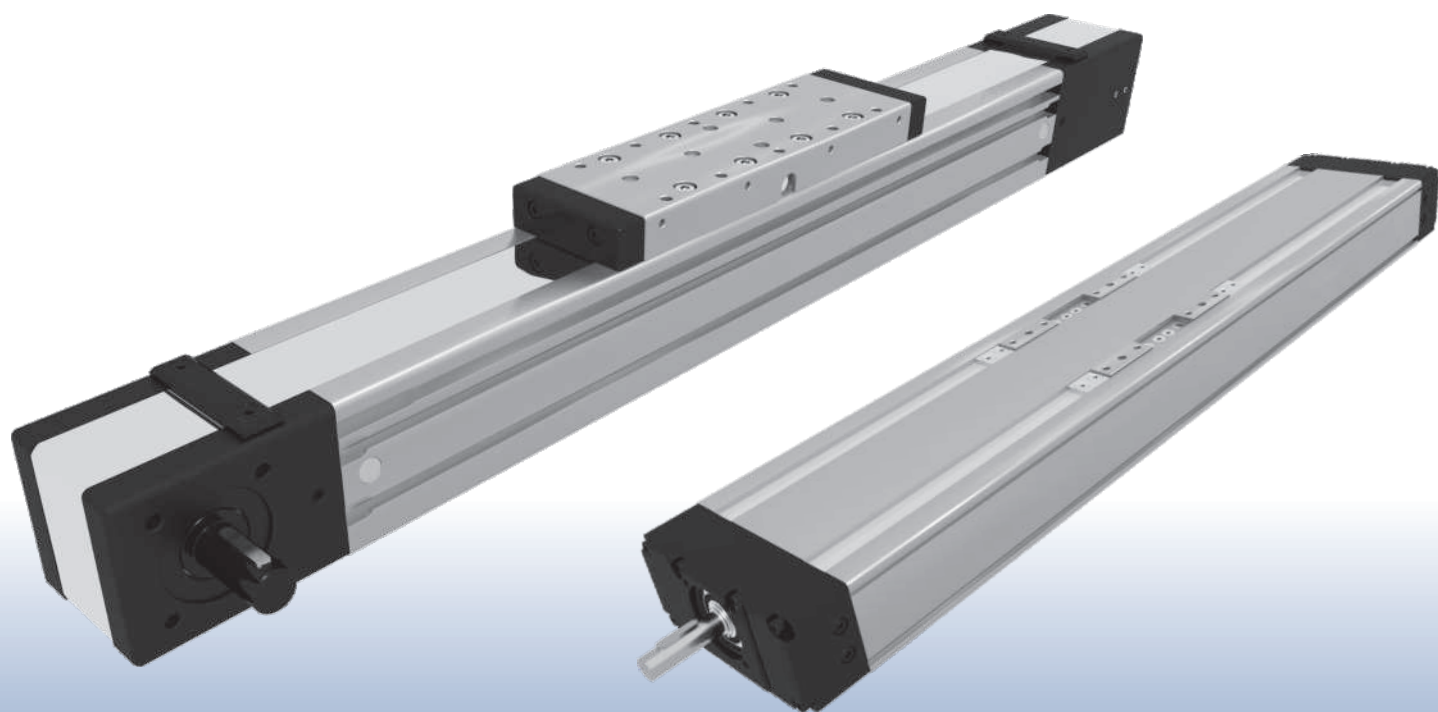


UNIMOTION



LINEAR UNITS

www.unimotion.eu



Our company was established in 1990 and, since then, it is privately owned. After 7 years of experience in metal processing as a contractor, the company Hypex (Unimotion) was created and operated in the following areas:

Special purpose machinery manufacture with its own development, trade and assembly in the area of industrial automation.

Due to many years of engineering and substantial engagement in individual problem solving processes, extensive knowledge and experience in the development and manufacture of linear and handling systems were gained. Today we produce mechanical linear units, compact linear units, multi-axis systems as well as customised solutions for high dynamic demands.

Our company's premises, which cover an area of 4500m², offer room for our 40 employees. Production, construction, administration and warehouse; all this can be found under one roof.

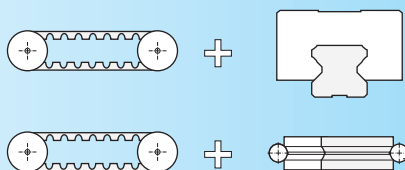
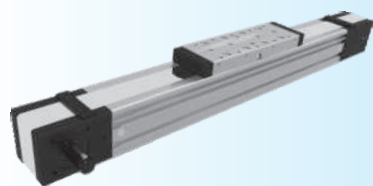
Our modern machinery with CNC machining centres and CNC automatic lathes enables high-precision manufacture and really high in-house production depth. For example, we ourselves manufacture shaft drives with tooth washers and our screw ends.

This is why, quality, reliability, a good price/performance ratio and short delivery times are harmonised to perfection.

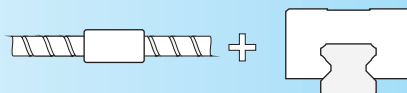
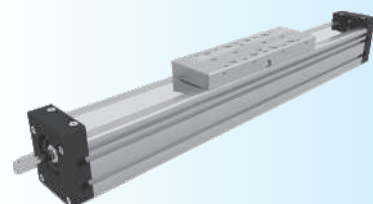
Thus, in the production of our standard linear units as well as individual and complex special linear units, we can guarantee high capacity, flexibility and precision.

It goes without saying that our company is certified in accordance with DIN ISO 9001:2008. At the moment, we export our products in more than 23 countries. Inspired by our customers' demands, Hypex (Unimotion) constantly develops new products and system solutions. So you are welcome to contact us. We look forward to meet you and work on your special project!

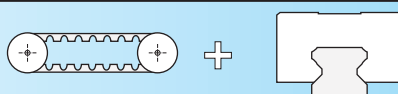
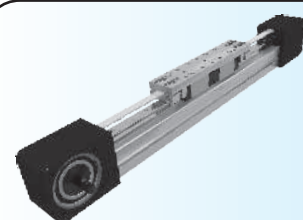




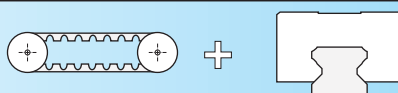
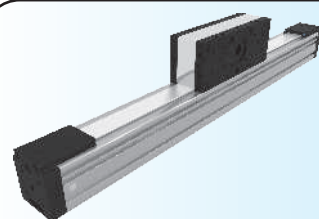
MTJ
MRJ
1.000.0



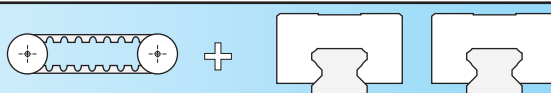
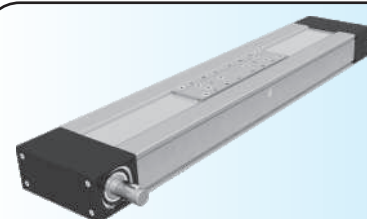
MTV
2.000.0



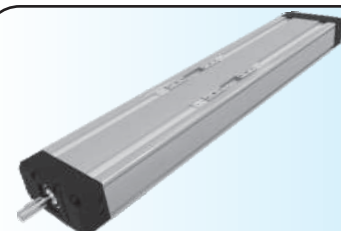
MTJ ECO
3.000.0



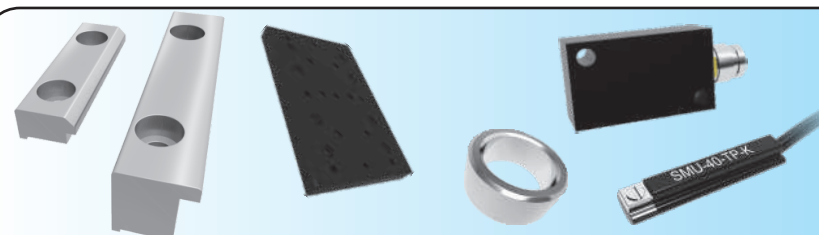
MTJZ
4.000.0



CTJ
5.000.0



CTV
6.000.0



ACCESSORIES
7.000.0

CHARACTERISTICS

MTJ and MRJ Linear Units with toothed belt drive and compact dimensions provide high performance features such as, high speed, 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.

For very high speeds, up to 10m/s, the Track Rollers (journal Bearings) of the type MRJ are particularly suitable.

In the Linear Units MTJ and MRJ 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.

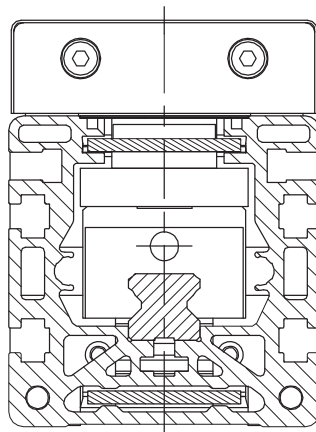
The in the Profile slot driving Polyurethane timing belt protects all the parts in the Profile from dust and other contaminations. As optional, a corrosion-resistant protection strip is available.

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.

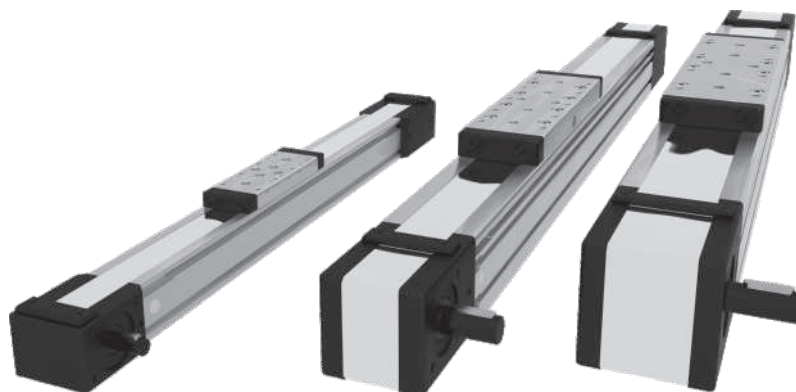
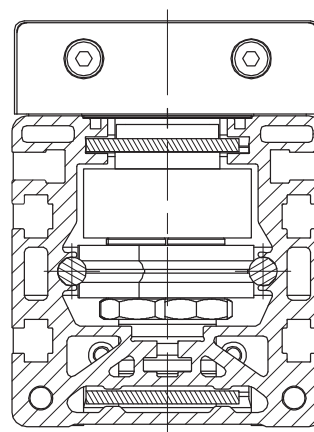
Different carriage lengths with central lubrication port, allow easy re-lubrication of the Linear Unit and allow the possibility to attach additional accessories on the side.

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

MTJ



MRJ

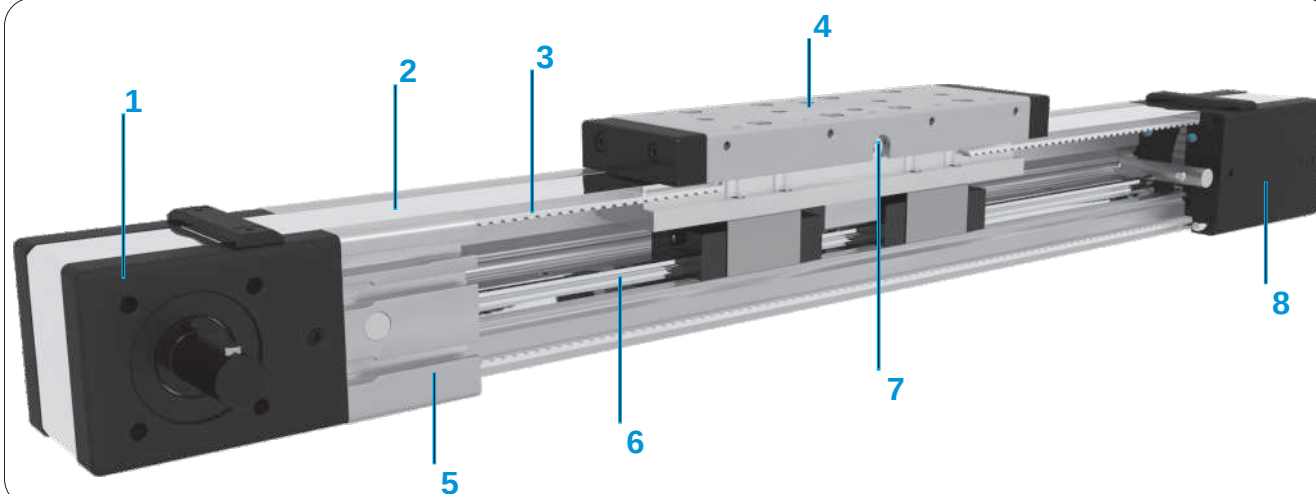


The aluminium profiles are manufactured according to the medium EN 12020-2 standard /

Straightness = 0,35 mm/m; Max. torsion = 0,35 mm/m; Angular torsion = 0,2 mm/40 mm; Parallelism = 0,2 mm

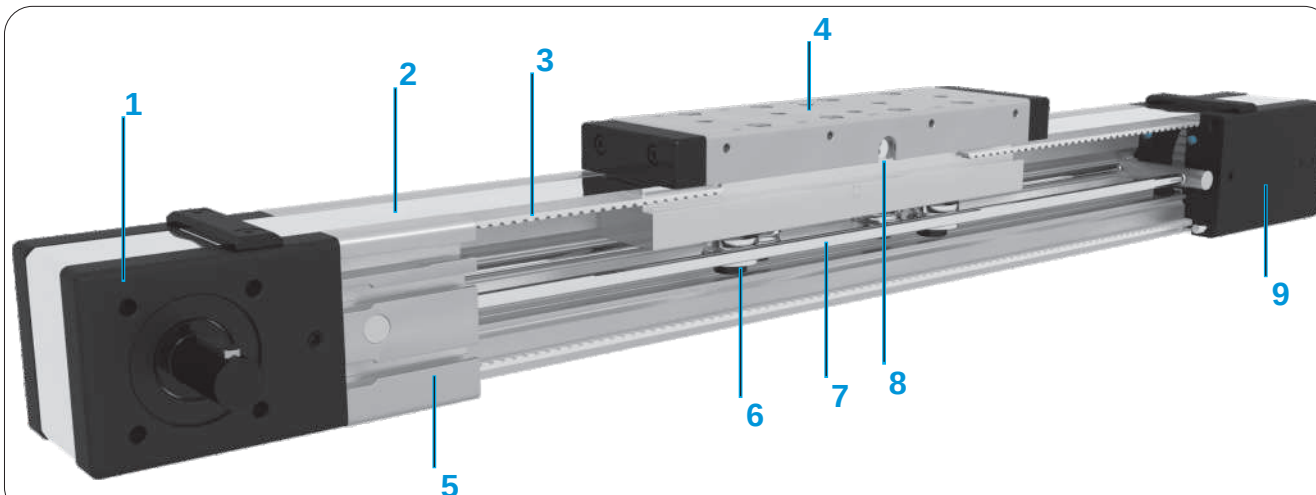
STRUCTURAL DESIGN

MTJ Series



- 1 - Drive block with pulley
- 2 - Corrosion-resistant protection strip (available also without protection strip)
- 3 - AT polyurethane toothed belt with steel tension cords.
- 4 - Carriage; with built in Magnets
- 5 - Aluminium profile-Hard anodized
- 6 - Linear Ball Guideway
- 7 - Central lubrication port; both sides
- 8 - Tension End with integrated belt tensioning system

MRJ Series



- 1 - Drive block with pulley
- 2 - Corrosion-resistant protection strip (available also without protection strip)
- 3 - AT polyurethane toothed belt with steel tension cords.
- 4 - Carriage; with build in Magnets
- 5 - Aluminium profile-Hard anodized
- 6 - Track Roller (journal Bearing)
- 7 - Two hardened steel Round guide (58/60 HRC)
- 8 - Central lubrication port; both sides
- 9 - Tension End with integrated belt tensioning system

HOW TO ORDER

MTJ - 65 - 1000 - L - 1 - R - 1

Series : _____

MRJ

MTJ

Size : _____

40

65

80

110

Absolute stroke (mm) : _____

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

Carriage Version : _____

S : Short (only for MTJ series)

L : Long

Leave blank : For MRJ 40, MTJ 40

Type of drive pulley : _____

0 : Pulley with through hole

1 : Pulley with journal (with Keyway)

10 : Pulley with journal (without Keyway)

2 : Pulley with journal on both sides (with Keyway)

20 : Pulley with journal on both sides (without Keyway)

3 : Without drive unit

Drive journal position : _____

L : Journal on left side

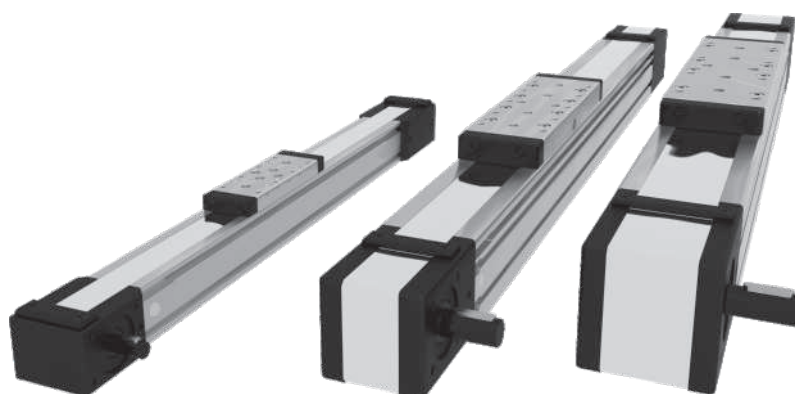
R : Journal on right side

Leave blank : For type of drive pulley 0, 2, 20 and 3

Protection cover : _____

0 : In profile groove guided Polyurethane toothed belt

1 : Corrosion-resistant protection strip



TECHNICAL DATA

General technical data for MTJ series

Linear Unit	Carriage length Lv [mm]	Load capacity		Dynamic moment			Moved mass [kg]	Maximum Repeatability [mm]	* Maximum length Lmax [mm]	Planar moment of inertia	
		Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]				Iy [cm ⁴]	Iz [cm ⁴]
MTJ 40	92	4610	6930	28	90	90	0,28	± 0,08	3000	9,8	11,6
MTJ 65 S	140	9900	17500	79	59	59	1,00	± 0,08	6000	59,7	74,4
MTJ 65 L	190	19800	35000	158	1025	1025	1,45	± 0,08			
MTJ 80 S	170	17100	30000	185	130	130	1,72	± 0,08	6000	129,1	173,4
MTJ 80 L	260	34200	60000	370	2565	2565	2,72	± 0,08			
MTJ 110 S	240	24800	42500	315	220	220	3,25	± 0,08	6000	513,0	620,0
MTJ 110 L	330	49600	85000	630	3840	3840	4,61	± 0,08			

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

General technical data for MRJ series

Linear Unit	Carriage length	Dynamic load capacity		Dynamic moment			Max. permissible loads					Moved mass	Maximum Repeatability	* Maximum length	Planar moment of inertia	
		Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Forces		Moments							
							Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]					
	Lv [mm]											[kg]	[mm]	Lmax [mm]	Iy [cm ⁴]	Iz [cm ⁴]
MRJ 40	92	3400	1700	20	21	25	1010	505	13	17	7,5	0,26	± 0,08	6000	9,8	11,6
MRJ 65 L	190	8600	4400	74	181	425	1920	980	24	169	95	1,31	± 0,08	6000	59,7	74,4
MRJ 80 L	260	17100	9000	198	502	1145	2930	1540	34	260	195	2,73	± 0,08	6000	129,1	173,4
MRJ 110 L	330	31000	14000	406	875	2325	5110	2310	67	370	380	4,78	± 0,08	6000	513,0	620,0

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

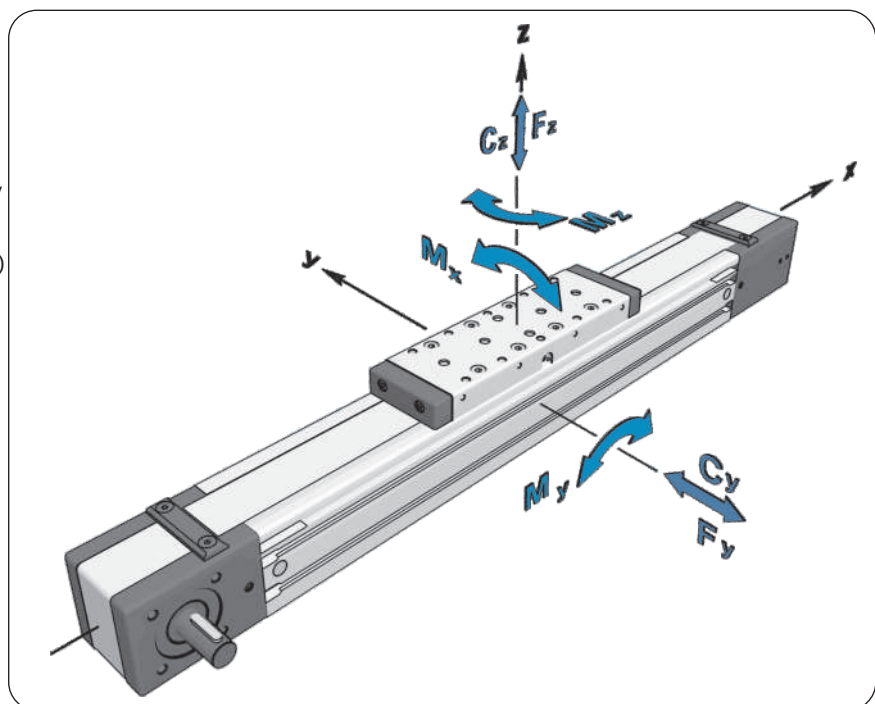


Recommended values of loads

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 ($f_s = 5.0$)

Modulus of elasticity :

$$E = 70000 \text{ N / mm}^2$$



TECHNICAL DATA

Drive and belt data for MRJ and MTJ series

Linear Unit	* Maximum travel speed	Maximum drive torque Ma	** No load torque		Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmitted by belt	Specific spring constant Cspec
			With strip	Without strip						
	[m / s]	[Nm]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]
MRJ 40	10	3,7	0,4	0,2	99	31,51	AT 3	20	235	225000
MTJ 40	6		0,4	0,2						
MRJ 65 L	10	13,1	1	0,7	165	52,52	AT 5	32	500	600000
MTJ 65 S	6		1,1	0,8						
MTJ 65 L			1,2	0,9						
MRJ 80 L	10	29,4	1,4	1,1	210	66,84	AT 5	50	880	960000
MTJ 80 S	6		1,5	1,2						
MTJ 80 L			1,7	1,4						
MRJ 110 L	10	68,5 with keyway 82,6 without keyway	1,8	1,5	300	95,49	AT 10	50	1730	2145000
MTJ 110 S	6		1,8	1,5						
MTJ 110 L			2	1,7						

* Maximum travel speed of Linear unit with the Corrosion-resistant protection strip is 1,5 m/s

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

Mass and mass moment of inertia for MTJ series

Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10 ⁻⁵ kg·m ²]
MTJ 40	92	1,3 + 0,0024 * Stroke [mm]	9,7 + 0,0035 * Stroke [mm]
MTJ 65 S	140	4 + 0,0055 * Stroke [mm]	98,4 + 0,0154 * Stroke [mm]
MTJ 65 L	190	4,6 + 0,0055 * Stroke [mm]	130,1 + 0,0154 * Stroke [mm]
MTJ 80 S	170	6,8 + 0,0085 * Stroke [mm]	310,6 + 0,0391 * Stroke [mm]
MTJ 80 L	260	8,4 + 0,0085 * Stroke [mm]	423,3 + 0,0391 * Stroke [mm]
MTJ 110 S	240	15 + 0,015 * Stroke [mm]	1065,0 + 0,1370 * Stroke [mm]
MTJ 110 L	330	17,7 + 0,015 * Stroke [mm]	1381,0 + 0,1370 * Stroke [mm]

Mass and mass moment of inertia for MRJ series

Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10 ⁻⁵ kg·m ²]
MRJ 40	92	1,25 + 0,0022 * Stroke [mm]	9,3 + 0,0035 * Stroke [mm]
MRJ 65 L	190	4,3 + 0,0047 * Stroke [mm]	120,4 + 0,0154 * Stroke [mm]
MRJ 80 L	260	8,2 + 0,0075 * Stroke [mm]	424,4 + 0,0391 * Stroke [mm]
MRJ 110 L	330	16,3 + 0,0133 * Stroke [mm]	1420,0 + 0,1370 * Stroke [mm]



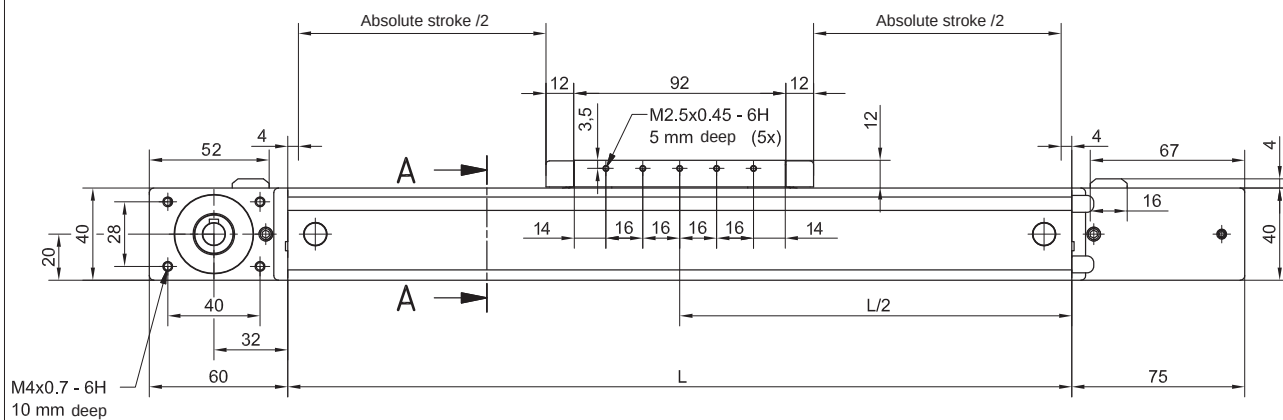
Mass calculation doesn't include mass of motor, reduction gear, switches and clamps.

DIMENSIONS

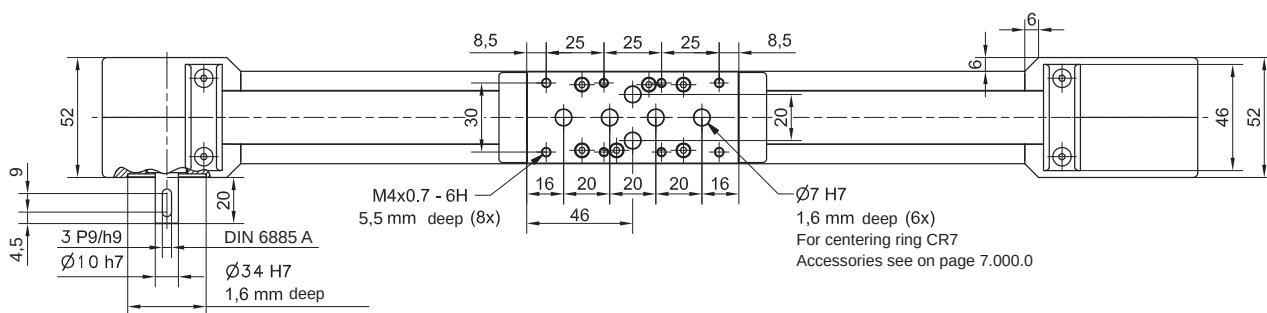


Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



Lifetime lubricated!

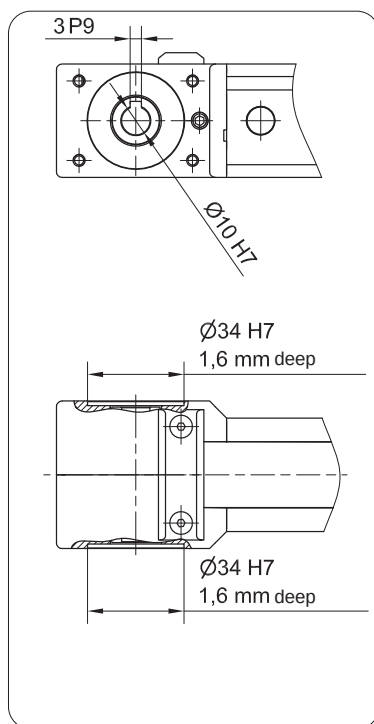


Journal with or without Keyway.

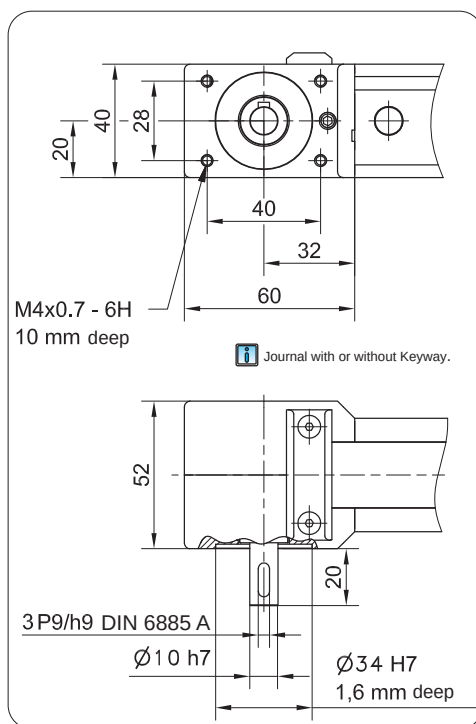


All dimensions in mm; Drawings scales are not equal.

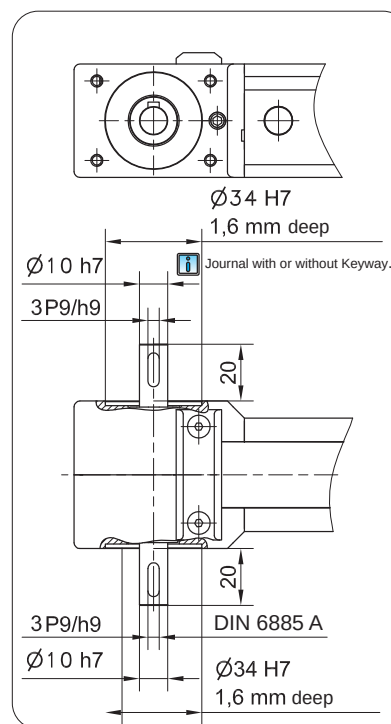
TYPE 0



TYPE 1 L and 1 R

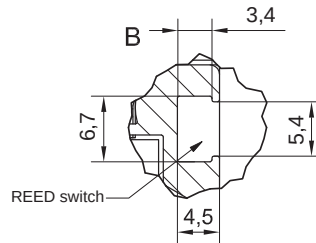
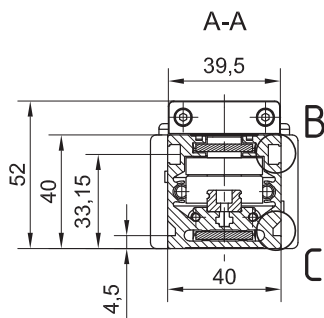


TYPE 2

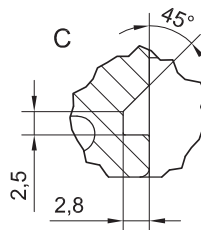
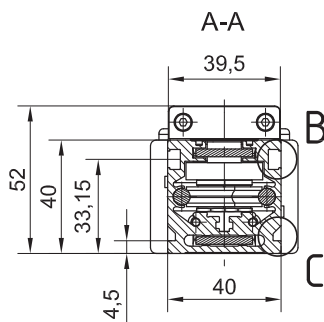


DIMENSIONS

MTJ 40



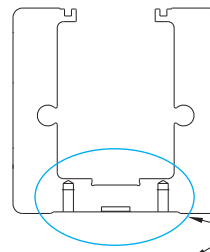
MRJ 40



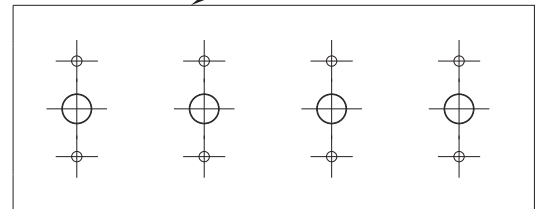
All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

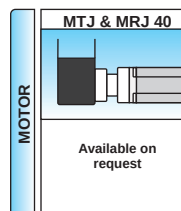
TAP / PIN holes available on request.



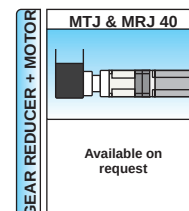
TAP / PIN holes on bottom of the profile



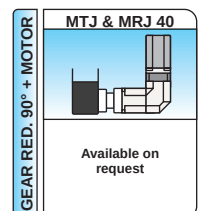
! Drawing only for presentational use.



Available on request



Available on request



Available on request

Defining of the linear module length

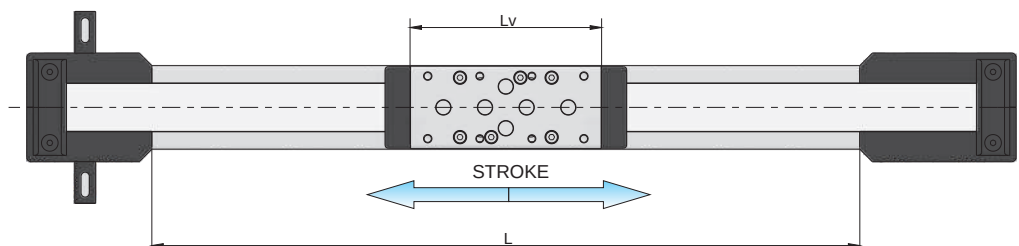
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 32 \text{ mm}$$

$$L_v = 92 \text{ mm}$$

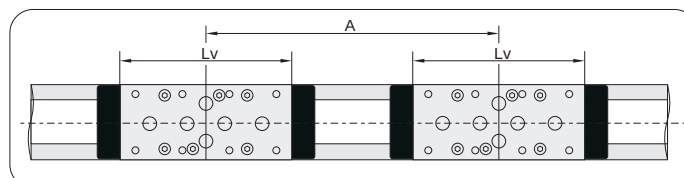
$$L_{\text{total}} = L + 135 \text{ mm}$$

Left side (L)

Right side (R)



Double-Carriage



For ordering code please contact us.

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + A + 32 \text{ mm} \left. \vphantom{L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + A + 32 \text{ mm}} \right\} A > L_v + 24 \text{ mm}$$

$$L_{\text{total}} = L + 135 \text{ mm}$$

Absolute stroke = Effective stroke + 2 x Safety stroke



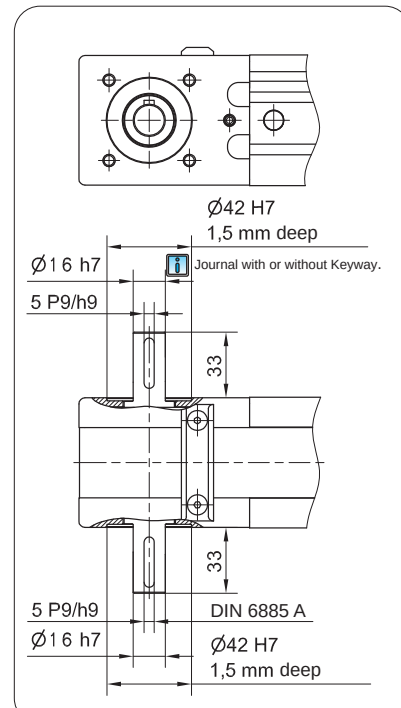
Journal with or without Keyway.

Short carriage only for MTJ series!



All dimensions in mm;
Drawings scales are not equal.

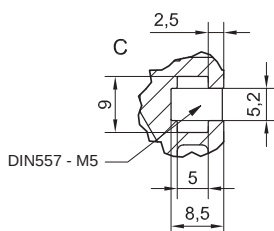
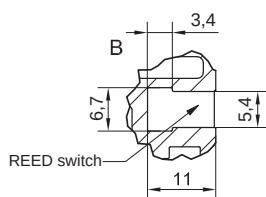
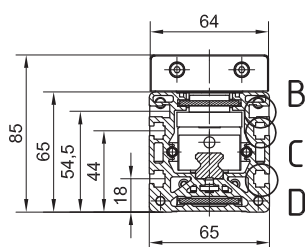
TYPE 2



DIMENSIONS

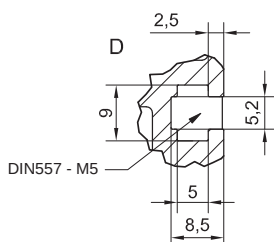
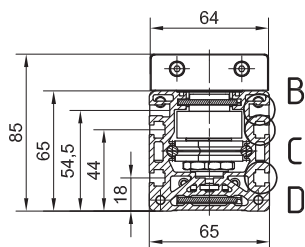
MTJ 65

A-A



MRJ 65

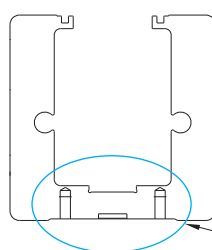
A-A



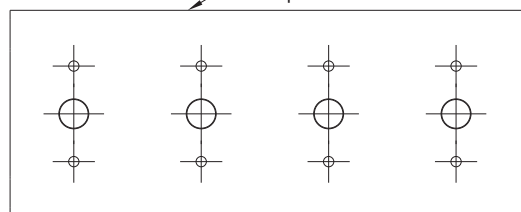
All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

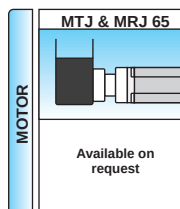
TAP / PIN holes available on request.



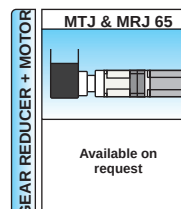
TAP / PIN holes on bottom of the profile



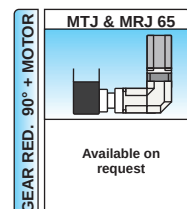
Drawing only for presentational use.



Available on request



Available on request



Available on request

Defining of the linear module length

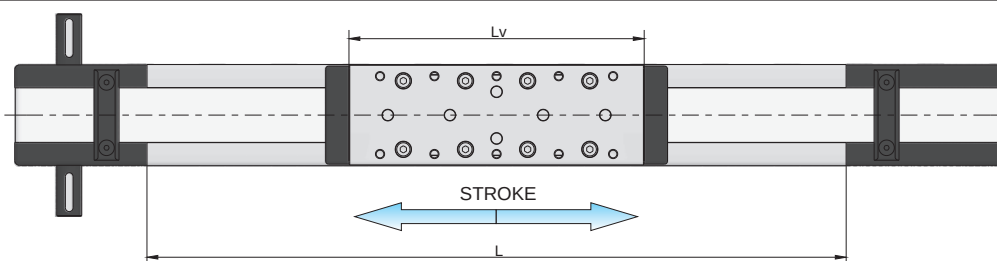
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 40 \text{ mm}$$

$$L_v - \text{Long carriage} = 190 \text{ mm}$$

$$L_{\text{total}} = L + 185 \text{ mm}$$

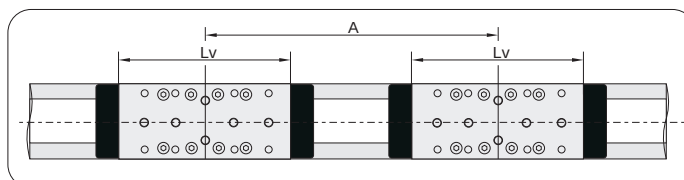
$$L_v - \text{Short carriage} = 140 \text{ mm}$$

Left side (L)



Right side (R)

Double-Carriage



For ordering code please contact us.

