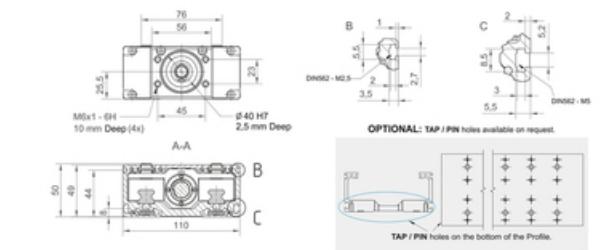
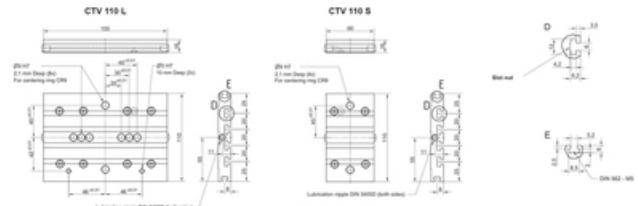


Linear Unit CTV 110



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

Connection plate



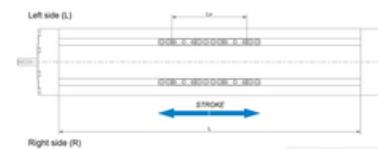
- by the MOTOR SIDE DRIVE - MSD
- by the MOTOR ADAPTER WITH COUPLING

Available on request

Defining of the linear unit length

L = Effective stroke + 2 × Safety stroke + Lv + 51 mm

$$L_{\text{total}} = L + 74 \text{ mm}$$



Lv - Long carriage = 124 mm

Lv - Short carriage = 39 mm

$$\left. \begin{aligned} L &= \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 90 \text{ mm} \\ L_{\text{total}} &= L + 74 \text{ mm} \end{aligned} \right\} A \geq 85 \text{ mm}$$

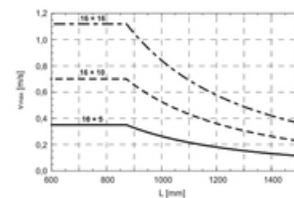
Double-Carriage

③ Only with short carriage version.

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Maximum travel speed as a function of the profile length (vmax - L curves)

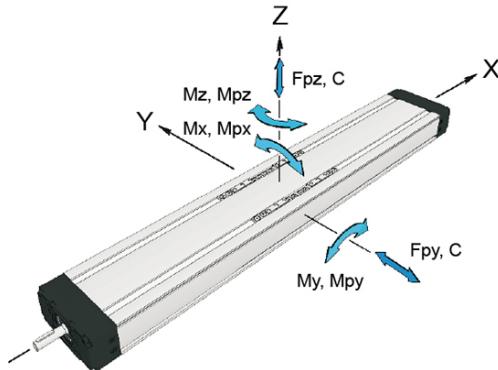
CTV 110



Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 110 S	60	0,37	48548

Mounting elements for mounting the connection plate on the linear unit are included.

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).

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.

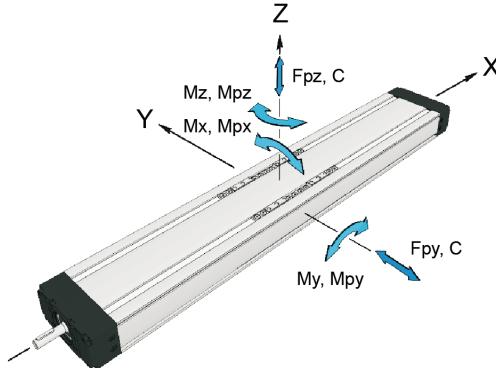
We recommend a minimum safety factor ($fs = 5.0$).

Designation	Carriage Length Lv (mm)	Dynamic Moment Mx (Nm)	Dynamic Moment My (Nm)	Dynamic Moment Mz (Nm)	Dynamic Load Capacity C (N)
CTV 110 S - 16 x 5	39	650	118	235	19800
CTV 110 S - 16 x 10	39	650	118	235	19800
CTV 110 S - 16 x 16	39	650	118	235	19800
CTV 110 L - 16 x 5	124	1305	1680	1680	39600
CTV 110 L - 16 x 10	124	1305	1680	1680	39600
CTV 110 L - 16 x 16	124	1305	1680	1680	39600

