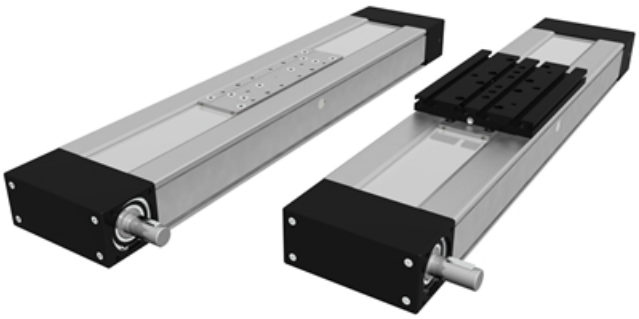
Linear Unit CTJ 200

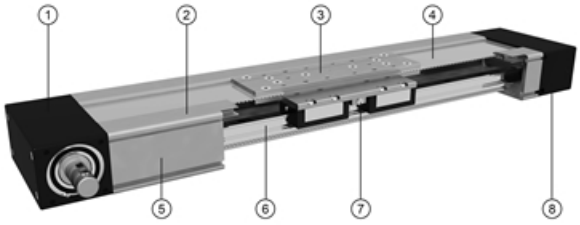
The CTJ series includes linear units with a toothed belt drive and two parallel, integrated, zero-backlash rail guides. In the linear units CTJ is used a pre-tensioned steel reinforced AT polyurethane timing toothed belt. In conjunction with a zero-backlash drive pulley high moments with alternating loads with good positioning accuracy, low wear and low noise can be realized.



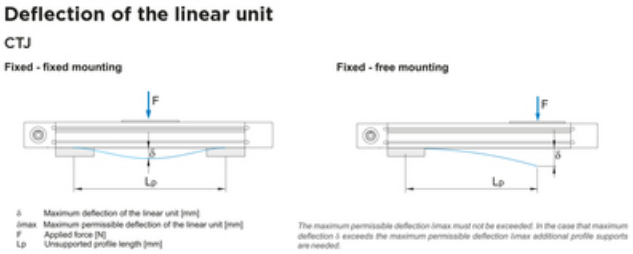
The in the profile slot driving timing belt, protects all the parts in the profile from dust and other contaminations. Re-lubrication can be done through maintenance holes on the side of the profile.

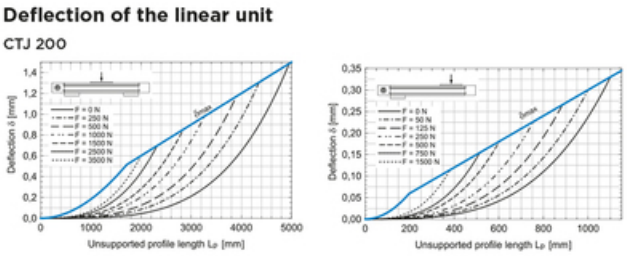
Dimensions in mm.

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%
Max. Acceleration (m/s²): 70
Max. Travel Speed (m/s): 6

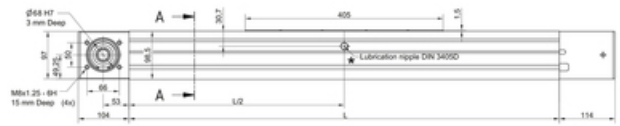


1. Drive block with pulley
2. Aluminum cover
3. Carriage, with built in magnets
4. AT polyurethane toothed belt with steel tension cords
5. Aluminium profile - hard anodized
6. Two integrated linear ball guideways
7. Central lubrication port, both sides
8. Tension end with integrated belt tensioning system



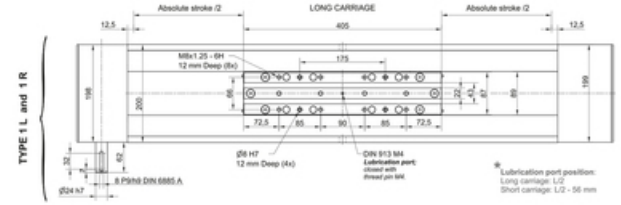


① The linear units do not include any safetey stroke. Absolut stroke = Effective stroke + 2 x safety stroke.



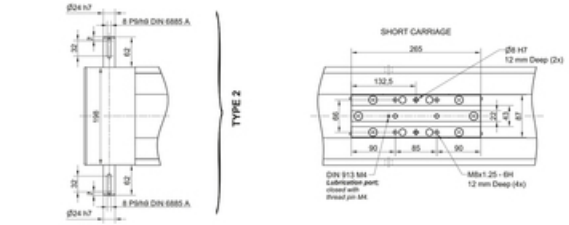
① Journal with or without keyway. ② All dimensions in mm. Drawings scales are not equal.