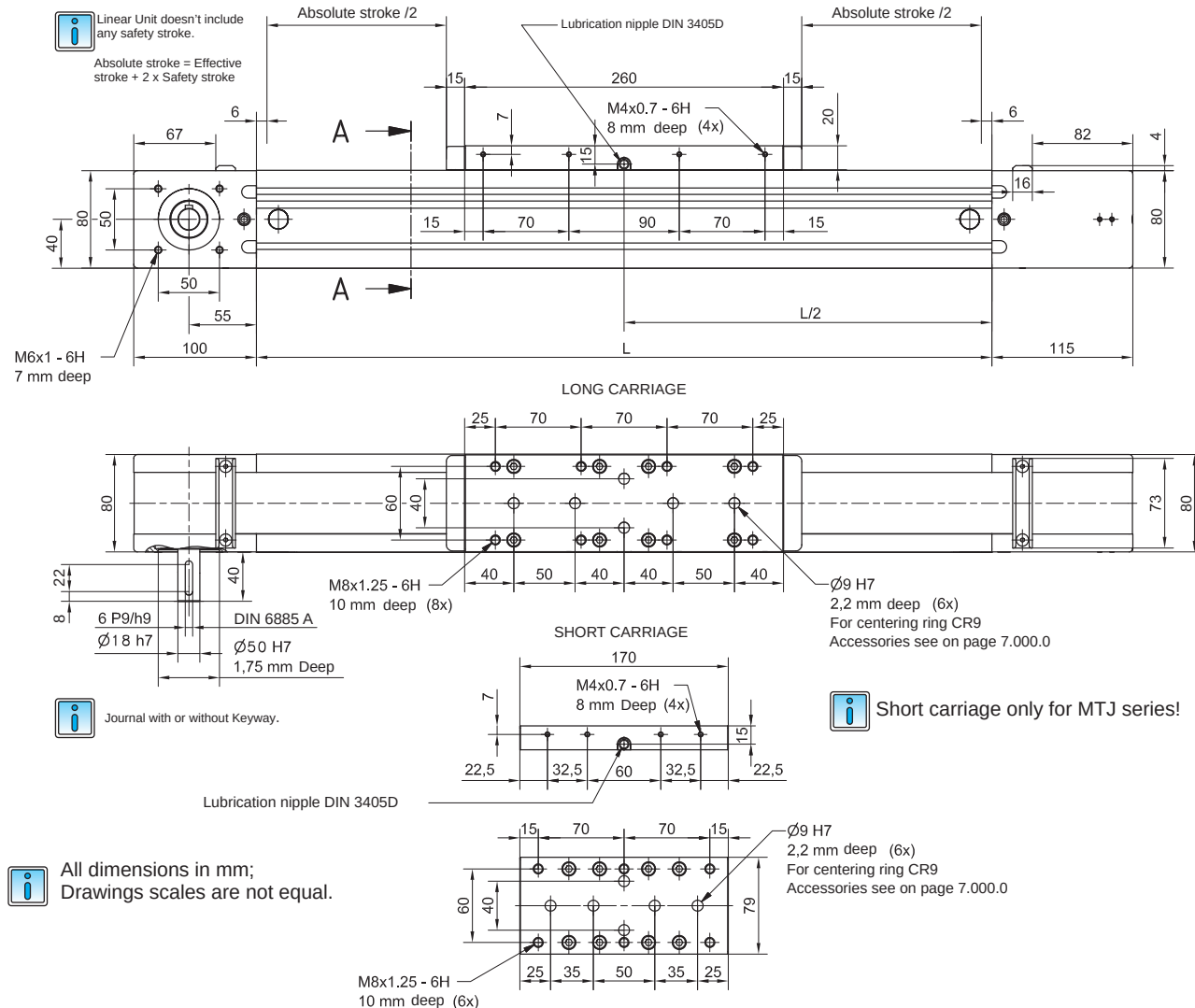
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + A + 40 \text{ mm}$$

$$A > L_v + 30 \text{ mm}$$

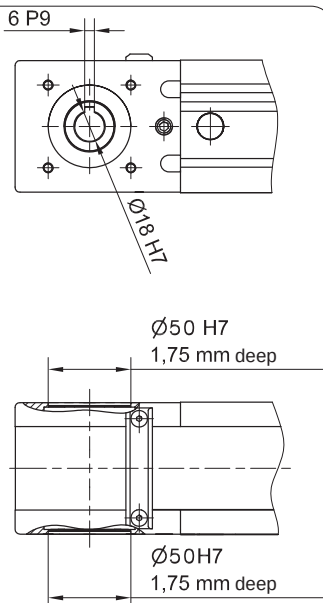


$$L_{\text{total}} = L + 185 \text{ mm}$$

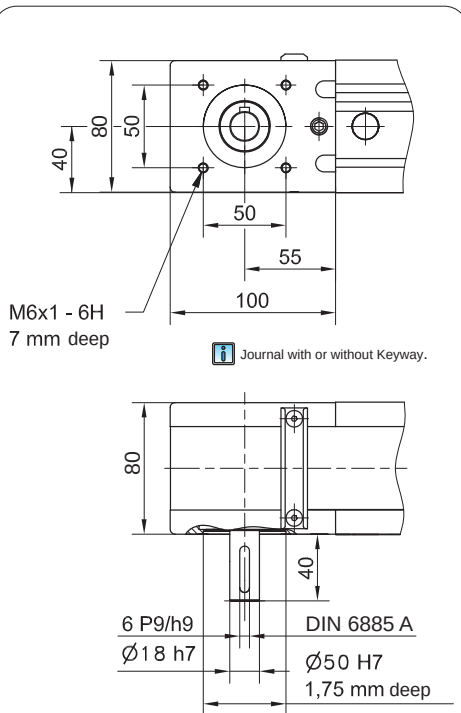
DIMENSIONS



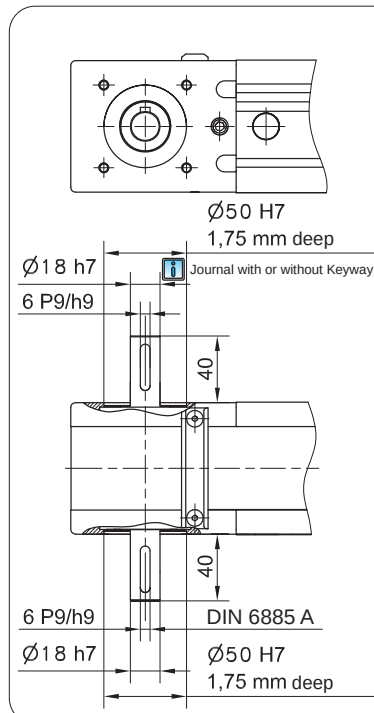
TYPE 0



TYPE 1 L and 1 R



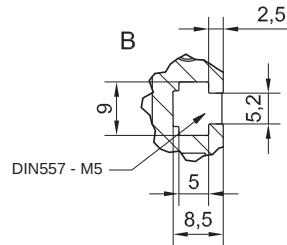
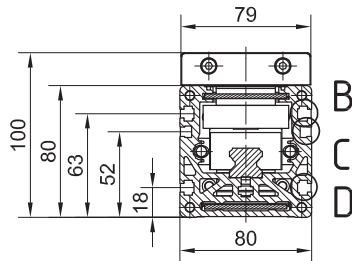
TYPE 2



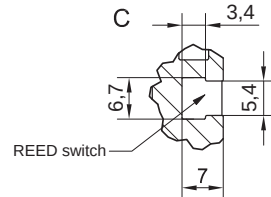
DIMENSIONS

MTJ 80

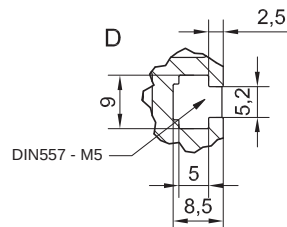
A-A



C

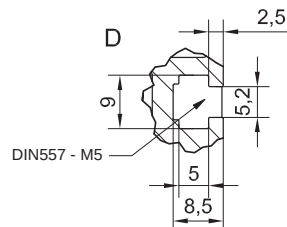
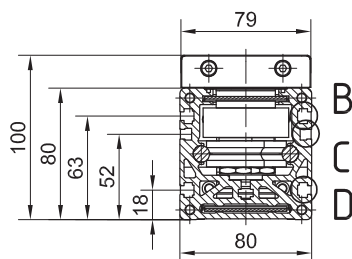


D



MRJ 80

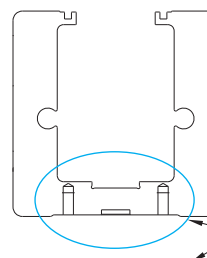
A-A



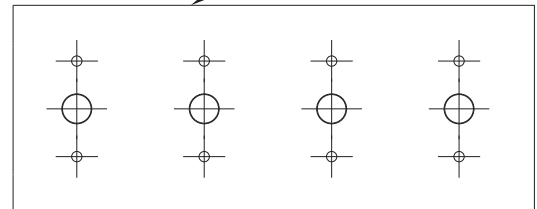
All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

TAP / PIN holes available on request.



TAP / PIN holes on bottom of the profile



Drawing only for presentational use.



	MTJ & MRJ 80	MTJ & MRJ 80	MTJ & MRJ 80
MOTOR			
	Available on request	Available on request	Available on request
GEAR REDUCER + MOTOR			
	Available on request	Available on request	Available on request
GEAR RED. 90° + MOTOR			
	Available on request	Available on request	Available on request

Defining of the linear module length

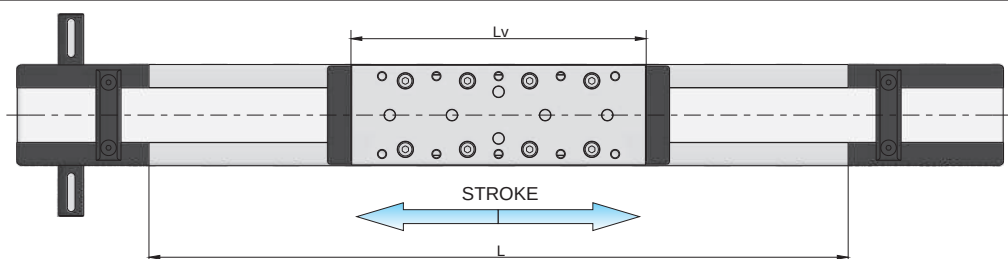
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 42 \text{ mm}$$

$$L_v - \text{Long carriage} = 260 \text{ mm}$$

$$L_{\text{total}} = L + 215 \text{ mm}$$

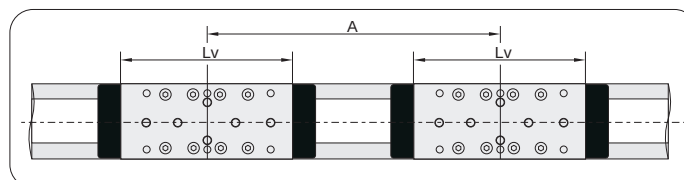
$$L_v - \text{Short carriage} = 170 \text{ mm}$$

Left side (L)



Right side (R)

Double-Carriage



For ordering code please contact us.

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + A + 42 \text{ mm}$$

$$A \geq L_v + 30 \text{ mm}$$



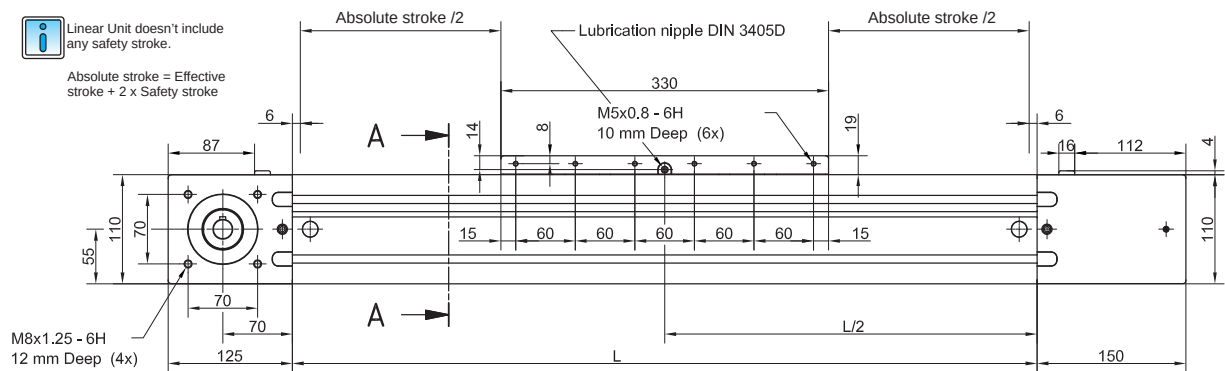
$$L_{\text{total}} = L + 215 \text{ mm}$$

DIMENSIONS

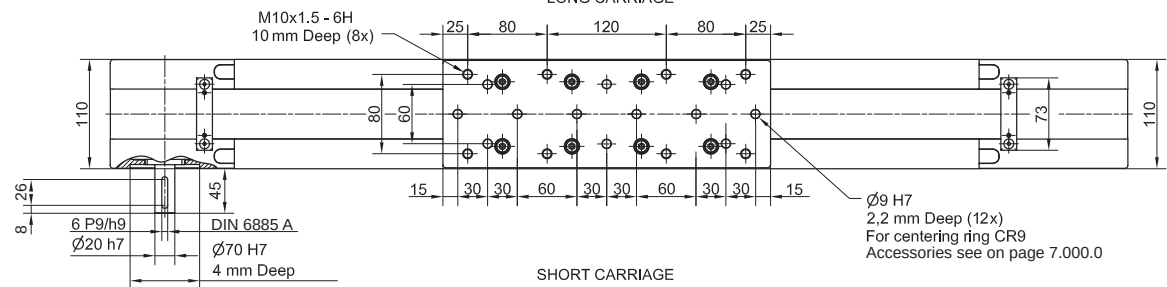


Linear Unit doesn't include any safety stroke.

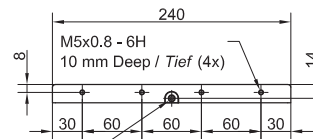
Absolute stroke = Effective stroke + 2 x Safety stroke



LONG CARRIAGE



SHORT CARRIAGE



Lubrication nipple DIN 3405D



Short carriage only for MTJ series!

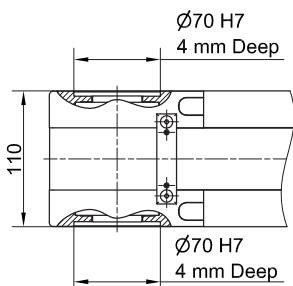
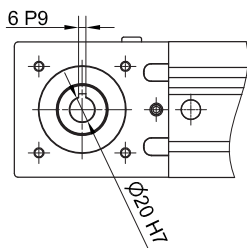
Ø9 H7 2,2 mm Deep / Tief (6x) For centering ring CR9 Accessories see on page 7.000.0



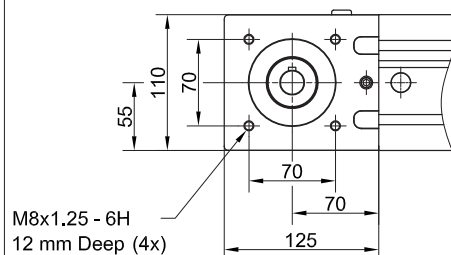
All dimensions in mm; Drawings scales are not equal.

M10x1.5 - 6H 10 mm Deep (8x)

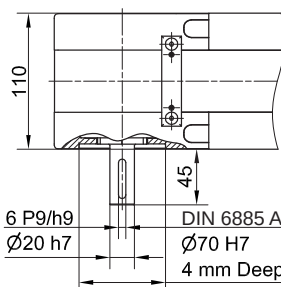
TYPE 0



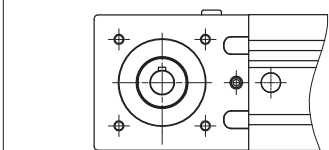
TYPE 1 L and 1 R



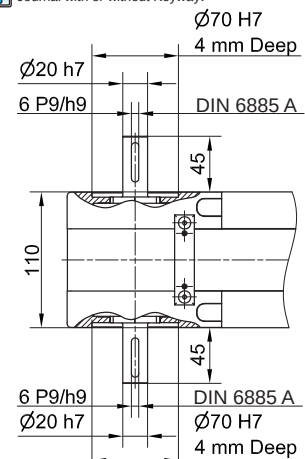
Journal with or without Keyway.



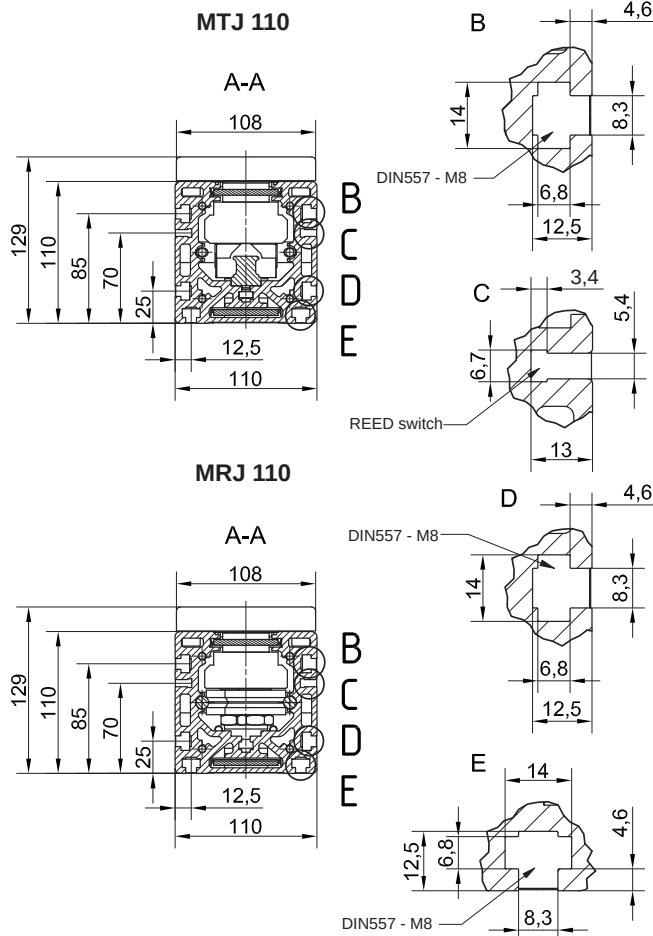
TYPE 2



Journal with or without Keyway.



DIMENSIONS



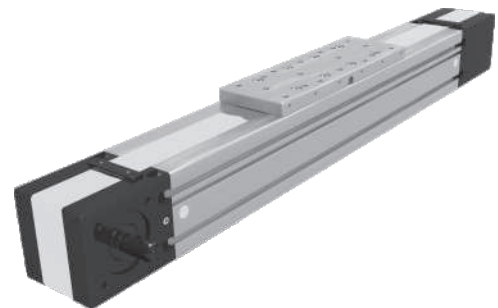
All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

CENTER RING holes available on request.

CENTER RING holes on bottom of the profile

Drawing only for presentational use.



MOTOR	MTJ & MRJ 110	MTJ & MRJ 110	MTJ & MRJ 110
	Available on request	Available on request	Available on request
GEAR REDUCER + MOTOR	Available on request	Available on request	Available on request
	Available on request	Available on request	Available on request
GEAR RED. 90° + MOTOR	Available on request	Available on request	Available on request
	Available on request	Available on request	Available on request

Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 12 \text{ mm}$$

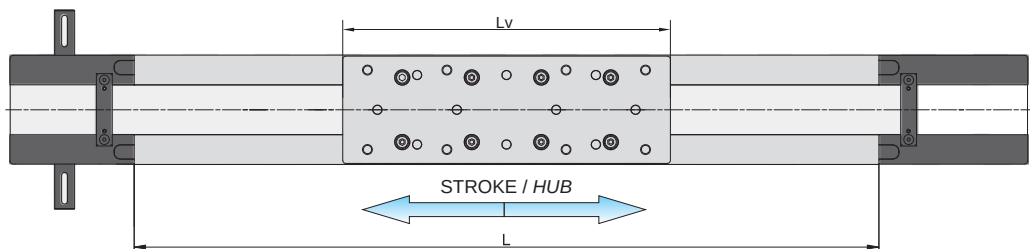
$$L_v - \text{Long carriage} = 330 \text{ mm}$$

$$L_{\text{total}} = L + 275 \text{ mm}$$

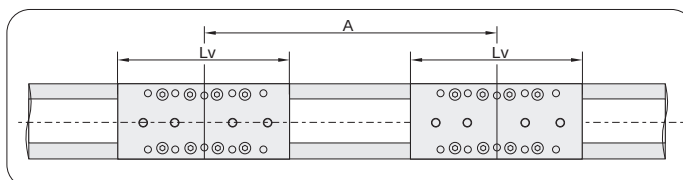
$$L_v - \text{Short carriage} = 240 \text{ mm}$$

Left side (L)

Right side (R)



Double Carriage



For ordering code please contact us.

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + A + 12 \text{ mm}$$

$$L_{\text{total}} = L + 275 \text{ mm}$$

$$A \geq L_v$$



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.

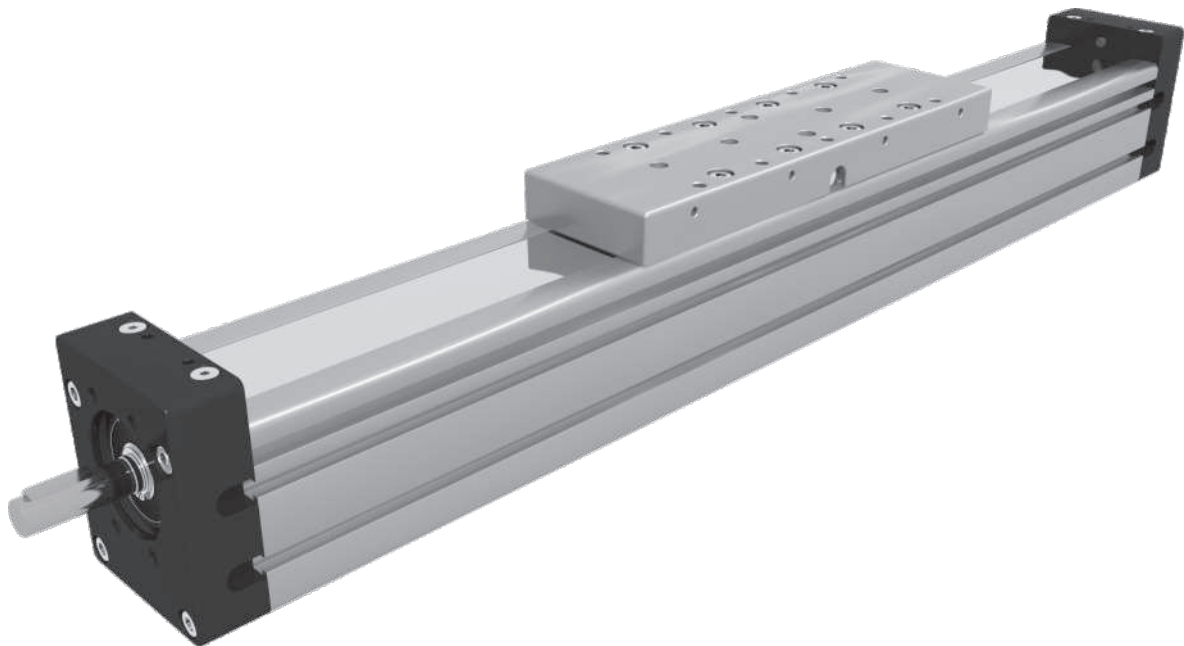
In the Linear Units MTV a precision ball screw, with tolerance class ISO7 (ISO5 on request), with reduced backlash of the ball nut is used.

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.

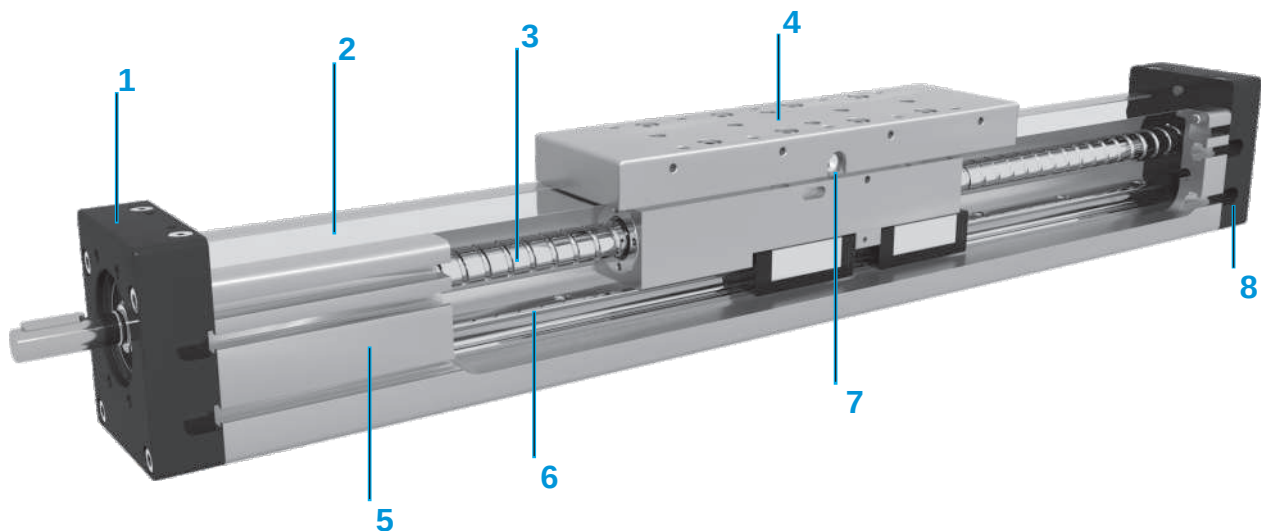
For the Linear Units MTV various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.



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: Ø16×5, Ø16×10, Ø16×16

MTV 80: Ø20×5, Ø20×10, Ø20×20

MTV 110: Ø32×5, Ø32×10, Ø32×20, Ø32×32

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]			Iy [cm ⁴]	Iz [cm ⁴]
MTV 65	220	19800	35000	158	700	700	1,5	2900	71,3	89,4
MTV 80	290	34200	60000	370	1470	1470	3,0	5480	144,1	192,3
MTV 110	330	49600	85000	630	2650	2650	4,9	5850	562,0	669,0

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

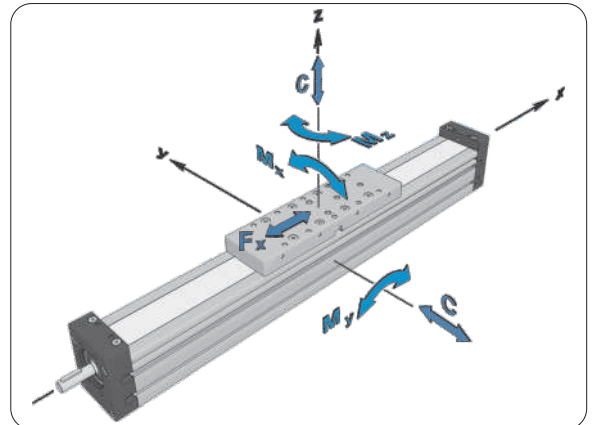


Recommended values of loads:

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 ($f_s = 5.0$)

Modulus of elasticity

$$E = 70000 \text{ N / mm}^2$$



Ball Screw Drive data

Liner unit	1 Maximal travel speed		2 No load torque	Lead constant	Ball screw	3 Max. Repeatability precision [mm]		Dynamic load capacity BS	Max. axial load	Maximal drive torque
	[m / s]					STANDARD ISO7 ISO5				
MTV 65	34,2·10 ³ l / L ² [mm]	≤ 0,35	0,11	5	16 × 5	± 0,02	± 0,01	13150	8700	7,7
		≤ 0,70	0,12	10	16 × 10	± 0,02	± 0,01	11550	6730	11,9
		≤ 1,12	0,13	16	16 × 16	± 0,02	± 0,01	8170	4200	11,9
MTV 80	64,2·10 ³ l / L ² [mm]	≤ 0,28	0,16	5	20 × 5	± 0,02	± 0,01	14800	14800	13,0
		≤ 0,55	0,17	10	20 × 10	± 0,02	± 0,01	15900	13850	24,5
		≤ 1,13	0,18	20	20 × 20	± 0,02	± 0,01	16250	6930	24,5
		≤ 2,50	0,28	50	20 × 50	± 0,02	± 0,01	13000	2770	24,5
MTV 110	108·10 ³ l / L ² [mm]	≤ 0,18	0,45	5	32 × 5	± 0,02	± 0,01	18850	18850	16,7
	99,0·10 ³ l / L ² [mm]	≤ 0,35	0,50	10	32 × 10	± 0,02	± 0,01	37000	29600	52,3
	105·10 ³ l / L ² [mm]	≤ 1,00	0,55	20	32 × 20	± 0,02	± 0,01	21000	14800	52,3
	103·10 ³ l / L ² [mm]	≤ 1,60	0,60	32	32 × 32	± 0,02	± 0,01	35150	9240	52,3

For 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

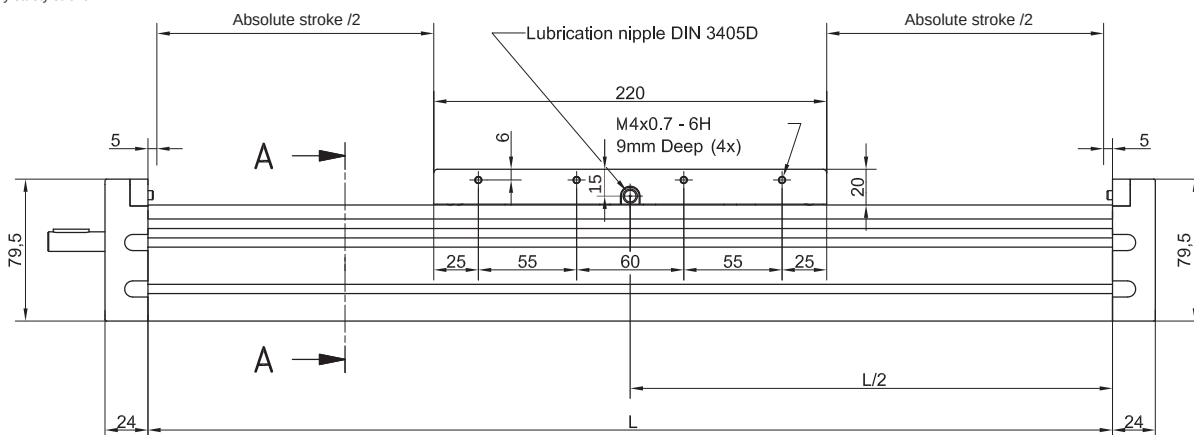
Mass and mass moment of inertia

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 + 0,0051 * Stroke [mm]
MTV 80	290	8,2 + 0,0114 * Stroke [mm]	8,5 + 0,0127 * Stroke [mm]
MTV 110	330	17,3 + 0,0216 * Stroke [mm]	47,0 + 0,0690 * Stroke [mm]

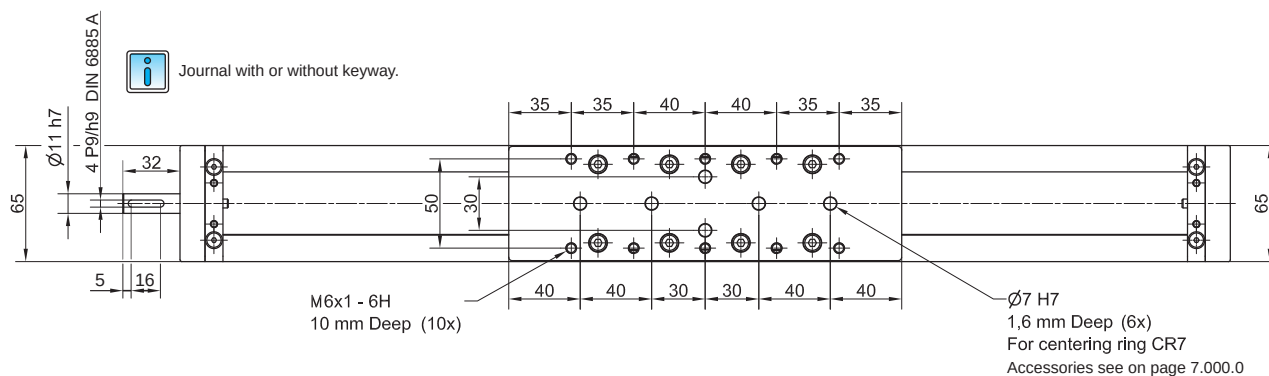


Mass calculation doesn't include mass of motor, reduction gear, switches and clamps.

Linear Unit doesn't include any safety stroke.

$$\text{Absolute stroke} = \text{Effective stroke} + 2 \times \text{Safety stroke}$$


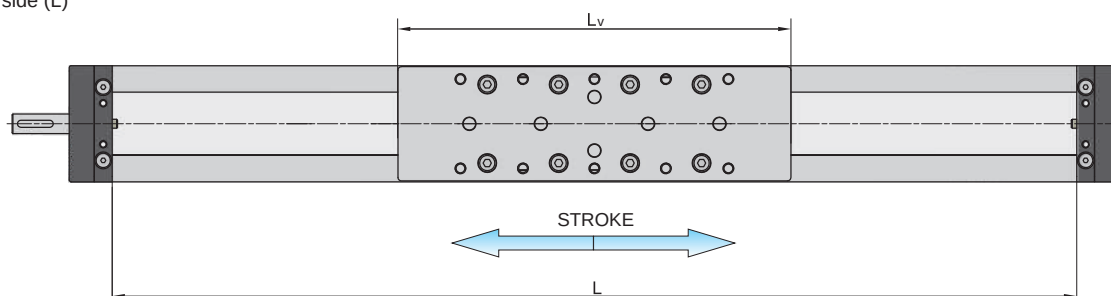
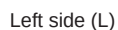
Journal with or without keyway.



All dimensions in mm;
Drawings scales are not equal.

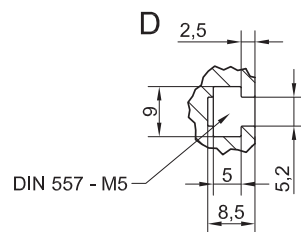
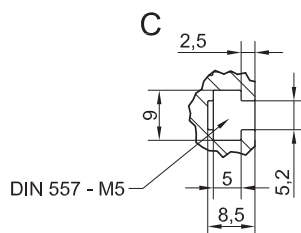
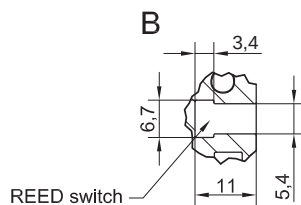
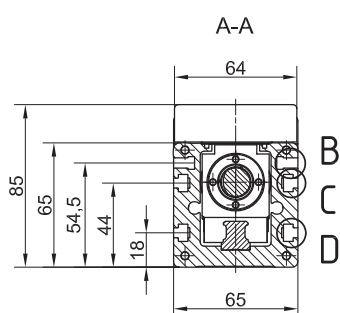
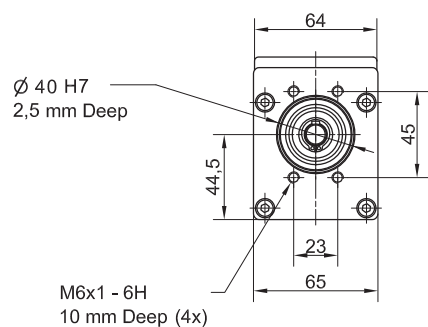
$L_v = 220 \text{ mm}$

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



Right side (R)

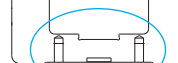
DIMENSIONS



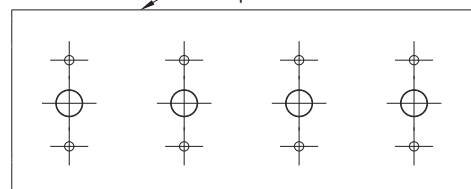
All dimensions in mm;
Drawings scales are not equal.

OPTIONAL:

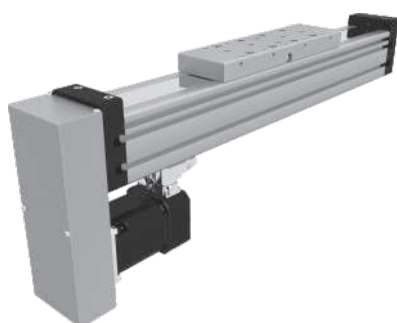
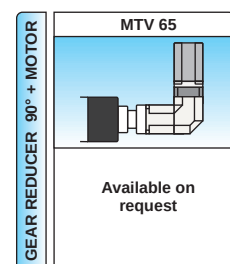
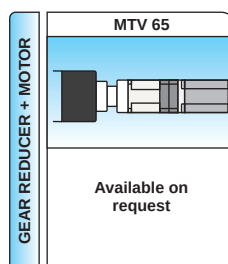
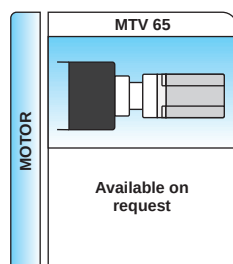
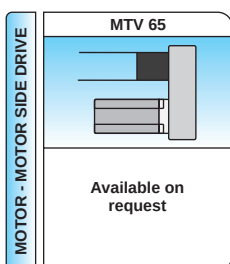
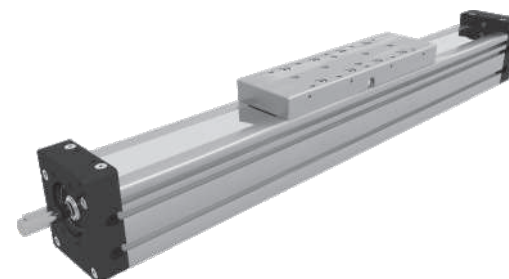
TAP / PIN holes available on request.



