

CHARACTERISTICS

The **MTV** series describes Linear Units with precision ball screw drive, integrated guide rail and compact dimensions. They provide high performances 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 6063 AL with integrated Zero-backlash Ball rail guide system, allows high load capacities and optimal cycles for the movement of larger masses at high speed.

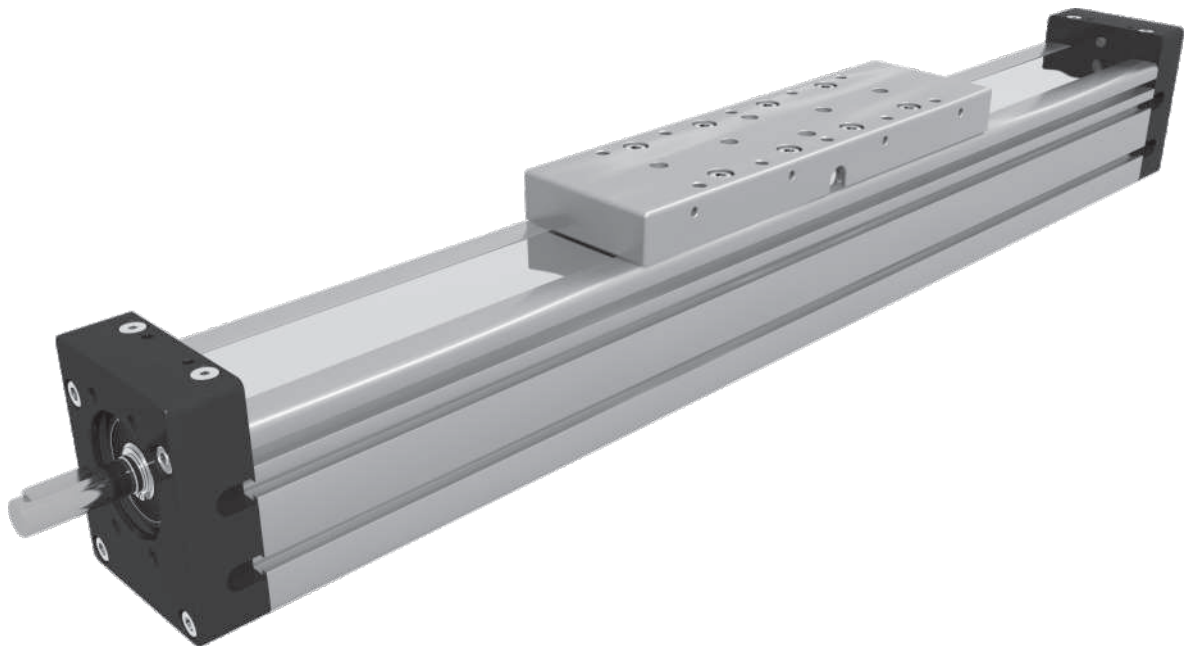
In the Linear Units MTV a precision ball screw, with tolerance class ISO7 (ISO5 on request), with reduced backlash of the ball nut is used.

A corrosion-resistant protection strip, protects all the parts in the profile from dust and other contaminants.

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.

The carriage, with central lubrication port, allows easy central re-lubrication of ball screw and Ball rail guide and provides the possibility to attach additional accessories on the side.

