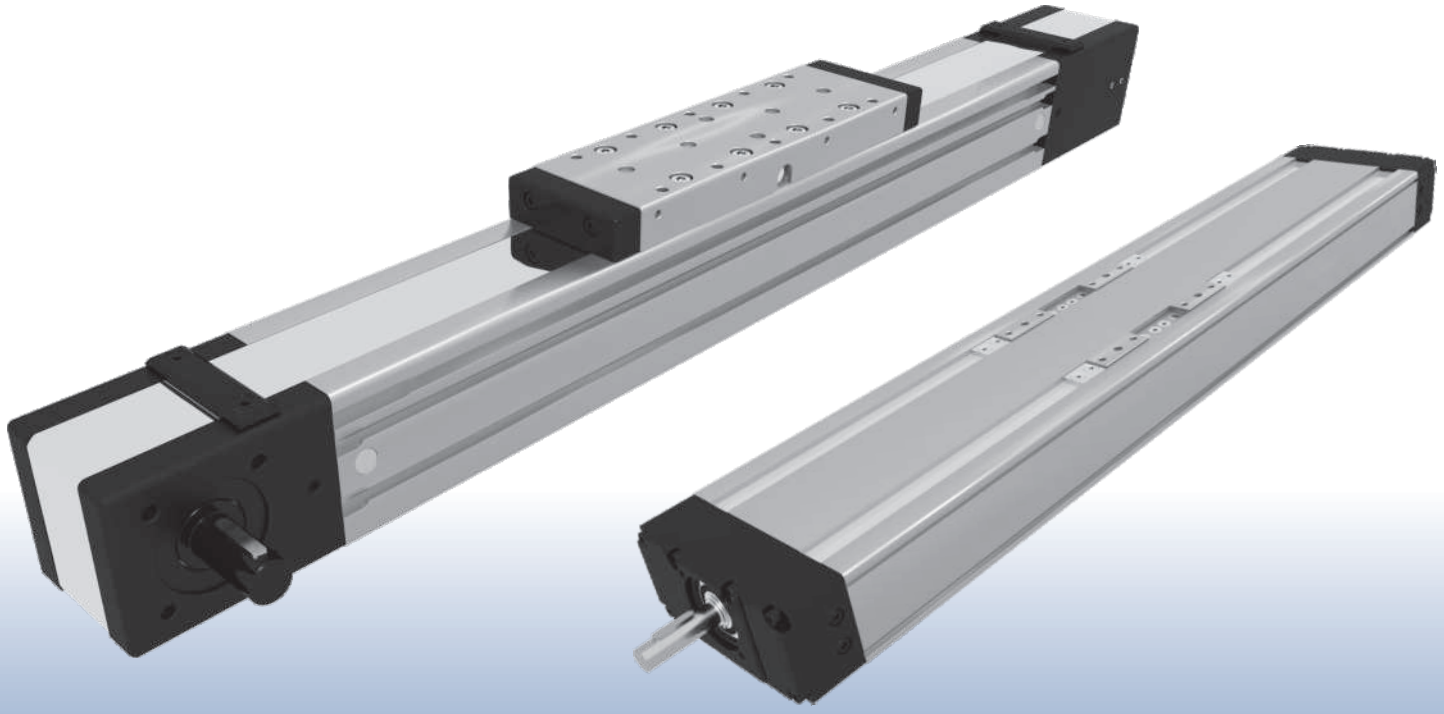
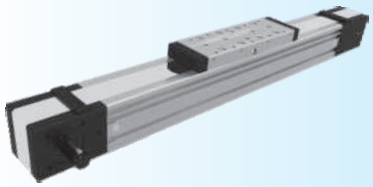
UNIMOTION

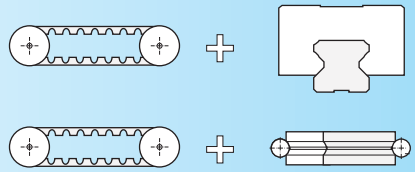


LINEAR UNITS

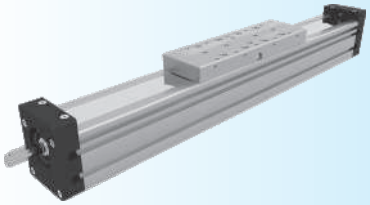
www.unimotion.eu

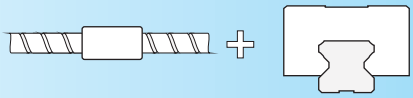
Our company was established in 1990 and, since then, it is privately owned. After 7 years of experience in metal processing as a contractor, the company Hypex (Unimotion) was created and operated in the following areas:
Special purpose machinery manufacture with its own development, trade and assembly 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!



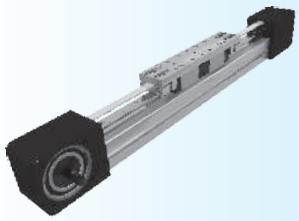


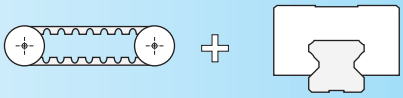
MTJ
MRJ
1.000.0





MTV
2.000.0





MTJ ECO
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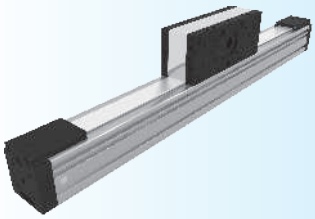
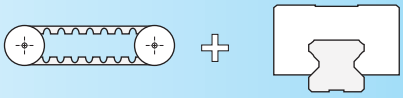
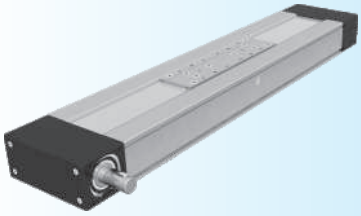
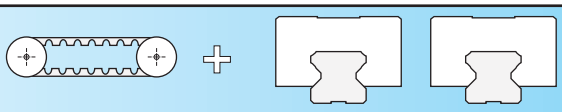