TAP / PIN holes on bottom of the profile



Drawing only for presentational use



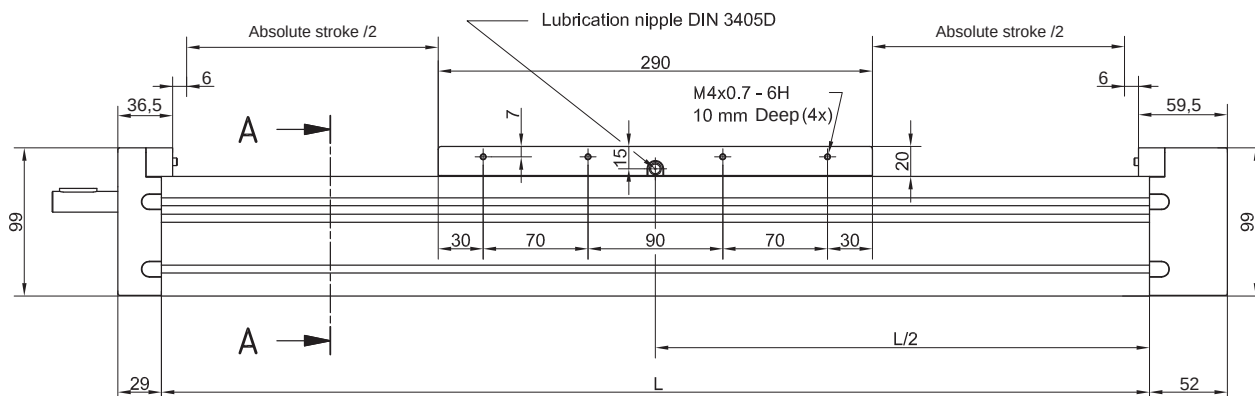
More info about MSD please refer to page 6.045.0

DIMENSIONS

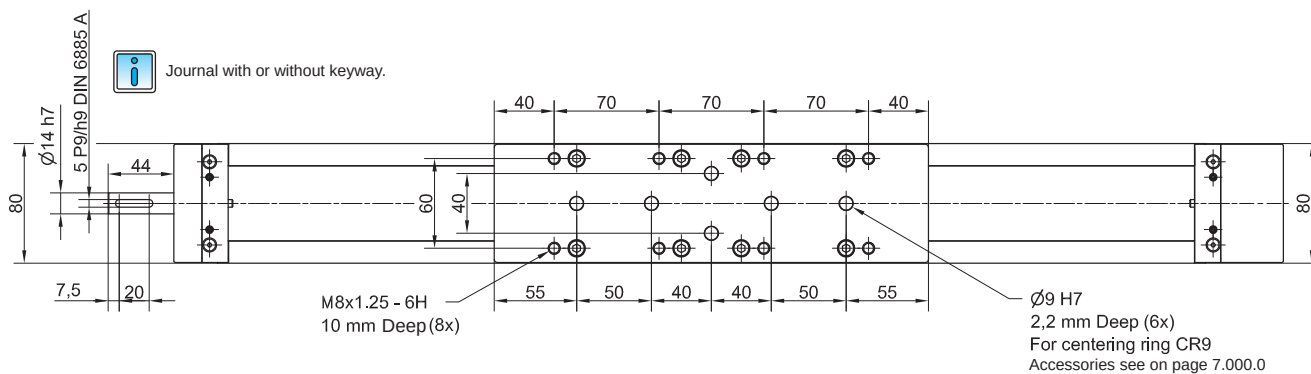


Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



Journal with or without keyway.



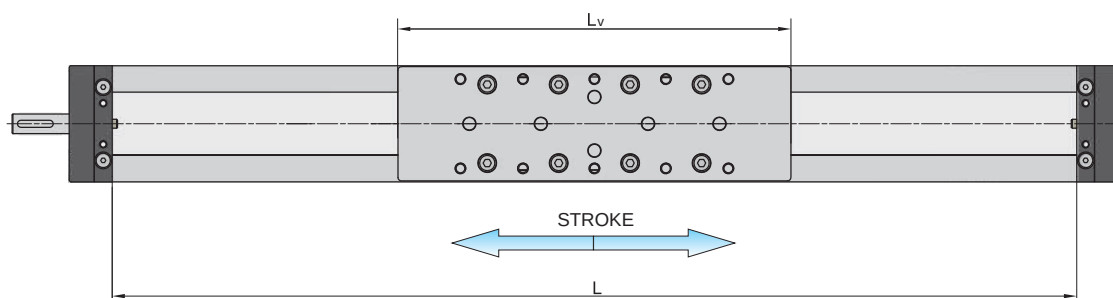
All dimensions in mm.;
Drawings scales are not equal.

Defining of the linear module length

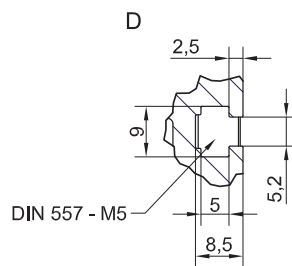
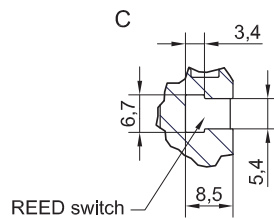
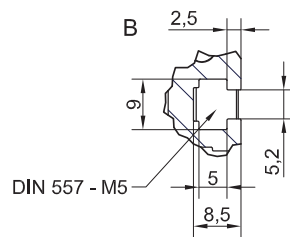
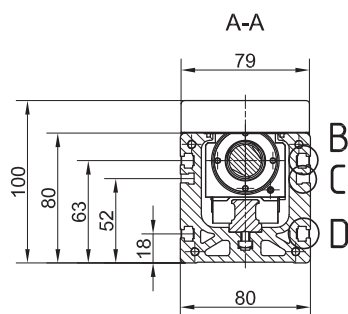
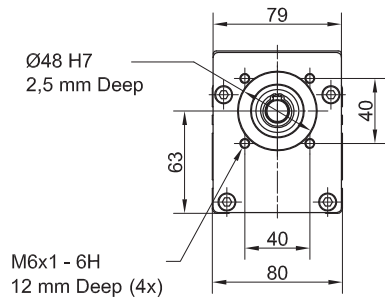
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 27 \text{ mm}$$

$$L_v = 290 \text{ mm}$$

$$L_{\text{total}} = L + 81 \text{ mm}$$



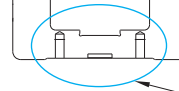
DIMENSIONS



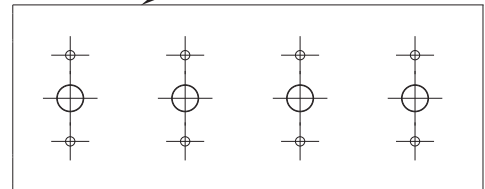
 All dimensions in mm;
Drawings scales are not equal.

OPTIONAL:

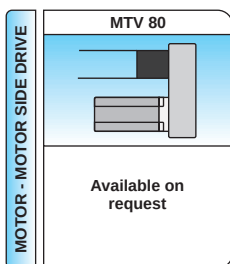
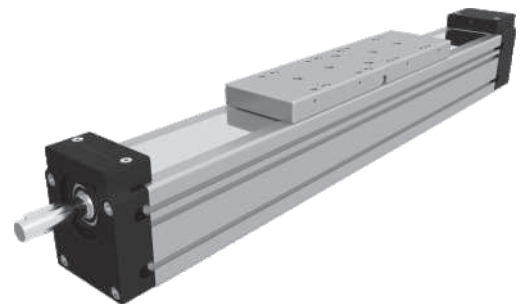
TAP / PIN holes available on request.



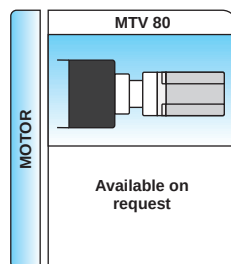
TAP / PIN holes on bottom of the profile



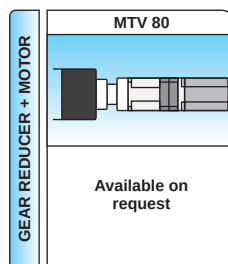
 Drawing only for presentational use.



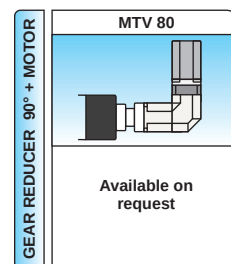
Available on request



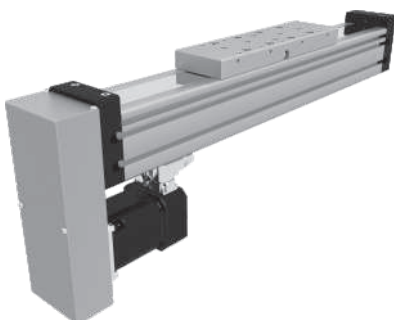
Available on request



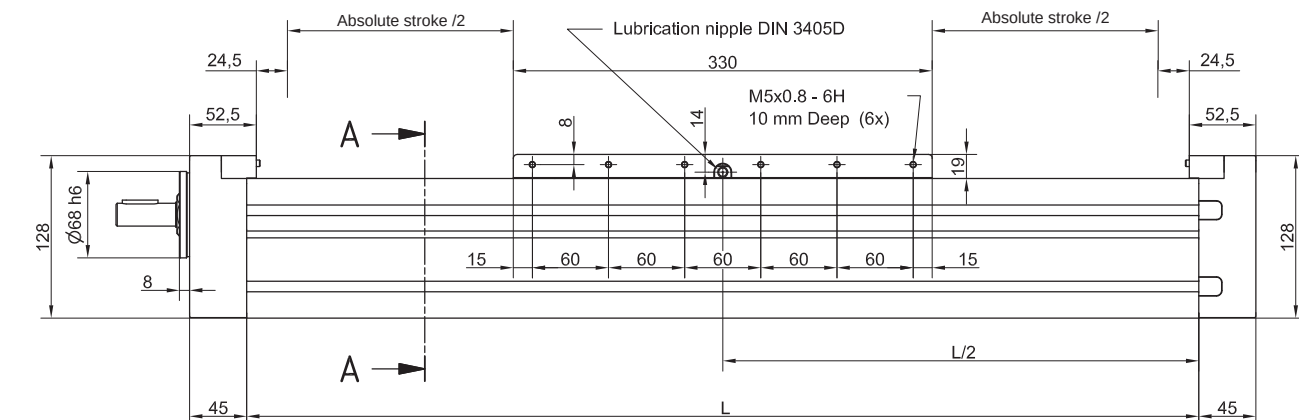
Available on request



Available on request



 More info about MSD please refer to page 6.045.0

$$\text{Absolute stroke} = \text{Effective stroke} + 2 \times \text{Safety stroke}$$


Journal with or without keyway.

Dimensions and features shown in the diagram:

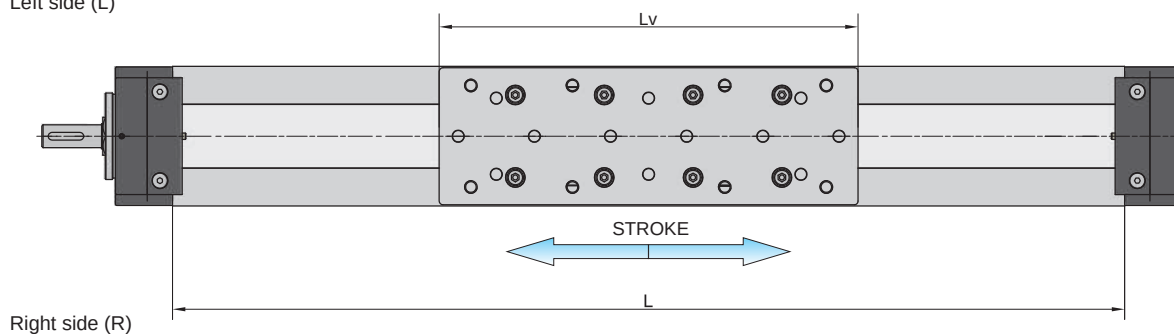
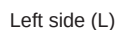
- Total height: 110
- Internal bore diameter: $\varnothing 18\text{ h7}$
- Bore tolerance zone: 6 P9/h9 DIN 6885 A
- Mounting flange width: 58
- Flange thickness: 8
- Flange hole diameter: $\varnothing 9\text{ H7}$
- Flange hole depth: 2.2 mm Deep (12x)
- Centering ring CR9
- Accessories see on page 7.000.0



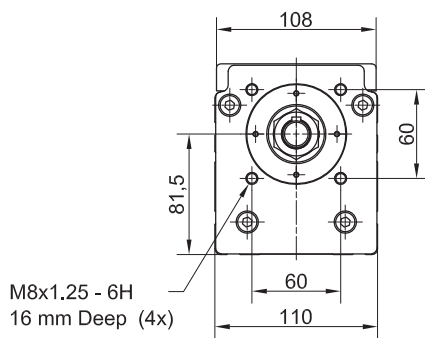
All dimensions in mm.;
Drawings scales are not equal.

$L_v = 330 \text{ mm}$

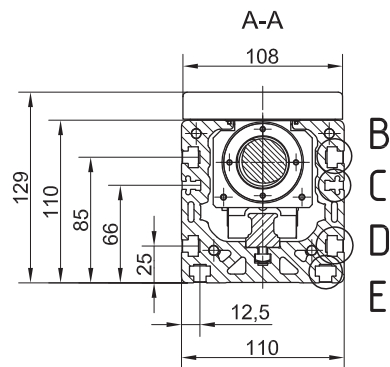
$$L_{total} = L + 90 \text{ mm}$$



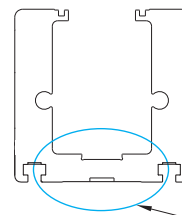
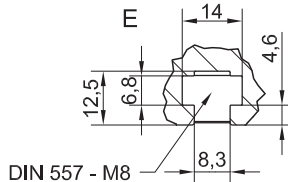
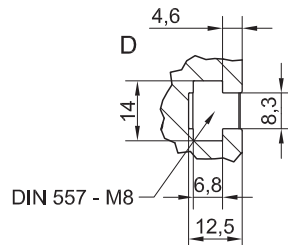
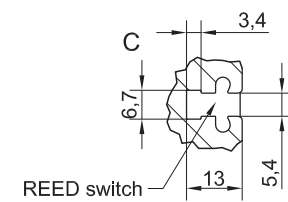
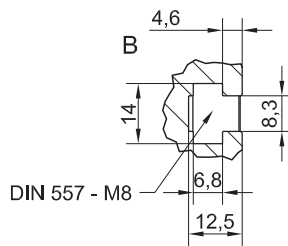
DIMENSIONS



M8x1.25 - 6H
16 mm Deep (4x)



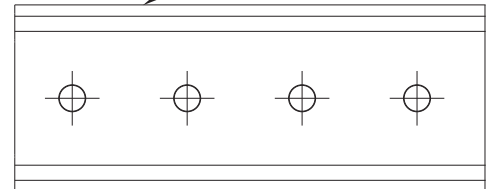
All dimensions in mm;
Drawings scales are not equal.



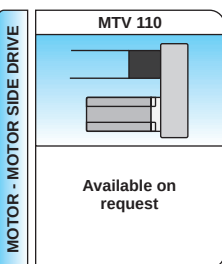
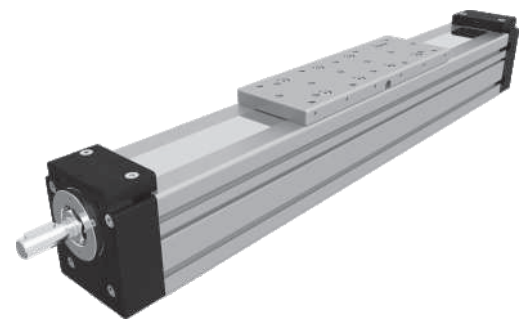
OPTIONAL:

CENTER RING holes available on request.

CENTER RING holes on bottom of the profile

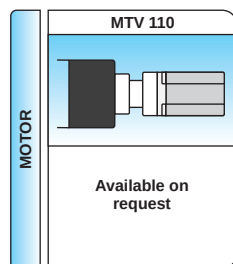


Drawing only for presentational use.



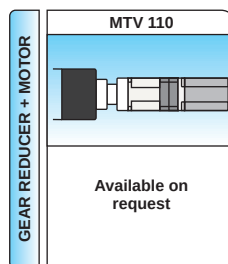
MTV 110

Available on request



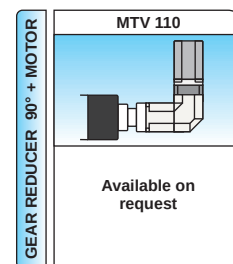
MTV 110

Available on request



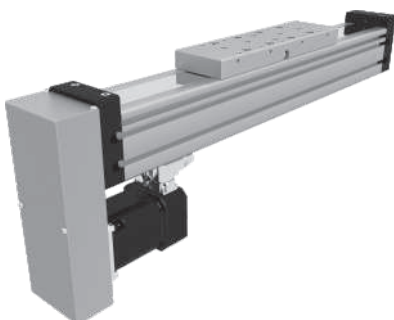
MTV 110

Available on request



MTV 110

Available on request



More info about MSD please refer to page 6.045.0

CHARACTERISTICS

The **MTJ ECO** series Linear Unit is a powerful and cost-effective Linear Unit with toothed belt drive and a Zero-backlash Ball rail guide system for easy and accurate linear movements.

It can easily be combined to multi-axis systems.

Excellent price-/performance ratio and quick delivery time are ensured.

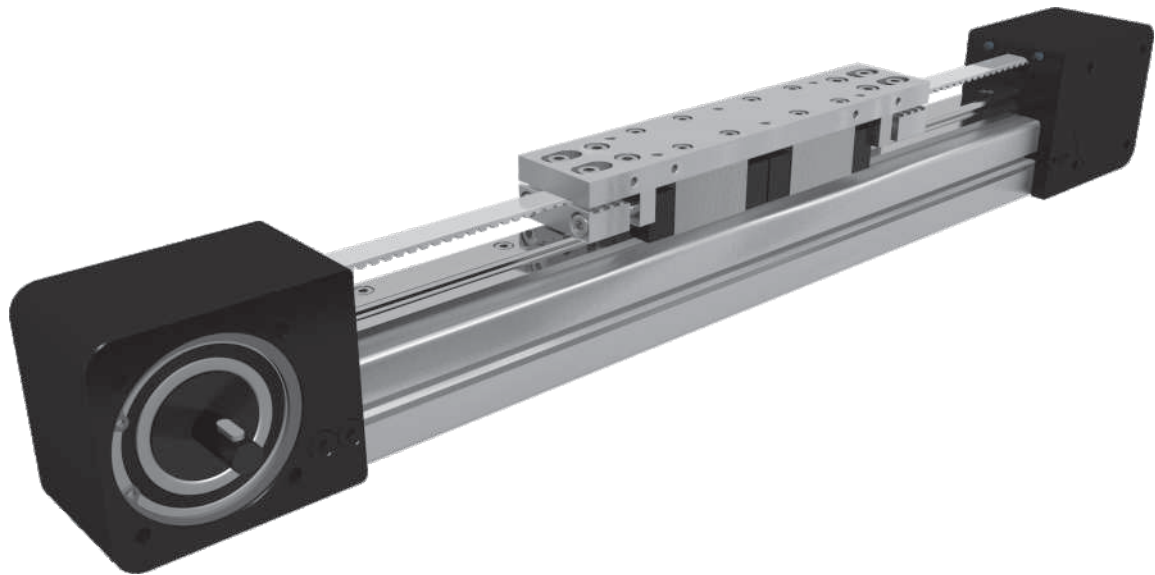
An extruded aluminum Profile from 6063 AL with on it mounted Zero-backlash Ball rail guide system, allows high load capacities and optimal cycles for the movement of larger masses at high speed.

The linear unit MTJ ECO uses 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 aluminum Profile includes T-slots for fixing the Linear Unit and for attaching sensors and switches . Different carriage lengths of the Linear Unit allow the possibility to attach additional accessories on the side.

Lubrication holes on the carriage allow easy re-lubrication of the Ball rail guide .

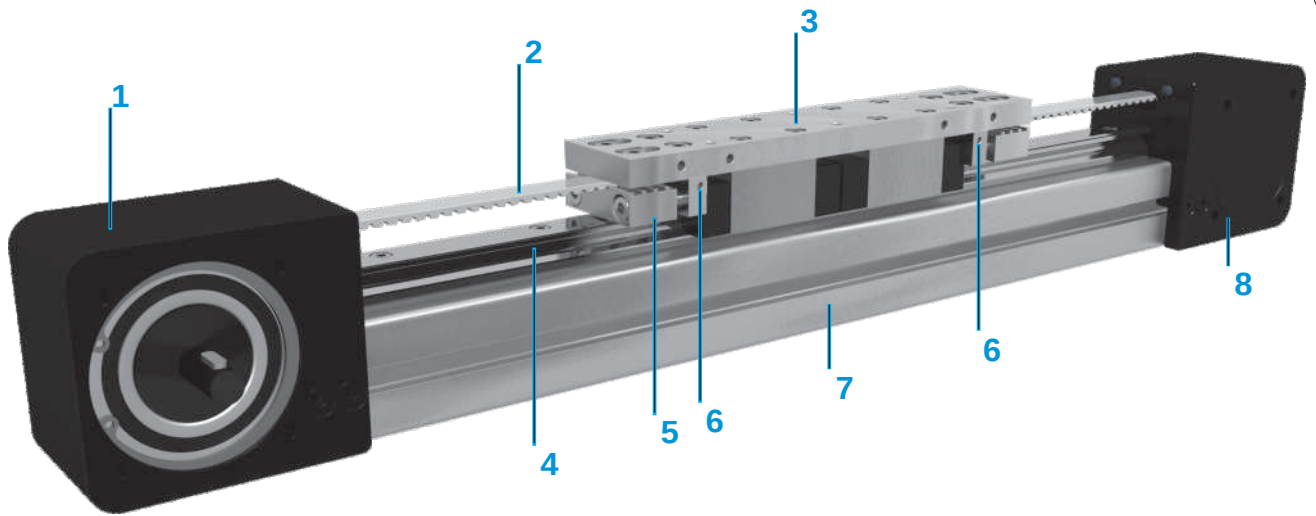
For the linear unit MTJ ECO various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.



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 pulley
- 2 - AT polyurethane toothed belt with steel tension cords
- 3 - Carriage
- 4 - Linear Ball Guideway
- 5 - Belt Tensioning system
- 6 - Lubrication port
- 7 - Aluminium profile-Hard anodized
- 8 - End block

HOW TO ORDER

	MTJ	-	40	-	ECO	-	1000	-	L	-	1	-	R
Series :													
MTJ													
Size :													
40													
Type :													
ECO													
Absolute stroke (mm) :													
<i>(Absolute stroke = Effective stroke + 2 x Safety stroke)</i>													
Carriage Version :													
S : Short													
L : Long													
Type of drive pulley :													
0 : Pulley with through hole													
1 : Pulley with journal													
10 : Pulley with journal (without Keyway)													
2 : Pulley with journal on both sides													
20 : Pulley with journal on both sides (without Keyway)													
3 : Without drive unit													
Drive journal position :													
L : Journal on left side													
R : Journal on right side													
Leave blank : For type of drive pulley 0, 2, 20 and 3													

TECHNICAL DATA

General technical data for MTJ ECO series

Linear Unit	Carriage length Lv [mm]	Load capacity		Dynamic moment			Moved mass [kg]	Maximum Repeatability [mm]	* Maximum length Lmax [mm]	Planar moment of inertia	
		Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]				Iy [cm ⁴]	Iz [cm ⁴]
MTJ 40 ECO S	132	9900	17500	79	59	59	0,45	± 0,1	5960	9,53	9,21
MTJ 40 ECO L	200	19800	35000	158	660	660	0,72	± 0,1			

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

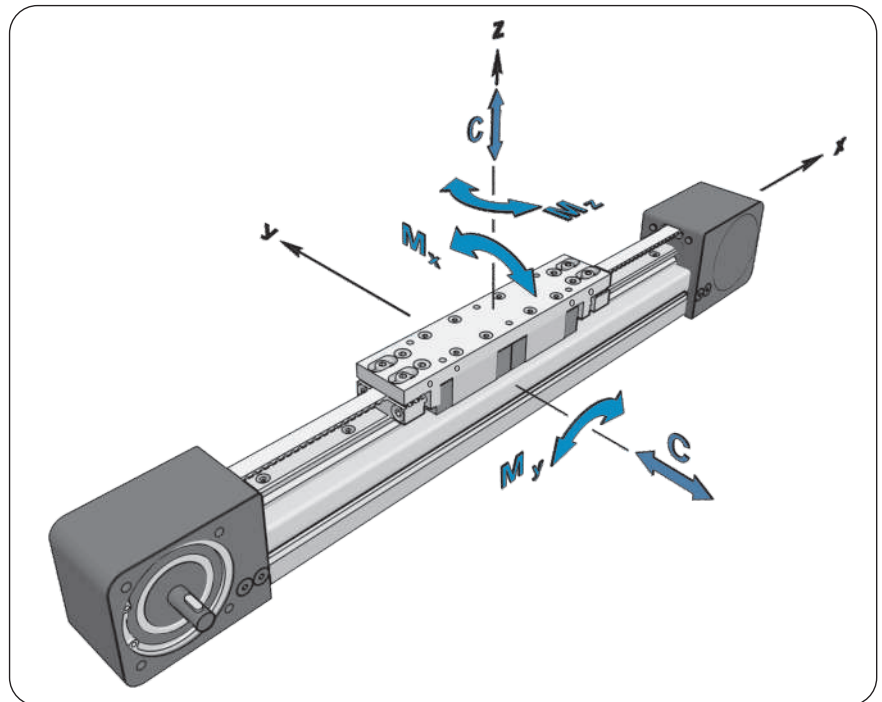


Recommended values of loads

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 ($f_s = 5.0$)

Modulus of elasticity

$E = 70000 \text{ N / mm}^2$



Drive and belt data

Linear Unit	Maximal travel speed	Maximum drive torque	* No load torque	Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmitted by belt	Specific spring constant Cspec
	[m / s]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]
MTJ 40 ECO S	3	7,5	0,8	180	57,31	AT5	12	262	235000
MTJ 40 ECO L			0,9						

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

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]
MTJ 40 ECO S	132	3,1 + 0,003 * Stroke [mm]	70,1 + 0,007 * Stroke [mm]
MTJ 40 ECO L	200	3,55 + 0,003 * Stroke [mm]	92,3 + 0,007 * Stroke [mm]

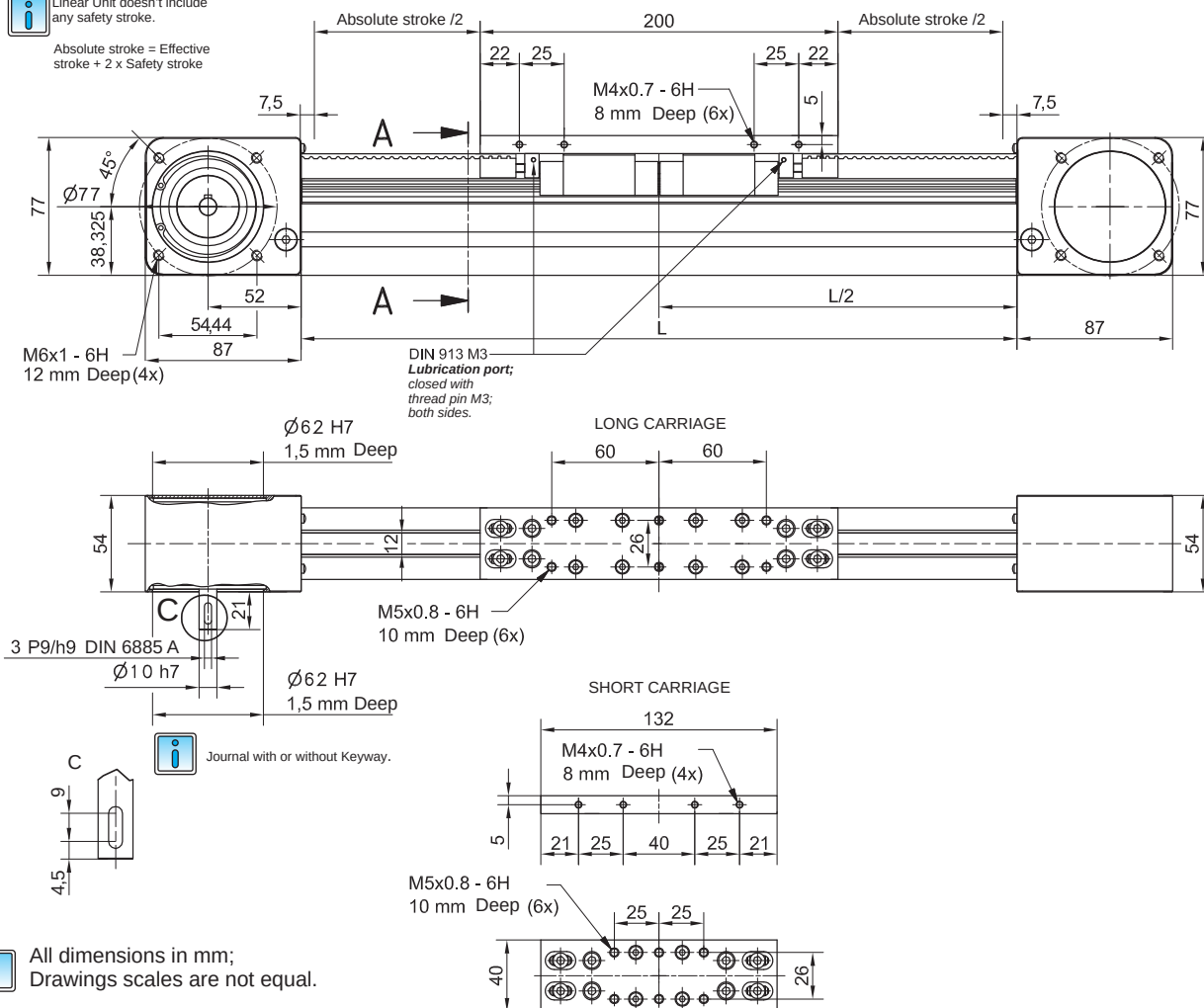


Mass calculation doesn't include mass of motor, reduction gear, switches and clamps.

 Linear Unit doesn't include any safety stroke.

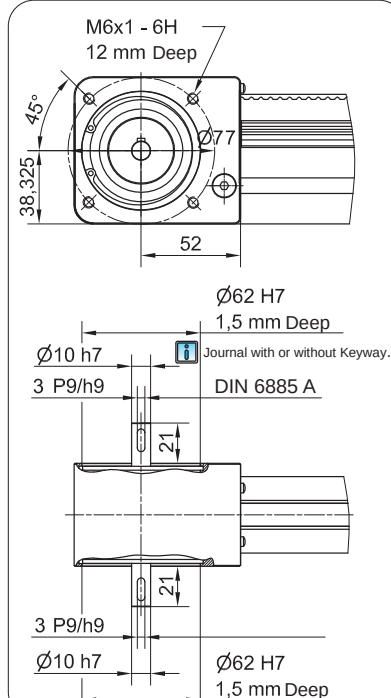
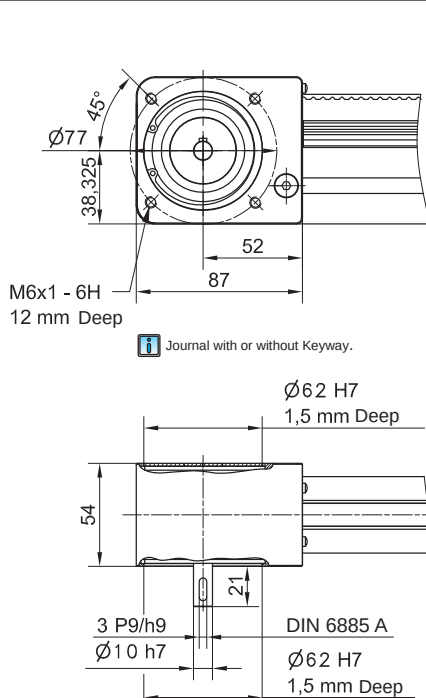
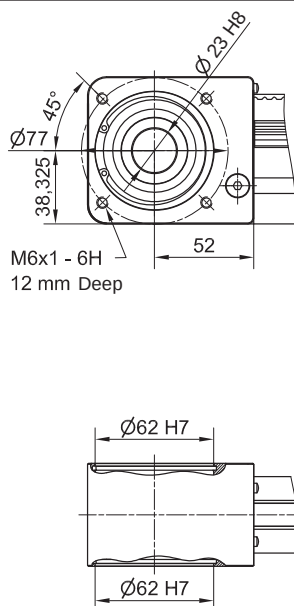
Absolute stroke = Effective stroke + 2 x Safety stroke

Absolute stroke = Effective stroke + 2 x Safety stroke

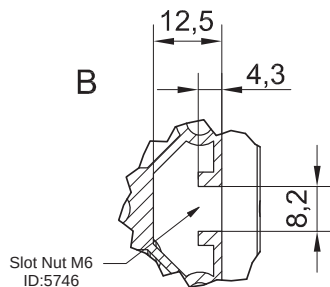
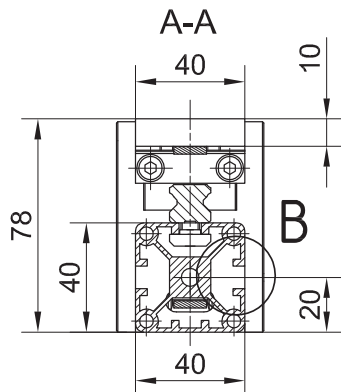


All dimensions in mm;
Drawings scales are not equal.

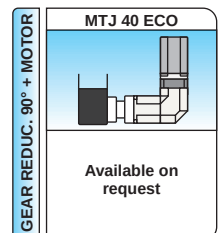
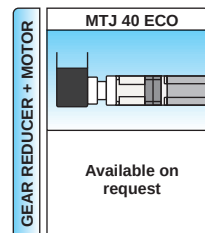
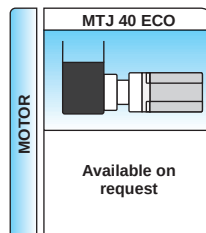
TYPE 2



TECHNICAL DATA



All dimensions in mm;
Drawings scales are not equal.



Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 15 \text{ mm}$$

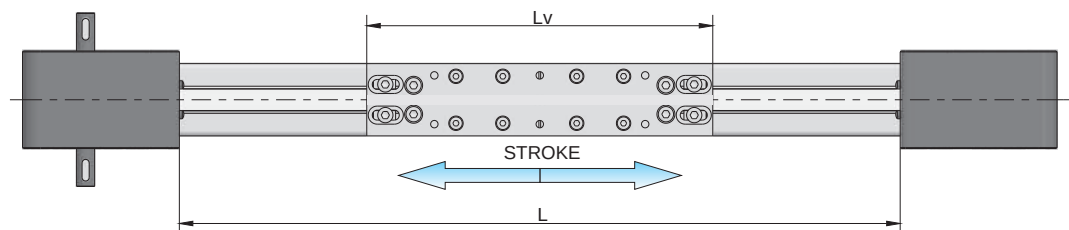
$$L_v - \text{Long carriage} = 200 \text{ mm}$$

$$L_{\text{total}} = L + 174 \text{ mm}$$

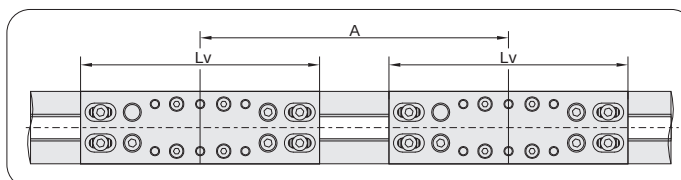
$$L_v - \text{Short carriage} = 132 \text{ mm}$$

Left side (L)

Right side (R)



Double Carriage



For ordering code please contact us.

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + A + 15 \text{ mm}$$

$$L_{\text{total}} = L + 174 \text{ mm}$$

$A \geq L_v$

CHARACTERISTICS

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.

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 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 Polyurethane timing belt protects all the parts in the Profile from dust and other contaminations

The aluminum Profile includes T-slots for attaching sensors and switches. Also, a Reed switch can be used here.

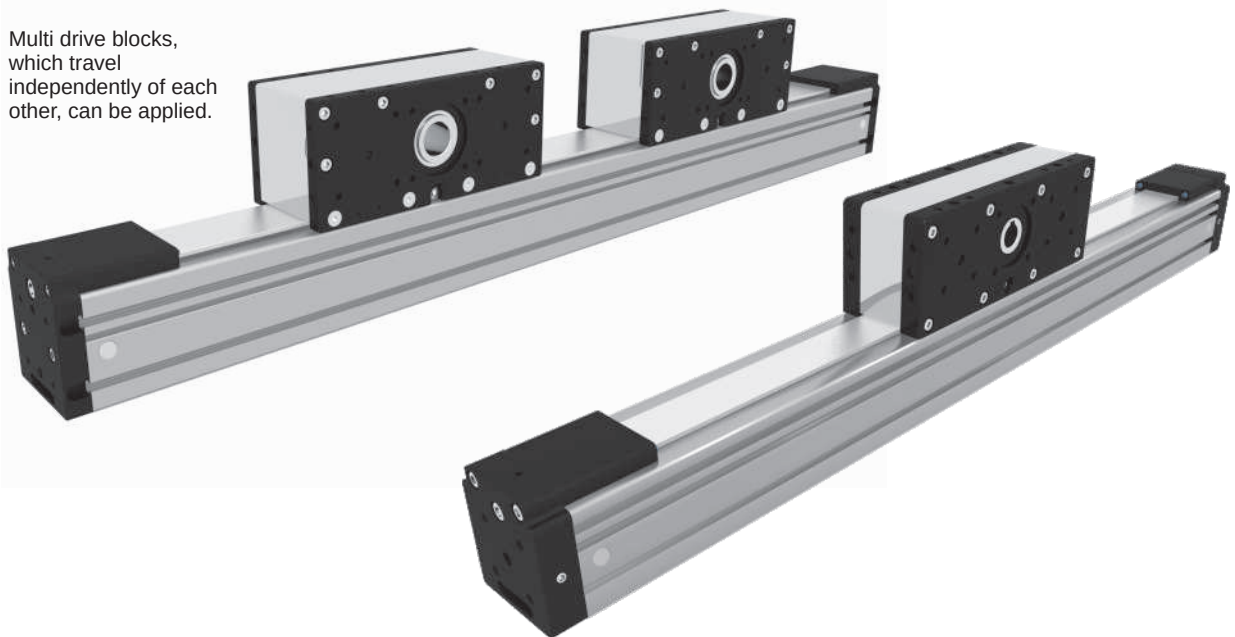
The drive block provides the possibility to attach a Motor or Gearbox housing and additional accessories on it.

Central lubrication port on the drive block allows easy re-lubrication of the Ball rail guide.

For the linear units MTJZ various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.