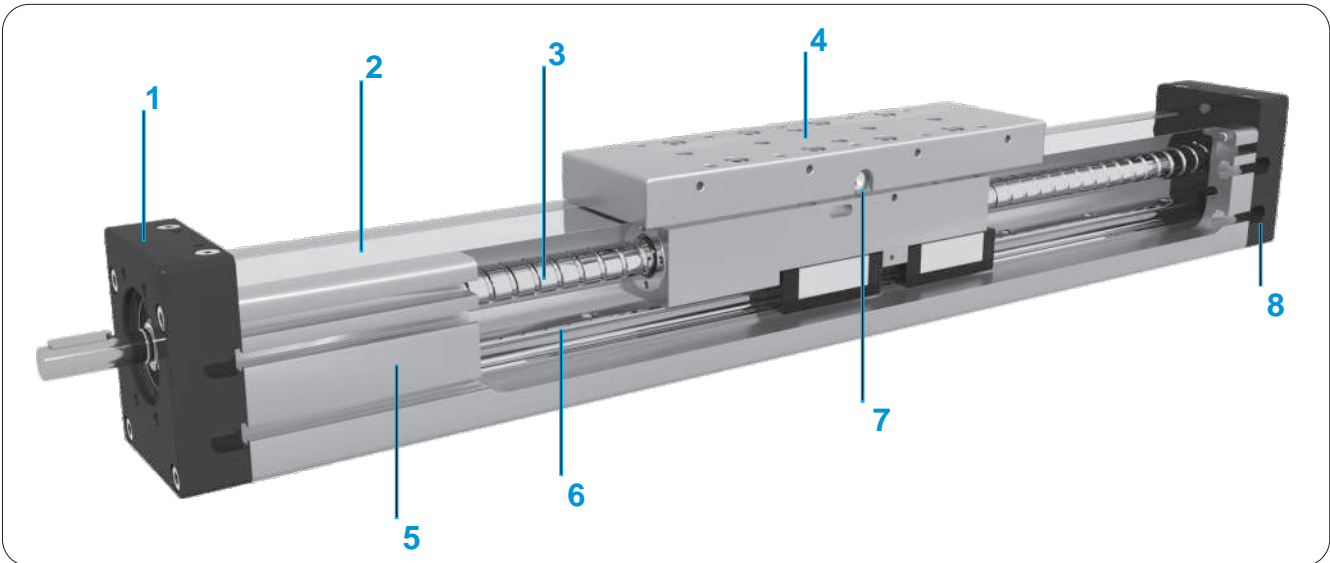
For the Linear Units MTV various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.



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 (MTV 110 - fixed bearing)
- 2 - Corrosion-resistant protection strip
- 3 - Ball screw tolerance ISO7 (ISO5 available on request)
- 4 - Carriage; with built in Magnets
- 5 - Aluminium profile-Hard anodized
- 6 - Integrated Linear Ball Guideway
- 7 - Central lubrication port; both sides
- 8 - End block with fixed bearing (MTV 110 - floating bearing)

HOW TO ORDER

MTV - 65 - 1610 - ISO7 - 1 - 1000

Series :

MTV

Size :

65

80

110

Ball screw :

MTV 65: Ø16x5, Ø16x10, Ø16x16

MTV 80: Ø20x5, Ø20x10, Ø20x20

MTV 110: Ø32x5, Ø32x10, Ø32x20, Ø32x32

Ball screw tolerance :

ISO7 (Standard)

ISO5

Ball screw journal :

0 : Without keyway

1 : With keyway

Absolute stroke (mm) :

(Absolute stroke = Effective stroke + 2 x Safety stroke)

TECHNICAL DATA

General technical data for MTV series

Linear Unit	Carriage length Lv [mm]	Load capacity		Dynamic moment			Moved mass [kg]	* Maximum length Lmax [mm]	Planar moment of inertia	
		Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]			ly [cm ⁴]	lz [cm ⁴]
MTV 65	220	13690	19500	130	480	480	1,5	2500	71,0	89,3
MTV 80	290	29930	42360	400	1280	1280	3,0	2500	143,5	204,0
MTV 110	330	43700	60400	680	2330	2330	4,9	3000	562	669

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

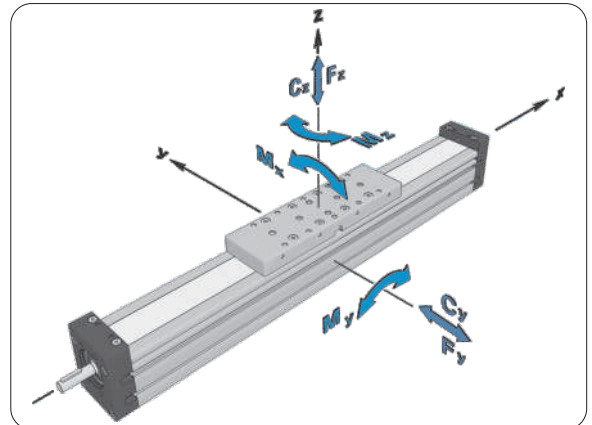


Recommended values of loads:

