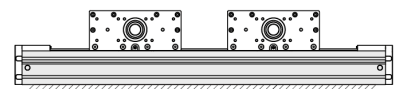


Mass calculation does not include mass of motor, reduction gear, switches and clamps.

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.

| | |
|-------------|--|
| Abs. stroke | Absolute stroke [mm] |
| A | Distance between two drive blocks [mm] |
| nb | Number of drive blocks |

| Designation | Mass of Linear Unit (kg) | 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) | Planar Moment of Inertia Iy (cm ⁴) | Planar Moment of Inertia Iz (cm ⁴) |
|-------------|---|--|---|--|--|
| MTJZ 40 | 1.7 + 0.0023 × (Abs. Stroke + (nb - 1) × A) + 0.95 × (nb - 1) | 2.1 + 0.0058 × (Abs. Stroke × (nb - 1) × A) + 0.22 × (nb - 1) | 2.6 | 9.8 | 11.6 |