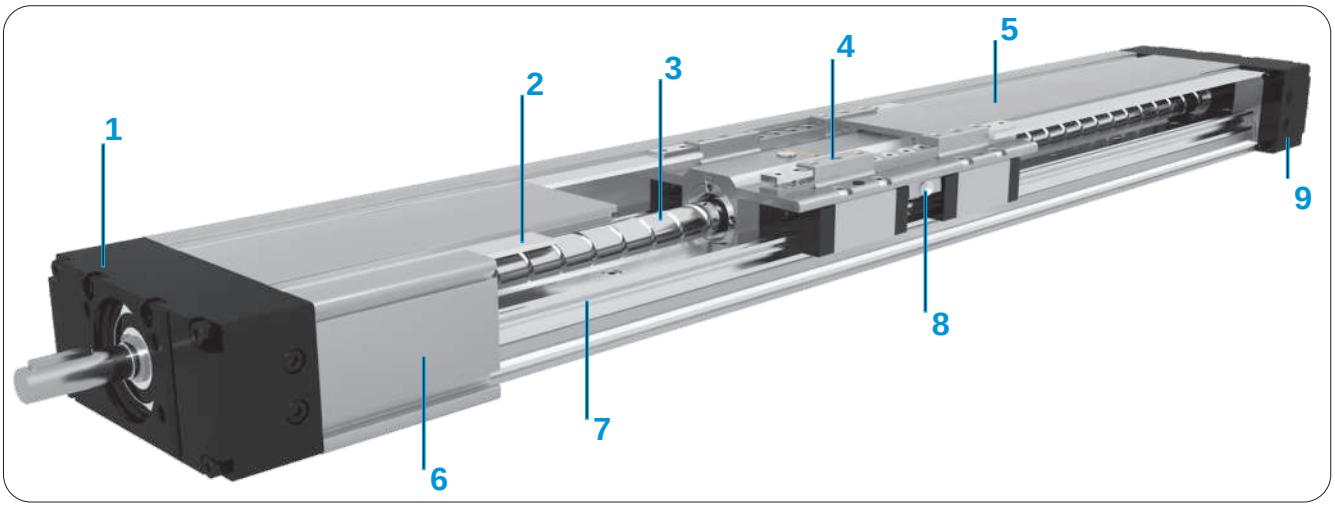
CHARACTERISTICS

*The **CTV** series describes Linear Units with a precision ball screw drive and two parallel, integrated, Zero-backlash rail guides. Compact dimensions allow high performance features such as, high speeds, good accuracy and repeatability.*
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 AL 6063, with two parallel, integrated, Zero-backlash rail guide systems, allows high load capacities and optimal cycles for the movement of larger masses at high speed.
In the Linear Units CTV a precision ball screw, with tolerance class ISO7 (ISO5 on request), with reduced backlash of the ball nut is used.
Two parallel circulating antistatic polyurethane sealing strips and an aluminum cover are ensuring to protect all the parts in the profile from dust and other contaminantions.
Different carriage lengths with lubrication port allows for easy re-lubrication of the ball screw and Ball rail guide system and allows the possibility to attach additional accessories. The re-lubrication can also be done through maintenance holes on the side of the Profile.
The aluminum profile includes T-slots for fixing the Linear Unit and for attaching sensors and switches. Also, a Reed switch can be used here.
For the linear units CTV various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.

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 - Drive block with floating bearing
2 - Gap-type seal of antistatic PU strip (recirculating)
3 - Ball screw tolerance ISO7 (ISO5 available on request)
4 - Carriage; with built in Magnets
5 - Aluminum cover
6 - Aluminium profile-Hard anodized
7 - Two integrated Linear Ball Guideways
8 - Central lubrication port; both sides
9 - End block with fixed bearing