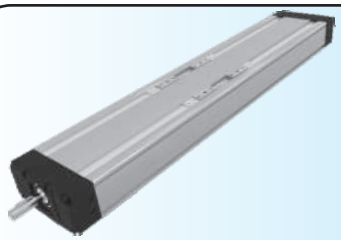


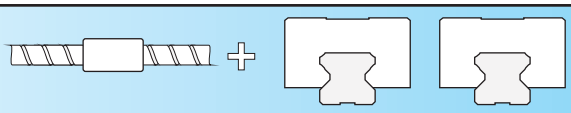
MTJZ
4.000.0



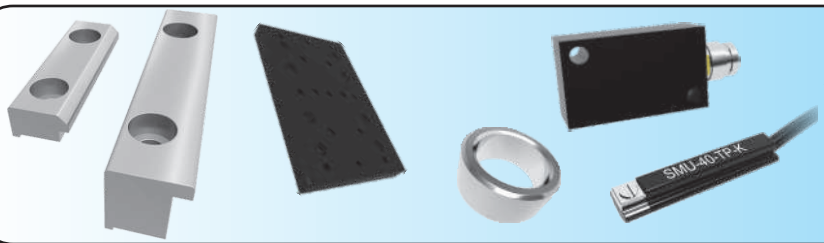


CTJ
5.000.0





CTV
6.000.0



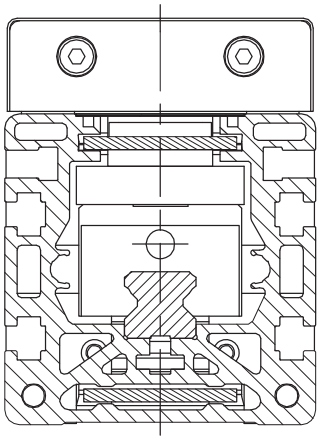
ACCESSORIES
7.000.0

V 8.0

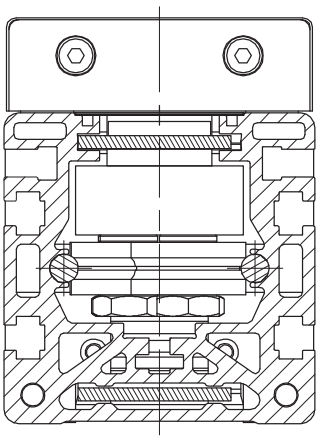
CHARACTERISTICS

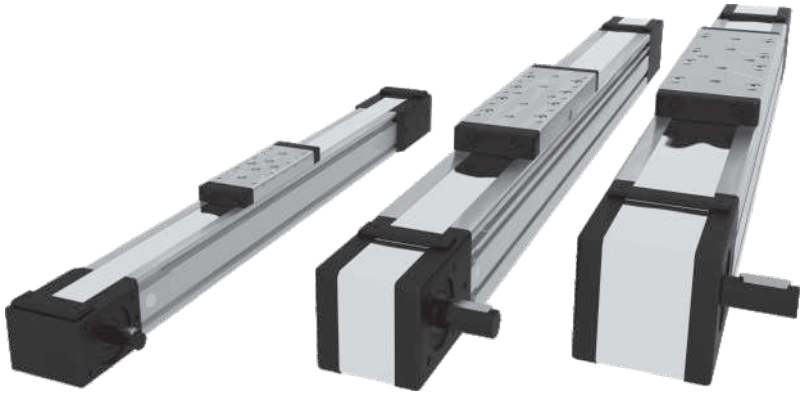
MTJ *and* ***MRJ*** *Linear Units with toothed belt drive and compact dimensions provide high performance features such as, high speed, good accuracy and repeatability.*
They can easily be combined to multi-axis systems.
Excellent price-/performance ratio and quick delivery time are ensured.
The compact, 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



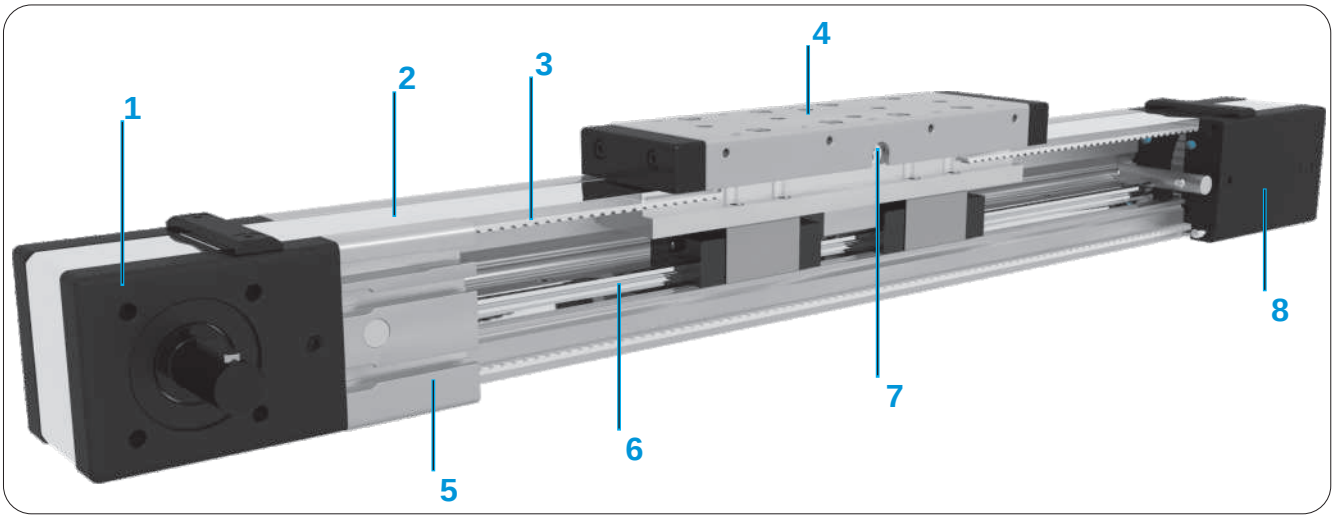


The aluminium profiles are manufactured according to the medium EN 12020-2 standard /