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)
CTV 110 S - 16 x 5	35000	4670	9390	310	90	90
CTV 110 S - 16 x 10	35000	4670	9390	310	90	90
CTV 110 S - 16 x 16	35000	4670	9390	310	90	90
CTV 110 L - 16 x 5	70000	13080	18800	620	800	550
CTV 110 L - 16 x 10	70000	13080	18800	620	800	550
CTV 110 L - 16 x 16	70000	13080	18800	620	800	550

Designation	Moved Mass (kg)	Max. Length Lmax (mm)	Max. Stroke (mm)	Min. Stroke (mm)
CTV 110 S - 16 x 5	0.63	1500	1410	40
CTV 110 S - 16 x 10	0.63	1500	1410	40
CTV 110 S - 16 x 16	0.63	1500	1410	40
CTV 110 L - 16 x 5	1.36	1500	1325	40
CTV 110 L - 16 x 10	1.36	1500	1325	40
CTV 110 L - 16 x 16	1.36	1500	1325	40

General data double carriage



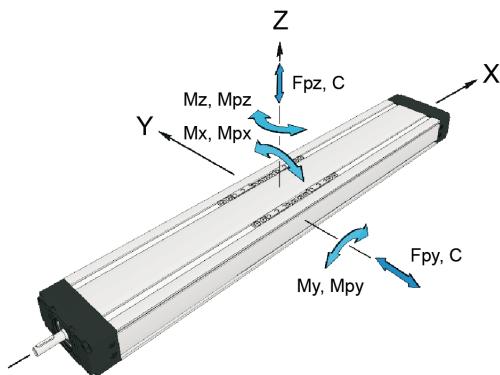
Mass calculation does not include mass of motor, reduction gear, switches and clamps.

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

Designation	Carriage version	Dynamic Load Capacity C (N)	Static Load Capacity C0 (N)	Dynamic Moment Mx (Nm)	Dynamic Moment My (Nm)
CTV 110 S - 16 x 5	S2 (S)	39600	70000	1300	$19.8 \times A$ (mm)
CTV 110 S - 16 x 10	S2 (S)	39600	70000	1300	$19.8 \times A$ (mm)
CTV 110 S - 16 x 16	S2 (S)	39600	70000	1300	$19.8 \times A$ (mm)
CTV 110 L - 16 x 5	S2 (L)	39600	70000	1300	$19.8 \times A$ (mm)
CTV 110 L - 16 x 10	S2 (L)	39600	70000	1300	$19.8 \times A$ (mm)
CTV 110 L - 16 x 16	S2 (L)	39600	70000	1300	$19.8 \times A$ (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)
CTV 110 S - 16 x 5	$19.8 \times A$ (mm)	12940	18790	620	$9.4 \times A$ (mm)	$6.5 \times A$ (mm)
CTV 110 S - 16 x 10	$19.8 \times A$ (mm)	12940	18790	620	$9.4 \times A$ (mm)	$6.5 \times A$ (mm)
CTV 110 S - 16 x 16	$19.8 \times A$ (mm)	12940	18790	620	$9.4 \times A$ (mm)	$6.5 \times A$ (mm)
CTV 110 L - 16 x 5	$19.8 \times A$ (mm)	12940	18790	620	$9.4 \times A$ (mm)	$6.5 \times A$ (mm)
CTV 110 L - 16 x 10	$19.8 \times A$ (mm)	12940	18790	620	$9.4 \times A$ (mm)	$6.5 \times A$ (mm)
CTV 110 L - 16 x 16	$19.8 \times A$ (mm)	12940	18790	620	$9.4 \times A$ (mm)	$6.5 \times A$ (mm)

Drive data



Max. travel speed depends of the length of the linear unit, see diagram for particular size of the linear unit. For travel speed over the stated value, please contact Rollco.

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

For the ball nut with the preload of 2%, please contact Rollco.

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

Max. acceleration (m/s²): 20

For acceleration over the stated value, please contact Rollco.

Reduced effective diameter at journal with keyway decreases values of max. drive torque. See Max. Drive torque values in table below.