HOW TO ORDER

CTV - 110 - 1610 - ISO7 - 1 - 1000 - L - 1 - 1

Series :
CTV
Size :
90
110
145
Ball screw :
CTV 90: Ø12×5, Ø12×10
CTV 110: Ø16×5, Ø16×10, Ø16×16
CTV 145: Ø20×5, Ø20×10, Ø20× 20
Ball screw tolerance :
ISO7 (Standard)
ISO5
Ball screw journal :
0 : Without keyway
1 : With keyway
CTV 90 only available without keyway - **0**
Absolute stroke (mm) :
(Absolute stroke = Effective stroke + 2 x Safety stroke)
Carriage Version :
S : Short
L : Long
Connection plate :
0 : Without
1 : With
Protection cover :
0 : Without antistatic PU Gap-type seal strip
1 : With antistatic PU Gap-type seal strip (Standard)
2 : With Corrosion-resistant protection strip

TECHNICAL DATA

General technical data for CTV series

Linear Unit	Carriage length	Load capacity		Dynamic moment			Moved mass	* Maximum length	Planar moment of inertia	
	Lv [mm]	Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	Lmax [mm]	Iy [cm^4]	Iz [cm^4]
CTV 90 S	35	4610	6920	120	12	25	0,3	750	13,6	112,1
CTV 90 L	100	9230	13840	250	300	300	0,5			
CTV 110 S	39	19800	28200	650	140	290	0,63	1500	28,4	192,6
CTV 110 L	124	39600	56400	1300	1680	1680	1,36			
CTV 145 S	49	34200	48400	1500	320	650	1,19	1800	83,1	656,9
CTV 145 L	149	68400	96800	3010	3420	3420	2,61			

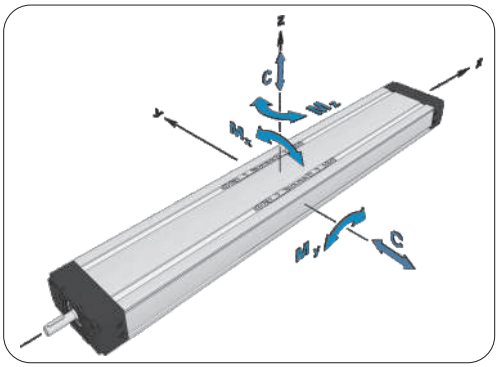
*For lengths over the stated value in the table above please contact us.

Recommended values of loads:

All the data of static and 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 (fv =5.0)

Modulus of elasticity

E = 70000 N / mm^2



Ball Screw Drive data

Linear Unit	1 Maximal travel speed		2 No load torque		Lead constant	Ball screw	3 Max. repeteability precision [mm] STANDARD		Dynamic axial load capacity	Maximal drive torque without Keyway
	[m / s]		Carriage: S [Nm]	Carriage: L [Nm]	[mm / rev]	[d × l]	ISO7	ISO5	Ca [N]	Ma [Nm]
CTV 90	$38{,}7 \cdot 10^3 \cdot l / L^2$ [mm]	≤ 0,49	0,07	0,09	5	12 × 5	± 0,02	± 0,01	5000	2,5
		≤ 0,97	0,06	0,08	10	12 × 10	± 0,02	± 0,01	3800	3,7
CTV 110	$49{,}6 \cdot 10^3 \cdot l / L^2$ [mm]	≤ 0,35	0,11	0,13	5	16 × 5	± 0,02	± 0,01	8700	4,3
		≤ 0,70	0,12	0,16	10	16 × 10	± 0,02	± 0,01	8700	8,6
		≤ 1,12	0,14	0,18	16	16 × 16	± 0,02	± 0,01	8170	11,9
CTV 145	$64{,}2 \cdot 10^3 \cdot l / L^2$ [mm]	≤ 0,28	0,28	0,3	5	20 × 5	± 0,02	± 0,01	14300	10,5
		≤ 0,55	0,26	0,28	10	20 × 10	± 0,02	± 0,01	15400	15,3
		≤ 1,13	0,24	0,28	20	20 × 20	± 0,02	± 0,01	15400	24,5

1 For travel speed over the stated value in the table above please contact us
2 The stated values are for strokes up to 500mm. No Load Torque value increases with stroke elongation
3 For the ball nut with the preload of 2% please contact us

Reduced effective diameter at journal with keyway decreases values of max. drive torque.