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

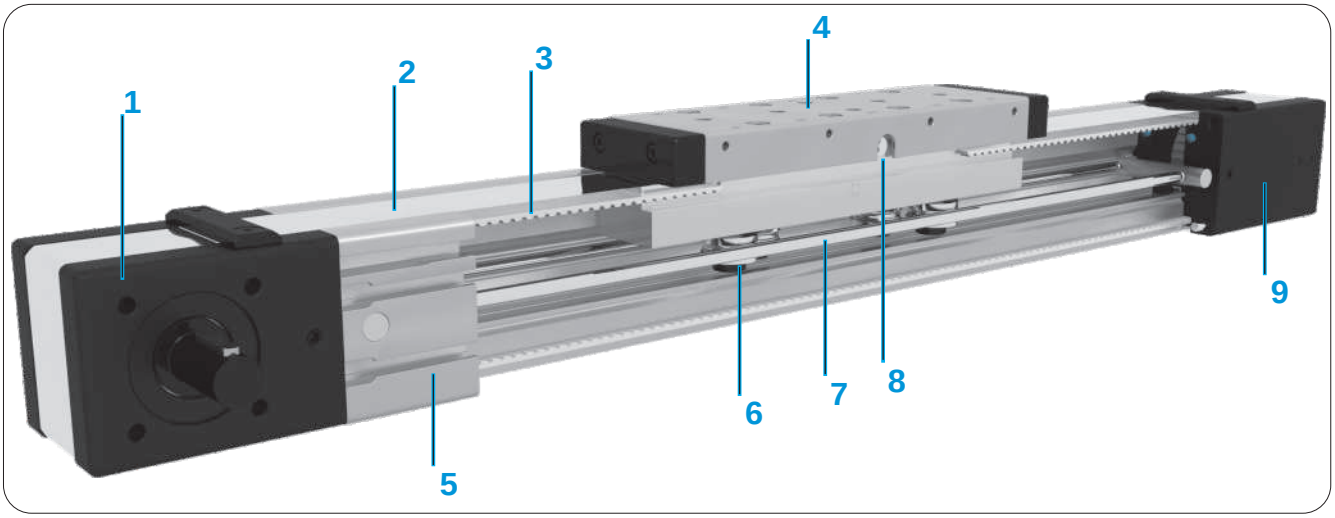
STRUCTURAL DESIGN

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

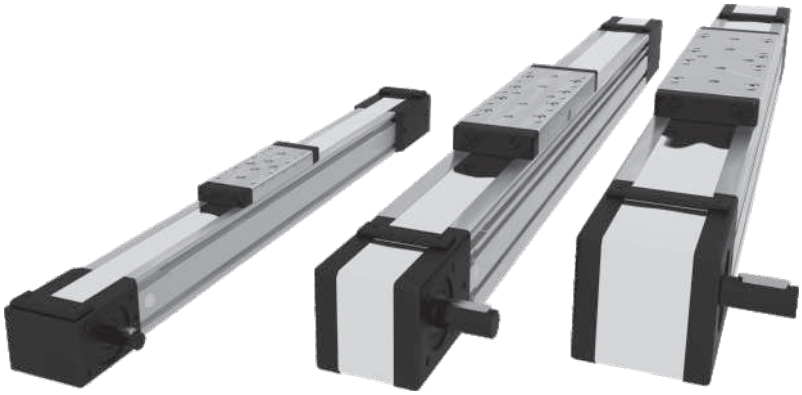
R : Journal on right side

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	Load capacity		Dynamic moment			Moved mass	Maximum Repeatability	*Maximum length	Planar moment of inertia	
	Lv [mm]	Dynamc C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	[mm]	Lmax [mm]	Iy [cm⁴]	Iz [cm⁴]
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	
							Forces		Moments							
	Lv [mm]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]	[kg]	[mm]	Lmax [mm]	Iy [cm⁴]	Iz [cm⁴]
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

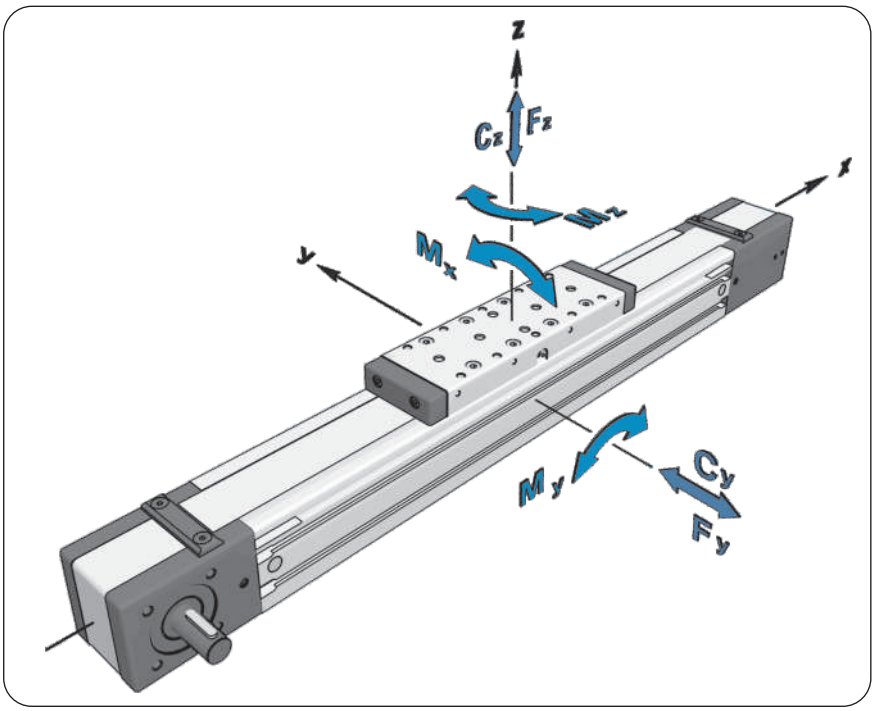
*For lengths over the stated value in the table above please contact us

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 (fs =5.0)

Modulus of elasticity :