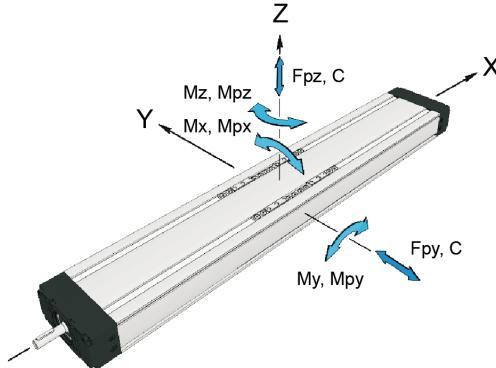
nc = Number of carriages

Designation	Max. Travel Speed (m/s)	Max. Rotational Speed (rev/min)	Max. Drive Torque Ma (Nm)	Lead Constant (mm/rev)	No Load Torque Carriage S (Nm)
CTV 110 S - 16 x 5	0.35	4200	5,5 (w. keyway), 7,7 (w.o keyway)	5	0.17 × nc
CTV 110 S - 16 x 10	0.7	4200	5,5 (w. keyway), 11,9 (w.o keyway)	10	0.18 × nc
CTV 110 S - 16 x 16	1.12	4200	5,5 (w. keyway), 11,9 (w.o keyway)	16	0.23 × nc
CTV 110 L - 16 x 5	0.35	4200	5,5 (w. keyway), 7,7 (w.o keyway)	5	0.17 × nc
CTV 110 L - 16 x 10	0.7	4200	5,5 (w. keyway), 11,9 (w.o keyway)	10	0.18 × nc
CTV 110 L - 16 x 16	1.12	4200	5,5 (w. keyway), 11,9 (w.o keyway)	16	0.23 × nc

Designation	No Load Torque Carriage L (Nm)	Ball Screw (d x l)	Max. Repeatability Precision Standard ISO7	Max. Repeatability Precision ISO5	Dynamic Load Capacity BS Ca (N)	Max. Axial Load Fx (N)
CTV 110 S - 16 x 5	0.20 × nc	16 × 5	± 0.02	± 0.01	13150	8700
CTV 110 S - 16 x 10	0.21 × nc	16 × 10	± 0.02	± 0.01	11550	6730
CTV 110 S - 16 x 16	0.26 × nc	16 × 16	± 0.02	± 0.01	8170	4200
CTV 110 L - 16 x 5	0.20 × nc	16 × 5	± 0.02	± 0.01	13150	8700
CTV 110 L - 16 x 10	0.21 × nc	16 × 10	± 0.02	± 0.01	11550	6730
CTV 110 L - 16 x 16	0.26 × nc	16 × 16	± 0.02	± 0.01	8170	4200

Designation	Planar Moment of Inertia ly (cm ⁴)	Planar Moment of Inertia lz (cm ⁴)
CTV 110 S - 16 x 5	29.1	196
CTV 110 S - 16 x 10	29.1	196
CTV 110 S - 16 x 16	29.1	196
CTV 110 L - 16 x 5	29.1	196
CTV 110 L - 16 x 10	29.1	196
CTV 110 L - 16 x 16	29.1	196

Mass and Mass moment



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	Ball Screw (d x l)	Mass of Linear Unit (kg)	Mass Moment of Inertia (10^{-5} kg m ²)	Planar Moment of Inertia ly (cm ⁴)	Planar Moment of Inertia lz (cm ⁴)
CTV 110 S - 16 x 5	16 x 5	$3.3 + 0.008 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.63 \times (\text{nc} - 1)$	$0.70 + 0.005 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.04 \times (\text{nc} - 1)$	29.1	196
CTV 110 S - 16 x 10	16 x 10	$3.3 + 0.008 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.63 \times (\text{nc} - 1)$	$0.82 + 0.005 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.16 \times (\text{nc} - 1)$	29.1	196
CTV 110 S - 16 x 16	16 x 16	$3.3 + 0.008 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.63 \times (\text{nc} - 1)$	$1.07 + 0.005 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.41 \times (\text{nc} - 1)$	29.1	196
CTV 110 L - 16 x 5	16 x 5	$4.6 + 0.008 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 1.36 \times (\text{nc} - 1)$	$1.19 + 0.005 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.09 \times (\text{nc} - 1)$	29.1	196
CTV 110 L - 16 x 10	16 x 10	$4.6 + 0.008 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 1.36 \times (\text{nc} - 1)$	$1.45 + 0.005 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.34 \times (\text{nc} - 1)$	29.1	196
CTV 110 L - 16 x 16	16 x 16	$4.6 + 0.008 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 1.36 \times (\text{nc} - 1)$	$1.99 + 0.005 \times (\text{Abs. Stroke} + (\text{nc} - 1) \times \text{A}) + 0.88 \times (\text{nc} - 1)$	29.1	196

Designation	Moved Mass (kg)
CTV 110 S - 16 x 5	0.63
CTV 110 S - 16 x 10	0.63
CTV 110 S - 16 x 16	0.63
CTV 110 L - 16 x 5	1.36
CTV 110 L - 16 x 10	1.36
CTV 110 L - 16 x 16	1.36