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



① Journal with or without keyway. ② All dimensions in mm. Drawings scales are not equal.

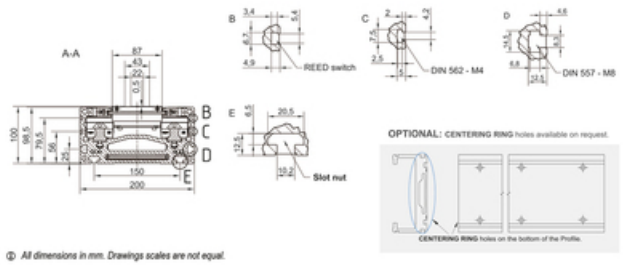
① The linear units do not include any safetey stroke. Absolut stroke = Effective stroke + 2 x safety stroke.



① Journal with or without keyway. ② All dimensions in mm. Drawings scales are not equal.

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Linear Unit CTJ 200

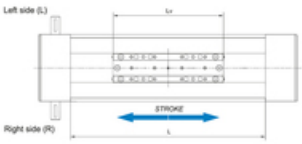


① All dimensions in mm. Drawings scales are not equal.

Defining of the linear unit length
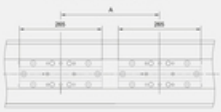
L = Effective stroke + 2 × Safety stroke + Lv + 25 mm

Ltotal= L + 218 mm



Lv - Long carriage = 405 mm
Lv - Short carriage = 265 mm

Double-Carriage



① Only with short carriage version.

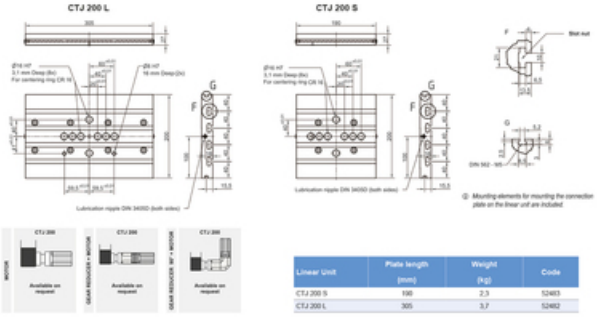
① For ordering code please contact Rollco.

L = Effective stroke + 2 × Safety stroke + A + 290 mm
Ltotal = L + 218 mm
A ≥ 265 mm

Connection plate

CTJ 200 L

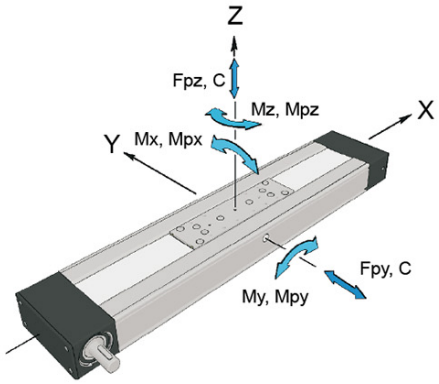
CTJ 200 S



Linear Unit	Plate length (mm)	Weight (kg)	Code
CTJ 200 S	190	2,3	52483
CTJ 200 L	305	3,7	52482

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General data



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

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

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 (fs =5.0).

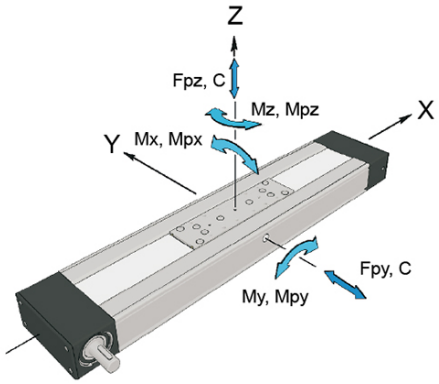
Designation	Carriage Length Lv (mm)	Dynamic Moment Mx (Nm)	Dynamic Moment My (Nm)	Dynamic Moment Mz (Nm)	Dynamic Load Capacity C (N)
CTJ 200 S	265	3235	450	900	49600
CTJ 200 L	405	6470	8680	8680	99200

Designation	Static Load Capacity C0 (N)	Max. Permissible Loads Forces Fpy (N)	Max. Permissible Loads Forces Fpz (N)	Max. Permissible Loads Moments Mpx (Nm)	Max. Permissible Loads Moments Mpy (Nm)	Max. Permissible Loads Moments Mpz (Nm)
CTJ 200 S	85000	10000	24520	1600	450	308
CTJ 200 L	170000	20000	50900	3250	4550	1750

Designation	Moved Mass (kg)	Max. Repeatability (mm)	Max. Length Lmax (mm)	Max. Stroke (mm)	Min. Stroke (mm)
CTJ 200 S	3.05	± 0.08	6000	5710	65
CTJ 200 L	5.7	± 0.08	6000	5570	65

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General data double carriage



A - Distance between carriages.