E = 70000 N / mm^2



TECHNICAL DATA

Drive and belt data for MRJ and MTJ series

Linear Unit	* Maximum travel speed [m / s]	Maximum drive torque Ma [Nm]	** No load torque With strip [Nm]	No load torque Without strip [Nm]	Puley drive ratio [mm / rev]	Pulley diameter [mm]	Belt type	Belt width [mm]	Max. force transmited by belt [N]	Specific spring constant C_{spec} [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

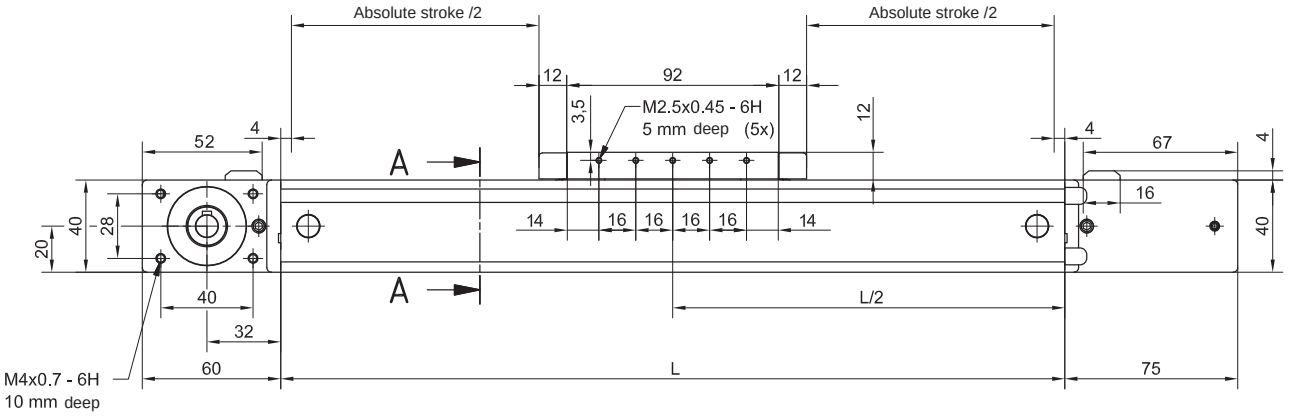
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg·m ^{2}]
MRJ 40	92	1,25 + 0,0022 * Stroke [mm]	9,3 + 0,0035 * Stroke [mm]
MRJ 65 L	190	4,3 + 0,0047 * Stroke [mm]	120,4 + 0,0154 * Stroke [mm]
MRJ 80 L	260	8,2 + 0,0075 * Stroke [mm]	424,4 + 0,0391 * Stroke [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.

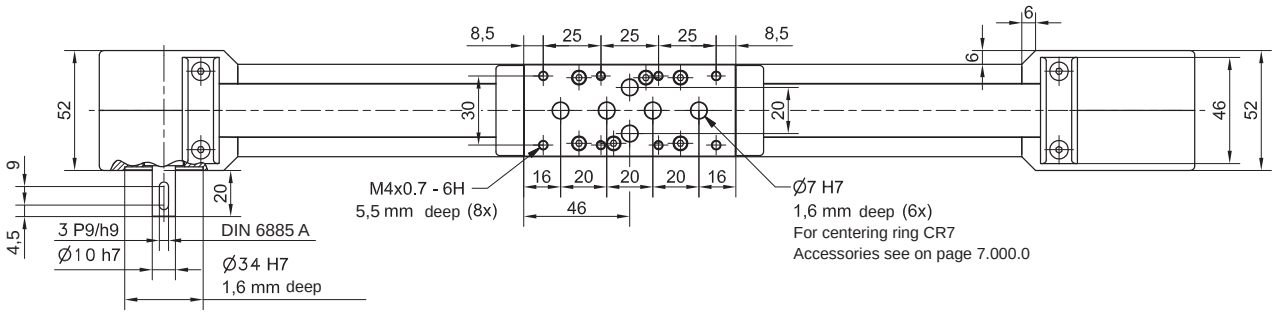
DIMENSIONS

Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



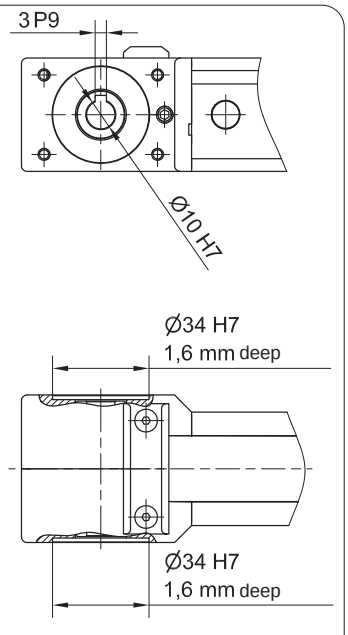
Lifetime lubricated!



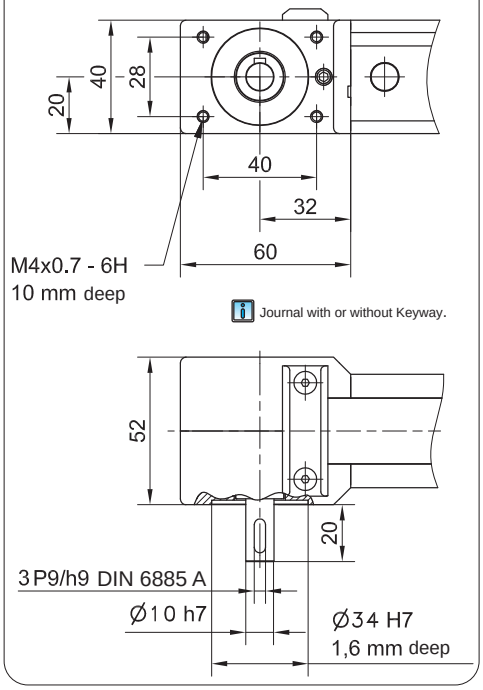
Journal with or without Keyway.

All dimensions in mm; Drawings scales are not equal.