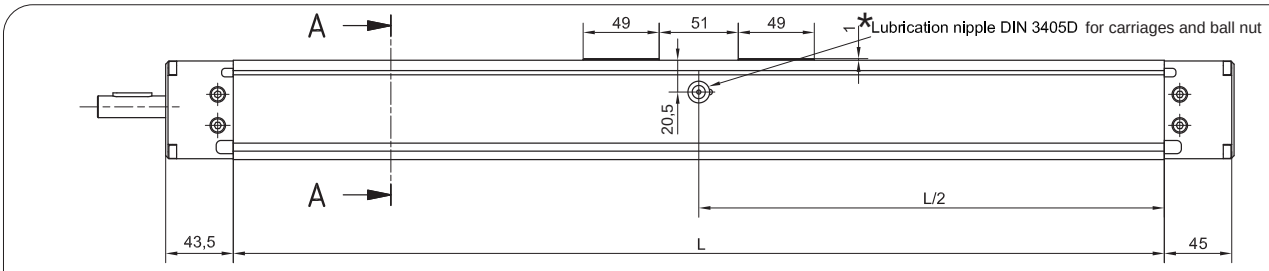
Linear Unit	Permissible drive torque (with Keyway) Ma [Nm]
CTV 90	-
CTV 110	5,5
CTV 145	11,9

Mass and mass moment of inertia

Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg·m^2]
CTV 90 S	35	1,6 + 0,006·Stroke [mm]	0,3 + 0,002·Stroke [mm]
CTV 90 L	100	2,2 + 0,006·Stroke [mm]	0,4 + 0,002·Stroke [mm]
CTV 110 S	39	3,3 + 0,008·Stroke [mm]	1,1 + 0,005·Stroke [mm]
CTV 110 L	124	4,6 + 0,008·Stroke [mm]	2,0 + 0,005·Stroke [mm]
CTV 145 S	49	5,7 + 0,015·Stroke [mm]	4,2 + 0,013·Stroke [mm]
CTV 145 L	149	8,4 + 0,015·Stroke [mm]	6,1 + 0,013·Stroke [mm]