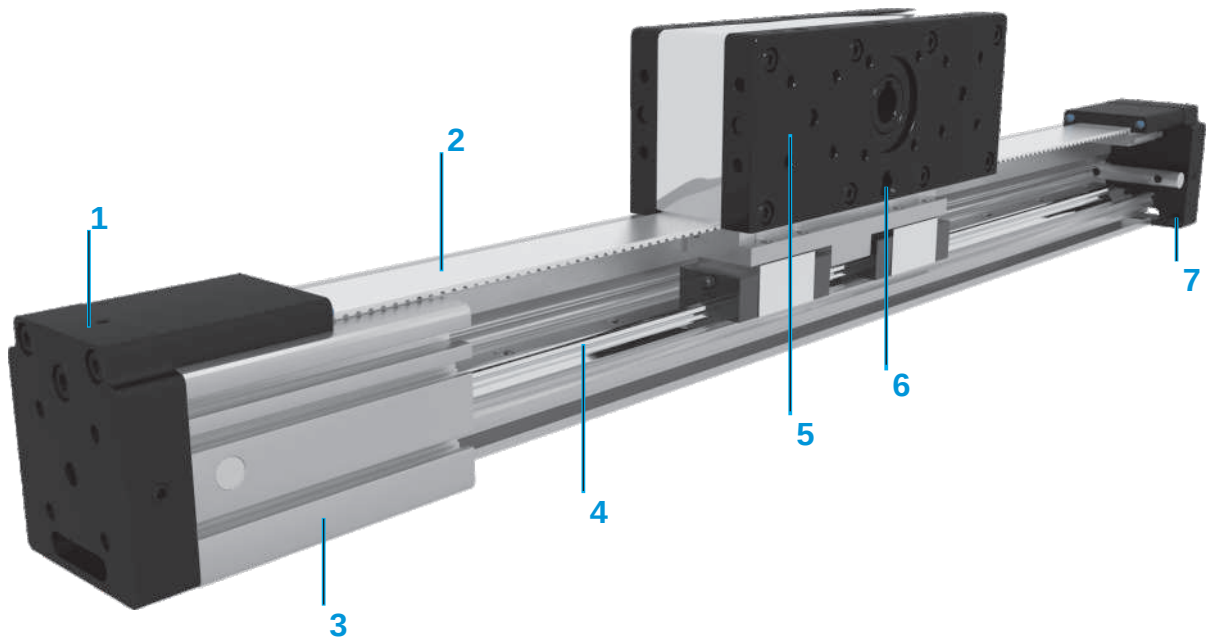
Multi drive blocks, which travel independently of each other, can be applied.



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 - Tension End with integrated belt tensioning system
- 2 - AT polyurethane toothed belt with steel tension cords.
- 3 - Aluminium profile-Hard anodized
- 4 - Linear Ball Guideway
- 5 - Drive block with pulley, Motor flange; with built in Magnets
- 6 - Central lubrication port; both sides
- 7 - Tension End with integrated belt tensioning system

HOW TO ORDER

	MTJZ	-	65	-	1000	-	1	-	0	-	1
Series :											
MTJZ											
Size :											
40											
65											
80											
110											
Absolute Stroke (mm) :											
<i>(Absolute stroke = Effective stroke + 2 x Safety stroke)</i>											
Type of drive pulley :											
0 : Pulley with through hole											
1 : Pulley with journal											
10 : Pulley with journal (without Keyway)											
2 : Pulley with journal on both sides											
20 : Pulley with journal on both sides (without Keyway)											
 MTJZ 110 only available with drive pulley with through hole											
Clamping element :											
0 : Without											
1 : With (available only for MTJZ 110)											
Number of drive blocks :											
The stated number specifies the number of drive blocks on one Linear unit											

TECHNICAL DATA

General technical data for MTJZ series

Linear Unit	Drive block length	 Load capacity		 Dynamic moment			Mass of drive block	Maximum Repeatability	* Maximum length ** (Version 1)	* Maximum length ** (Version 2)	Planar moment of inertia	
		Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]			[kg]	[mm]	Lmax [mm]	Lmax [mm]
MTJZ 40	120	4610	6930	28	120	120	0,95	± 0,08	1000	3000	9,8	11,6
MTJZ 65	200	19800	35000	158	1025	1025	3,2	± 0,08	1200	6000	59,7	74,4
MTJZ 80	250	34200	60000	370	2565	2565	4,9	± 0,08	1500	6000	129,1	173,4
MTJZ 110	300	49600	85000	630	3470	3470	11,3	± 0,08	1800	6000	513,0	620,0

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



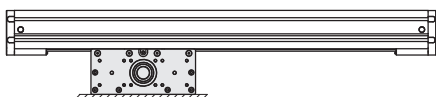
Recommended values of loads

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 (fs =5.0)

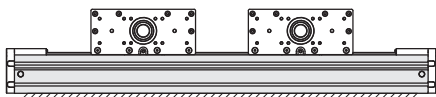
Modulus of elasticity: E = 70000 N / mm²

** Mounting versions

Version 1: Mounting by the drive block, profile travels

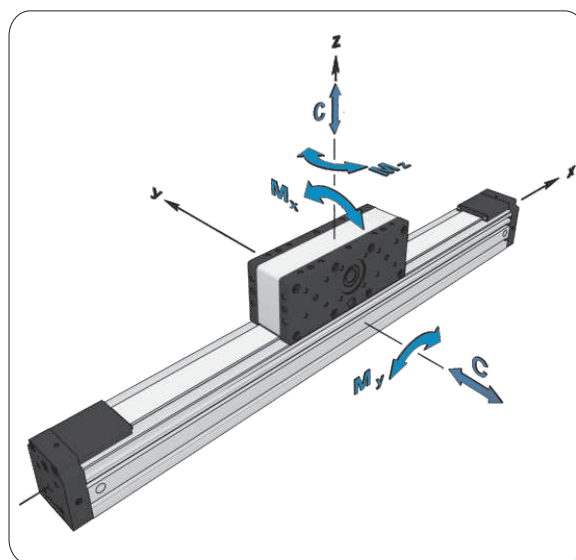


Version 2: Mounting by the profile, drive block travels



Multi drive blocks, which travel independently of each other, can be applied.

On request!



Drive and belt data

Linear Unit	Maximum travel speed [m / s]	Maximum drive torque [Nm]	Puley drive ratio [mm / rev]	Pulley diameter [mm]	Belt type	Belt width [mm]	Max. force transmitted by belt [N]	Specific spring constant Cspec [N]
MTJZ 40	5	3,6	99	31,51	AT3	20	230	225000
MTJZ 65	5	13,1	165	52,52	AT5	32	500	600000
MTJZ 80	5	29,4	210	66,84	AT5	50	880	960000
MTJZ 110	5	110,0	300	95,49	AT10	70	2300	2450000

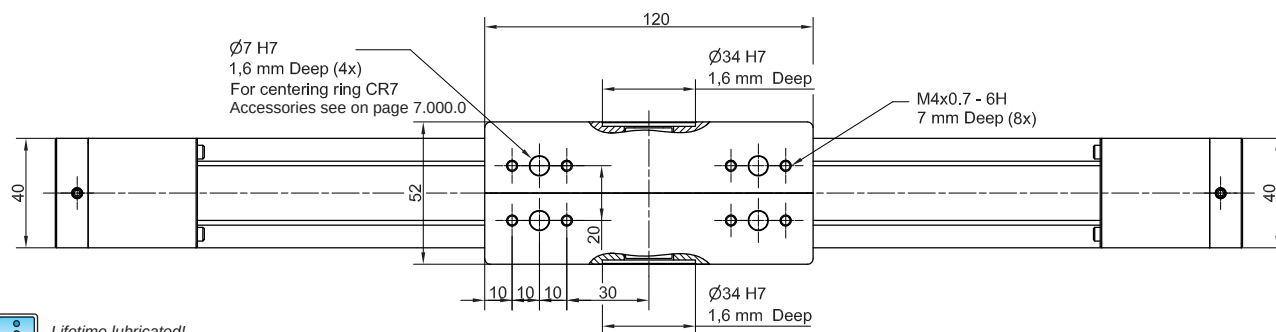
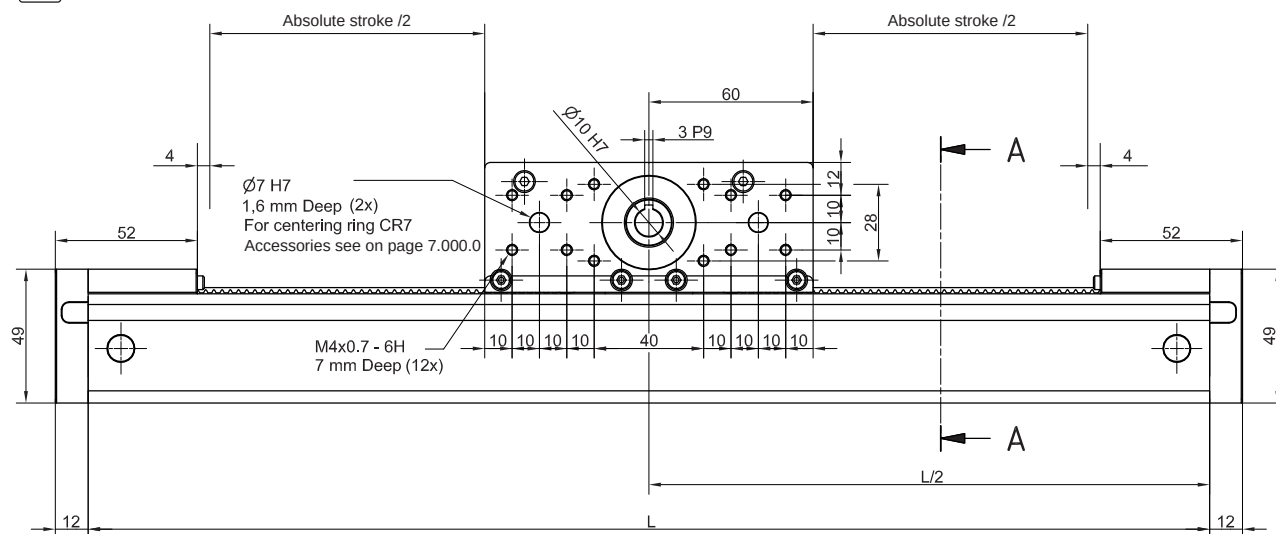
Mass and mass moment of inertia

Linear Unit	Mass of linear unit [kg]	Mass moment of inertia of drive block [10 ⁻⁴ kg·m ²]
MTJZ 40	1,7 + 0,0023 * Stroke [mm]	2,3 + 0,0058 * Stroke [mm]
MTJZ 65	5,7 + 0,0054 * Stroke [mm]	18,9 + 0,0374 * Stroke [mm]
MTJZ 80	9,7 + 0,0083 * Stroke [mm]	60,5 + 0,0922 * Stroke [mm]
MTJZ 110	21,7 + 0,0147 * Stroke [mm]	273,0 + 0,3358 * Stroke [mm]



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

Linear Unit doesn't include any safety stroke.

$$\text{Absolute stroke} = \text{Effective stroke} + 2 \times \text{Safety stroke}$$


Lifetime lubricated!



All dimensions in mm; Drawings scales are not equal.

Technical drawing of a mechanical part, showing a top view and a side view.

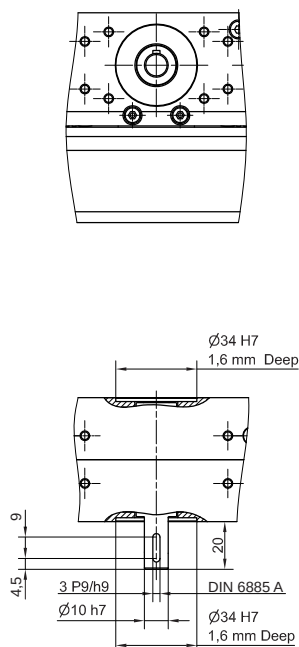
Top View:

- Central circular feature: $\varnothing 10\text{ H7}$
- Depth of central feature: 3 P9

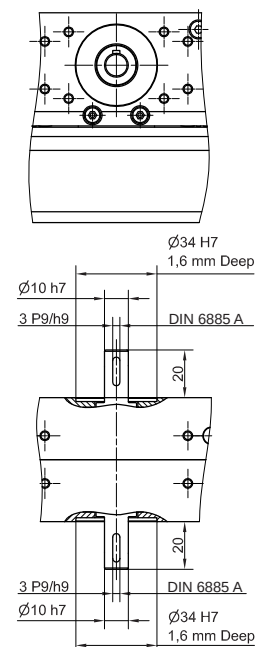
Side View:

- Two cylindrical features (one on each side): $\varnothing 34\text{ H7}$
- Depth of each cylindrical feature: 1.6 mm Deep

Journal with or without Kewway.



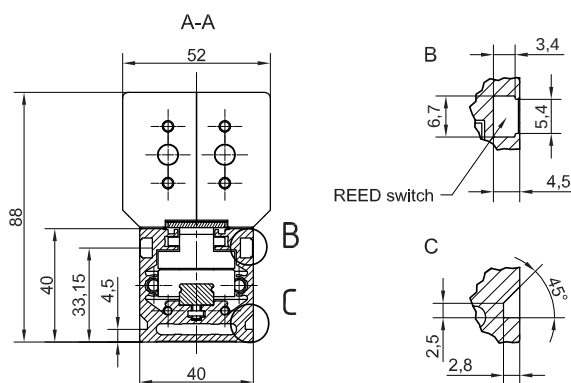
Journal with or without Keyway.



Technical drawing of the front view of a cable gland. The drawing shows a square base with a central circular opening. Dimensions are given in millimeters. Key features include:

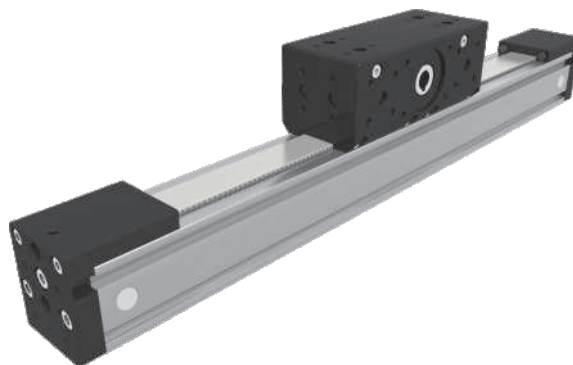
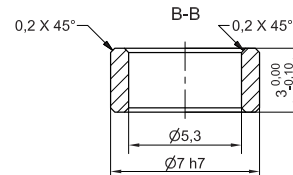
- 4x M4x0.7 - 6H screws with 7 mm deep holes for the top flange.
- 2x Ø7 H7 holes with 1.6 mm deep holes for the top flange, used for centering ring CR7.
- 4x M4x0.7 - 6H screws with 8 mm deep holes for the base.
- 2x Ø7 H7 holes with 1.6 mm deep holes for the base, used for centering ring CR7.
- 4 orifices for cables.

Dimensions include: overall width 52 mm, overall height 44 mm, top flange width 26 mm, top flange height 22 mm, base width 40 mm, base height 35 mm, and various internal offsets and hole positions.



 All dimensions in mm; Drawings scales are not equal.

A schematic diagram of a thick-walled cylinder. It consists of two concentric circles. The inner circle is labeled 'B' with a downward arrow, representing internal pressure. The outer circle is also labeled 'B' with a downward arrow, representing external pressure. Dashed lines indicate the horizontal and vertical centerlines of the cylinder.



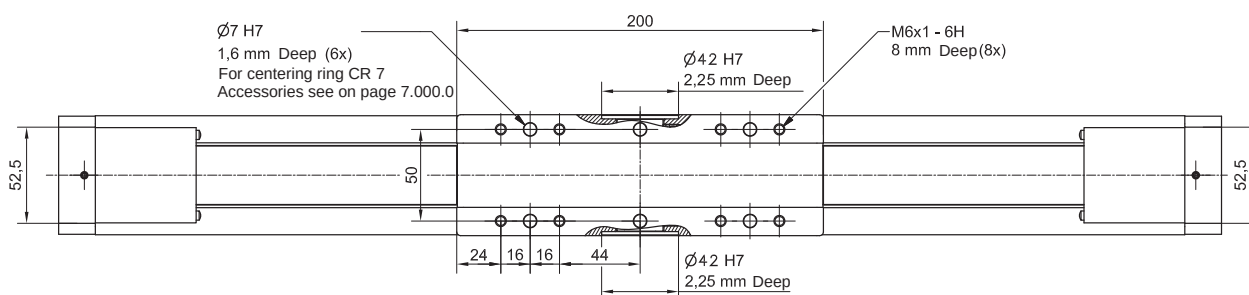
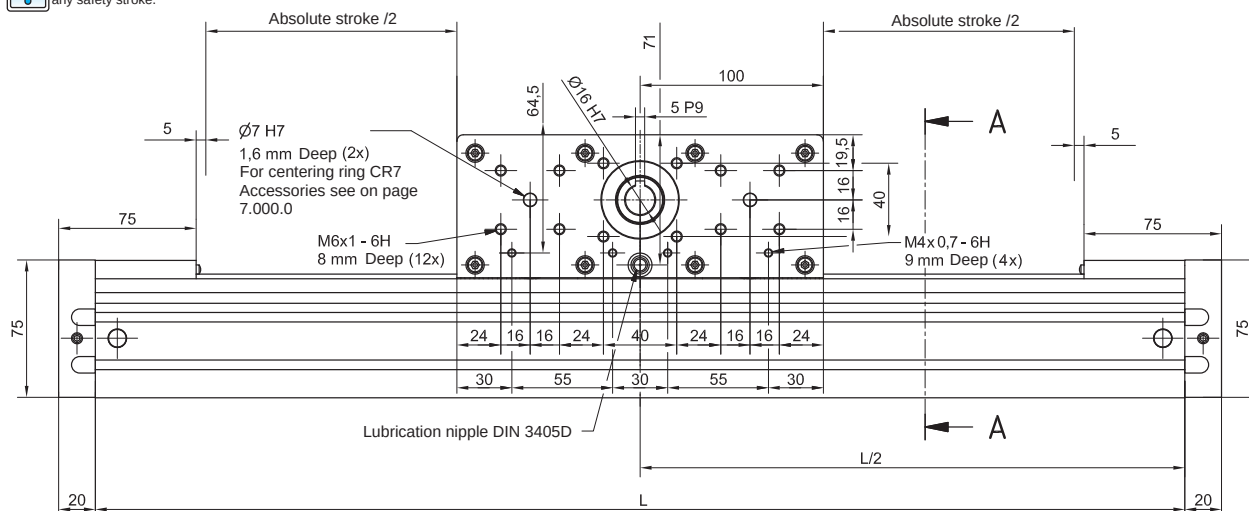
The diagram illustrates a 2D optical lattice structure. It consists of a central dark gray rectangular region, labeled 'L' below it, which represents the interaction region. This central region is flanked by two lighter gray rectangular regions, labeled 'C' on the left and 'C' on the right, representing the coupling regions. The lattice is composed of horizontal lines, with a dashed line in the center indicating the optical axis. A blue double-headed arrow labeled 'STROKE' is positioned below the central region, indicating the direction of the optical stroke. The central region contains four circular nodes arranged in a 2x2 grid, each with a central dot and a surrounding circle, representing the interaction sites. The coupling regions also contain circular nodes, with the left region having a central node and the right region having a central node. The overall structure is symmetric about the central vertical axis.

$$L_{\text{total}} = L + 24 \text{ mm}$$

DIMENSIONS

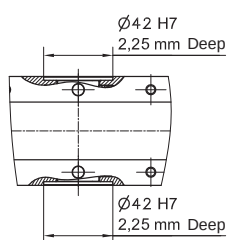
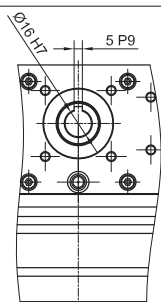


Linear Unit doesn't include any safety stroke.

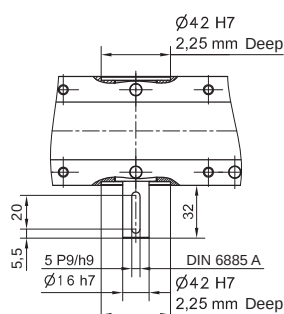
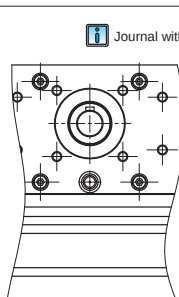
$$\text{Absolute stroke} = \text{Effective stroke} + 2 \times \text{Safety stroke}$$


All dimensions in mm; Drawings scales are not equal.

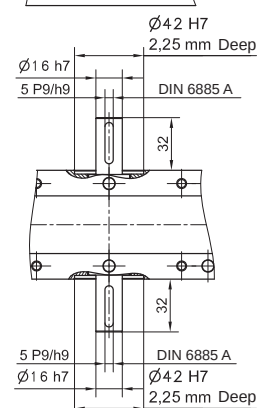
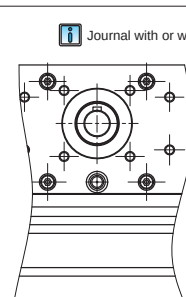
TYPE 0



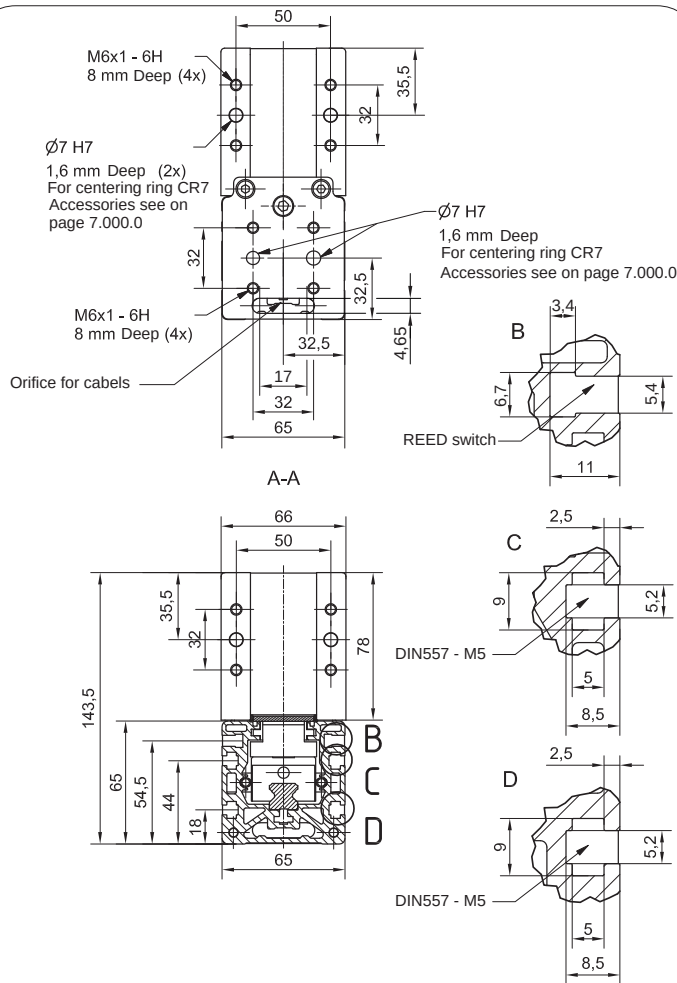
TYPE 1



TYPE 2

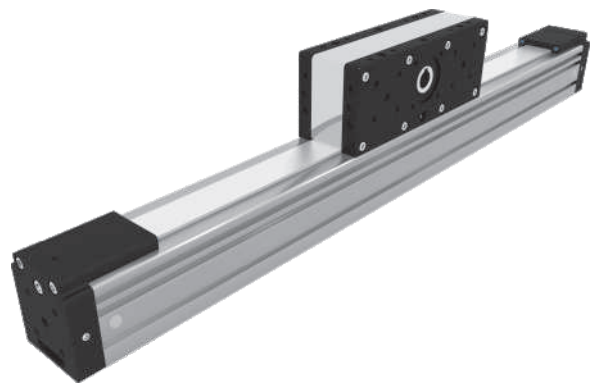
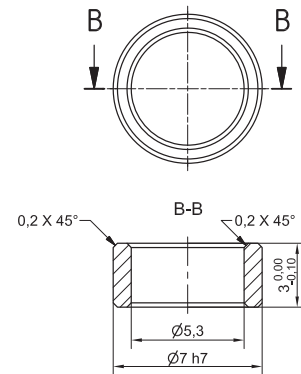


DIMENSIONS



All dimensions in mm; Drawings scales are not equal.

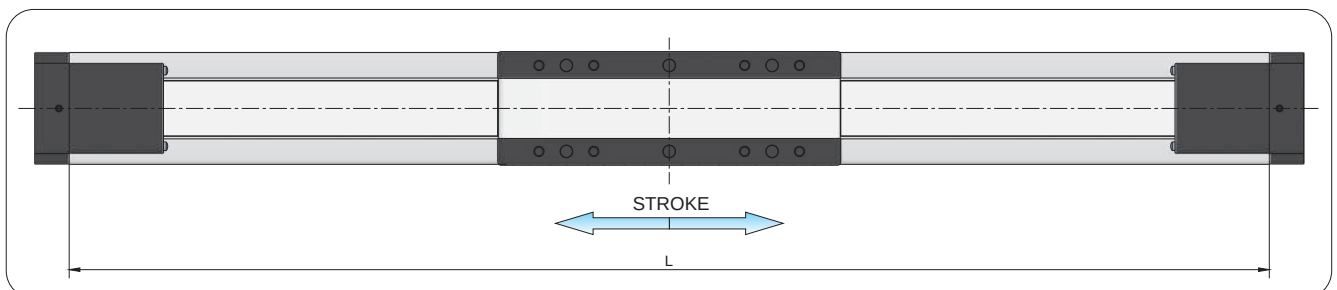
CENTERING RING CR7 Material: 1.4305 (AISI303)



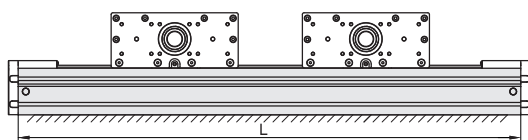
Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 320 \text{ mm}$$

$$L_{\text{total}} = L + 40 \text{ mm}$$



Multi drive block



$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 200 \times n_b + 120 \text{ mm}$$

$$L_{\text{total}} = L + 40 \text{ mm}$$

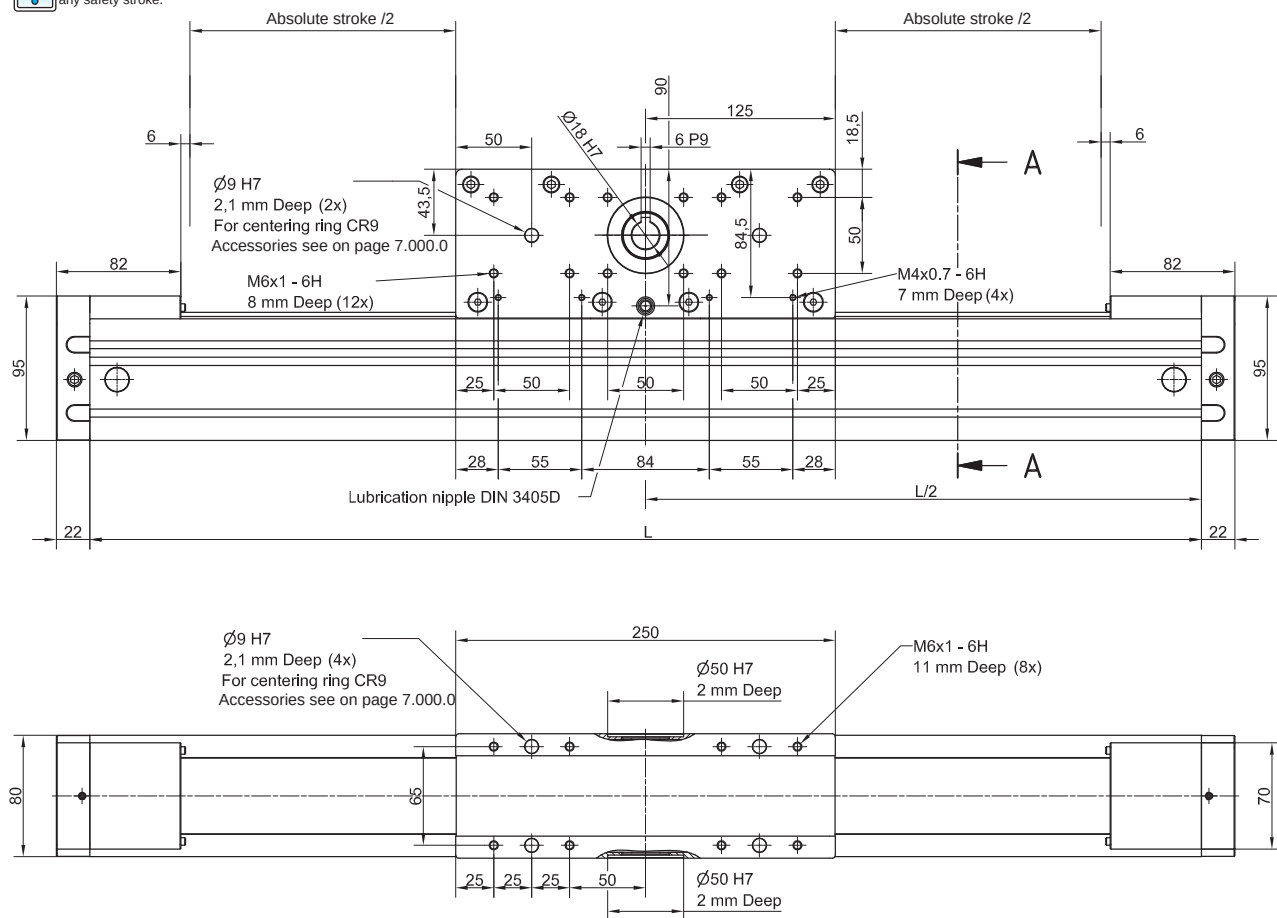
n_b - number of drive blocks

DIMENSIONS



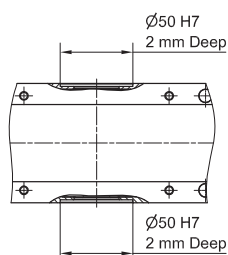
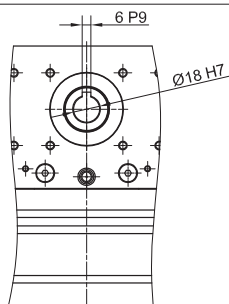
Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke

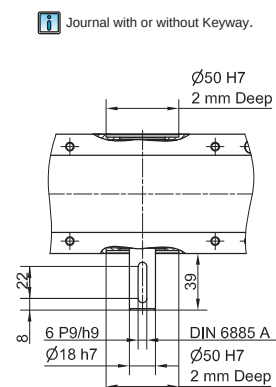
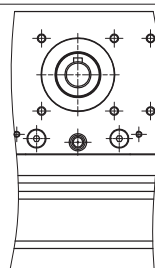


All dimensions in mm; Drawings scales are not equal.

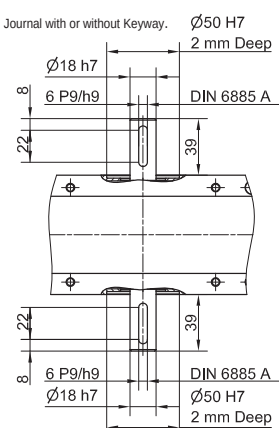
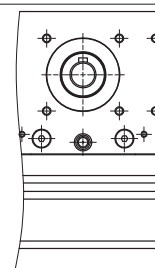
TYPE 0



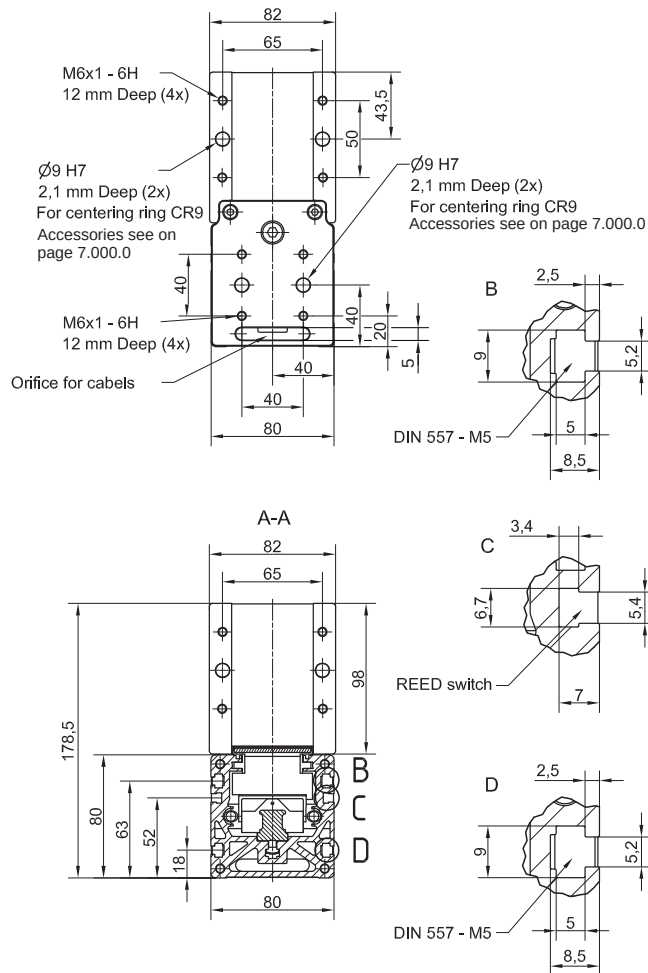
TYPE 1



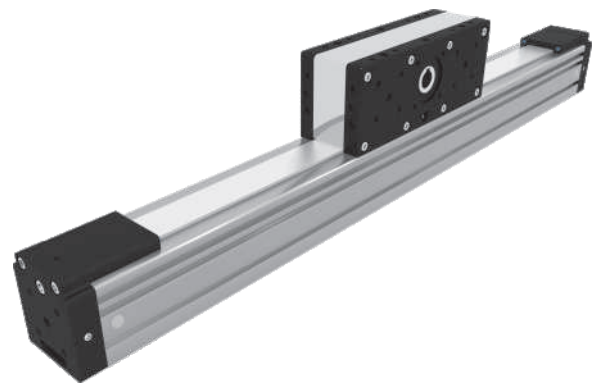
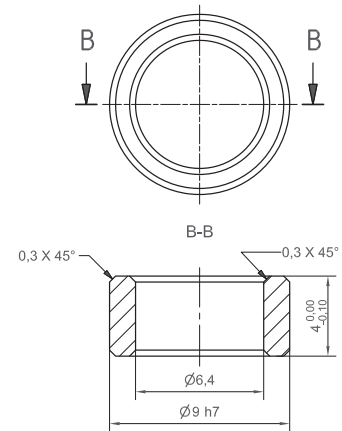
TYPE 2



DIMENSIONS



CENTERING RING CR9
Material: 1.4305 (AISI303)

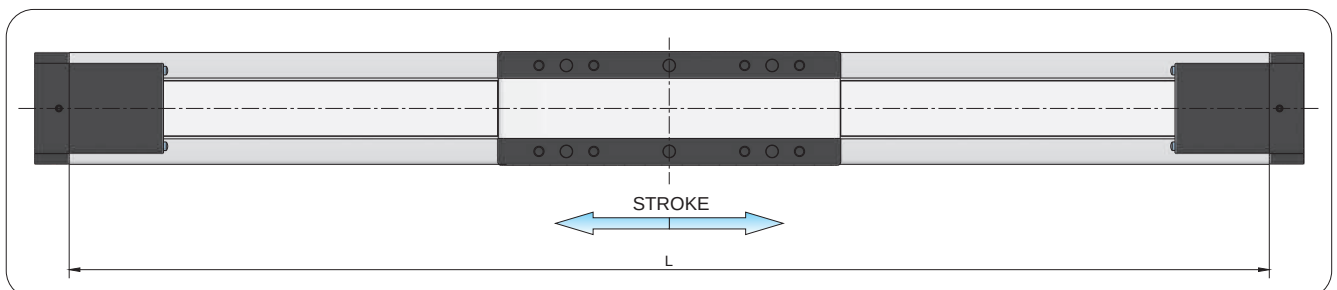


All dimensions in mm; Drawings scales are not equal.

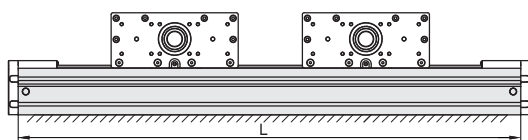
Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 382 \text{ mm}$$

$$L_{\text{total}} = L + 44 \text{ mm}$$



Multi drive block



$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 250 \times n_b + 132 \text{ mm}$$

$$L_{\text{total}} = L + 44 \text{ mm}$$

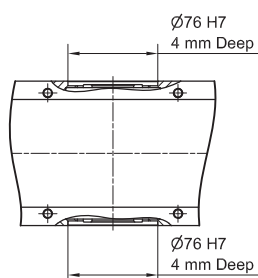
n_b - number of drive blocks

Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



All dimensions in mm; Drawings scales are not equal.



A diagram of a linear guideway. It consists of a central white rectangular block with a wider base, labeled "Linear guideway". Two grey rectangular blocks are positioned on top of the narrow upper part of the guideway, one on the left and one on the right. A light blue arrow points to the right from the left grey block, and another light blue arrow points to the left from the right grey block, indicating the direction of movement.

A diagram of a linear guideway. It consists of a central horizontal bar with a T-shaped cross-section. The top bar is labeled "Linear guideway". On either side of the central bar, there is a vertical rectangular block. A light blue arrow points to the left from the left block, and another light blue arrow points to the right from the right block, indicating the direction of movement.

Purified and oiled air shall be used (according to ISO 8573-1 Class 4). Recommended filter size is 25 µm.

Linear Unit	Mass of drive block [kg]	Mass of linear unit [kg]
MTJZ 110	12,9	23,3 + 0,0147 * Stroke [mm]

M8x1.25 - 6H
 14 mm Deep (4x)
 Ø9 H7
 2,1 mm Deep (2x)
 For centering ring CR9
 Accessories see on
 page 7.000.0
 Ø9 H7
 2,1 mm Deep (2x)
 For centering ring CR9
 Accessories see on
 page 7.000.0
 M8x1.25 - 6H
 14 mm Deep (8x)
 Orifice for cables

122
 102
 62
 70
 44
 72
 19
 8
 55
 40
 49
 68
 110
 130
 241
 110
 85
 70
 25
 12,5
 110

B
 4,6
 14
 8,3
 6,8
 12,5
 DIN 557 - M8
 C
 3,4
 6,7
 5,4
 13
 REED switch
 D
 4,6
 14
 8,3
 6,8
 12,5
 DIN 557 - M8
 E
 14
 12,5
 6,8
 8,3
 4,6
 DIN 557 - M8

A-A

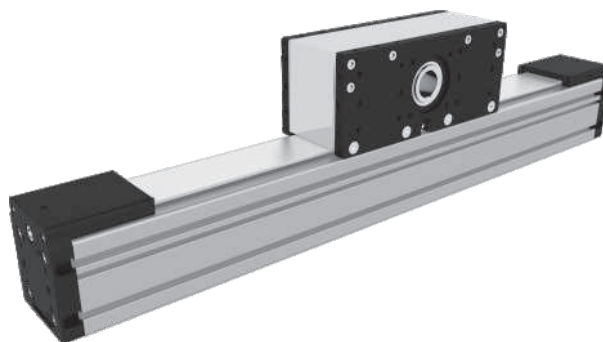
All dimensions in mm; Drawings scales are not equal.

Technical drawing of a bush (BUSH) showing a front view and a cross-section B-B.

Front View: A circle with concentric circles representing the bore and outer diameter. Section lines B-B are indicated.