TYPE 0



TYPE 1 L and 1 R



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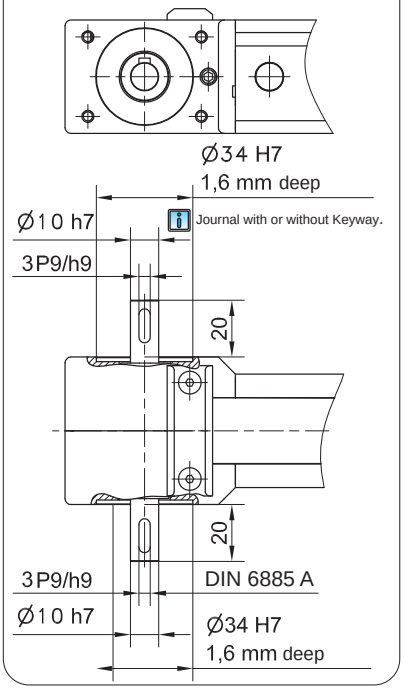
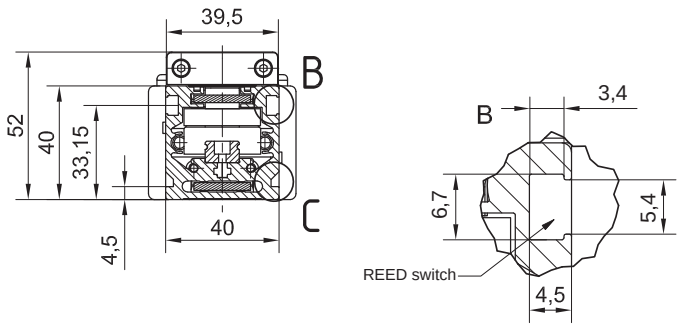
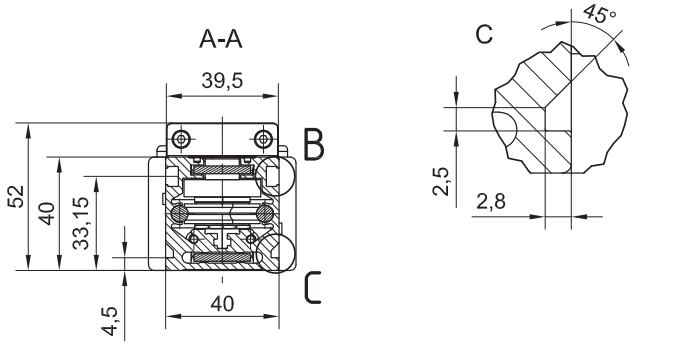


DIMENSIONS

MTJ 40



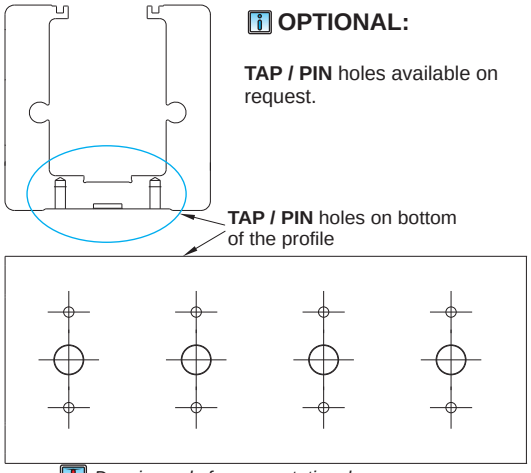
MRJ 40



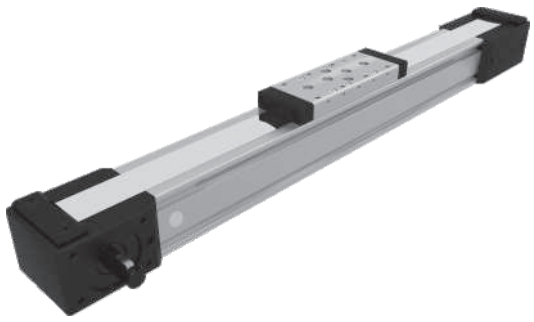
All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

TAP / PIN holes available on request.



Drawing only for presentational use.

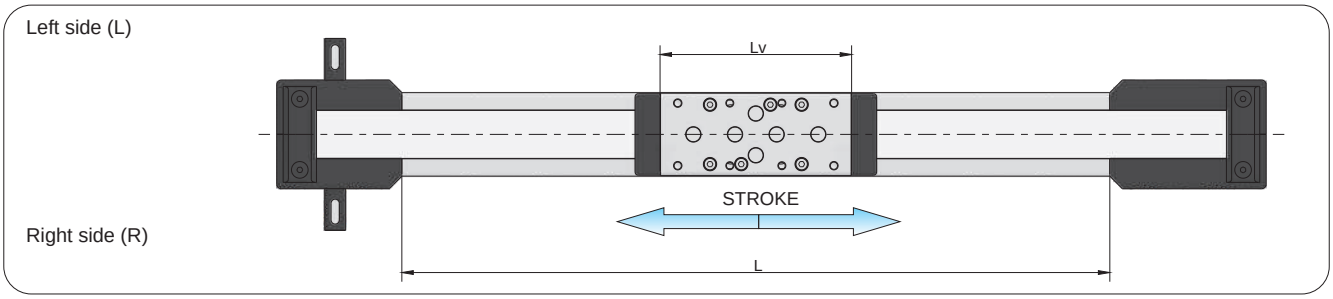


MOTOR	GEAR REDUCER + MOTOR	GEAR RED. 90° + MOTOR
MTJ & MRJ 40	MTJ & MRJ 40	MTJ & MRJ 40
Available on request	Available on request	Available on request

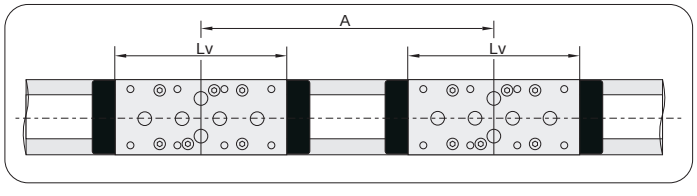
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + Lv + 32 mm ***Lv = 92 mm***