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

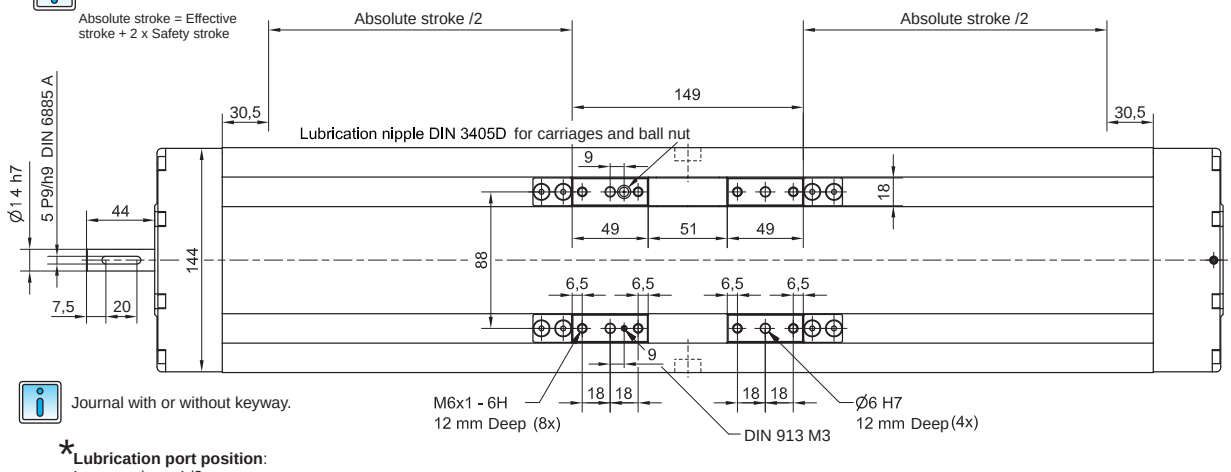
DIMENSIONS



Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke

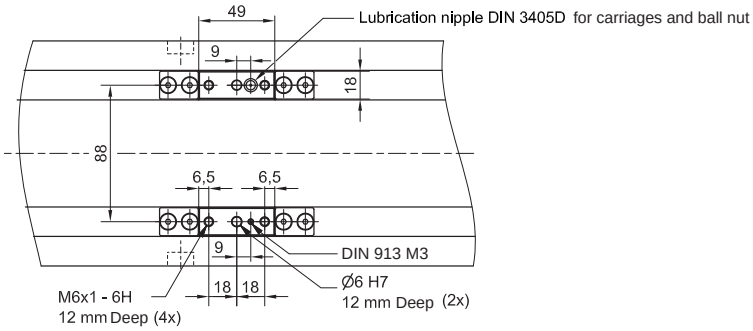
LONG CARRIAGE



Journal with or without keyway.

*Lubrication port position:
Long carriage: L/2
Short carriage: L/2 - 46 mm

SHORT CARRIAGE



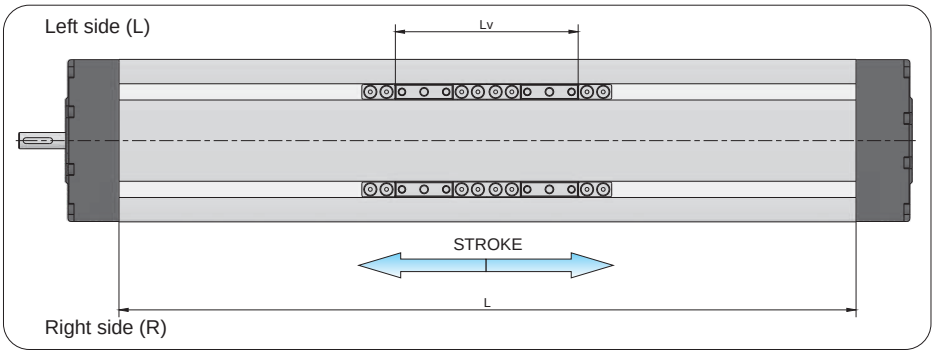
All dimensions in mm;
Drawings scales are not equal.

Defining of the linear module length

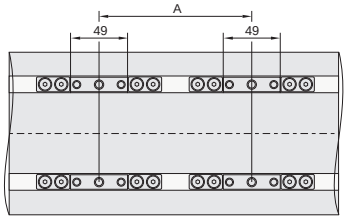
Lv - Long carriage = 149 mm
Lv - Short carriage = 49 mm

L = Effective stroke + 2 × Safety stroke + Lv + 61 mm

Ltotal = L + 88,5 mm



Double-Carriage



Only with **Short** carriage version.

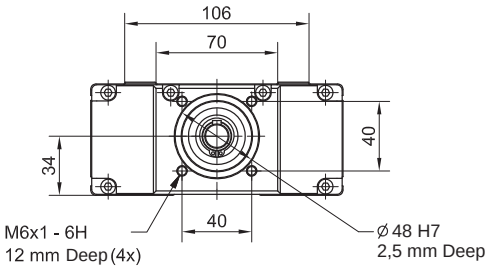
L = Effective stroke + 2 × Safety stroke + A + 110 mm

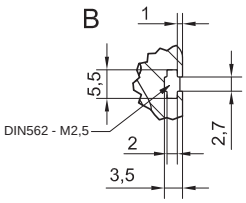
Ltotal = L + 88,5 mm

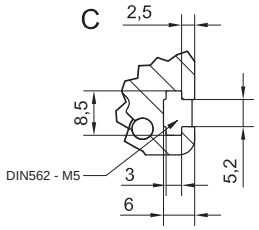
A ≥ 100 mm

For ordering code please contact us.