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 / mm²



Ball Screw Drive data

Linear Unit	1 Maximal travel speed [m / s]	2 No load torque [Nm]	Lead constant [mm / rev]	Ball screw [d x l]	3 Max. repeatability precision [mm]		Dynamic axial load capacity Ca [N]	Maximal drive torque Ma [Nm]	
					STANDARD ISO7	ISO5			
MTV 65	34,2·10 ⁻³ ·l / L ² [mm]	≤ 0,35	0,11	5	16 x 5	± 0,02	± 0,01	8700	4,3
		≤ 0,70	0,12	10	16 x 10	± 0,02	± 0,01	8700	8,6
		≤ 1,12	0,13	16	16 x 16	± 0,02	± 0,01	8170	11,9
MTV 80	64,2·10 ⁻³ ·l / L ² [mm]	≤ 0,28	0,16	5	20 x 5	± 0,02	± 0,01	8700	4,3
		≤ 0,55	0,17	10	20 x 10	± 0,02	± 0,01	8700	8,6
		≤ 1,13	0,18	20	20 x 20	± 0,02	± 0,01	8700	17,3
MTV 110	108·10 ⁻³ ·l / L ² [mm]	≤ 0,18	0,6	5	32 x 5	± 0,02	± 0,01	18870	11,9
		≤ 0,35	0,7	10	32 x 10	± 0,02	± 0,01	30300	29,2
		≤ 1,00	0,7	20	32 x 20	± 0,02	± 0,01	21000	39,3
		≤ 1,60	0,8	32	32 x 32	± 0,02	± 0,01	30300	52,3

¹For travel speed over the stated value in the table above please contact us.

²The stated values are for strokes up to 500mm. No Load Torque value increases with stroke elongation

³For 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	Max. permissible drive torque Ma [Nm]
MTV 65	5,5
MTV 80	11,9
MTV 110	27,3

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]
MTV 65	220	4 + 0,0073 * Stroke [mm]	2,5 + 0,005 * Stroke [mm]
MTV 80	290	8,2 + 0,0114 * Stroke [mm]	8,5 + 0,013 * Stroke [mm]
MTV 110	330	17,3 + 0,0216 * Stroke [mm]	52,5 + 0,083 * Stroke [mm]



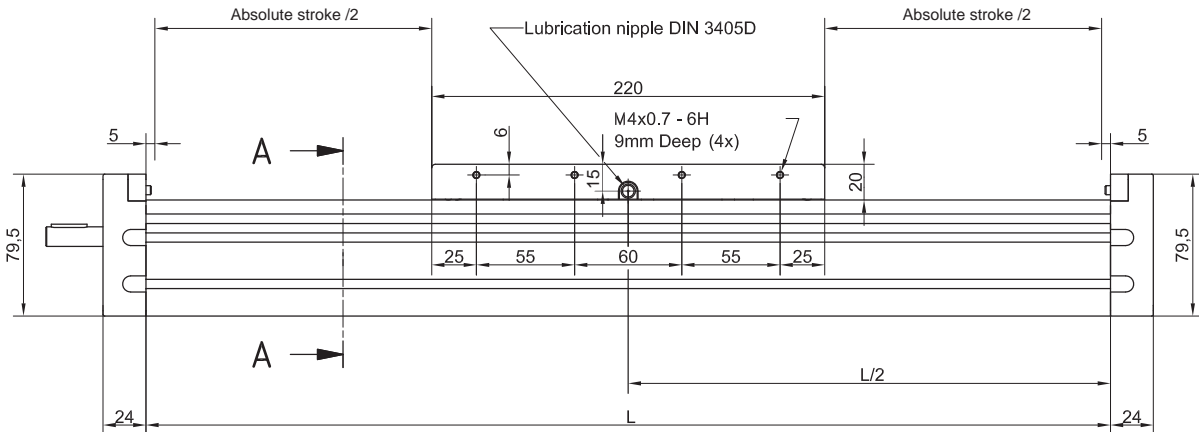
Mass calculation doesn't include mass of motor, reduction gear, switches and clamps.