Ltotal = L + 135mm



Double-Carriage



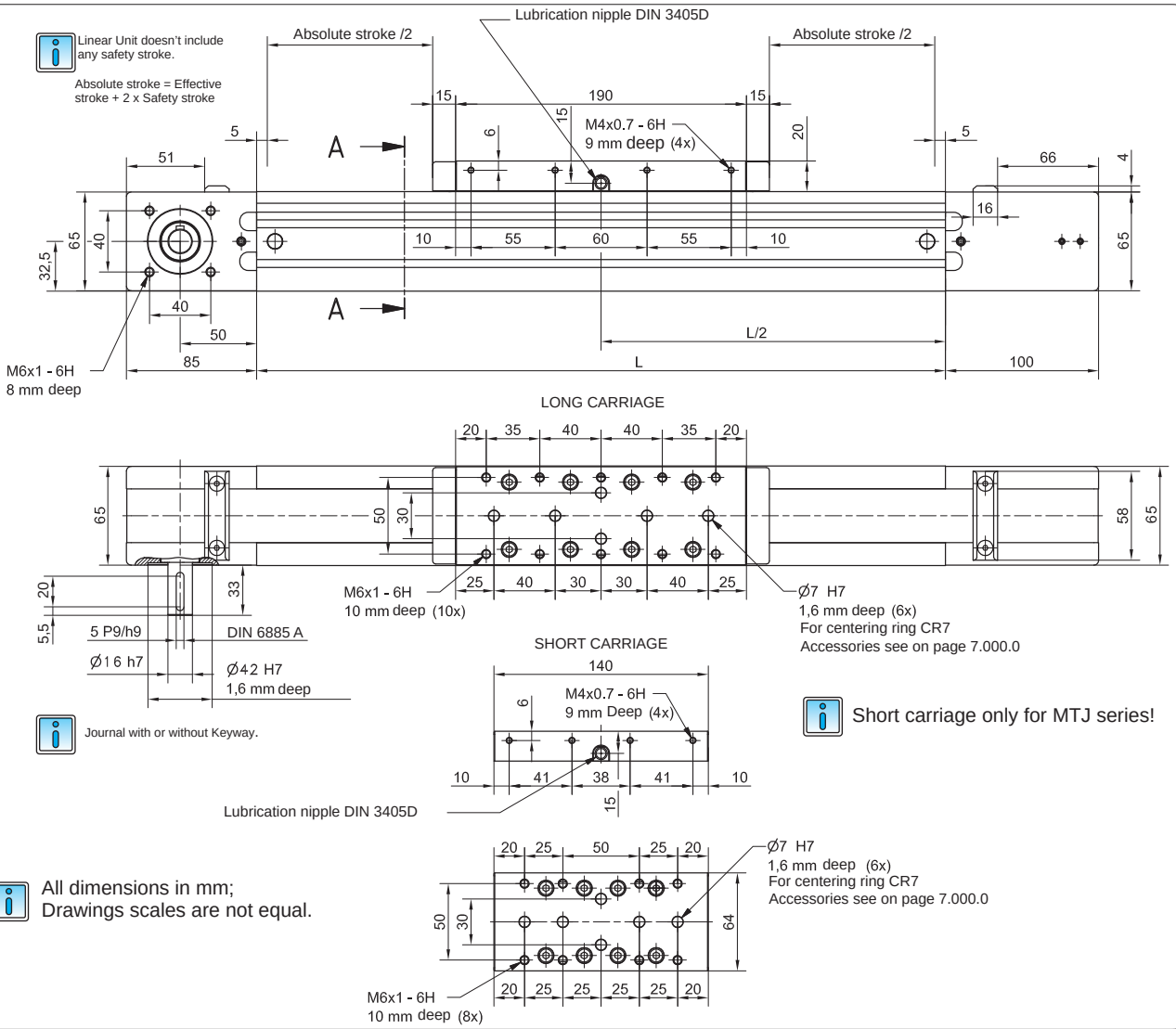
For ordering code please contact us.

L = Effective stroke + 2 × Safety stroke + Lv + A + 32 mm

Ltotal = L + 135 mm

A > Lv + 24 mm

DIMENSIONS



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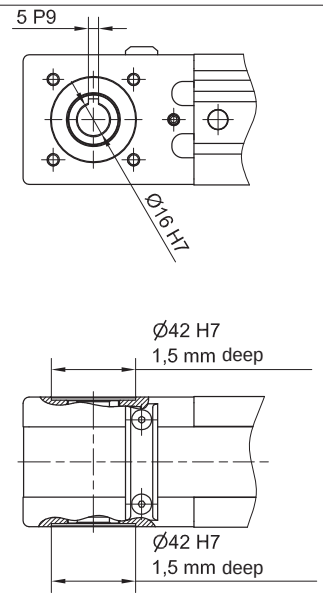
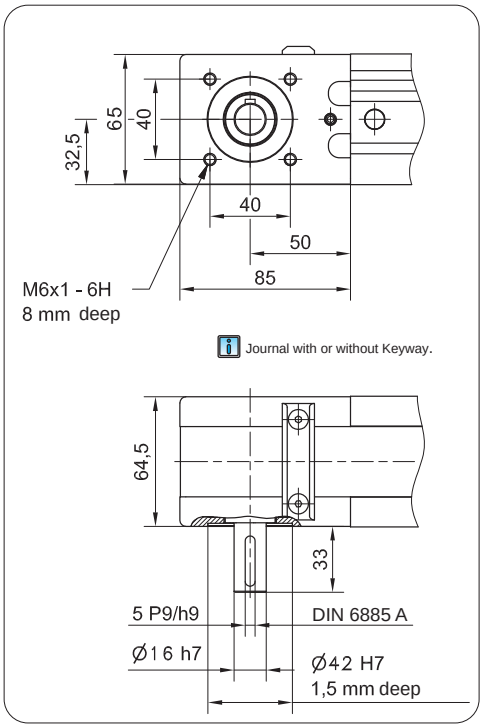