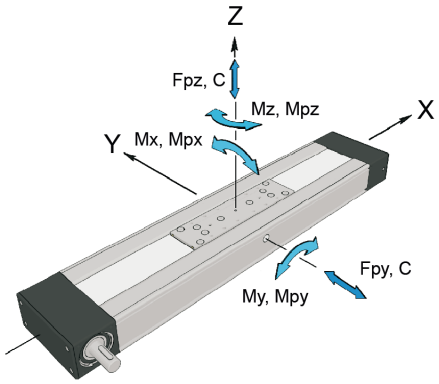
Recommended values of loads
All the data of static and dynamic moments and load capacities stated are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety.
We recommend a minimum safety factor (fs =5.0).

Designation	Carriage version	Dynamic Load Capacity C (N)	Static Load Capacity C0 (N)	Dynamic Moment Mx (Nm)	Dynamic Moment My (Nm)
CTJ 200 S	S2	99200	170000	6470	49.6 × A (mm)
CTJ 200 L	S2	99200	170000	6470	49.6 × A (mm)

Designation	Dynamic Moment Mz (Nm)	Max. Permissible Loads Forces Fpy (N)	Max. Permissible Loads Forces Fpz (N)	Max. Permissible Loads Moments Mpx (Nm)	Max. Permissible Loads Moments Mpy (Nm)	Max. Permissible Loads Moments Mpz (Nm)
CTJ 200 S	49.6 × A (mm)	20000	49040	3200	24.5 × A (mm)	10.0 × A (mm)
CTJ 200 L	49.6 × A (mm)	20000	49040	3200	24.5 × A (mm)	10.0 × A (mm)

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Drive data



The stated values are for strokes up to 500 mm.
No load torque value increases with stroke elongation.

Max. acceleration (m/s2): 70

For acceleration over the stated value, please contact Rollco.

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

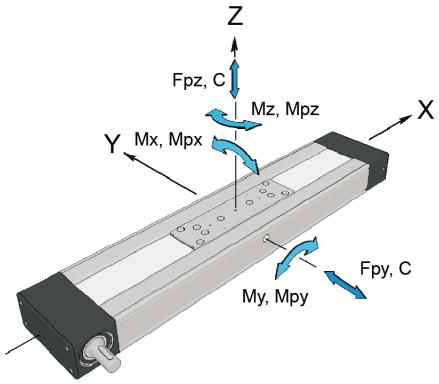
Abs. stroke	Absolute stroke [mm]
A	Distance between carriages [mm]
nc	Number of carriages

Designation	Max. Travel Speed (m/s)	No Load Torque (Nm)	Pulley Drive Ratio (mm/rev)	Pulley Diameter	Belt Type
CTJ 200 S	6	3.5 × nc	250	79.58	AT 10
CTJ 200 L	6	4.5 × nc	250	79.58	AT 10

Designation	Belt Width	Max. Force Transmitted by Belt (N)	Specific Spring Constant Cspec (N)	Max. Drive Torque (Nm)	Planar Moment of Inertia Iy (cm⁴)	Planar Moment of Inertia Iz (cm⁴)
CTJ 200 S	100	3250	4350000	102	376.4	2744.6
CTJ 200 L	100	3250	4350000	129	376.4	2744.6

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Mass and Mass moment



The stated values are for strokes up to 500 mm.
No load torque value increases with stroke elongation.

Max. acceleration (m/s2): 70

For acceleration over the stated value, please contact Rollco.

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

Abs. stroke	Absolute stroke [mm]
A	Distance between carriages [mm]
nc	Number of carriages

Designation	Mass of Linear Unit (kg)	Mass Moment of Inertia (10^{-5} kg m^2)	Planar Moment of Inertia Iy (cm^4)	Planar Moment of Inertia Iz (cm^4)	Moved Mass (kg)
CTJ 200 S	20.2 + 0.0245 × (Abs. Stroke + (nc - 1) × A) + 3.1 × (nc - 1)	778 + 0.1868 × (Abs. Stroke + (nc - 1) × A) + 482.9 × (nc - 1)	376.4	2744.6	3.05
CTJ 200 L	26.2 + 0.0245 × (Abs. Stroke + (nc - 1) × A) + 5.7 × (nc - 1)	1210 + 0.1868 × (Abs. Stroke + (nc - 1) × A) + 902.4 × (nc - 1)	376.4	2744.6	5.7

Designation	No Load Torque (Nm)
CTJ 200 S	3.5 × nc
CTJ 200 L	4.5 × nc

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