DIMENSIONS

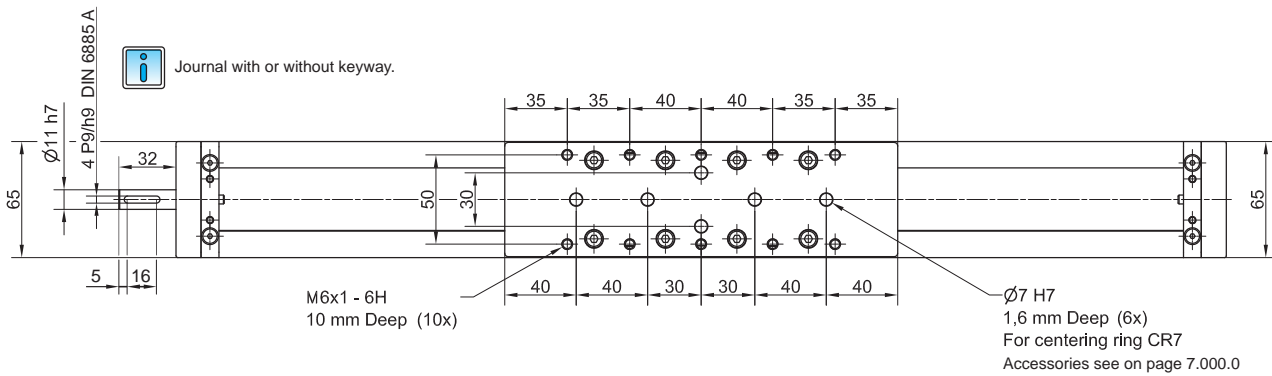


Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



Journal with or without keyway.



All dimensions in mm;
Drawings scales are not equal.