TYPE 1 L and 1 R



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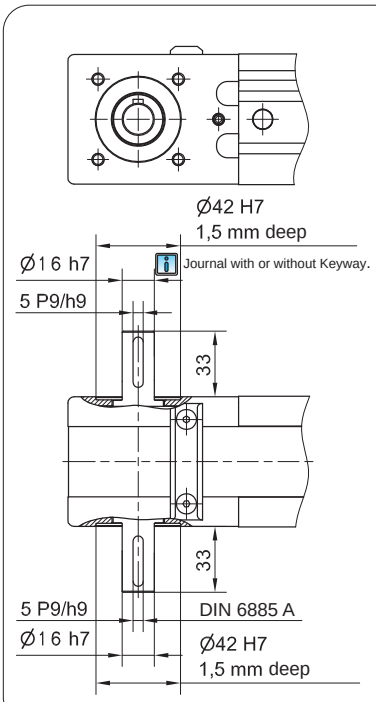
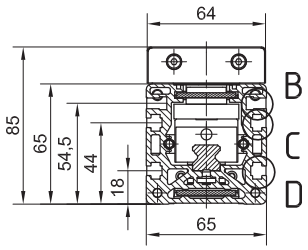
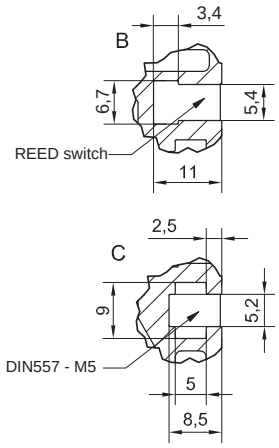


DIMENSIONS

MTJ 65

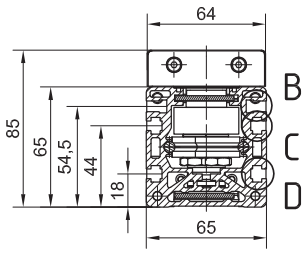
A-A

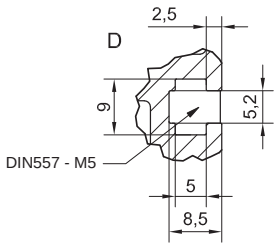




MRJ 65

A-A

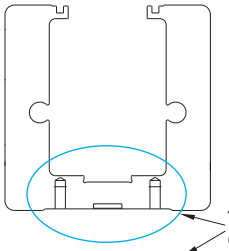




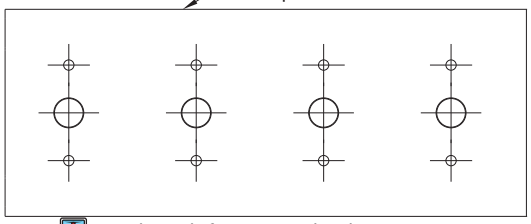
All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

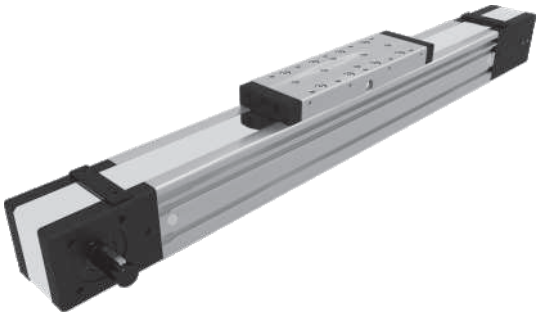
TAP / PIN holes available on request.



TAP / PIN holes on bottom of the profile



Drawing only for presentational use.



MOTOR	GEAR REDUCER + MOTOR	GEAR RED. 90° + MOTOR
MTJ & MRJ 65	MTJ & MRJ 65	MTJ & MRJ 65
Available on request	Available on request	Available on request

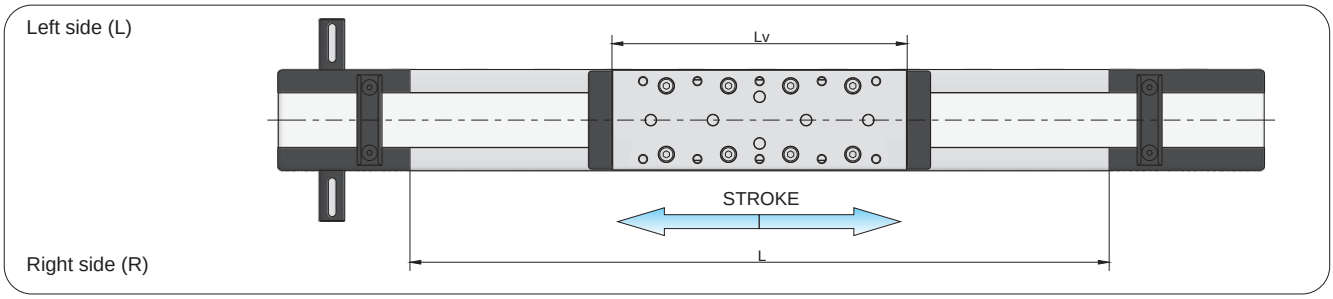
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + Lv + 40 mm