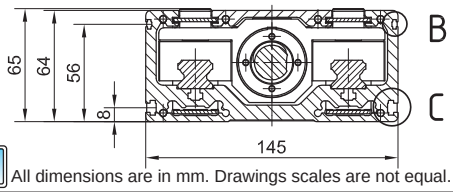
DIMENSIONS





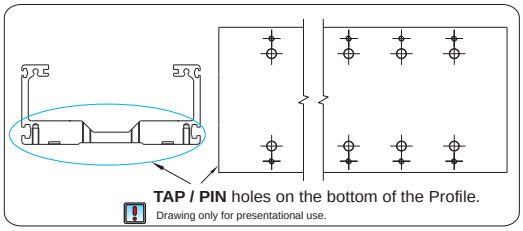


A-A



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

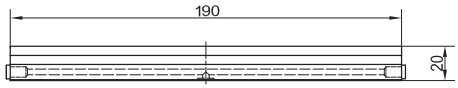
OPTIONAL: **TAP / PIN** holes available on request.

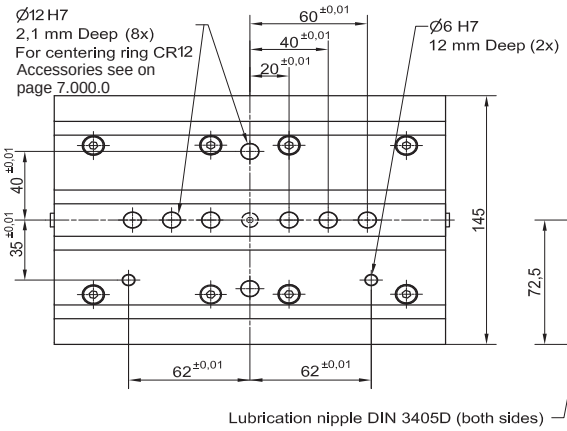


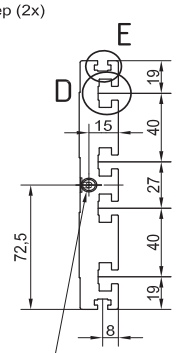
TAP / PIN holes on the bottom of the Profile.
Drawing only for presentational use.

CONNECTION PLATE

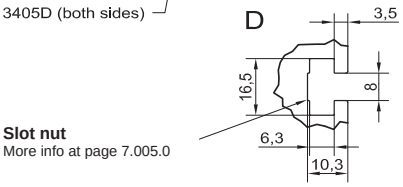
CTV 145 L





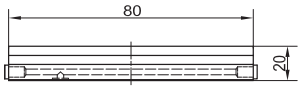


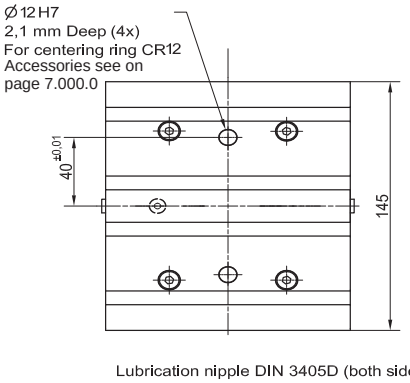
Lubrication nipple DIN 3405D (both sides)

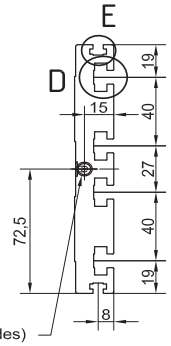


Slot nut
More info at page 7.005.0

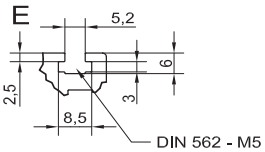
CTV 145 S







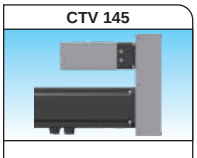
Lubrication nipple DIN 3405D (both sides)



Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 145 S	80	0,78	48351
CTV 145 L	190	1,54	48350

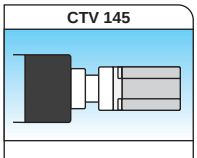
Mounting elements for mounting the connection plate on the Linear unit are inlcuded.

MOTOR - MOTOR SIDE DRIVE



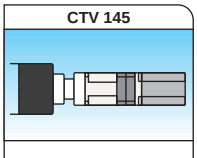
Available on request

MOTOR



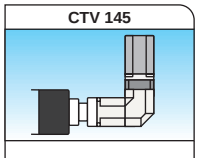
Available on request

GEAR REDUCER + MOTOR



Available on request

GEAR REDUCER 90° + MOTOR



Available on request