Cross-section B-B: A rectangular profile with a central bore. Dimensions include:

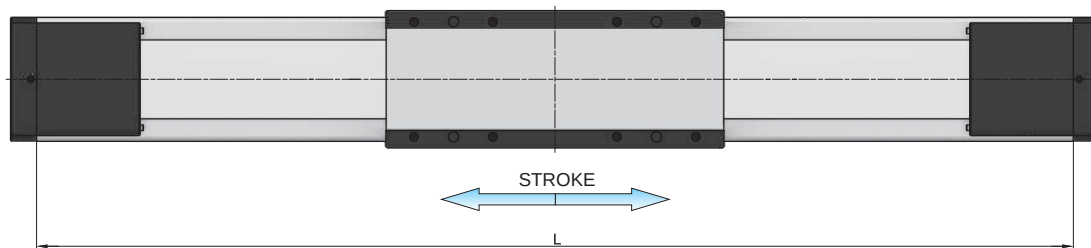
- Bore diameter: $\varnothing 6.4$
- Outer diameter: $\varnothing 9 \text{ h7}$
- Total height: 4.00
- Section height: 3.10
- Chamfers: $0.3 \times 45^\circ$ on the top and bottom edges.



 All dimensions in mm; Drawings scales are not equal.

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 496 \text{ mm}$$

$$L_{\text{total}} = L + 46 \text{ mm}$$



Technical drawing of a mechanical assembly showing a cross-section of a beam with two rectangular blocks mounted on top. The blocks are connected by a central horizontal bar. The total length of the assembly is labeled L .

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + 300 \times n_b + 196 \text{ mm}$$

$$L_{\text{total}} = L + 46 \text{ mm}$$

n_b - number of drive blocks

CHARACTERISTICS

The **CTJ** series includes Linear Units with a toothed belt drive and two parallel, integrated, Zero-backlash rail guides. Compact dimensions allow high performance features such as, high speed and repeatability. They can easily be combined to multi-axis systems.

Excellent price-/performance ratio and quick delivery time are ensured.

A compact, precision-extruded aluminum Profile from AL 6063, with two parallel, integrated Zero-backlash rail guide systems, allows high load capacities and an optimal sequence for the movement of larger masses at high speed.

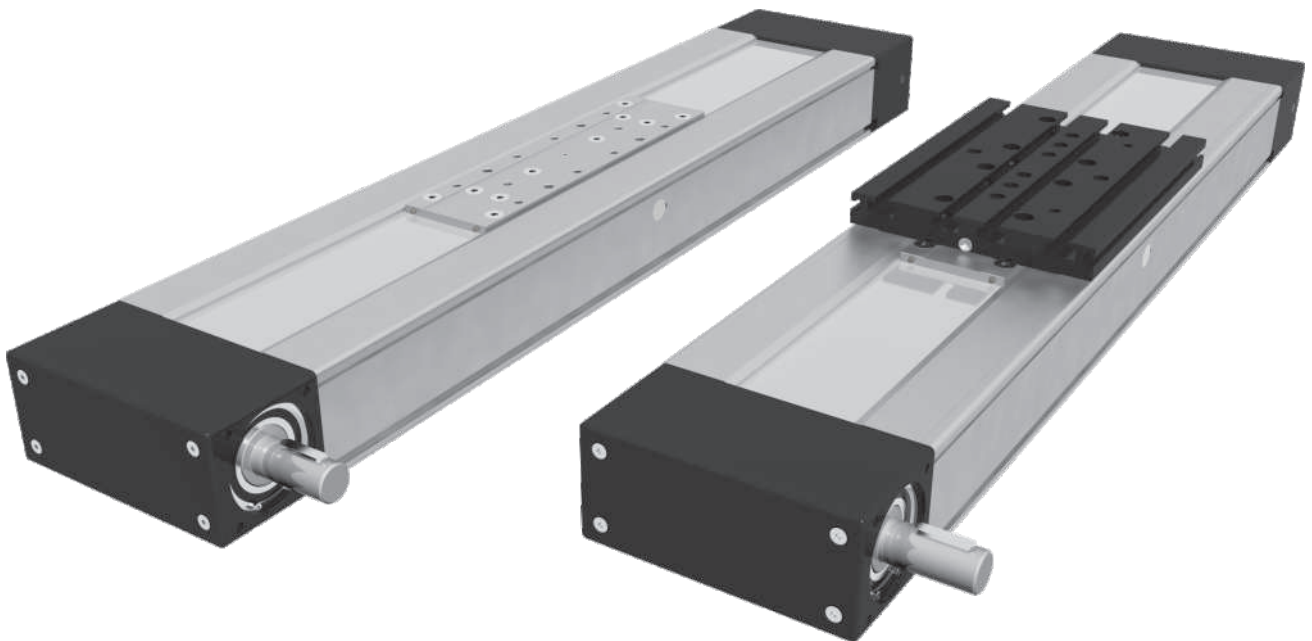
In the linear units CTJ is used a pre-tensioned steel reinforced AT polyurethane timing toothed belt. In conjunction with a Zero-backlash drive pulley high moments with alternating loads with good positioning accuracy, low wear and low noise can be realized.

The in the Profile slot driving Polyurethane timing belt, protects all the parts in the Profile from dust and other contaminations.

Different carriage lengths with lubrication port allows for easy re-lubrication of the 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.

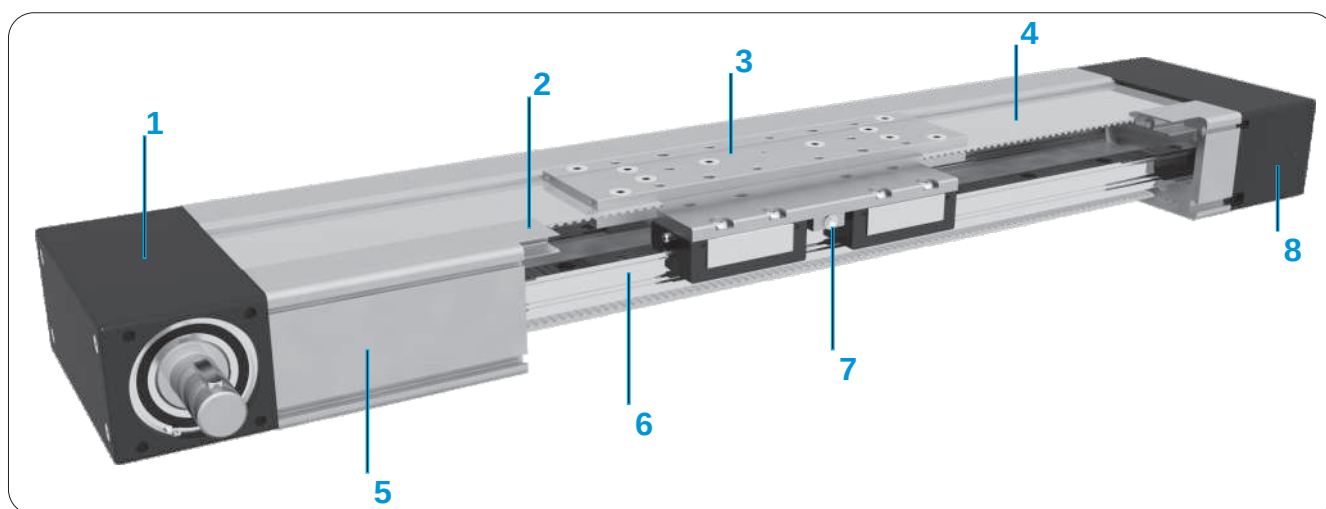
For the linear units CTJ various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.



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 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

HOW TO ORDER

	CTJ	-	145	-	1000	-	L	-	1	-	R	-	1
--	------------	---	------------	---	-------------	---	----------	---	----------	---	----------	---	----------

Series : _____

CTJ

Size : _____

90

110

145

200

Absolute stroke (mm) : _____

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

Carriage Version : _____

S : Short

L : Long

Type of drive pulley : _____

1 : Pulley with journal

10 : Pulley with journal (without Keyway)

2 : Pulley with journal on both sides

20 : Pulley with journal on both sides (without Keyway)

3 : Without drive unit

 By CTJ 200 with drive pulley 2 or 20, the drive journal position left - **L** or right - **R** side must be also specified - motor/gearbox attachment side.

Drive journal position : _____

L : Journal on left side

R : Journal on right side

Leave blank : For type of drive pulley 2, 20 and 3

Connection plate : _____

0: Without

1: With

TECHNICAL DATA

General technical data for CTJ series

Linear Unit	Carriage length Lv [mm]	Load capacity		Dynamic moment			Moved mass [kg]	Maximum Repeatability [mm]	* Maximum length Lmax [mm]	Planar moment of inertia	
		Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]				Iy [cm ⁴]	Iz [cm ⁴]
CTJ 90 S	102	4620	6930	125	17	34	0,20	± 0,08	6000	13,4	107,0
CTJ 90 L	156	9240	13860	250	290	290	0,35	± 0,08			
CTJ 110 S	170	19800	35000	610	118	235	0,64	± 0,08	6000	31,1	217,2
CTJ 110 L	215	39600	70000	1225	1680	1680	0,98	± 0,08			
CTJ 145 S	180	34200	60000	1500	260	520	1,35	± 0,08	6000	78,9	707,6
CTJ 145 L	240	68400	120000	3005	3420	3420	2,25	± 0,08			
CTJ 200 S	265	49600	85000	3235	450	900	3,05	± 0,08	6000	376,4	2744,6
CTJ 200 L	405	99200	170000	6470	8680	8680	5,70	± 0,08			

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

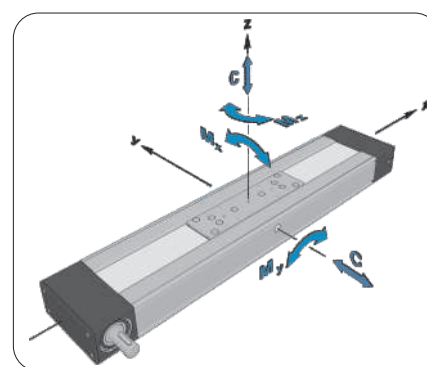


Recommended values of loads

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 (fs = 5.0)

Modulus of elasticity

E = 70000 N / mm²



Drive and belt data for CTJ series

Linear Unit	Maximum travel speed	Maximum drive torque	* No load torque	Puley drive ratio	Pulley diameter	Belt type	Belt width [mm]	Max. force transmitted by belt [N]	Specific spring constant Cspec [N]
	[m / s]	[Nm]	[Nm]	[mm / rev]	[mm]				
CTJ 90 S	5	7,5	0,40	90	28,65	AT 3	35	520	402500
CTJ 90 L			0,42						
CTJ 110 S	6	15,7	0,98	120	38,20	AT 5	50	820	960000
CTJ 110 L			1						
CTJ 145 S	6	33,6	1,48	165	52,52	AT 5	70	1280	1360000
CTJ 145 L			1,5						
CTJ 200 S	6	102 with keyway	2,3	250	79,58	AT 10	100	3250	4350000
CTJ 200 L		129 without keyway	2,8						

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

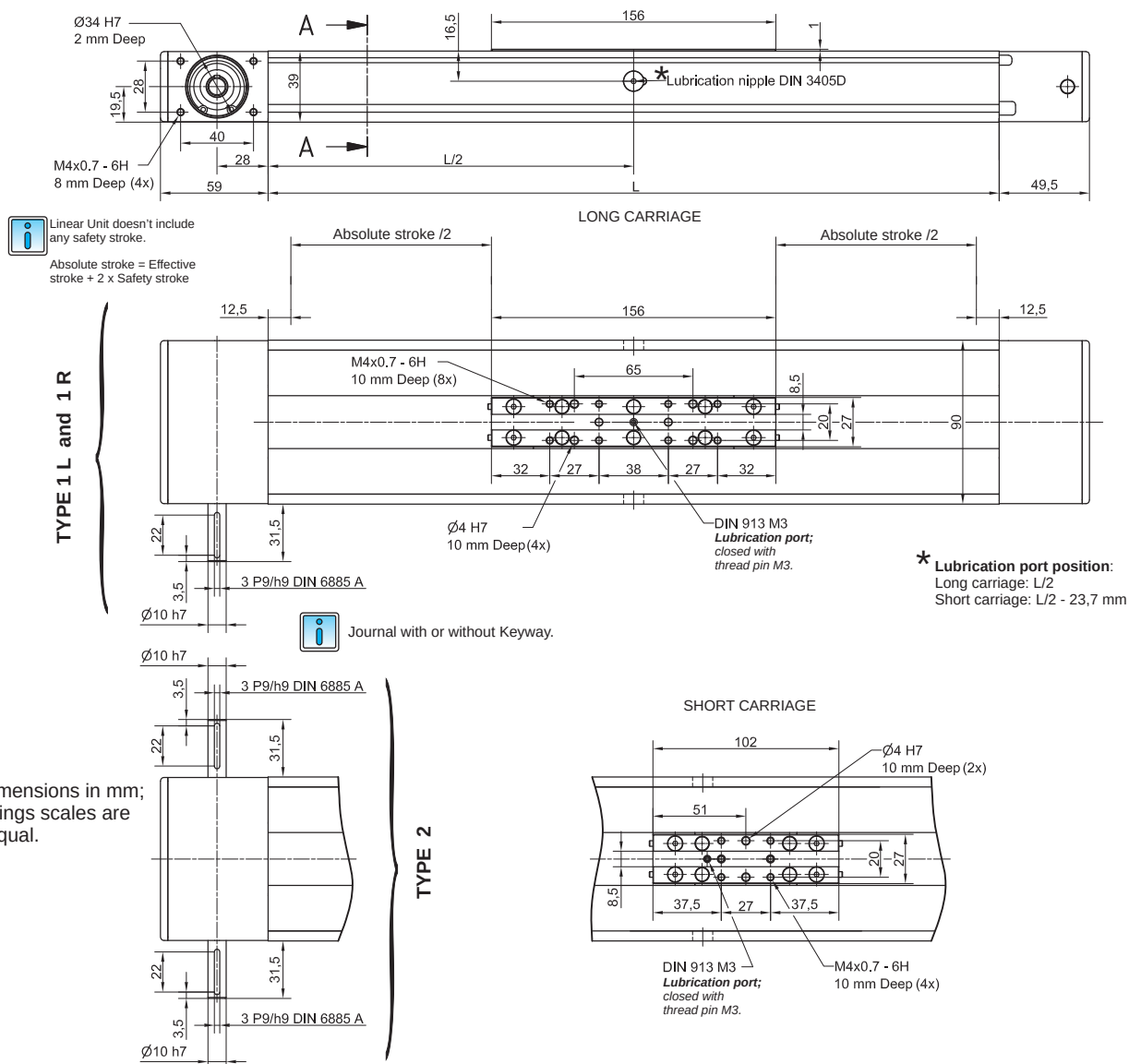
Mass and mass moment of inertia

Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10 ⁻⁵ kg·m ²]
CTJ 90 S	102	1,7 + 0,0048 * Stroke [mm]	7 + 0,0031 * Stroke [mm]
CTJ 90 L	156	2,1 + 0,0048 * Stroke [mm]	11 + 0,0031 * Stroke [mm]
CTJ 110 S	170	3,6 + 0,0072 * Stroke [mm]	36 + 0,0125 * Stroke [mm]
CTJ 110 L	215	4,2 + 0,0072 * Stroke [mm]	49 + 0,0125 * Stroke [mm]
CTJ 145 S	180	7,2 + 0,0127 * Stroke [mm]	145 + 0,0330 * Stroke [mm]
CTJ 145 L	240	8,8 + 0,0127 * Stroke [mm]	208 + 0,0330 * Stroke [mm]
CTJ 200 S	265	20,2 + 0,0245 * Stroke [mm]	778 + 0,1868 * Stroke [mm]
CTJ 200 L	405	26,2 + 0,0245 * Stroke [mm]	1210 + 0,1868 * Stroke [mm]



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

DIMENSIONS



All dimensions in mm;
Drawings scales are
not equal.

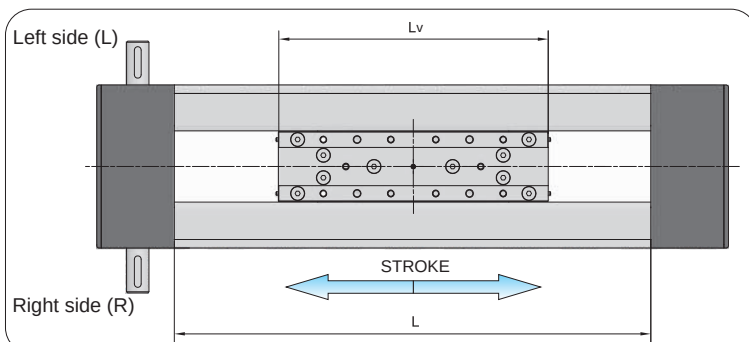
Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 25 \text{ mm}$$

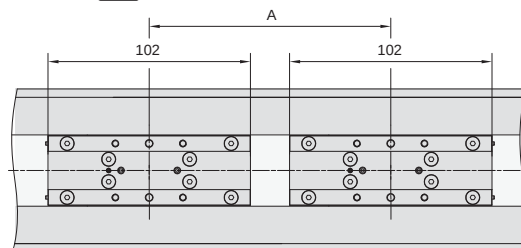
$$L_{\text{total}} = L + 108,5 \text{ mm}$$

$$L_v - \text{Long carriage} = 156 \text{ mm}$$

$$L_v - \text{Short carriage} = 102 \text{ mm}$$



Double-Carriage



Only with **short** carriage version.



$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 127 \text{ mm}$$

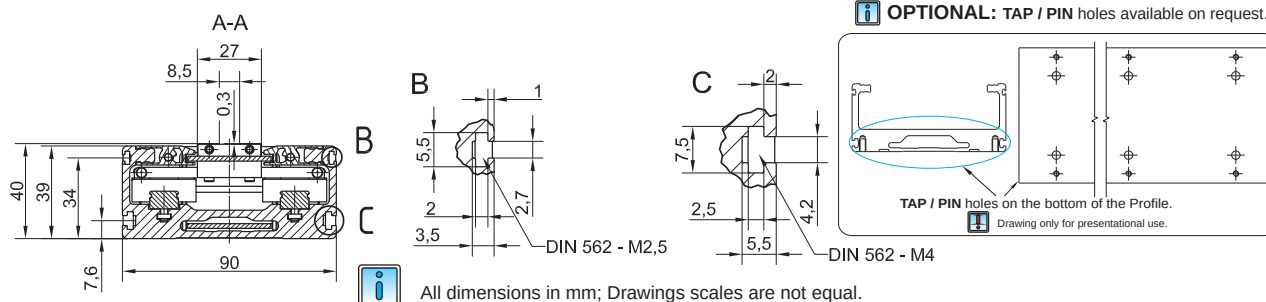
$$L_{\text{total}} = L + 108,5 \text{ mm}$$

$$A \geq 102 \text{ mm}$$



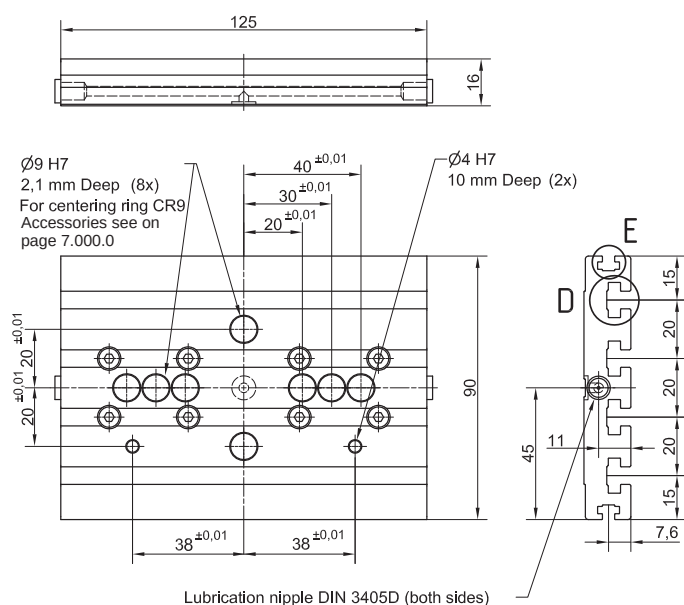
For ordering code
please contact us.

DIMENSIONS

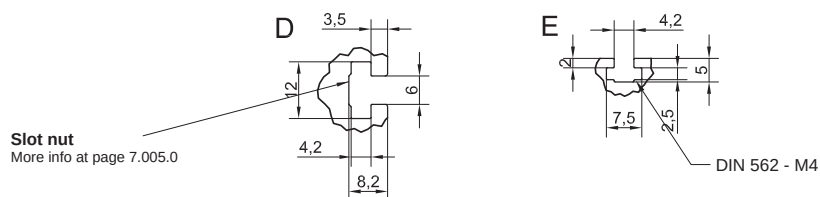
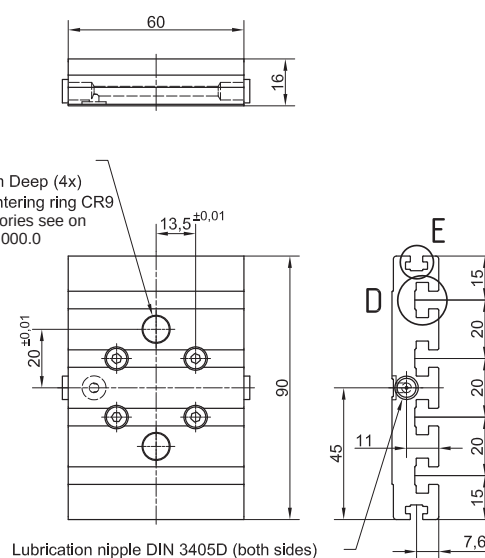


CONNECTION PLATE

CTJ 90 L



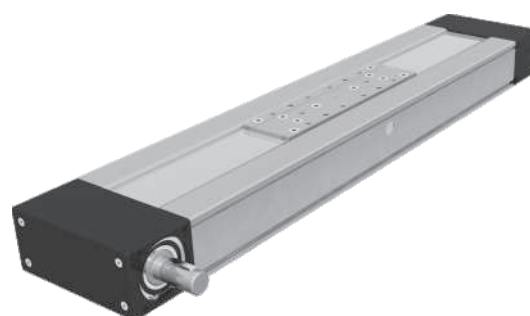
CTJ 90 S



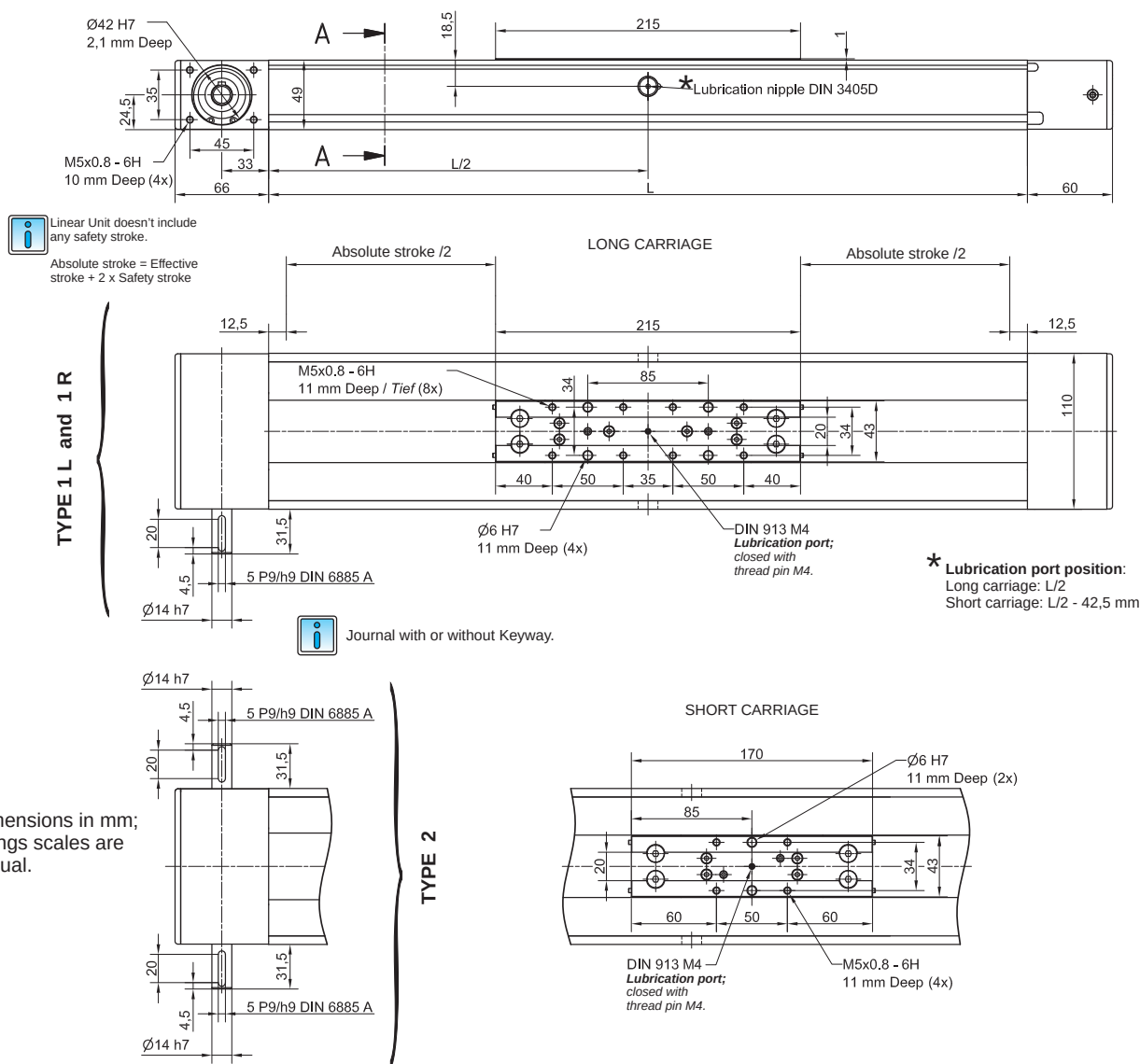
Linear Unit	Plate length [mm]	Weight [kg]	Code
CTJ 90 S	60	0,2	48853
CTJ 90 L	125	0,4	48854

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

MOTOR	CTJ 90	Available on request
	GEAR REDUCER + MOTOR	Available on request
GEAR REDUCER 90° + MOTOR	CTJ 90	Available on request
	GEAR REDUCER 90° + MOTOR	Available on request



DIMENSIONS



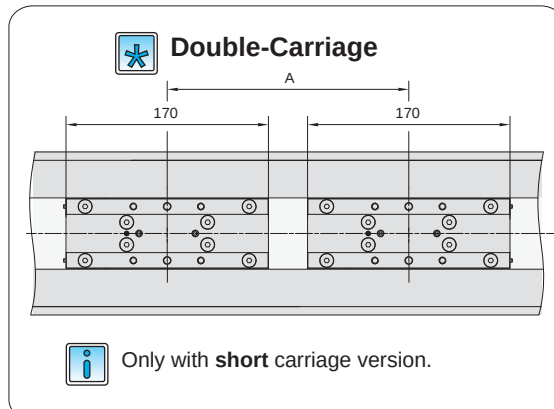
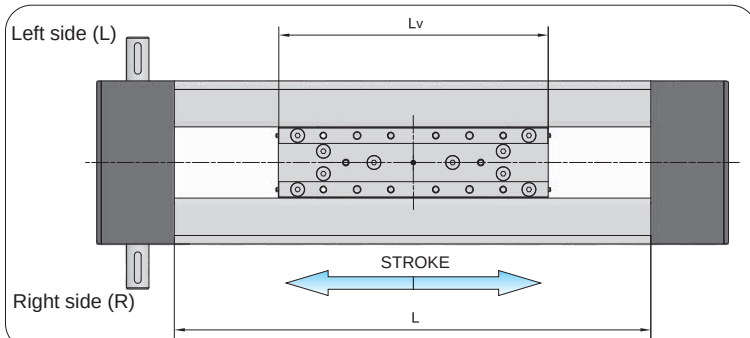
Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 25 \text{ mm}$$

$$L_{\text{total}} = L + 126 \text{ mm}$$

$$L_v - \text{Long carriage} = 215 \text{ mm}$$

$$L_v - \text{Short carriage} = 170 \text{ mm}$$



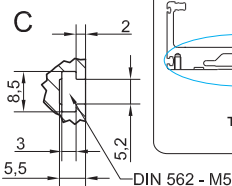
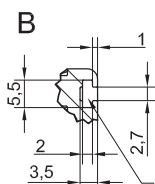
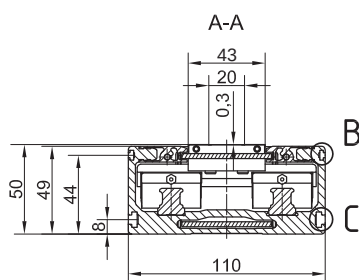
$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 195 \text{ mm}$$

$$L_{\text{total}} = L + 126 \text{ mm}$$

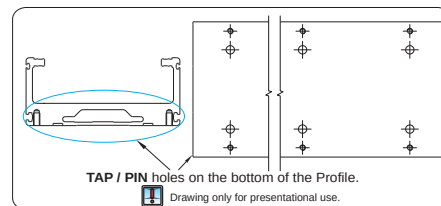
$$A \geq 170 \text{ mm}$$

For ordering code
please contact us.

DIMENSIONS



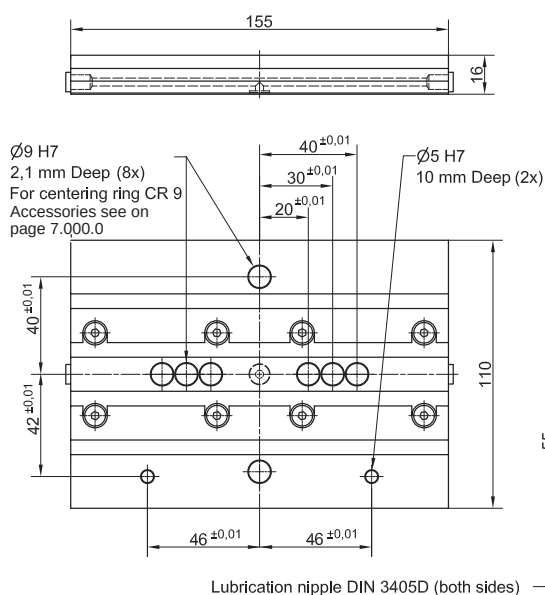
OPTIONAL: TAP / PIN holes available on request.



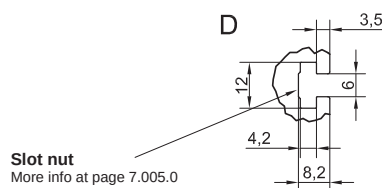
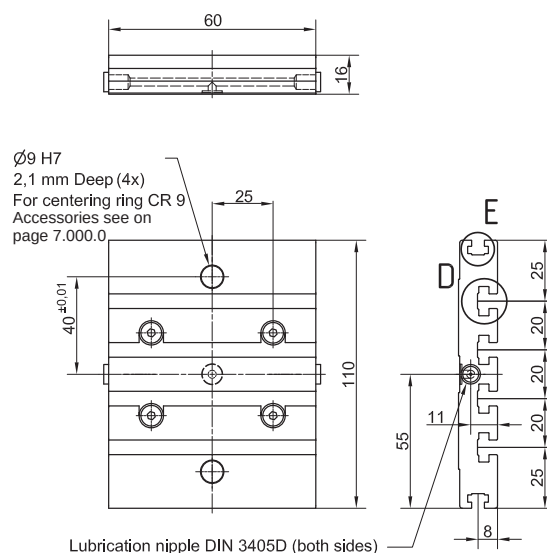
All dimensions in mm; Drawings scales are not equal.

CONNECTION PLATE

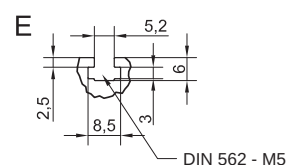
CTJ 110 L



CTJ 110 S



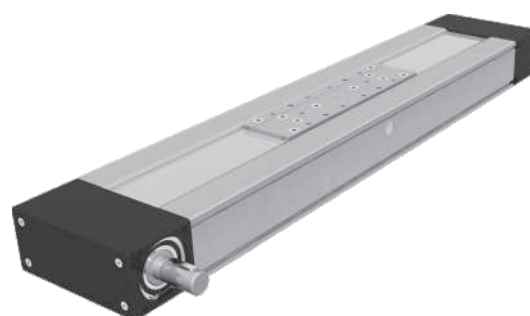
Slot nut
More info at page 7.005.0



Linear Unit	Plate length [mm]	Weight [kg]	Code
CTJ 110 S	60	0,35	48525
CTJ 110 L	155	0,60	48480

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

MOTOR	CTJ 110	CTJ 110	CTJ 110
	Available on request	Available on request	Available on request
GEAR REDUCER + MOTOR	CTJ 110	CTJ 110	CTJ 110
	Available on request	Available on request	Available on request
GEAR REDUCER 90° + MOTOR	CTJ 110	CTJ 110	CTJ 110
	Available on request	Available on request	Available on request



Technical drawing of the front view of a shaft assembly. The shaft has a total length of 240 mm. On the left, there is a hub with a bore of diameter 55 mm (H7 fit) and a depth of 2.5 mm. The hub has an outer diameter of 63 mm and a width of 69 mm. The shaft has a diameter of 21 mm. A lubrication nipple (DIN 3405D) is located on the shaft at a distance of $L/2$ from the left end. The distance from the left end of the shaft to the center of the hub is 69 mm. The distance from the center of the hub to the center of the lubrication nipple is $L/2$. The distance from the center of the lubrication nipple to the right end of the shaft is 69 mm. The shaft has a total length of 240 mm. The drawing includes dimension lines and labels for all features.

Absolute stroke = Effective stroke + 2 x Safety stroke

TYPE 1 L and 1 R

Absolute stroke /2

LONG CARRIAGE

Absolute stroke /2

Ø6 H7
7,5 mm Deep (4x)

— **DIN 913 M4**
Lubrication port;
closed with
thread pin M4.

* **Lubrication port position:**
Long carriage: L/2
Short carriage: L/2 - 47,5 mm

Journal with or without Keyway.

Ø20 h7
6 P9/h9 DIN 6885 A

TYPE 2

SHORT CARRIAGE

—Ø6 H7
7,5 mm Deep (2x)

DIN 913 M4—
Lubrication port;
closed with
thread pin M4.

M6x1 - 6H
11 mm Deep (4x)

 All dimensions in mm;
Drawings scales are
not equal.

The diagram illustrates the internal structure of a linear actuator. It features a central piston rod with a piston head at each end. The piston head is composed of multiple rings. The diagram is labeled with 'Left side (L)' and 'Right side (R)' at the ends. A dimension line labeled 'L' indicates the total length of the actuator. A dimension line labeled 'L_v' indicates the stroke length, which is the distance the piston rod can travel. A blue double-headed arrow labeled 'STROKE' is shown below the actuator, indicating the range of motion. The internal components, including the piston rings and the central rod, are shown in cross-section.

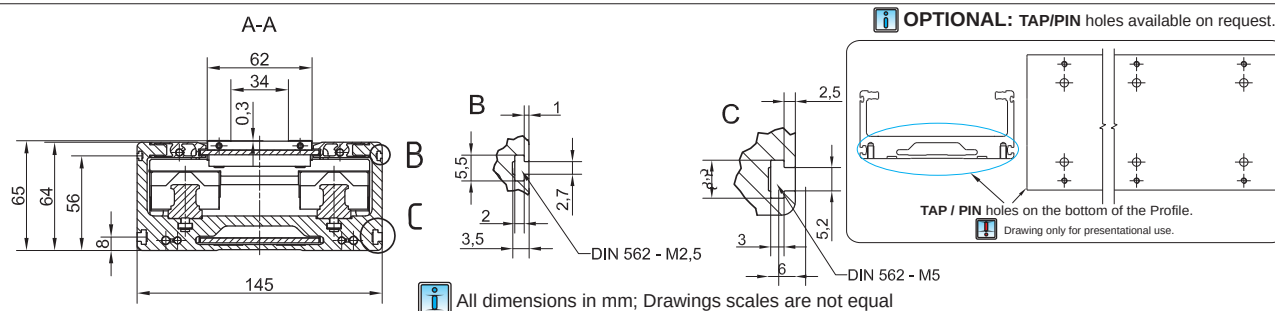
 Only with **short** carriage version.

$$L_{\text{total}} = L + 138 \text{ mm}$$

A ≥ 180 mm

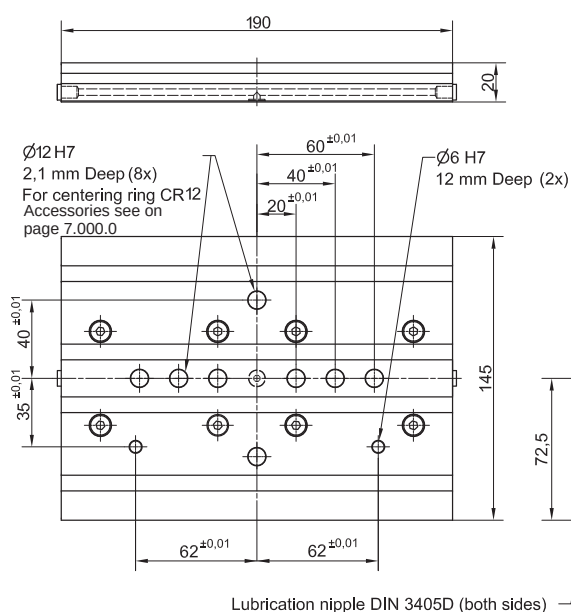
 For ordering code
please contact us.