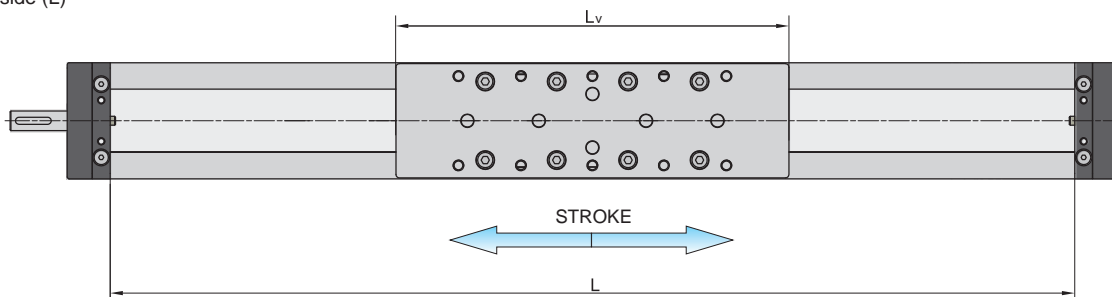
Defining of the linear module length

$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 10 \text{ mm}$

$L_v = 220 \text{ mm}$

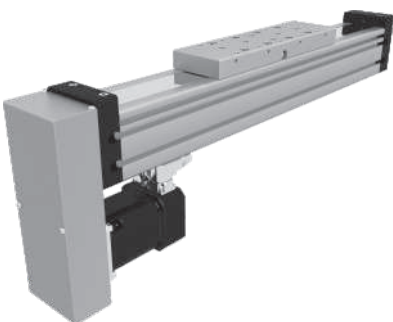
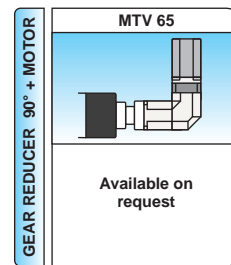
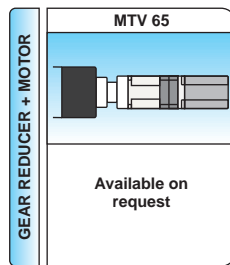
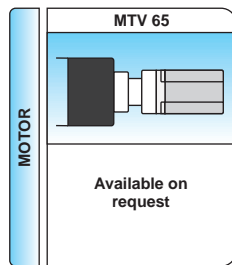
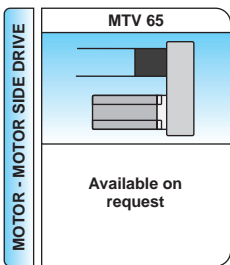
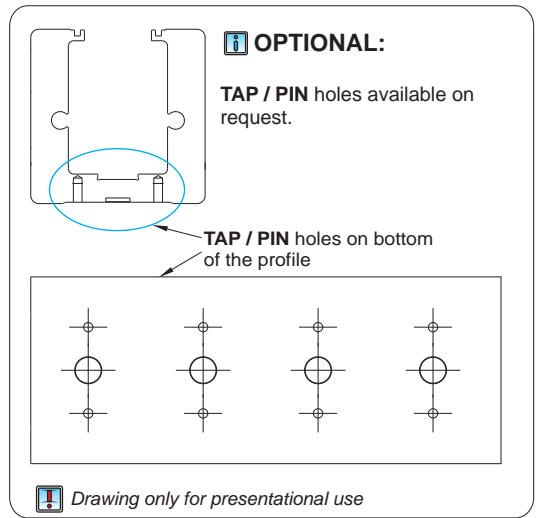
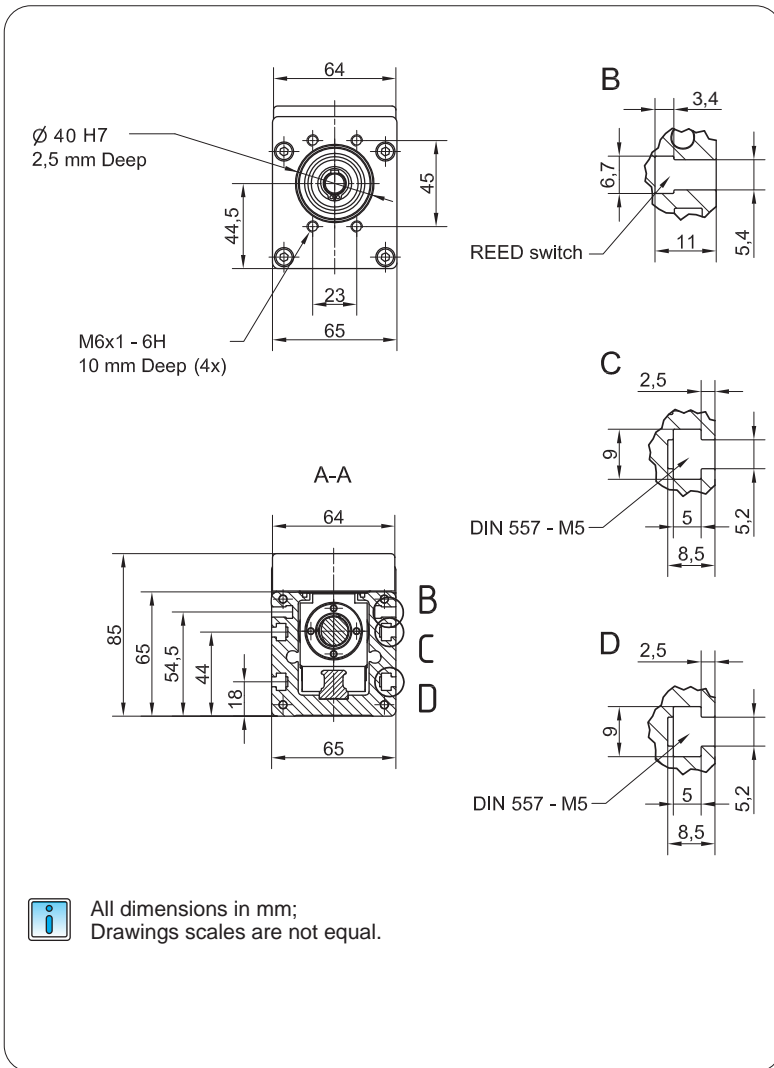
$L_{\text{total}} = L + 48 \text{ mm}$

Left side (L)



Right side (R)

DIMENSIONS



Information: More info about MSD please refer to page 6.045.0