DIMENSIONS

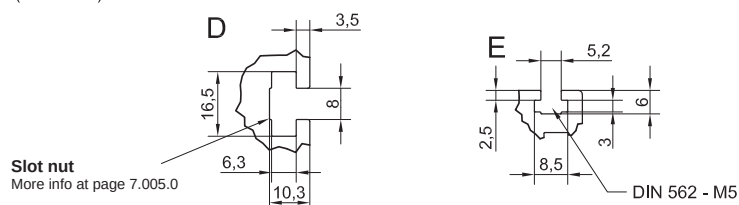
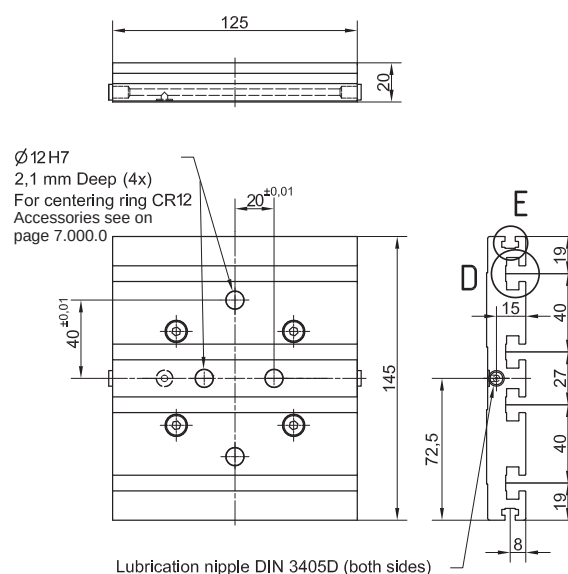


CONNECTION PLATE

CTJ 145 L



CTJ 145 S



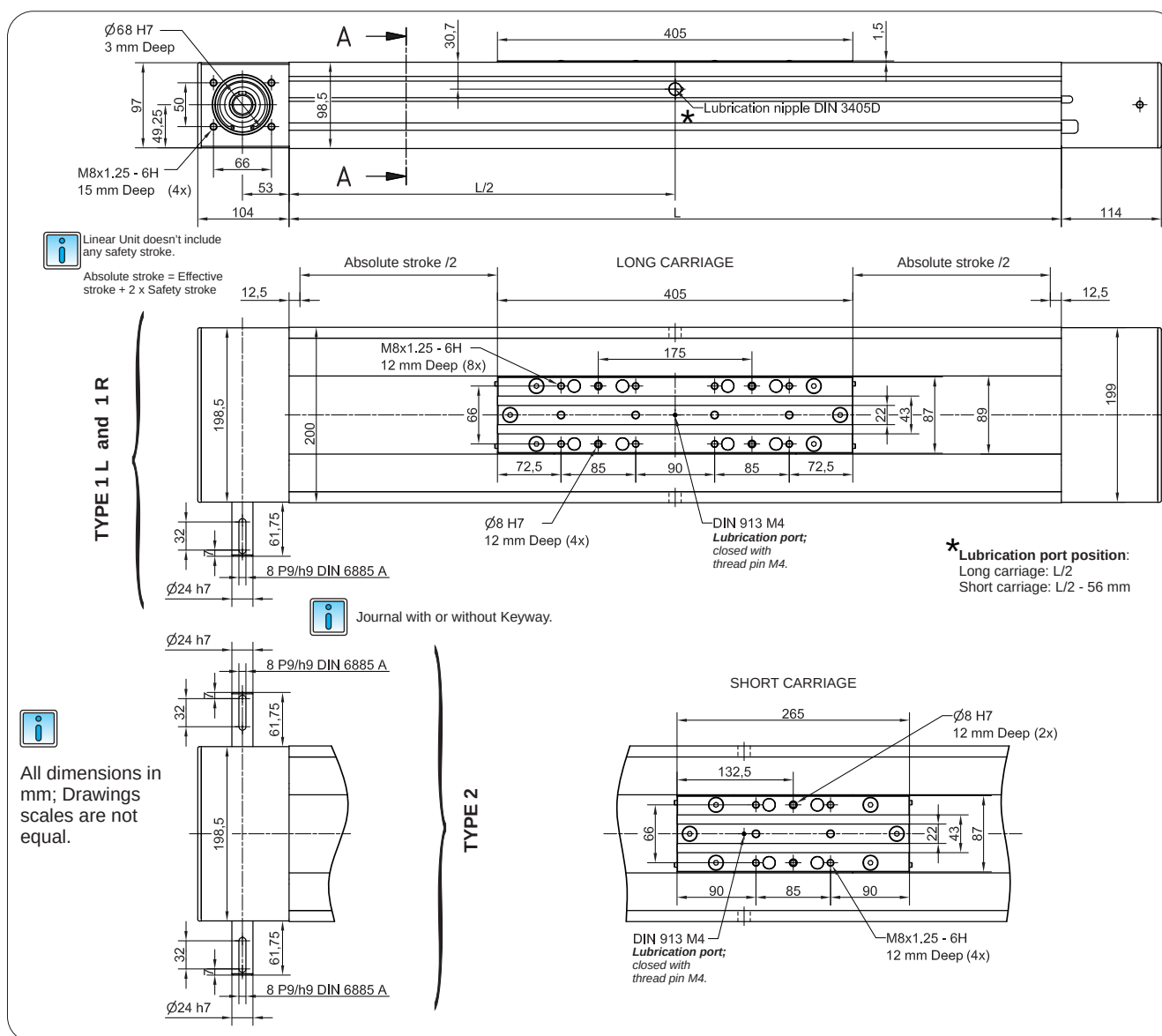
Linear Unit	Plate length [mm]	Weight [kg]	Code
CTJ 145 S	125	0,8	46776
CTJ 145 L	190	1,3	46775

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

MOTOR	CTJ 145	CTJ 145	CTJ 145
	Available on request	Available on request	Available on request



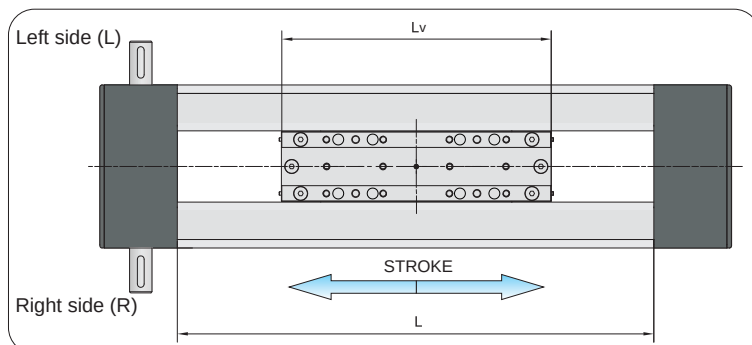
DIMENSIONS



Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 25 \text{ mm}$$

$$L_{\text{total}} = L + 218 \text{ mm}$$

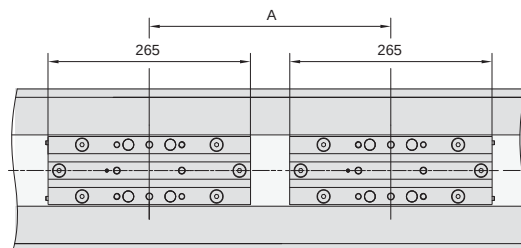


$$L_v - \text{Long carriage} = 405 \text{ mm}$$

$$L_v - \text{Short carriage} = 265 \text{ mm}$$



Double-Carriage



Only with **short carriage** version.



$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 290 \text{ mm}$$

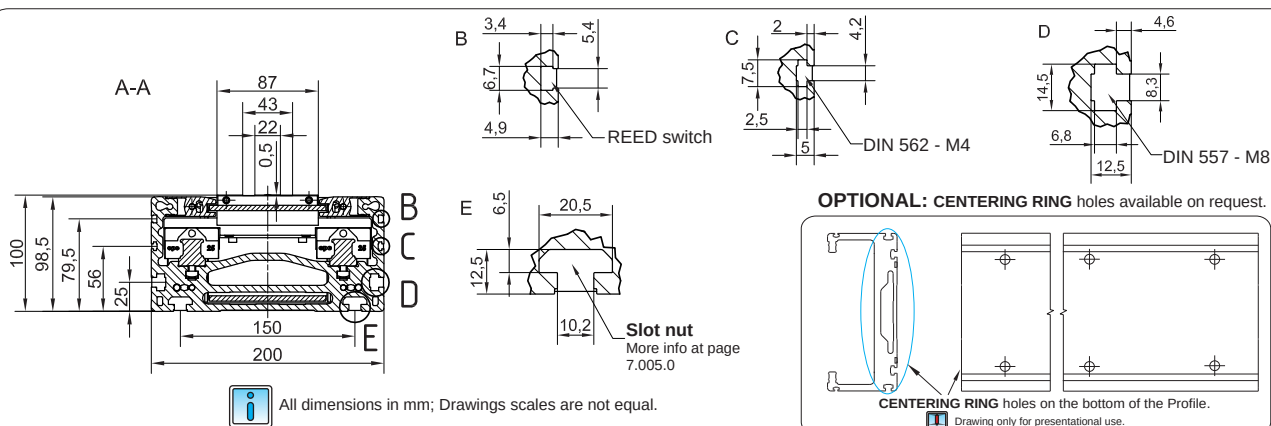
$$L_{\text{total}} = L + 218 \text{ mm}$$

$$A \geq 265 \text{ mm}$$



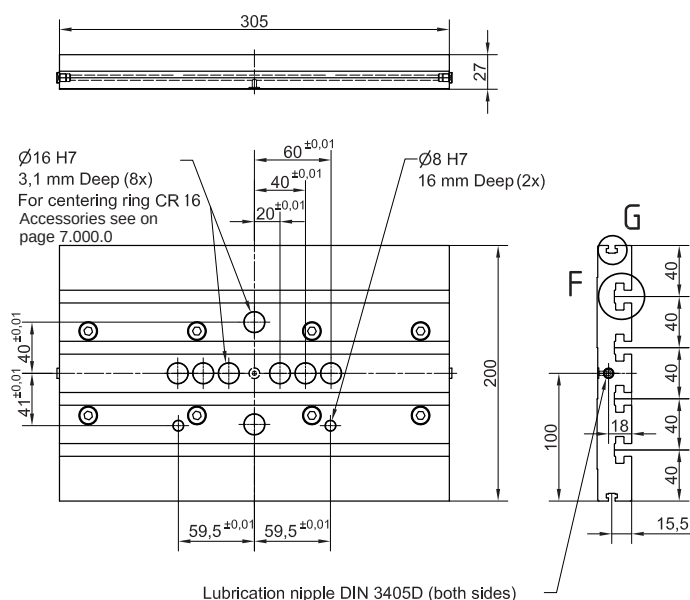
For ordering code please contact us

DIMENSIONS

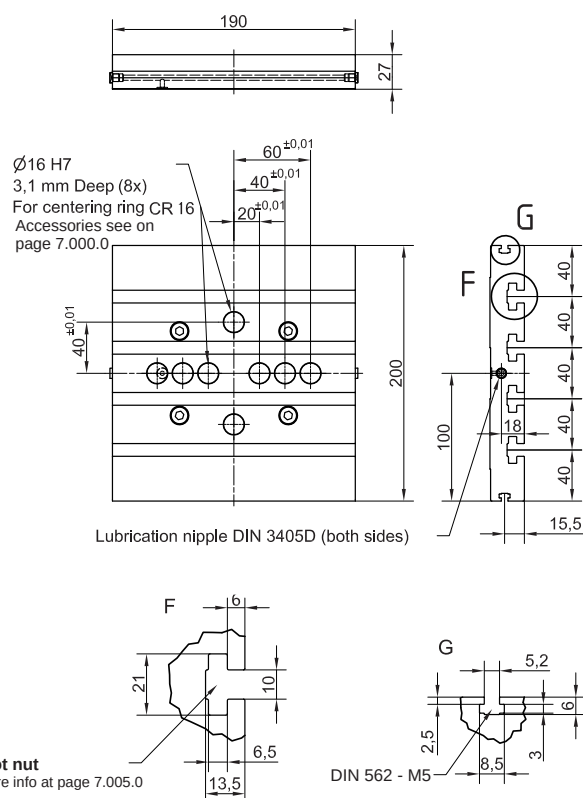


CONNECTION PLATE

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

Information icon: Mounting elements for mounting the connection plate on the Linear unit are included.

MOTOR	CTJ 200	CTJ 200	CTJ 200
	Available on request	Available on request	Available on request



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 contaminations.

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.

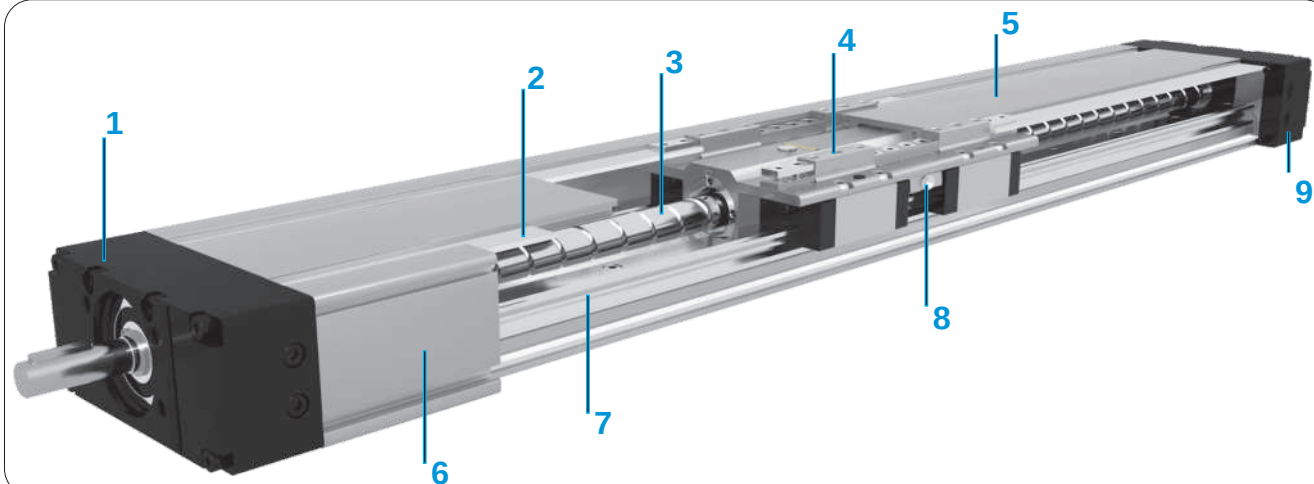
For the linear units CTV various adaptation options, for attaching (or redirecting), for Motors or Gearboxes are available.



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

200

Ball screw :

CTV 90: Ø12×5, Ø12×10

CTV 110: Ø16×5, Ø16×10, Ø16×16

CTV 145: Ø20×5, Ø20×10, Ø20×20, Ø20×50

CTV 200: Ø32×5, Ø32×10, Ø32×20, Ø32×32

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 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]			Iy [cm ⁴]	Iz [cm ⁴]
CTV 90 S	35	4620	6930	125	17	34	0,3	750	13,6	102,6
CTV 90 L	100	9240	13860	250	300	300	0,5			
CTV 110 S	39	19800	35000	650	118	235	0,63			
CTV 110 L	124	39600	70000	1305	1680	1680	1,36	1500	29,1	196,0
CTV 145 S	49	34200	60000	1500	260	520	1,19			
CTV 145 L	149	68400	120000	3005	3420	3420	2,61			
CTV 200 S	80	49600	85000	3220	450	900	3,11	2200	417,4	3007,3
CTV 200 L	255	99200	170000	6445	8680	8680	6,21			

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

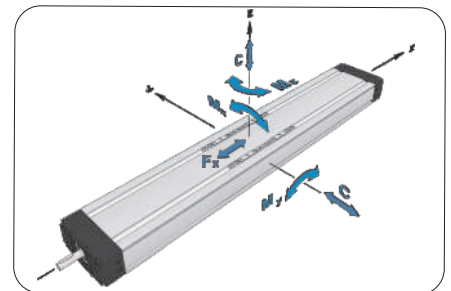


Recommended values of loads:

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 (fs = 5.0)

Modulus of elasticity

E = 70000 N / mm²



Ball Screw Drive data

Linear Unit	1 Maximal travel speed		2 No load torque		Lead constant	Ball screw	3 Max. repeatability precision		Dynamic load capacity BS	Maximum Axial load	Maximal drive torque
	[m / s]		Carriage: S	Carriage: L			STANDARD	ISO7			
			[Nm]	[Nm]	[mm / rev]	[d × l]			Ca [N]	Fx [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	5000	4,4
		≤ 0,97	0,06	0,08	10	12 × 10	± 0,02	± 0,01	3800	2540	4,5
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	13150	8700	7,7
		≤ 0,70	0,12	0,16	10	16 × 10	± 0,02	± 0,01	11550	6730	11,9
		≤ 1,12	0,14	0,18	16	16 × 16	± 0,02	± 0,01	8170	4200	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	14800	14800	13,0
		≤ 0,55	0,26	0,28	10	20 × 10	± 0,02	± 0,01	15900	13850	24,5
		≤ 1,13	0,24	0,28	20	20 × 20	± 0,02	± 0,01	16250	6930	24,5
		≤ 2,50	0,34	0,38	50	20 × 50	± 0,02	± 0,01	13000	2770	24,5
CTV 200	$108 \cdot 10^{-3} \cdot l / L^2$ [mm]	≤ 0,18	0,45	0,55	5	32 × 5	± 0,02	± 0,01	18850	18850	16,7
		≤ 0,35	0,50	0,60	10	32 × 10	± 0,02	± 0,01	37000	29600	52,3
		≤ 1,00	0,55	0,65	20	32 × 20	± 0,02	± 0,01	21000	14800	52,3
		≤ 1,60	0,60	0,70	32	32 × 32	± 0,02	± 0,01	35150	9240	52,3

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	
CTV 200	27,3	

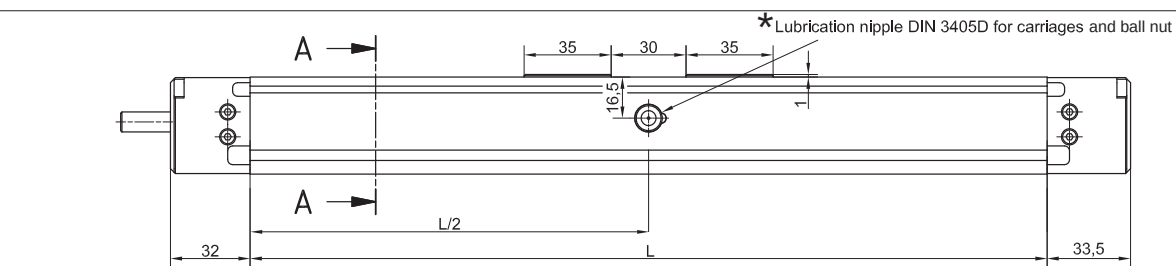
Mass and mass moment of inertia

Linear unit	Carriage Length Lv [mm]	Mass of Linear unit [kg]	Mass moment of inertia [10 ⁻⁵ kg·m ²]
CTV 90 S	35	1,6 + 0,006 * Stroke [mm]	0,4 + 0,002 * Stroke [mm]
CTV 90 L	100	2,2 + 0,006 * Stroke [mm]	0,5 + 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]	6,9 + 0,013 * Stroke [mm]
CTV 200 S	80	15,4 + 0,031 * Stroke [mm]	29,0 + 0,069 * Stroke [mm]
CTV 200 L	255	23,8 + 0,031 * Stroke [mm]	49,1 + 0,069 * Stroke [mm]



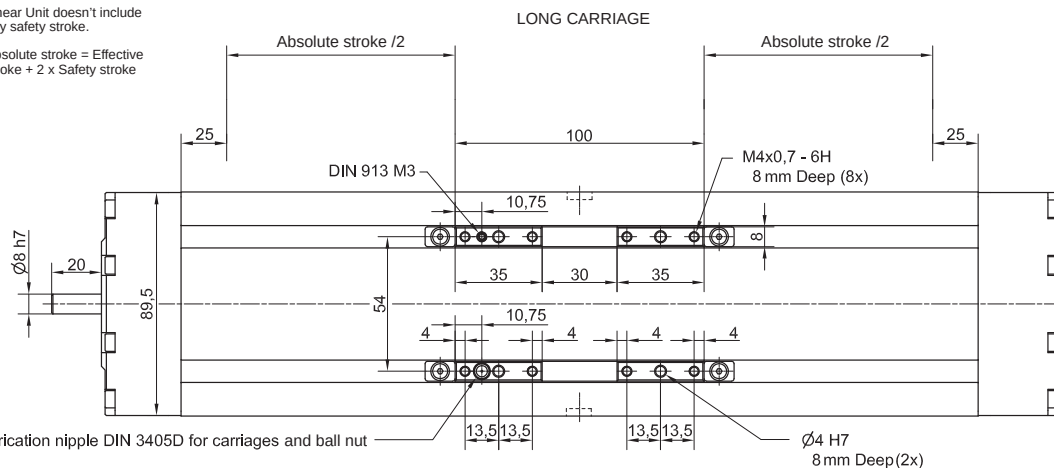
Mass calculation doesn't include mass of motor, reduction gear, switches and clamps.

DIMENSIONS



Linear Unit doesn't include any safety stroke.

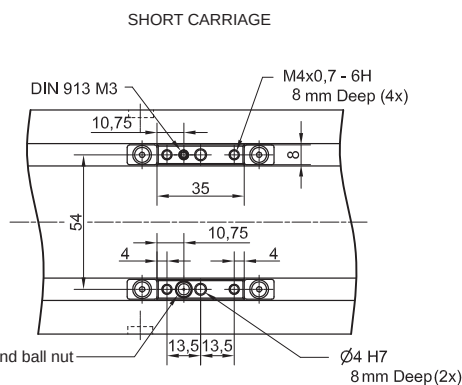
Absolute stroke = Effective stroke + 2 x Safety stroke



* Lubrication port position:
Long carriage: L/2
Short carriage: L/2 - 24,2 mm



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



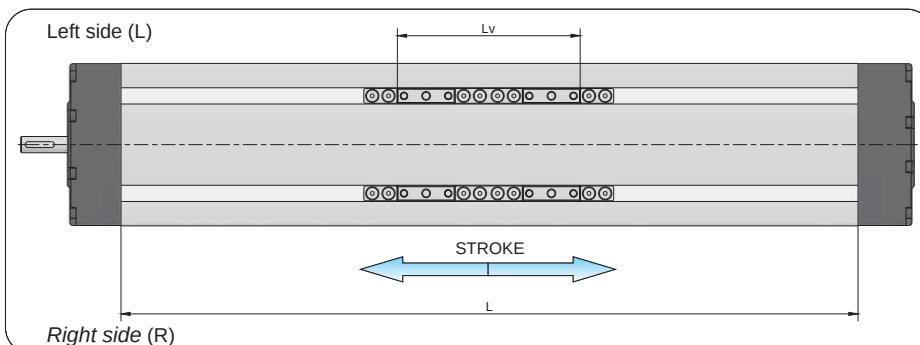
Defining of the linear module length

$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 50 \text{ mm}$

$L_{\text{total}} = L + 65,5 \text{ mm}$

$L_v - \text{Long carriage} = 100 \text{ mm}$

$L_v - \text{Short carriage} = 35 \text{ mm}$



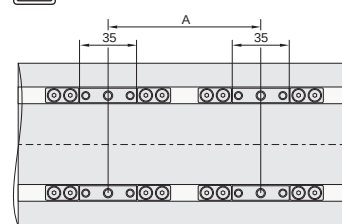
$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 85 \text{ mm}$

$L_{\text{total}} = L + 65,5 \text{ mm}$

$A \geq 65 \text{ mm}$



Double-Carriage

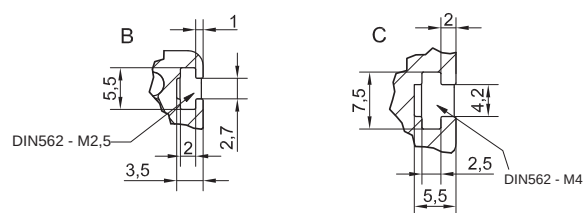
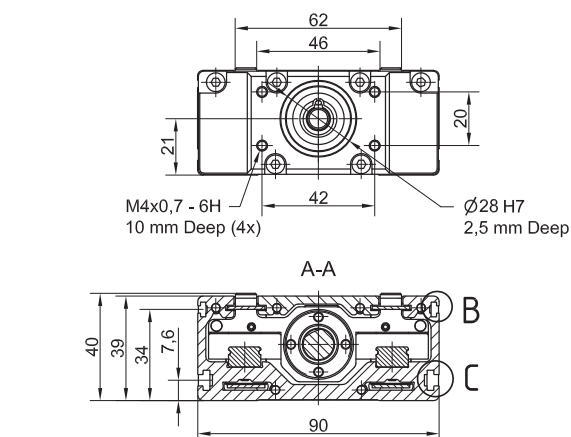


Only with **short carriage** version.

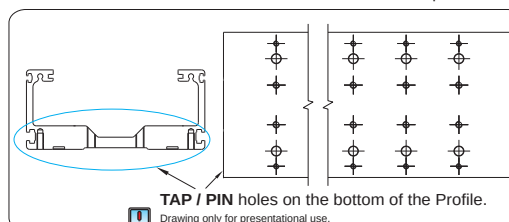


For ordering code please contact us.

DIMENSIONS



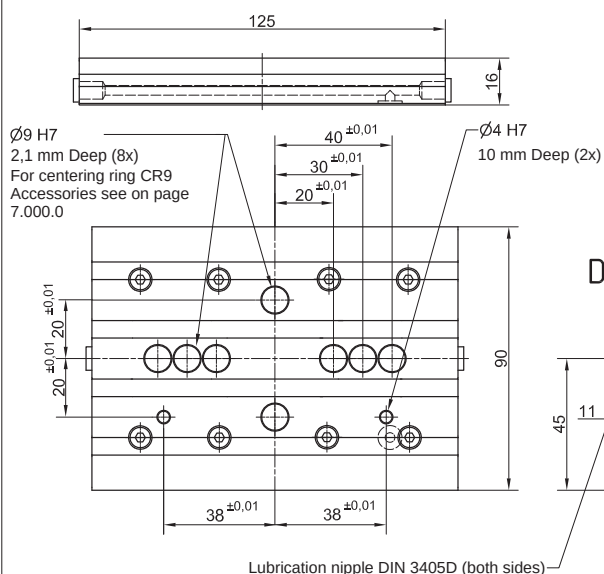
OPTIONAL: TAP / PIN holes available on request.



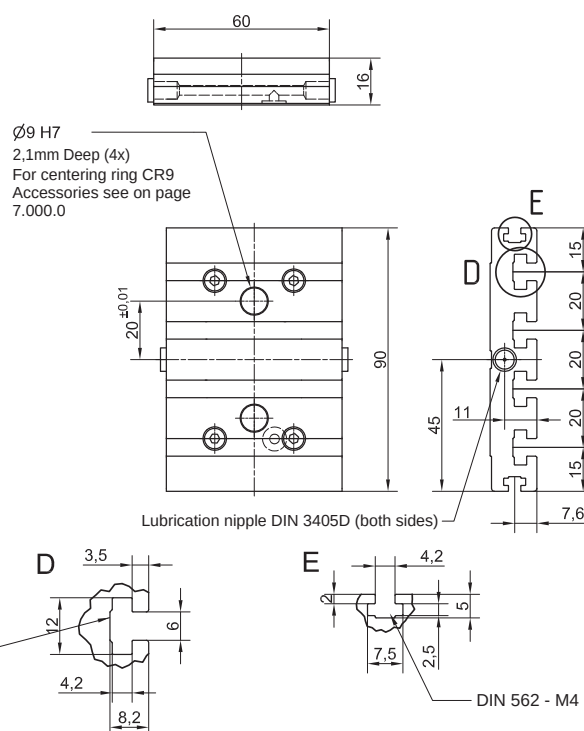
All dimensions in mm; Drawings scales are not equal.

CONNECTION PLATE

CTV 90 L

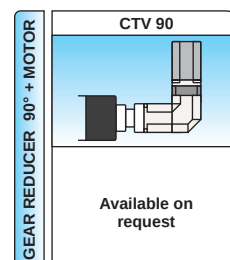
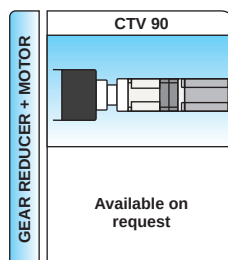
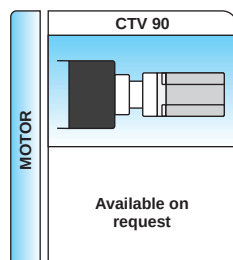
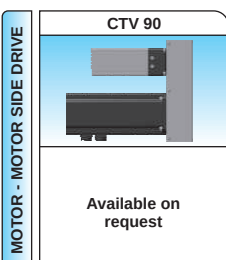


CTV 90 S



Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 90 S	60	0,21	46906
CTV 90 L	125	0,44	46907

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



Technical drawing of a carriage with dimensions and a lubrication nipple. The drawing shows a side view of the carriage with various dimensions and a lubrication nipple.

Dimensions and features:

- Overall length: 38
- Distance from left end to center of carriage: $L/2$
- Distance from left end to center of carriage: L
- Distance from left end to center of carriage: 36
- Distance from center of carriage to right end: 38
- Distance from center of carriage to right end: 39
- Distance from center of carriage to right end: 46
- Distance from center of carriage to right end: 39
- Distance from center of carriage to right end: 16.5
- Distance from center of carriage to right end: 1
- Lubrication nipple DIN 3405D for carriages and ball nut

Technical drawing of a shaft with dimensions and callouts:

- Shaft diameter: $\varnothing 11 \text{ h7}$
- Keyway: 4 P9/h9 DIN 6885 A
- Keyway width: 32
- Keyway depth: 5
- Keyway offset: 16
- Shaft length: 109,5
- End flange thickness: 25,5
- Internal thread: M5x0.8 - 6H 13 mm Deep (8x)
- Internal thread: DIN 913 M3
- Internal thread: $\varnothing 5 \text{ H7}$ 13 mm Deep (4x)
- Internal thread: Lubrication nipple DIN 3405D for carriages and ball nut
- Internal thread: 12
- Internal thread: 39
- Internal thread: 46
- Internal thread: 39
- Internal thread: 10
- Internal thread: 4,5
- Internal thread: 4,5
- Internal thread: 4,5
- Internal thread: 4,5
- Internal thread: 6,5
- Internal thread: 15
- Internal thread: 15
- Internal thread: 15
- Internal thread: 15

Technical drawing of a cross-section of a mechanical assembly. The drawing shows a central shaft with two sets of four bolts each, labeled "DIN 913 M3". The bolts are spaced 12 mm apart. The shaft has a diameter of 39 mm. The distance between the two bolt sets is 66 mm. The bolts are labeled "M5x0.8 - 6H 13 mm Deep (4x)" and "Ø5 H7 13 mm Deep (2x)". The drawing also shows a "Lub" (lubrication) point and a "6.5" dimension.

The diagram illustrates a linear actuator with a central piston rod and a double-acting hydraulic cylinder. The total length of the cylinder is labeled L . The distance between the two end plates, where the piston rod is located, is labeled L_v . The left end plate is labeled "Left side (L)" and the right end plate is labeled "Right side (R)". A blue double-headed arrow indicates the "STROKE" length, which is the distance the piston rod can travel between the two end plates.

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

Technical drawing of the M52-25 profile, showing dimensions and optional features.

Front View (Top): Dimensions include overall width 76, mounting hole spacing 56, mounting hole diameter $\varnothing 40$ H7 (2.5 mm Deep), and mounting hole pitch 25.5. The central hole diameter is 45. The profile height is 23. Mounting holes are M6x1 - 6H (10 mm Deep) (4x).

Side View (Bottom): Dimensions include overall height 50, mounting hole spacing 49, mounting hole pitch 44, and mounting hole diameter 8. The overall length is 110.

Cross-sectional View (Right): Dimensions include overall width 2, mounting hole spacing 5.2, mounting hole pitch 8.5, mounting hole diameter 3, and mounting hole pitch 5.5. The central hole diameter is 2.7. The profile height is 2.5. The mounting holes are M52 - M2.5.

Optional Features: TAP / PIN holes are available on request. The drawing shows a cross-section of the profile with a tap hole and a pin hole, and a detail view of the tap hole.

Legend: All dimensions in mm; Drawings scales are not equal.

Technical drawings of the 7000.0 bearing housing, showing front, side, and detail views with dimensions and callouts.

Front View (Left): Overall dimensions 155 (width) and 16 (height). Mounting holes are $\varnothing 9$ H7, 2.1 mm Deep (8x). For centering ring CR9. Accessories see on page 7.000.0. Internal features include a 40 ± 0.01 wide slot, 30 ± 0.01 wide slots, and 20 ± 0.01 wide slots. Lubrication nipples are $\varnothing 5$ H7, 10 mm Deep (2x).

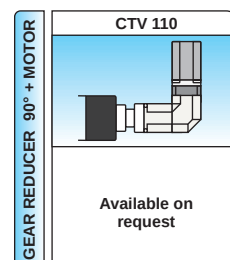
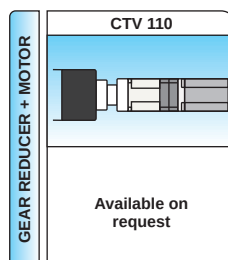
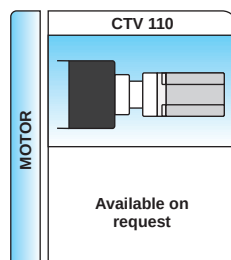
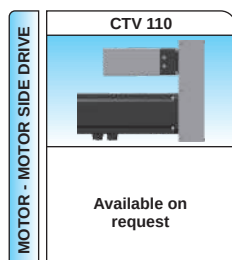
Side View (Right): Overall dimensions 60 (width) and 16 (height). Mounting holes are $\varnothing 9$ H7, 2.1 mm Deep (4x). For centering ring CR9. Accessories see on page 7.000.0. Internal features include a 40 ± 0.01 wide slot, 25, 20, 20, 20, and 25 mm wide slots. Lubrication nipples are $\varnothing 5$ H7, 10 mm Deep (2x).

Detail Views:

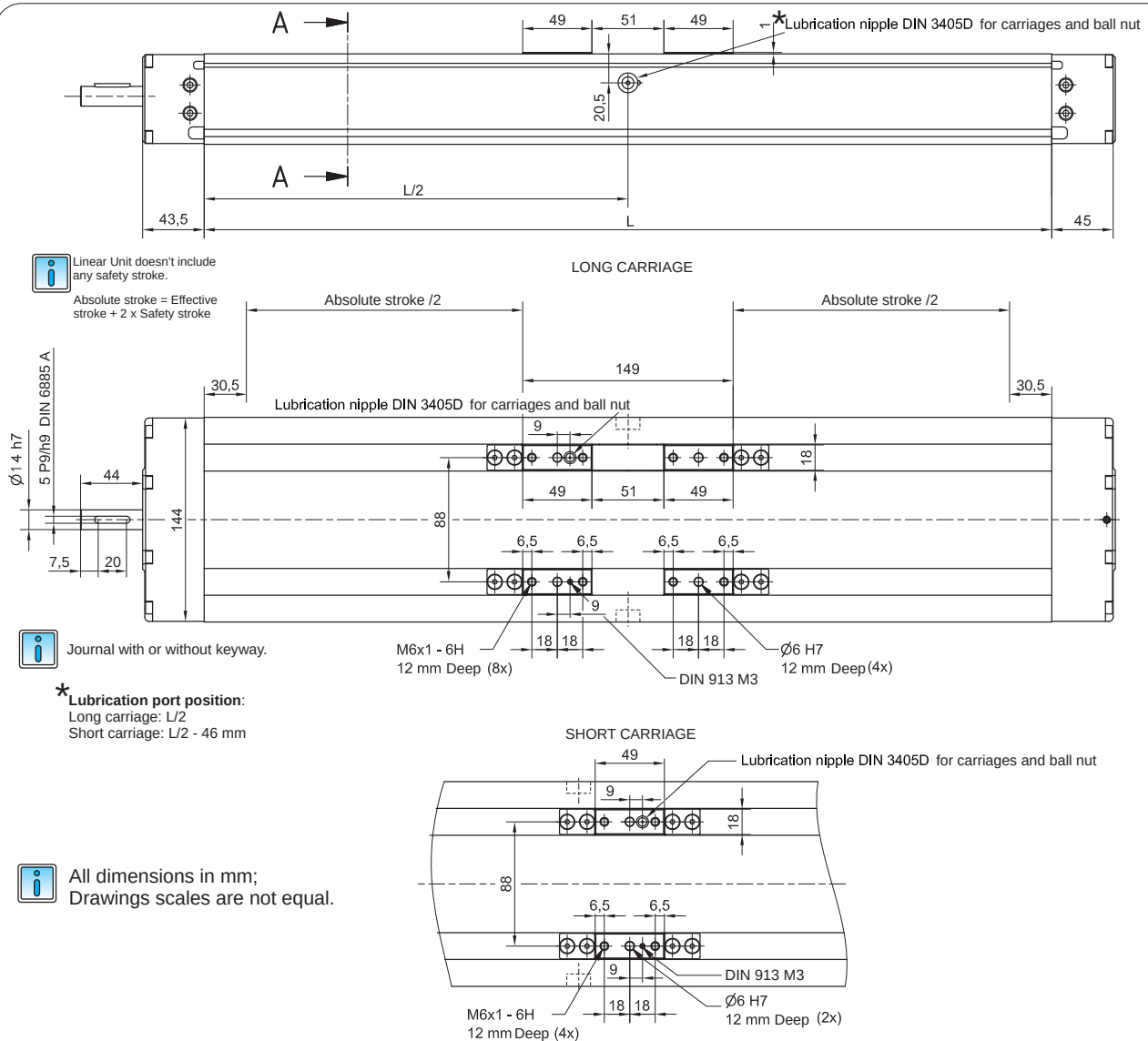
- Lubrication nipple DIN 3405D (both sides):** Shows the nipple with dimensions 55, 11, 8, and 25.
- Slot nut:** Shows the slot nut with dimensions 3.5, 12, 6, 4.2, 8.2, and 2.5.
- DIN 562 - M5:** Shows the DIN 562 - M5 nut with dimensions 5.2, 6, 3, 8.5, and 2.5.

Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 110 S	60	0,37	48348
CTV 110 L	155	0,74	48349

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



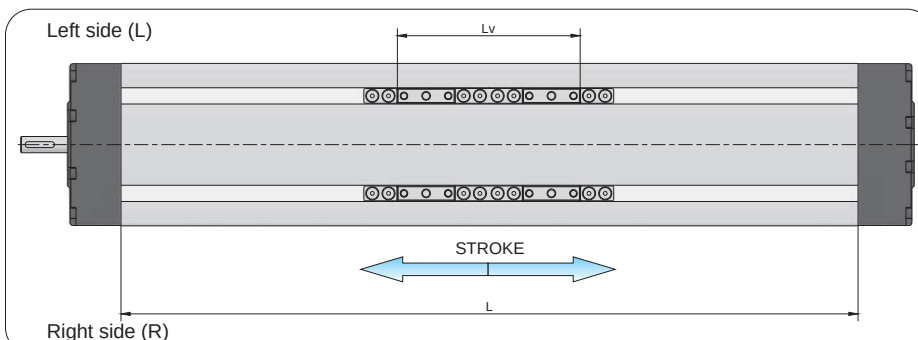
DIMENSIONS



Defining of the linear module length

$$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 61 \text{ mm}$$

$$L_{\text{total}} = L + 88,5 \text{ mm}$$

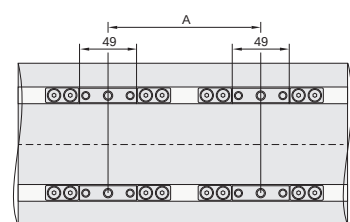


$$\left. \begin{aligned} L &= \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 110 \text{ mm} \\ L_{\text{total}} &= L + 88.5 \text{ mm} \end{aligned} \right\} A \geq 100 \text{ mm}$$

$$L_{\text{total}} = L + 88,5 \text{ mm}$$

Lv - Long carriage = 149 mm

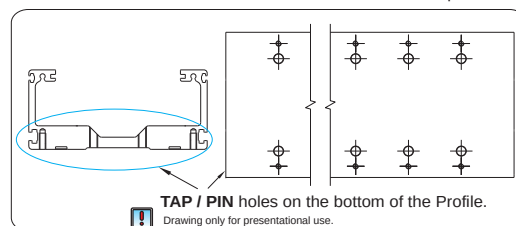
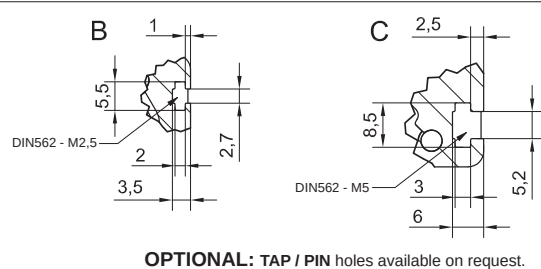
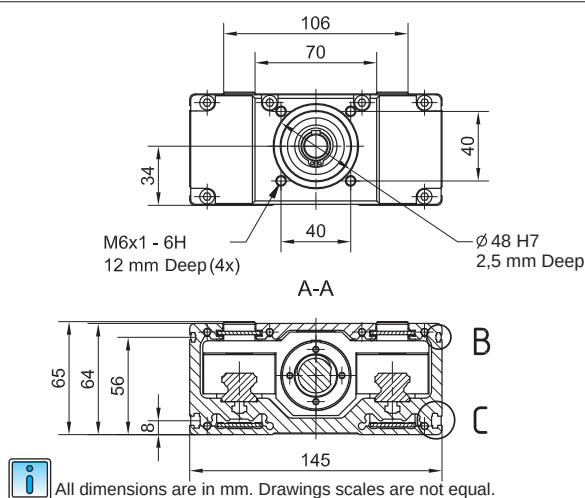
Lv - Short carriage = 49 mm



 Only with **short** carriage version.

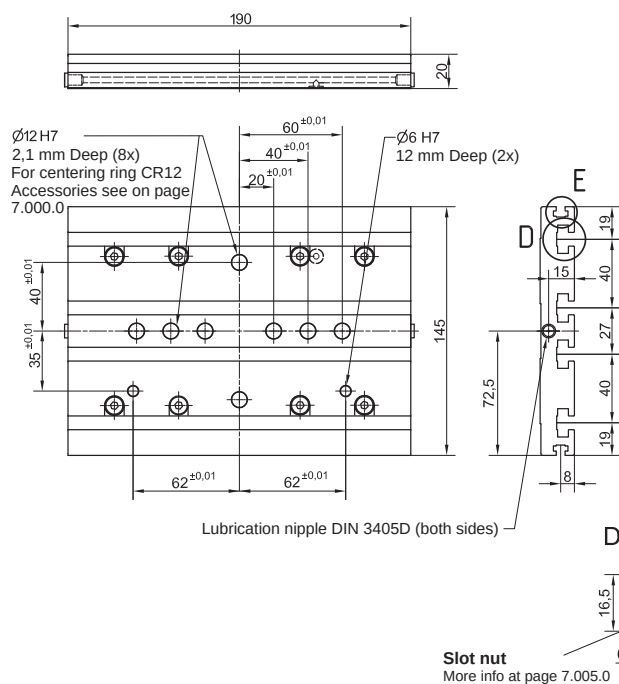
 For ordering code
please contact us.

DIMENSIONS

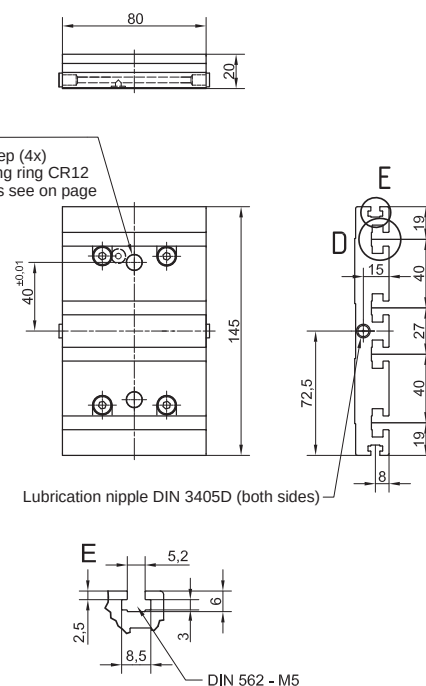


CONNECTION PLATE

CTV 145 L



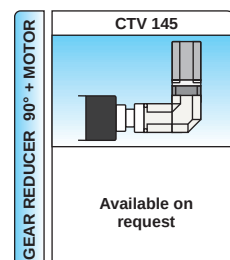
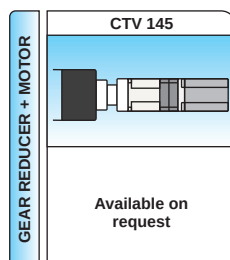
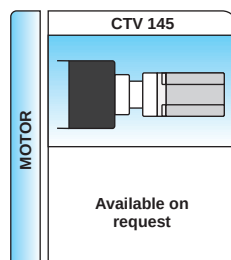
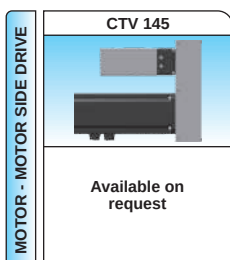
CTV 145 S



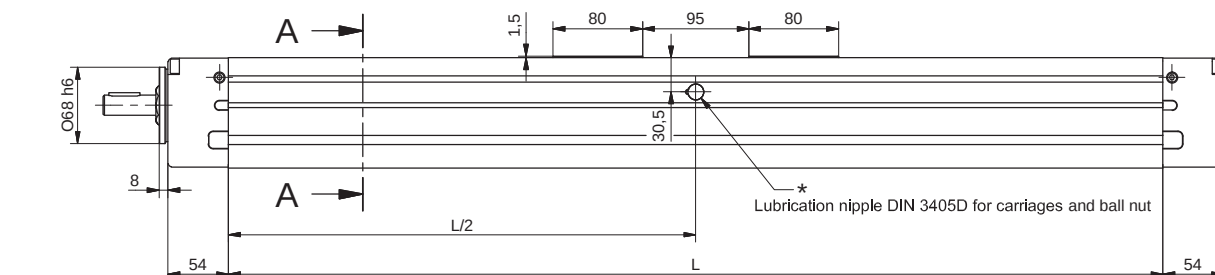
Slot nut
More info at page 7.005.0

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 included.



DIMENSIONS



Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



O18 h7

6 P9/h9 DIN 6885 A

58

50

198

8

22

60

Absolute stroke / 2

255

Absolute stroke / 2

60

DIN 913 M5

10

80

95

80

16

130

10

10

10

10

30

30

30

30

M8x1.25 - 6H

18 mm Deep (8x)

O8 H7

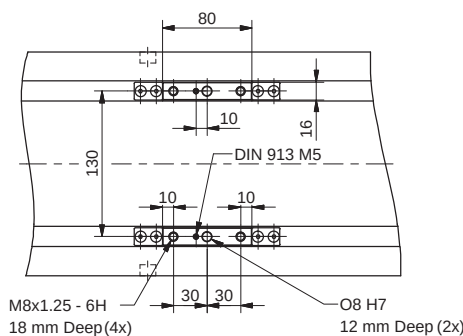
12 mm Deep (4x)

* Lubrication port position:
Long carriage: L/2
Short carriage: L/2 - 53 mm



All dimensions in mm;
Drawings scales are not equal.

SHORT CARRIAGE



Defining of the linear module length

$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + L_v + 120 \text{ mm}$

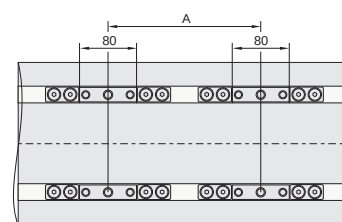
$L_{\text{total}} = L + 108 \text{ mm}$

$L_v - \text{Long carriage} = 255 \text{ mm}$

$L_v - \text{Short carriage} = 80 \text{ mm}$



Double-Carriage



Only with **short** carriage version.



For ordering code please contact us



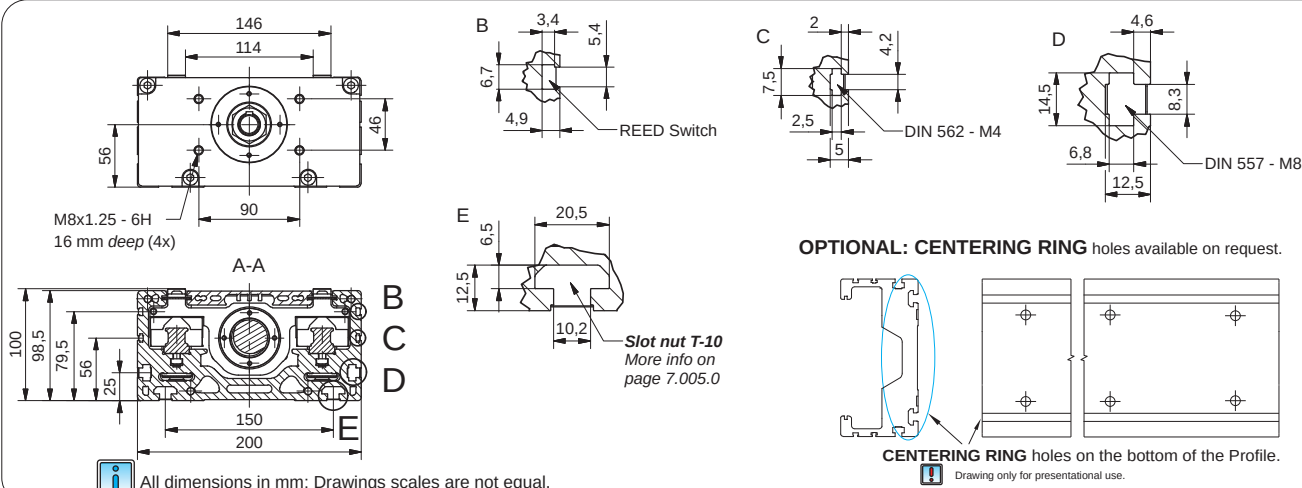
$L = \text{Effective stroke} + 2 \times \text{Safety stroke} + A + 200 \text{ mm}$

$L_{\text{total}} = L + 108 \text{ mm}$

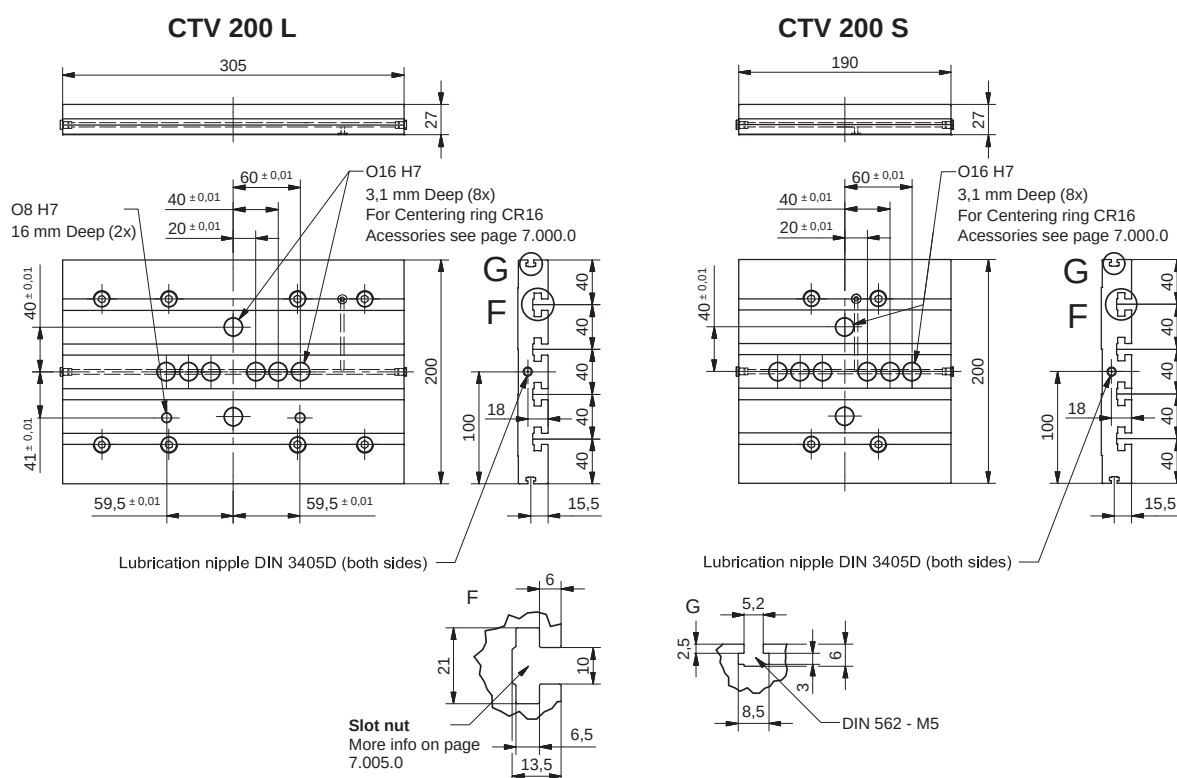
$A \geq 130 \text{ mm}$



DIMENSIONS



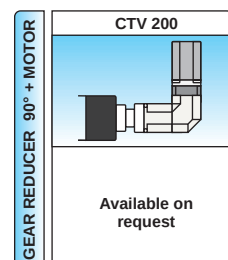
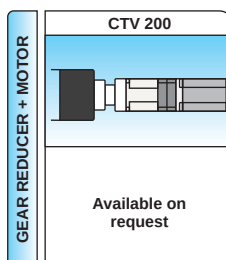
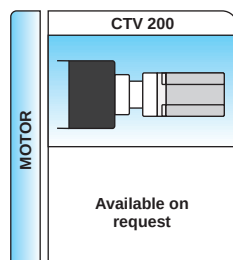
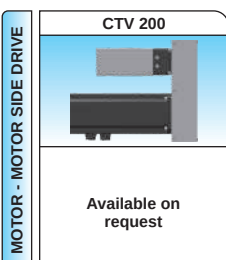
CONNECTION PLATE



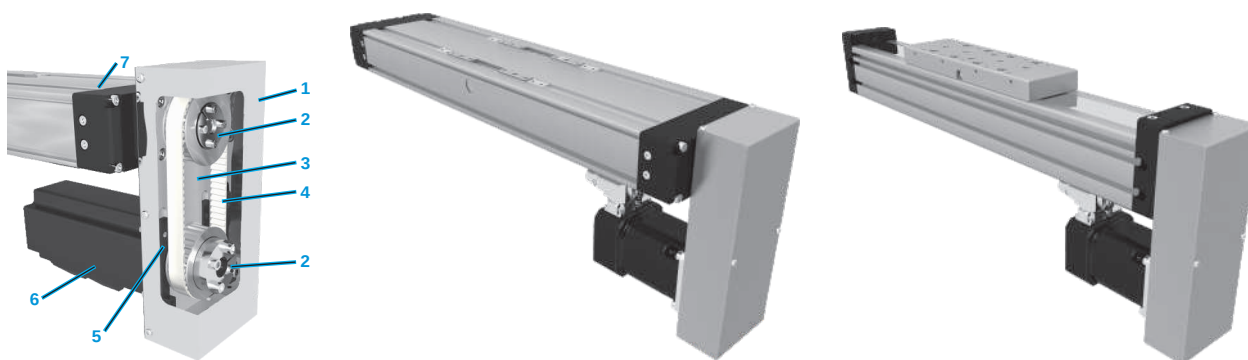
Linear unit	Plate length [mm]	Weight [kg]	Code
CTV 200 S	190	2,32	66669
CTV 200 L	305	3,75	66657

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

Please consider our advice in our Maintenance- and assembly instructions



STRUCTURAL DESIGN

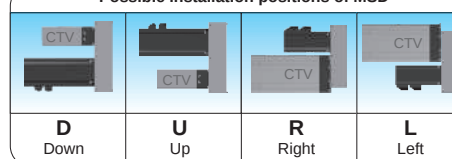


- 1 - Cover
 2 - Attachment of pulley with clamping set
 3 - Anodized aluminium housing
 4 - Toothed belt
 5 - Belt tensioning system (elongation and frequency of belt span provided with delivery of unit)
 6 - Motor
 7 - Linear unit - CTV / MTV

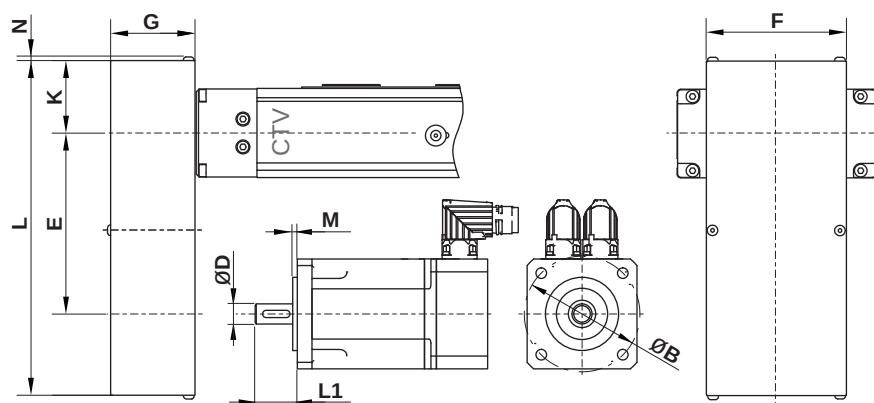


The linear unit must be executed with drive journal without keyway, so that the MSD belt drive can be mounted on it.

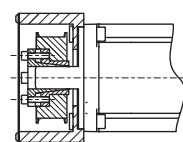
Possible installation positions of MSD



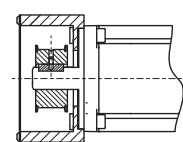
DIMENSIONS AND TECHNICAL DATA



Clamping set



Keyway



Linear Unit	Type	Gear ratio	Max. drive torque	Mass moment of inertia	Mass	Motor size limits [mm]								Dimensions [mm]					
						ØB max	M max	L1 min		max	ØD max		E	F	G	K	L	N	
			[Nm]	[10 ⁻⁶ kg·m ²]	[kg]		Clamping set	Keyway			Clamping set	Keyway							
CTV 90	T1	i=1	4	79	0,88	70	4*	22	25	39	14	22	100	70	41	31	179	2	
		i=1,5	4	48	0,74			/			/	14	102						
CTV 110 / MTV 65	T1	i=1	4	72	0,90	70	4*	22	25	39	14	22	100	70	41	31	179	2	
		i=1,5	4	41	0,80			/			/	14	112				190		
CTV 110 / MTV 65	T2	i=1	9	206	1,51	100	4*	24	30	49	18	—30	145	90	51	43	250	2	
		i=1,5	9	335	1,53			25			14	—30	139						
CTV 145 / MTV 80	T1	i=1	9	207	1,52	100	4*	24	30	49	18	—30	145	90	51	43	250	2	
		i=1,5	9	335	1,64			25			14	—30	180				282		
CTV 145 / MTV 80	T2	i=1	12	551	3,30	120	4*	30	35	59	22	40	160	120	61	56	297	2,5	
		i=2	12	860	2,93						14	32	158						
CTV 200 / MTV 110	ON REQUEST																		

*For a bigger value an additional adapter plate is used

(max. drive speed: 3000 1/min; No load torque: approx. 0,5 Nm)

HOW TO ORDER

MSD - CTV 110 - T2 - 1,5 - MSM040B

Motor Side Drive: _____

Linear Unit series : _____

CTV / MTV

Type : _____

Motor type :

According to customer's drawing

Gear ratio :

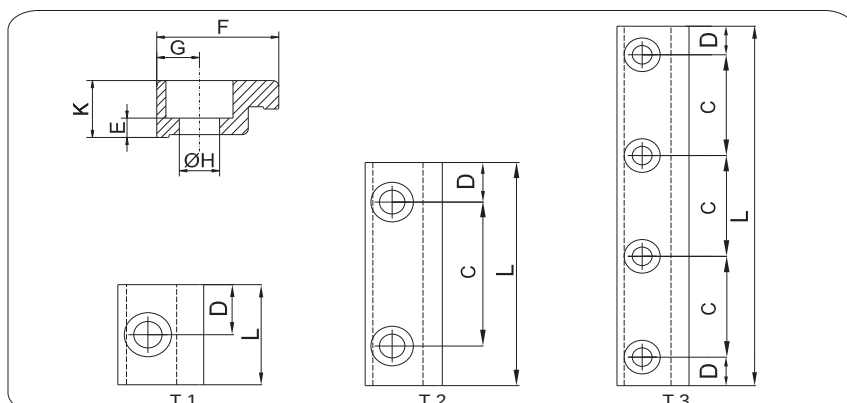
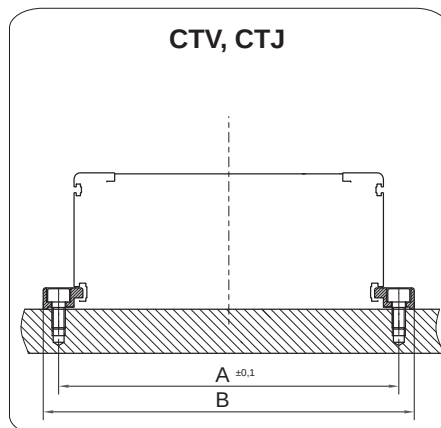
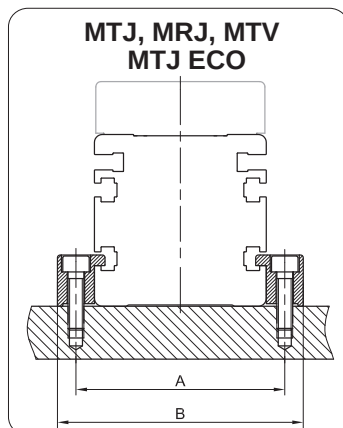
FIXING SYSTEM

General

The modules are mounted by using fixtures which are placed in the slot on the side of the profile.



Linear Unit must be mounted by the aluminium profile!

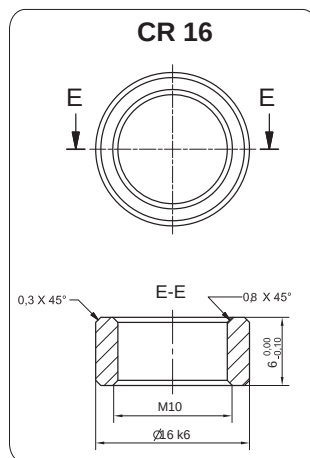
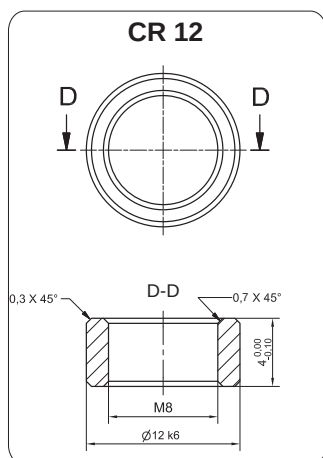
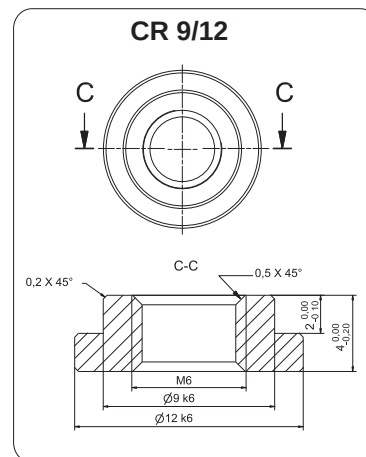
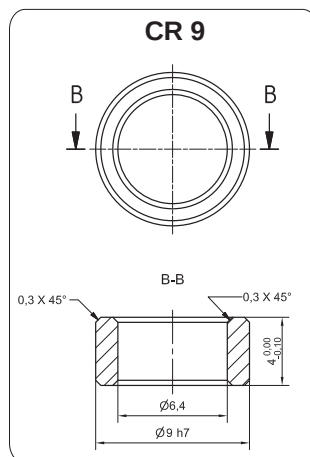
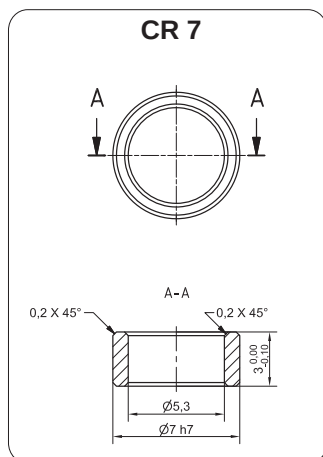


Linear Unit	Type	Dimensions [mm]										Screw	Countersink for	Weight [kg]	Code
		A	B	C	D	L	E	F	G	ØH	K				
MTJ, MRJ 40	T 2	50	64,4	40	7,5	55	2,5	15	7,2	5,5	8	M5	DIN 912	0,014	37139
MTJ, MRJ, MTV 65	T 2	78	93	40	10	60	11,5	20	7,5	6,5	20	M6	DIN 912	0,054	37129
MTJ, MRJ, MTV 80	T 2	93	108	40	10	60	11,5	20	7,5	6,5	20	M6	DIN 912	0,054	37129
MTJ, MRJ, MTV 110	T 2	130	150	40	10	60	18	30	10	8,5	27	M8	DIN 912	0,082	44375
MTJ ECO 40	T 2	52	66	40	7,5	55	14,5	20	7	5,5	20	M5	DIN 912	0,035	40728
CTV, CTJ 90	T 1	102	112	/	12,5	25	4,5	15	5	4,5	9	M4	DIN 912	0,01	46994
CTV, CTJ 90	T 2	102	112	40	11	62	4,5	15	5	4,5	9	M4	DIN 912	0,02	48636
CTV, CTJ 90	T 3	102	112	20	8,5	77	4,5	15	5	4,5	9	M4	DIN 912	0,025	47163
CTV, CTJ 90	T 3	102	112	25	6	87	4,5	15	5	4,5	9	M4	DIN912	0,028	55261
CTV, CTJ 90	T 3	102	112	30	8,5	107	4,5	15	5	4,5	9	M4	DIN912	0,031	55638
CTV, CTJ 110	T 1	126	140	/	12,5	25	3,4	20	7	6,6	10	M6	DIN 912	0,01	48642
CTV, CTJ 110	T 2	126	140	40	11	62	3,4	20	7	6,6	10	M6	DIN 912	0,03	48643
CTV, CTJ 110	T 3	126	140	20	8,5	77	4,5	20	7	5,5	10	M5	DIN 912	0,03	48640
CTV, CTJ 110	T 3	126	140	30	8,5	107	4,5	20	7	5,5	10	M5	DIN 912	0,045	46995
CTV, CTJ 110	T 3	126	140	40	11	142	3,4	20	7	6,6	10	M6	DIN912	0,056	55260
CTV, CTJ 145	T 1	161	175	/	12,5	25	4,5	20	7	6,5	10	M6	DIN 912	0,01	48642
CTV, CTJ 145	T 2	161	175	40	11	62	4,5	20	7	6,5	10	M6	DIN 912	0,03	48643
CTV, CTJ 145	T 3	161	175	20	8,5	77	4,5	20	7	5,5	10	M5	DIN 912	0,03	48640
CTV, CTJ 145	T 3	161	175	30	8,5	107	4,5	20	7	5,5	10	M5	DIN 912	0,045	46995
CTV, CTJ 145	T 3	126	140	40	11	142	3,4	20	7	6,6	10	M6	DIN 912	0,056	55260
CTV, CTJ 200	T 2	222	240	40	19	78	14,8	29	9	8,5	27,5	M8	DIN 912	0,110	53049
CTV, CTJ 200	T 2	222	240	50	19	88	14,8	29	9	8,5	27,5	M8	DIN 912	0,120	53050
CTV, CTJ 200	T 2	222	240	70	19	108	16,3	29	9	8,5	27,5	M8	DIN 912	0,160	53051



Recommended number of clamping fixtures: For T1 is recommended 6 pcs. per meter on each side, for T2 is recommended 3 pcs. per meter on each side and for T3 is recommended 3 pcs. per meter on each side.

CENTERING RINGS



Type	Compatible with	Code
CR 7	MTJ/MRJ/MTJZ/MTV: 40, 65	23332
CR 9	MTJ/MRJ /MTV/MTJZ: 80,110 CTV/CTJ: 90, 110	23331
CR 9/12	MTJ/MRJ /MTV/MTJZ: 80,110 CTV/CTJ: 90, 110, 145	48885
CR 12	CTV/CTJ: 145	49049
CR 16	CTV/CTJ: 200	53023



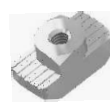
SLOT NUTS



DIN562



DIN557



Slot Nut

* - deviating CODE

LINEAR UNITS - PROFILE

CODE	NUT TYPE	MTJ/MRJ 40	MTJ/MRJ/ MTV/MTJZ 65	MTJ/MRJ/ MTV/MTJZ 80	MTJ/MRJ/ MTV /MTJZ 110	MTJ 40 ECO	CTV 90 CTJ 90	CTV 110 CTJ 110	CTV 145 CTJ 145	CTV 200 CTJ 200
41609	DIN562 - M2,5						X	X	X	
40682	DIN562 - M4	X - *57017	X	X			X			X
40768	DIN562 - M5							X	X	
40769	DIN557 - M5		X	X						
44451	DIN557 - M8				X					X
5746	Slot Nut M6					X				
5551	Slot Nut T-10-M8									X
5552	Slot Nut T-10-M6									X
5553	Slot Nut T-10-M5									X
5570	Slot Nut T-10-M8 L=90									X

LINEAR UNITS - CONNECTION PLATES

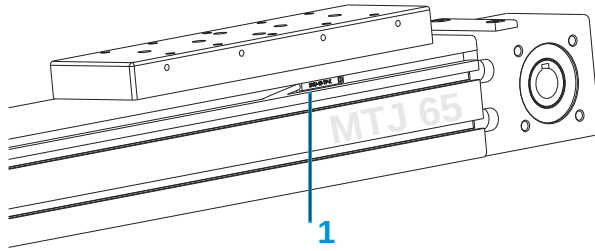
CODE	NUT TYPE	CTV 200 CTJ 200
5551	Slot Nut T-10-M8	X
5552	Slot Nut T-10-M6	X
5553	Slot Nut T-10-M5	X
5570	Slot Nut T-10-M8 L=90	X

CODE	NUT TYPE	CTV 145 CTJ 145
5704	Slot Nut 8LM4	X
5703	Slot Nut 8LM5	X
5702	Slot Nut 8LM6	X
5701	Slot Nut 8LM8	X

IDENT	NUT TYPE	CTV 110 CTJ 110	CTV 90 CTJ 90
48887	Slot Nut 6LM4	X	X
48888	Slot Nut 6LM5	X	X

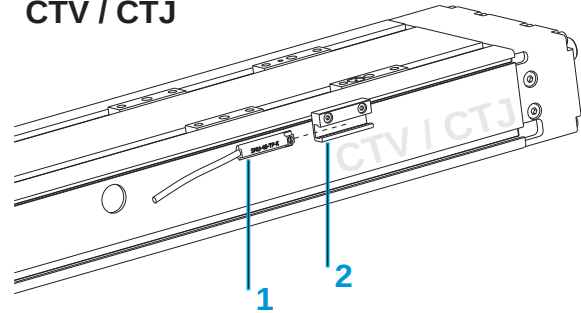
MAGNETIC FIELD SENSORS

MTJ / MRJ / MTV



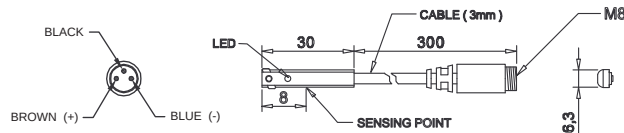
- 1 - Magnetic field sensor
- 2 - Sensor holder

CTV / CTJ

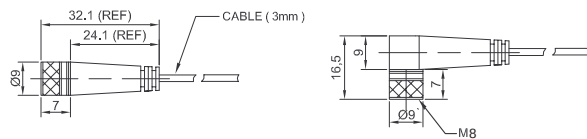


Mounting of Magnetic field sensor on **CTV** and **CTJ** series requires a HOM sensor holder. For CTV/CTJ 200 a HOM sensor holder is not needed.

SMU-40TP-K PNP NO

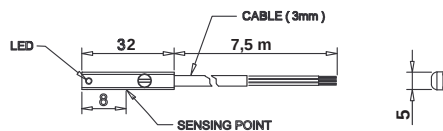


Extension cable with connector



Code	Type	Compatibility	
43851	HOM sensor holder	CTV90, CTV110, CTV145, CTJ90, CTJ110, CTJ145	
40679	SMU-40TP-K	MTJ/MRJ/MTV/MTJZ:40,65,80,110 CTV/CTJ: 200	
45869	SMU-40TP-K + HOM	CTV90, CTV110, CTV145 CTJ90, CTJ110, CTJ145	
8146	Extension Cable length 2m - Straight connector		
8147	Extension Cable length 5m - Straight connector		
9017	Extension Cable length 2m - Angeled connector		
9019	Extension Cable length 5m - Angeled connector		

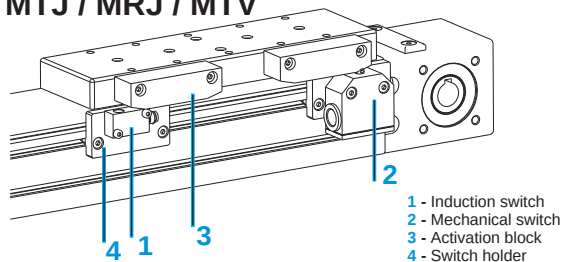
SME-8M-DO PNP NC



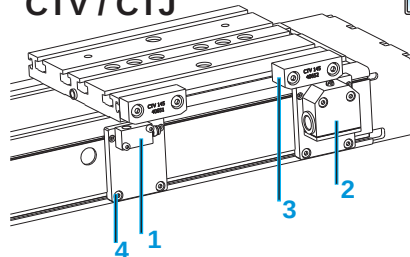
Code	Type	Compatibility	
43851	HOM sensor holder	CTV90, CTV110, CTV145 CTJ90, CTJ110, CTJ145	
43310	SME-8M-DO	MTJ/MRJ/MTV/MTJZ:40,65,80,110 CTV/CTJ: 200	
45870	SME-8M-DO + HOM	CTV90, CTV110, CTV145 CTJ90, CTJ110, CTJ145	

TECHNICAL DATA	SMU-40TP-K PNP NO	SME-8M PNP NC
Sensor Type	PNP	Contacting, Bipolar
Switching function	NO	NC
Operating voltage	10 ~ 30 V DC	5 ~ 30 V DC
Switching Current	100 mA max.	80 mA max.
Switching capacity	6 W max.	2,4 W max.
Voltage Drop	1,5 V max.	3,5 V max.
Current Consumption	20 mA / 24 V DC max.	20 mA / 24 V DC max.
Switching Frequency	1000 Hz	/
Ambient temperature	-10 do +70°C	-10 do +70°C
Shock/Vibration	50 G / 9 G	50 G / 9 G
Protection class	IP 67	IP 65, IP 67
LED indicator	Yellow	Yellow
Electrical connection	M8, 3-pin	Open end
Cable material-length	PU - 0,3 m	PU- 7,5 m
	/	Energy chain compliant-bending radius 75 mm
Extension cable	Energy chain compliant	/

MTJ / MRJ / MTV



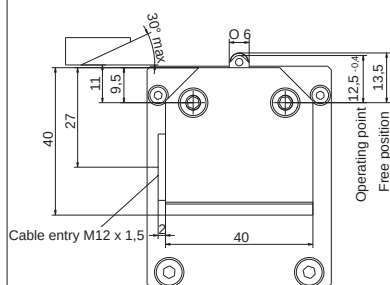
CTV / CTJ



Mounting and using the Induction and Mechanical switch, can be done only if the CTV and CTJ series Linear Units are delivered with Connection plates.

MS- Mechanical switch

TECHNICAL DATA



Protection class IEC 60529

IP 67

Ambient temperature

-5°C ...+80°C

Operating point accuracy

± 0.05 mm

Approach speed max.

45 m/min

Approach speed min.

0.01 m/min

Switching contact

1 changeover

Switching principle

Snap-action

Rated voltage

250 V AC

Switching current, min. at

10 mA

Switching voltage

24 V DC

Cable entry

M12 x 1,5

ORDERING CODES

MTJ/MRJ
40MTJZ
40MTJ/MRJ/MTV 65
MTJZ 65/80MTJ/MRJ/
MTV 80MTJ/MRJ/
MTV 110MTJZ
110MTJ ECO
40CTV/CTJ
90CTV/CTJ
110CTV/CTJ
145CTV/CTJ
200Activation block with
fixing screws

43243

52022

43247

43256

47827

63702

49030

49032

49031

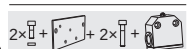
40652

40652



Mechanical switch only

47921

Mechanical switch with
mounting elements

40683

40687

40689

47826

63703

49035

49034

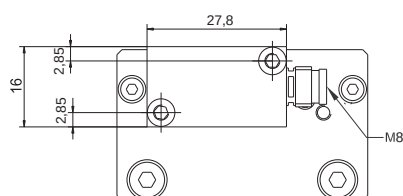
49033

47939

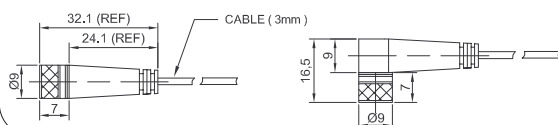
53055

IS- Inductive switch

TECHNICAL DATA



Extension cable with connector



Sensor Type

PNP

Switching function

NC / NO

Rated voltage

10 ~ 30 V DC

Switching Current

150 mA max.

Ambient temperature

-25°C ...+70°C

Switching Frequency

800 Hz max.

Voltage Drop

3,5 V

Protection class

IP 67

Electrical connection

M8, 3-pin

Extension cable

Energy chain compliant - bending radius 75 mm

Cable material-length

PU

Cable length

2m / 5m

Cable length

M8, 3-pin Straight or Angeled connector

ORDERING CODES

MTJ/MRJ
40MTJZ
40MTJ/MRJ/MTV 65
MTJZ 65/80MTJ/MRJ/
MTV 80MTJ/MRJ/
MTV 110MTJZ
110MTJ ECO
40CTV/CTJ
90CTV/CTJ
110CTV/CTJ
145CTV/CTJ
200

Activation block with fixing screws

43243

52022

43247

43256

47827

63702

49030

49032

49031

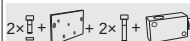
40652

40652



PNP NO Inductive switch only

40671

PNP NO Ind. switch with
mounting elements

40680

48026

43233

48047

63705

45105

49039

49038

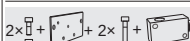
48058

53054



PNP NC Inductive switch only

43570

PNP NC Ind. switch with
mounting elements

48851

40685

47848

47989

63704

45103

49037

49036

47850

53052



Extension Cable length 2m - Straight connector

8146



Extension Cable length 5m - Straight connector

8147



Extension Cable length 2m - Angeled connector

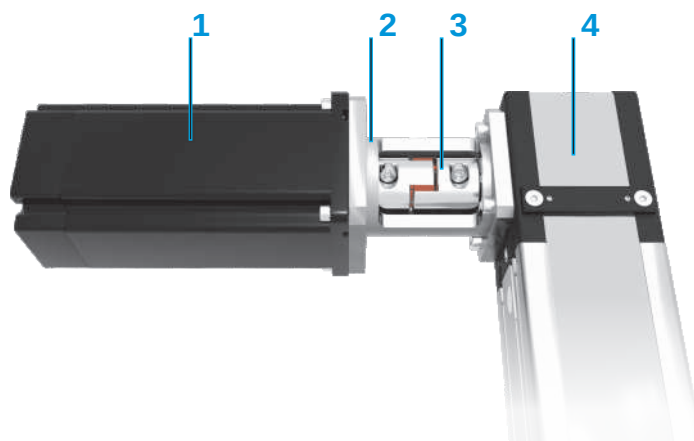
9017



Extension Cable length 5m - Angeled connector

9019

MOTOR ADAPTER WITH COUPLING



- 1 - Motor
- 2 - Motor adapter
- 3 - Coupling
- 4 - Linear Unit

VK

CTV110

SMB60

GESM14

Motor adapter :

Linear Unit :

Motor type :

According to customer's specification

Coupling type :

See page 7.020.0 or According to customer's specification

COUPLINGS

COUPLING

GESM14

F8C

F14C

Coupling:

Coupling type / size:

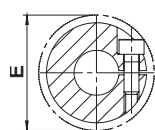
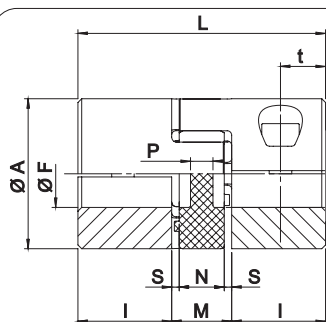
7, 9, 14, 19/24, 24/28, 28/38, 38/45

Option:

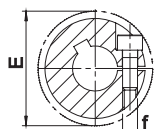
C: with keyway

Leave blank: without keyway

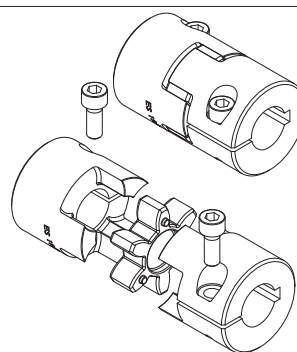
Hole diameter



without Keyway



with Keyway



The maximum transmittable torque of the clamping hub depends on the bore diameter (see the upper table on page 7.025.0).

Size	* T _{KN} Nominal (Nm)	* T _{Kmax} (Nm)	Ms (Nm)	Hub		n _{max} (min ⁻¹)	A (mm)	F (mm) [min]	F (mm) [max]	f (mm)	L (mm)	I (mm)	M (mm)	N (mm)	S (mm)	P (mm)	t (mm)	E (mm)
				W (Kg)	J (Kgmm ²)													
7	2	4	0,35	0,003	0,085 x 10 ⁻⁶	40.000	14	3	7	M2	22	7	8	6	1,0	6	4	15,0
9	5	10	0,75	0,007	0,42 x 10 ⁻⁶	28.000	20	4	9	M2,5	30	10	10	8	1,0	2	5	23,4
14	12,5	25	1,4	0,018	2,6 x 10 ⁻⁶	19.000	30	6	15	M3	35	11	13	10	1,5	2	5,5	32,2
19/24	17	34	11	0,071	18,1 x 10 ⁻⁶	14.000	40	10	20	M6	66	25	16	12	2,0	3,5	12	45,7
24/28	60	120	11	0,156	74,9 x 10 ⁻⁶	10.600	55	10	28	M6	78	30	18	14	2,0	4	12	56,4
28/38	160	320	25	0,240	163,9 x 10 ⁻⁶	8.500	65	14	35	M8	90	35	20	15	2,5	5,2	13,5	72,6
38/45	325	650	25	0,440	465,5 x 10 ⁻⁶	7.100	80	19	45	M8	114	45	24	18	3,0	5,6	16	83,3

*The values of nominal T_{KN}** and max. T_{Kmax}** transmissible torque in the upper table are valid for coupling with Keyway!

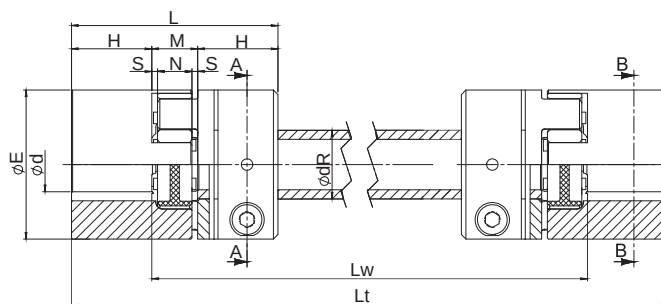
**for legend see page 7.025.0

Size	Recommended coupling bore diam. and Transmissible Torque (Nm) - valid for shaft tolerances k6 without Keyway																			
	ø4	ø5	ø6	ø7	ø8	ø9	ø10	ø11	ø12	ø14	ø15	ø16	ø19	ø20	ø22	ø24	ø25	ø28	ø30	ø32
7	0,7	0,8	1	1,1																
9	1,1	1,4	1,7	1,9	2,2	2,5	2,8	3												
14			2,5	2,9	3,3	3,7	4,1	4,6	5	5,8	6,2	6,6								
19/24						23	25	27	32	34	36	43	45							
24/28						23	25	27	32	34	36	43	45	50	54	57	63			
28/38									58	62	66	79	83	91	100	104	116	124	133	145
38/45										62	66	79	83	91	100	104	116	124	133	145

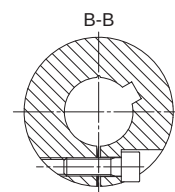
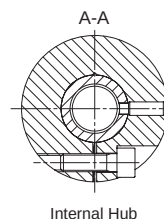
Ms	Screw tightening torque	Nm
W	Weight	Kg
J	Coupling moment of inertia	kgm ²
n_{max}	Maximum rpm	min ⁻¹
T_{KN}	Coupling nominal torque	Nm
T_{kmax}	Coupling maximum torque	Nm

The operating temperature range for the coupling is between -30 and +90°C

SYNCHRONISATION SHAFT OSL



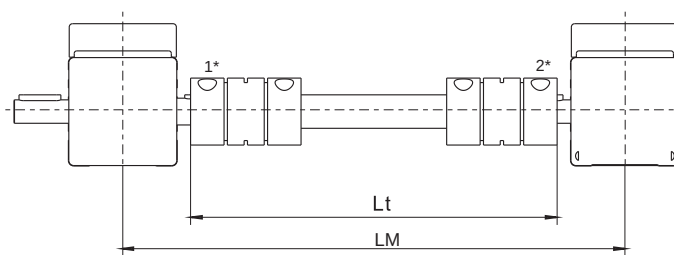
The maximum transmittable torque of the clamping hub depends on the bore diameter (see the upper table on page 7.025.0).



Internal Hub

Size	Internal hub		C _T (Nm/rad)	E (mm)	H (mm)	ød _{min} (mm)	ød _{max} (mm)	M (mm)	N (mm)	S (mm)	L (mm)	Lw min (mm)	Lt (mm)	dR x thickness (mm)	Weight (kg)	Moment of inertia (10 ⁻⁵ kg·m ²)
	Ms (Nm)	Mr (Nm)														
14	1,34	6	59	30	11	4	16	13	10	1,5	35	48		14 x 2,0	0,072 + 0,00021·Lw	10,4 + 0,0076·Lw
19/24	10	34	314	40	25	6	24	16	12	2	66	82	on request	20 x 3,0	0,284 + 0,00044·Lw	72,4 + 0,0324·Lw
24/28	10	45	596	55	30	8	28	18	14	2	78	96		25 x 2,5	0,624 + 0,00048·Lw	300 + 0,0614·Lw
28/38	25	105	2868	65	35	10	38	20	15	2,5	90	110		35 x 5,0	0,960 + 0,00128·Lw	656 + 0,2954·Lw
38/45	25	123	4521	80	45	12	45	24	18	3	114	138		40 x 5,0	1,760 + 0,00149·Lw	1862 + 0,4656·Lw

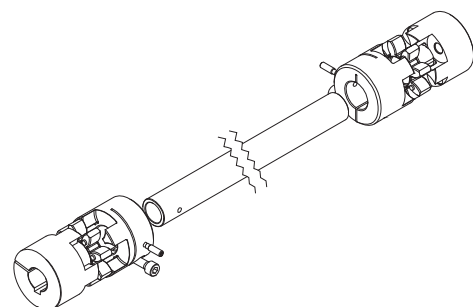
Ms	Screw tightening torque	Nm
M_T	Maximum transmissible torque	Nm
C_T	Torsional rigidity per meter	Nm/rad



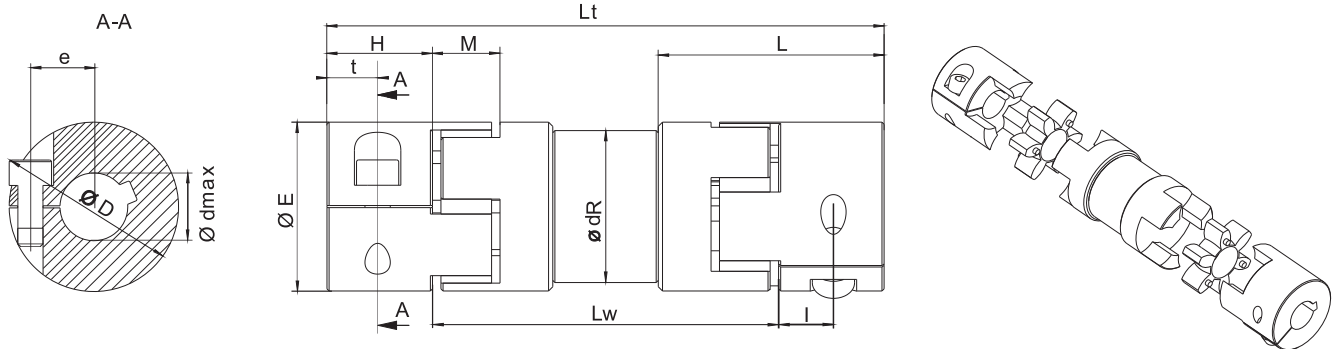
* - see page 7.030.0 for more info



For longer distances Bearing Supports needed. Please contact us.



SYNCHRONISATION SHAFT OSR



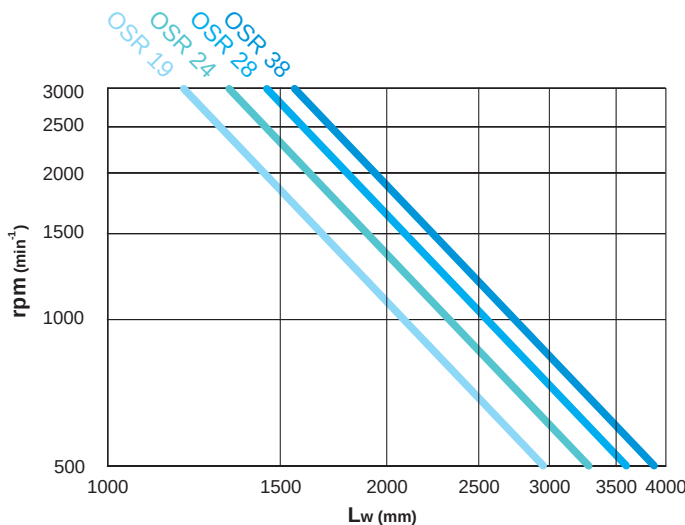
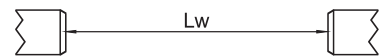
The maximum transmittable torque of the clamping hub depends on the bore diameter (see the upper table on page 7.025.0).

Size	d min (mm)	d max (mm)	Ms (Nm)	M _T (Nm)	C _T (Nm/rad)	E (mm)	H (mm)	I (mm)	L (mm)	M (mm)	Lw min (mm)	Lt (mm)	D (mm)	t (mm)	e (mm)	dR (mm)	Weight (kg)	Moment of inertia (10 ⁻⁶ kg·m ²)
19	10	20	10	39	1630	40	25	13	53,5	16	82	on request	47	12	15	36	0,30 + 0,00058·Lw	66,0 + 0,1679·Lw
24	10	28	10	53	3980	55	30	16	63	18	96		57	14	20,8	45	0,62 + 0,00091·Lw	242 + 0,4099·Lw
28	14	35	25	137	7494	65	35	20	67	20	110		73	15	25	55	0,98 + 0,00112·Lw	572 + 0,7717·Lw
38	15	45	25	180	14540	80	45	25	83,5	24	138		84	20	30	68	1,75 + 0,00140·Lw	1522 + 1,4975·Lw

Ms	Screw tightening torque	Nm
M_T	Maximum transmissible torque	Nm
C_T	Torsional rigidity per meter	Nm/rad

INSTALLATION

The overall length Lt is best determined as the distance between shaft ends - length Lw plus 2x dimension H.



SELECTION DIAGRAM

Ideal execution for long distance shat connections. Torque transmission is zero backlash. Designed for lengths up to 4m without bearing support (depending on rotation speed).

Standard lengths available till 3m, for longer lengths please contact us.

HOW TO ORDER

Type: OSR

Size: OSR: 14, 19/24, 24/28, 28/38, 38/45

Linear unit series: MTJ/MRJ/MTJ ECO: 40, 65, 80, 110

Length type: LM (Middle distance of the linear units)

Option: C: with keyway

Hole diameter: — one side end hub¹

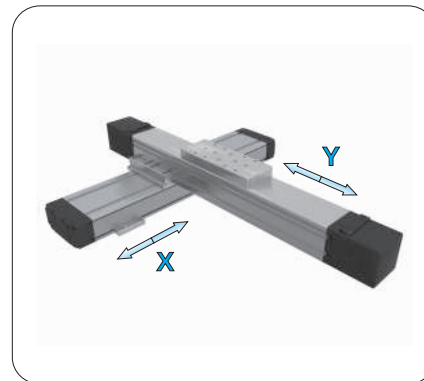
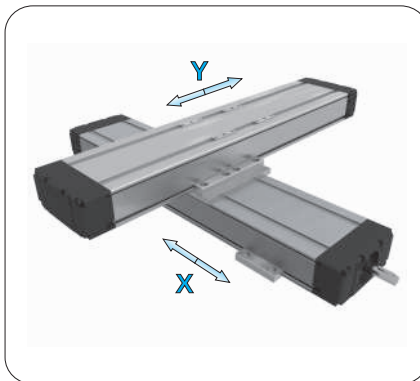
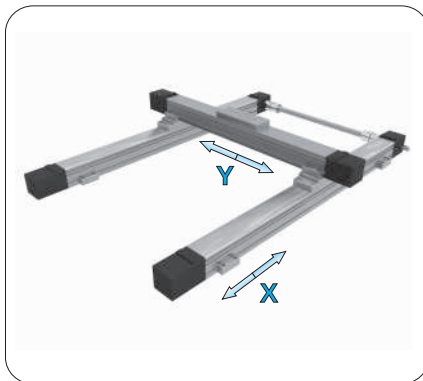
Length [mm]

OSR - **19** - **MTJ65** - **LM** - **890** - **F16C** - **F16C**

Leave blank: not for linear unit

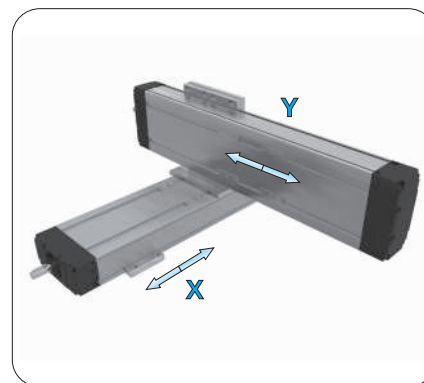
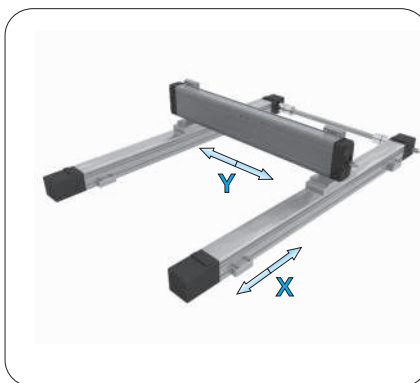
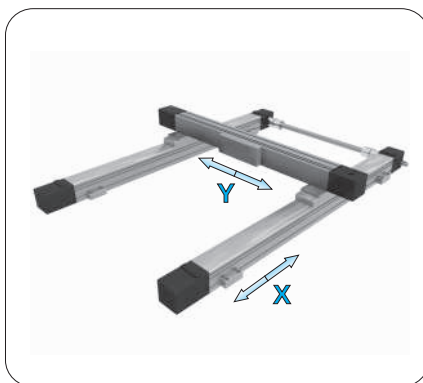
X-Y CONNECTION ELEMENTS

X- Axis MTJ, MRJ, MTV, MTJ ECO, CTV = 0° → Y Axis = 0°



X-Axis	Y-Axis								
	MTJ, MRJ 40	MTJ, MRJ, MTV 65	MTJ, MRJ, MTV 80	MTJ, MRJ, MTV 110	MTJ 40 ECO	CTV, CTJ 90	CTV, CTJ 110	CTV, CTJ 145	CTV, CTJ 200
MTJ, MRJ 40	CP M40 0 M40 0	CP M40 0 M65 0			CP M40 0 E40 0	CP M40 0 C90 0			
MTJ, MRJ, MTV 65	CP M65 0 M40 0	CP M65 0 M65 0	CP M65 0 M80 0		CP M65 0 E40 0	CP M65 0 C90 0	CP M65 0 C110 0		
MTJ, MRJ, MTV 80		CP M80 0 M65 0	CP M80 0 M80 0	CP M80 0 M110 0		CP M80 0 C90 0	CP M80 0 C110 0	CP M80 0 C145 0	
MTJ, MRJ, MTV 110		CP M110 0 M65 0	CP M110 0 M80 0	CP M110 0 M110 0			CP M110 0 C110 0	CP M110 0 C145 0	CP M110 0 C200 0
MTJ 40 ECO	CP E40 0 M40 0	CP E40 0 M65 0	CP E40 0 M80 0		CP E40 0 E40 0	CP E40 0 C90 0	CP E40 0 C110 0		
CTV, CTJ 90	CP C90 0 M40 0	CP C90 0 M65 0				CP C90 0 C90 0	CP C90 0 C110 0		
CTV, CTJ 110	CP C110 0 M40 0	CP C110 0 M65 0	CP C110 0 M80 0			CP C110 0 C90 0	CP C110 0 C110 0	CP C110 0 C145 0	
CTV, CTJ 145		CP C145 0 M65 0	CP C145 0 M80 0	CP C145 0 M110 0		CP C145 0 C90 0	CP C145 0 C110 0	CP C145 0 C145 0	
CTV, CTJ 200			CP C200 0 M80 0	CP C200 0 M110 0			CP C200 0 C110 0	CP C200 0 C145 0	CP C200 0 C200 0

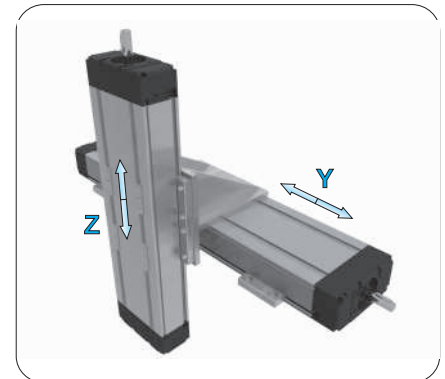
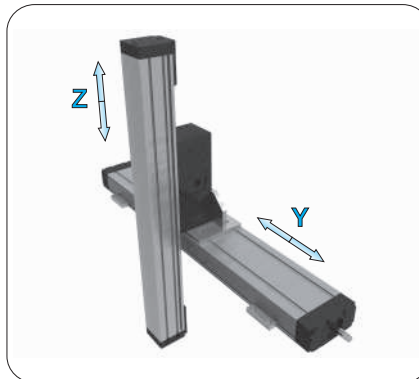
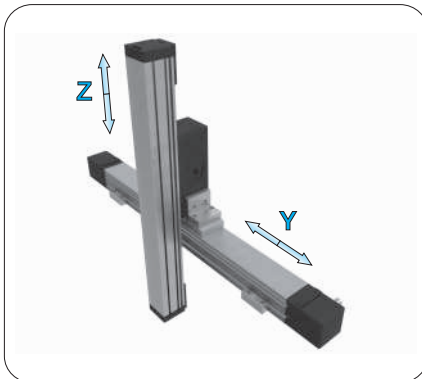
X- Axis MTJ, MRJ, MTV, MTJ ECO, CTV = 0° → Y Axis = 90°



X-Axis	Y-Axis								
	MTJ, MRJ 40	MTJ, MRJ, MTV 65	MTJ, MRJ, MTV 80	MTJ, MRJ, MTV 110	MTJ 40 ECO	CTV, CTJ 90	CTV, CTJ 110	CTV, CTJ 145	CTV, CTJ 200
MTJ, MRJ 40	CP M40 0 M40 90	CP M40 0 M65 90			CP M40 0 E40 90	CP M40 0 C90 90			
MTJ, MRJ, MTV 65	CP M65 0 M40 90	CP M65 0 M65 90	CP M65 0 M80 90			CP M65 0 C90 90	CP M65 0 C110 90		
MTJ, MRJ, MTV 80		CP M80 0 M65 90	CP M80 0 M80 90	CP M80 0 M110 90		CP M80 0 C90 90	CP M80 0 C110 90	CP M80 0 C145 90	
MTJ, MRJ, MTV 110		CP M110 0 M65 90	CP M110 0 M80 90	CP M110 0 M110 90			CP M110 0 C110 90	CP M110 0 C145 90	CP M110 0 C200 90
MTJ 40 ECO	CP E40 0 M40 90	CP E40 0 M65 90	CP E40 0 M80 90		CP E40 0 E40 90	CP E40 0 C90 90	CP E40 0 C110 90		
CTV, CTJ 90	CP C90 0 M40 90	CP C90 0 M65 90				CP C90 0 C90 90			
CTV, CTJ 110	CP C110 0 M40 90	CP C110 0 M65 90	CP C110 0 M80 90			CP C110 0 C90 90	CP C110 0 C110 90		
CTV, CTJ 145		CP C145 0 M65 90	CP C145 0 M80 90	CP C145 0 M110 90		CP C145 0 C90 90	CP C145 0 C110 90	CP C145 0 C145 90	
CTV, CTJ 200			CP C200 0 M80 90	CP C200 0 M110 90			CP C200 0 C110 90	CP C200 0 C145 90	CP C200 0 C200 90

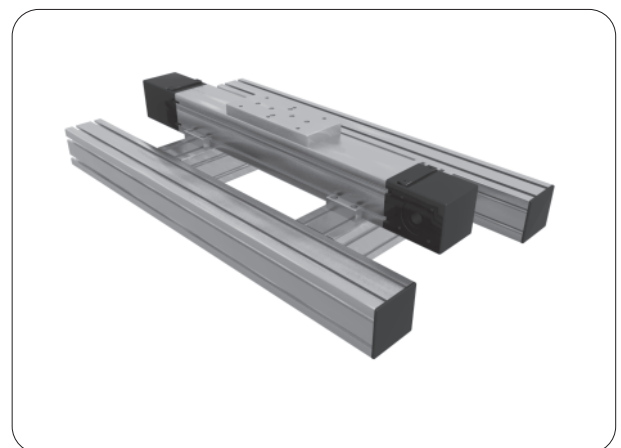
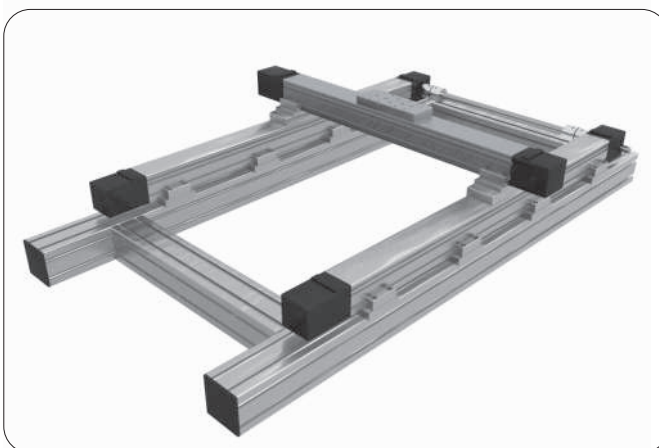
Y-Z CONNECTION ELEMENTS

Y-Axis MTJ, MRJ, MTV, MTJ ECO, CTV = 0° → Z-Axis = 90°



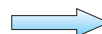
Y-Axis	Z-Axis									
	MTJZ 40	MTJZ 65	MTJZ 80	MTJZ 110	MTV 65	MTV 80	MTV 110	CTV 90	CTV 110	CTV 145
MTJ, MRJ 40	CP M40 0 Z40									
MTJ, MRJ, MTV 65	CP M65 0 Z40	CP M65 0 Z65			CP M65 0 ZM65					
MTJ, MRJ, MTV 80	CP M80 0 Z40	CP M80 0 Z65	CP M80 0 Z80		CP M80 0 ZM65	CP M80 0 ZM80				
MTJ, MRJ, MTV 110		CP M110 0 Z65	CP M110 0 Z80	CP M110 0 Z80	CP M110 0 ZM65	CP M110 0 ZM80	CP M110 0 ZM110			
MTJ 40 ECO	CP E40 0 Z40									
CTV, CTJ 90	CP C90 0 Z40	CP C90 0 Z65						CP C90 0 ZC90		
CTV, CTJ 110	CP C110 0 Z40	CP C110 0 Z65	CP C110 0 Z80		CP C110 0 ZM65	CP C110 0 ZM80		CP C110 0 ZC90	CP C110 0 ZC110	
CTV, CTJ 145	CP C145 0 Z40	CP C145 0 Z65	CP C145 0 Z80	CP C145 0 Z110	CP C145 0 ZM65	CP C145 0 ZM80	CP C145 0 ZM110	CP C145 0 ZC90	CP C145 0 ZC110	CP C145 0 ZC145
CTV, CTJ 200			CP C200 0 Z80	CP C200 0 Z110		CP C200 0 ZM80	CP C200 0 ZM110		CP C200 0 ZC110	CP C200 0 ZC145

CONNECTION ELEMENTS FOR CUNSTRUCTIONS WITH ALU PROFILES



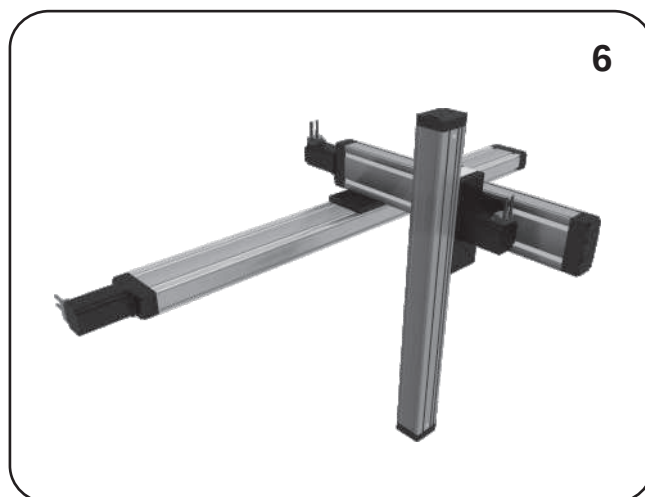
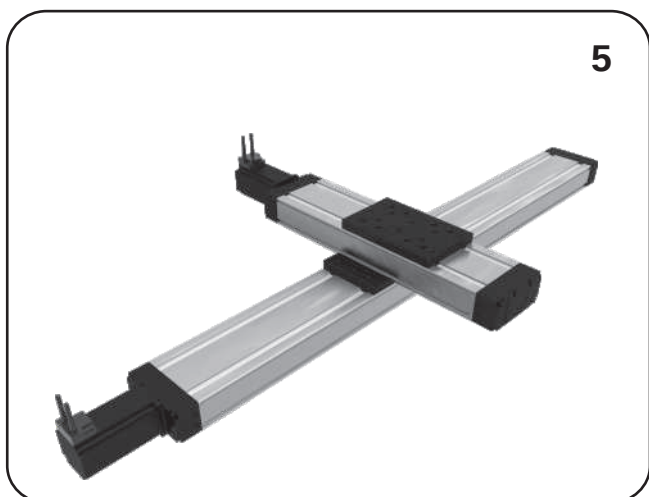
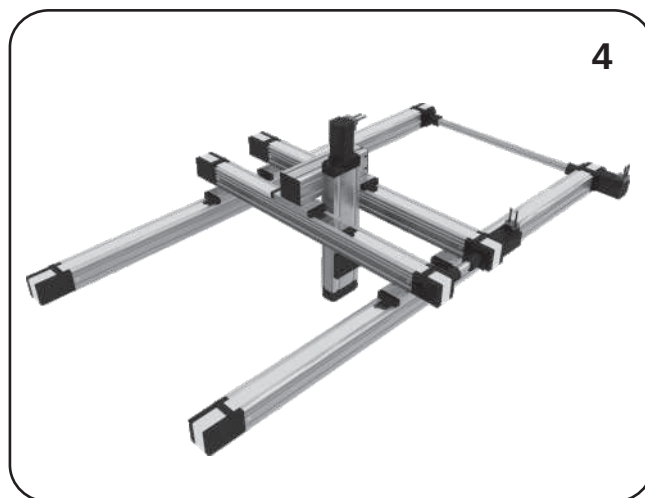
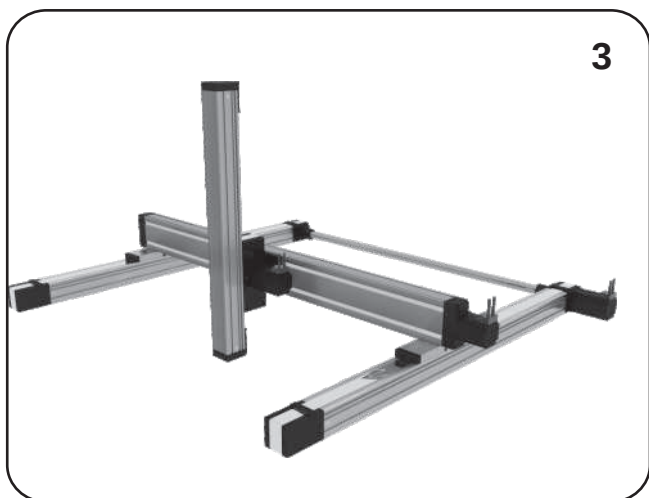
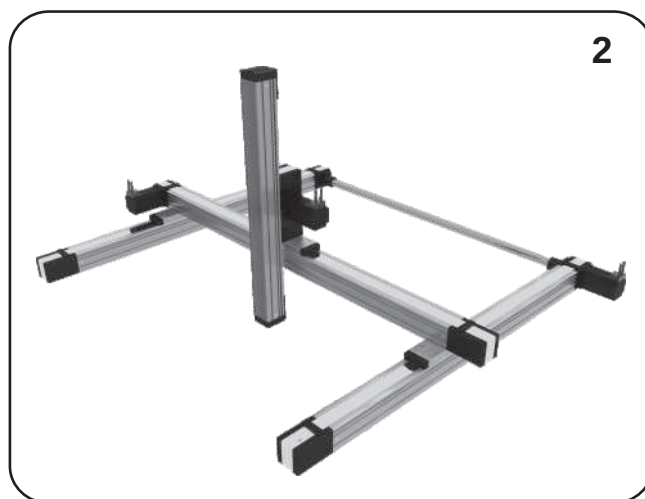
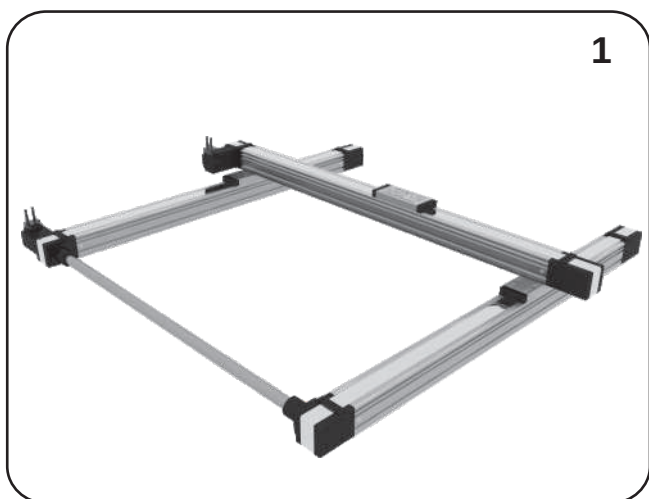
Linear Unit must be mounted by the aluminium profile and not at the end blocks!

For more details about Alu profiles see PROFILE TECHNIC catalogue.



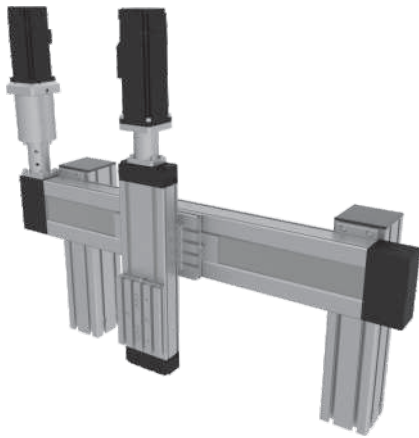
MULTI-AXIS SYSTEMS

We offer all necessary fittings including brackets, clamping fixtures and adapter plates in order to build multi-axis systems. Beside standard elements we supply also custom fixing and connection elements manufactured in our workshop.



MULTI-AXIS SYSTEMS

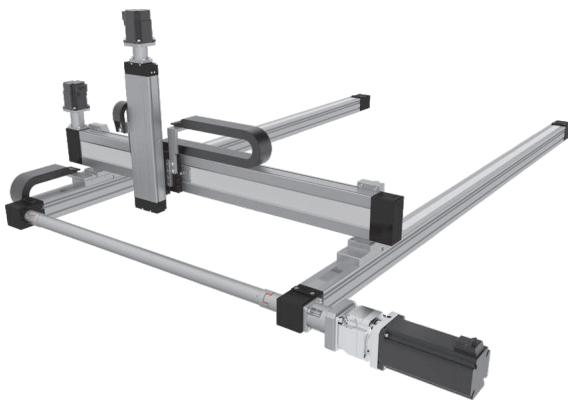
7



8



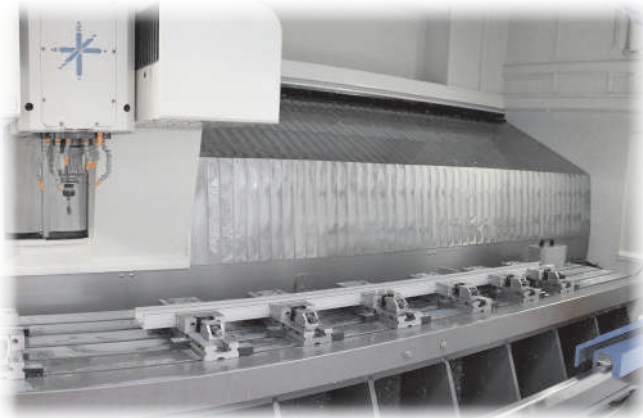
9



10



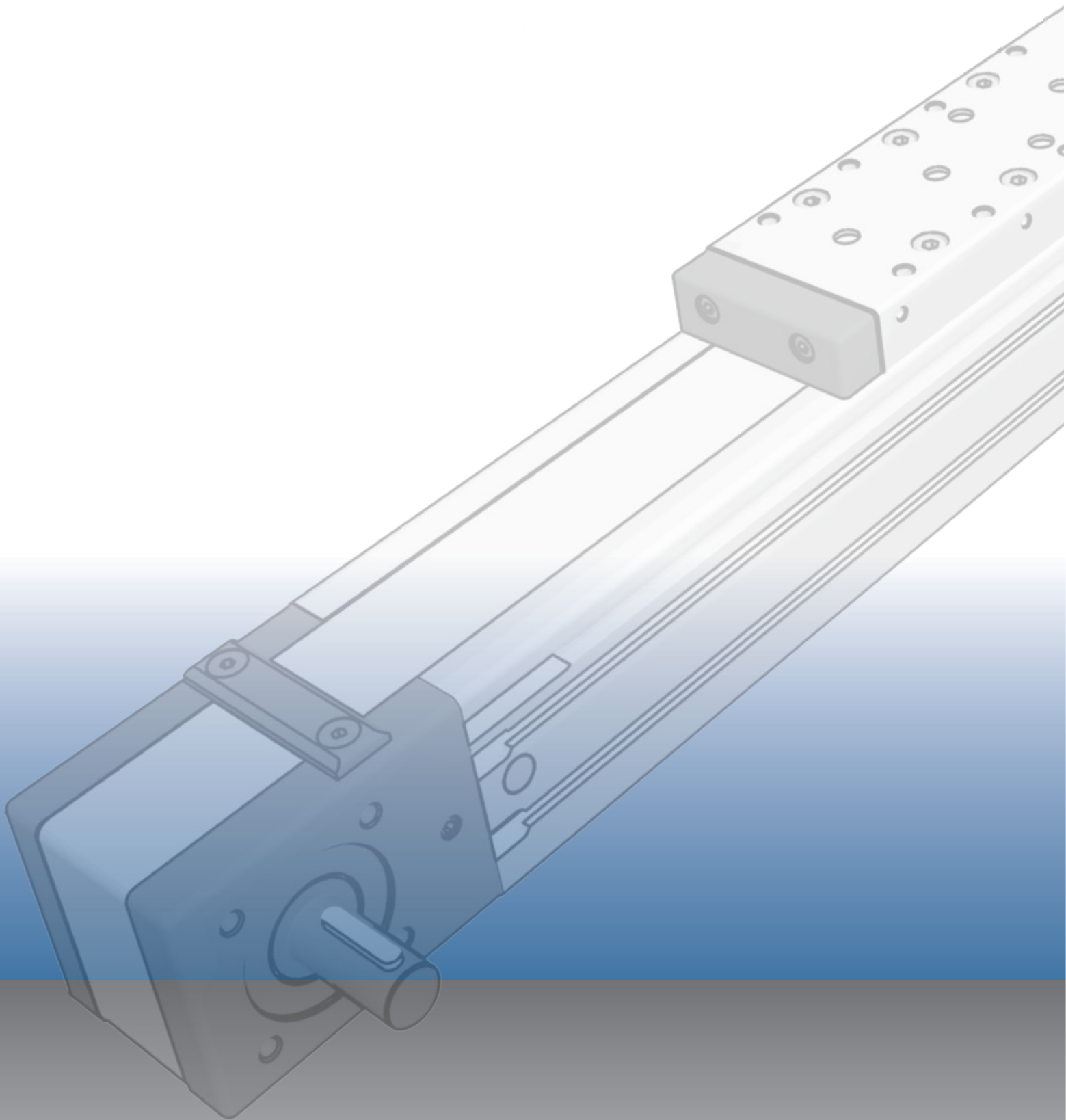
The calculation program "LINEAR UNITS SELECTION" enables fast and simple selection of a suitable linear axis based on your application data. As a result of the interpretation of this data, the program provides you with diverse information, e.g. driving torque, rotation speed, maximal process speed, durability and other information about a particular product. So contact us!



Our modern machinery, for example, comprises several CNC automatic lathes with power tools, a 4-axis machining centre with a highly modern, fully automated pallet changing system and a CNC machining centre with a travel distance of 3.5m, where our linear-axis profiles are machined.

Wenzel's 6m-long measuring machine enables precise control of straightness, parallelism, angle tolerance and other dimensional tolerances of linear axis profiles, before and after processing, as well as the creation of measurement protocols. Our diverse manufactured components can also be measured here.





UNIMOTION

Hypex d.o.o.
Alpska cesta 43, 4248 Lesce
Slovenia

Tel: +386 (0)4 5318700 Fax: +386 (0)4 5318740
www.unimotion.eu email: sales@unimotion.eu