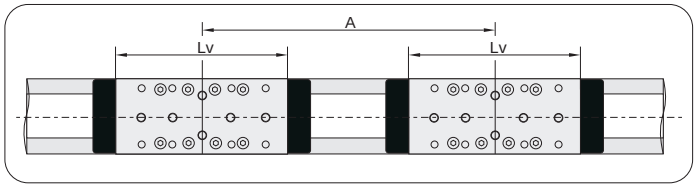
Ltotal = L + 185 mm

Lv - Long carriage = 190 mm

Lv - Short carriage = 140 mm



Double-Carriage



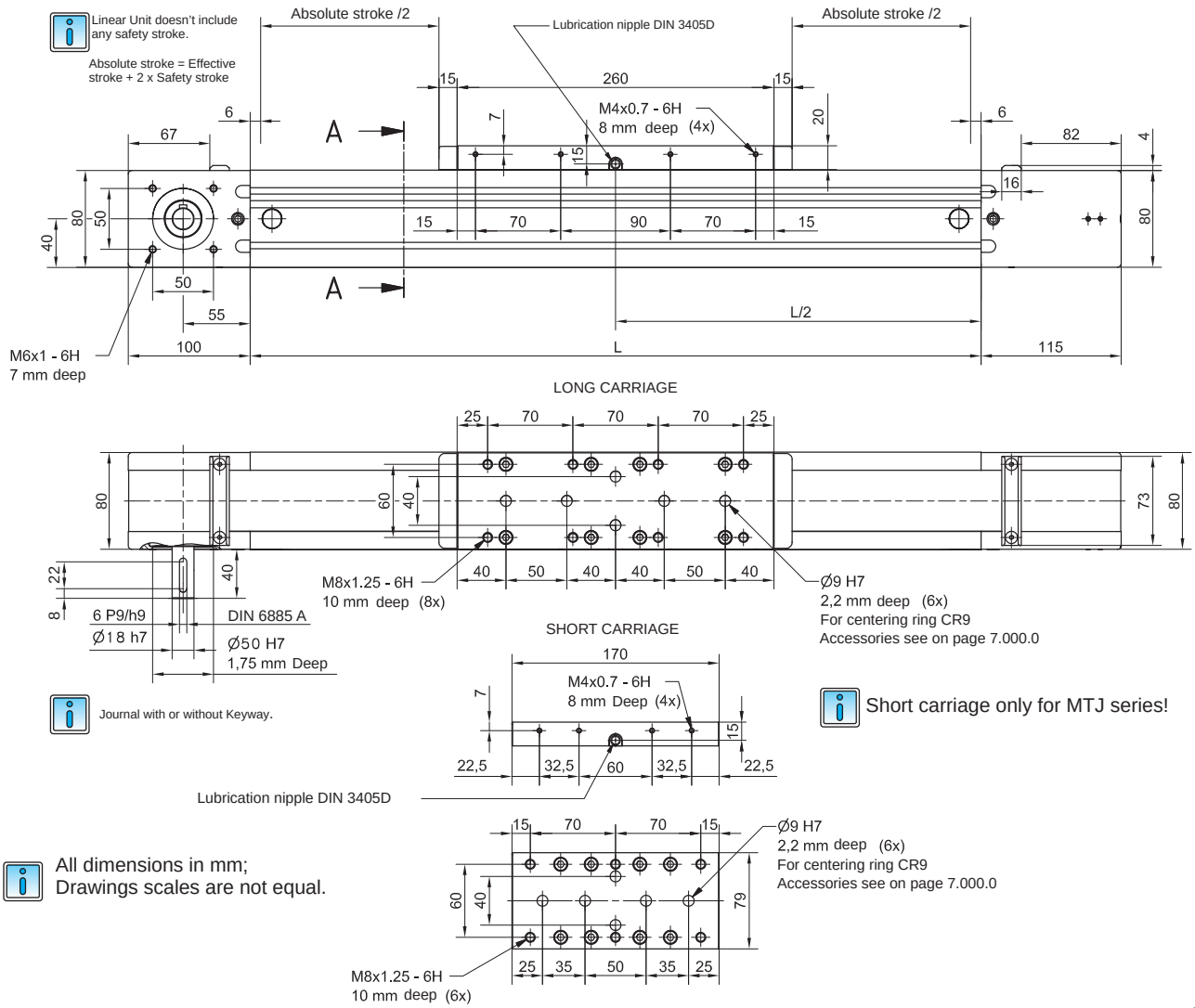
For ordering code please contact us.

L = Effective stroke + 2 × Safety stroke + Lv + A + 40 mm

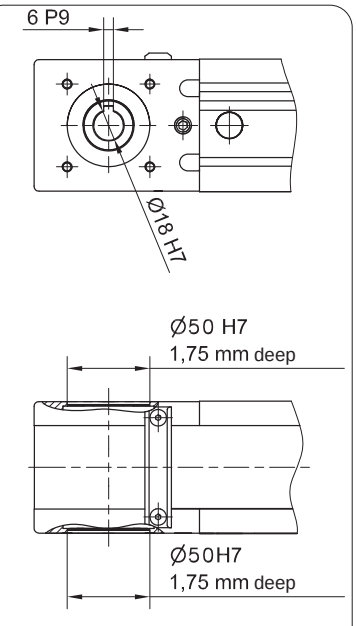
Ltotal = L + 185 mm

A > Lv + 30 mm

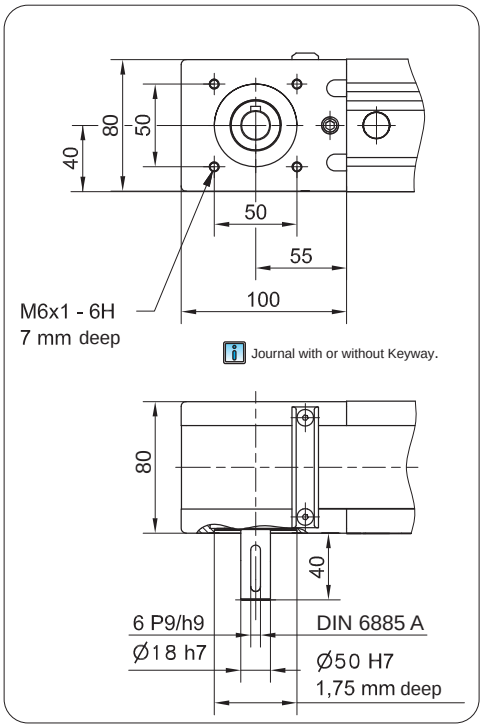
DIMENSIONS



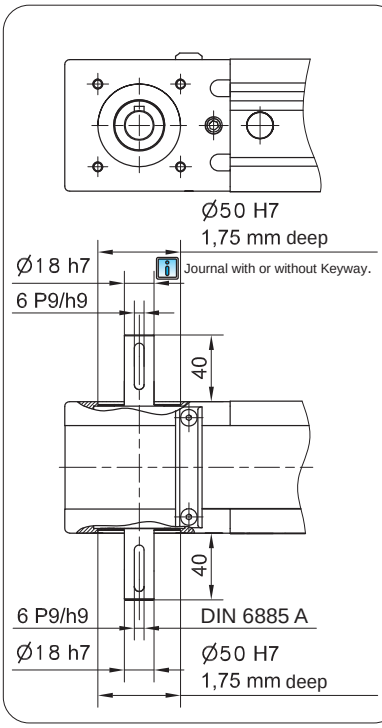
TYPE 0



TYPE 1 L and 1 R

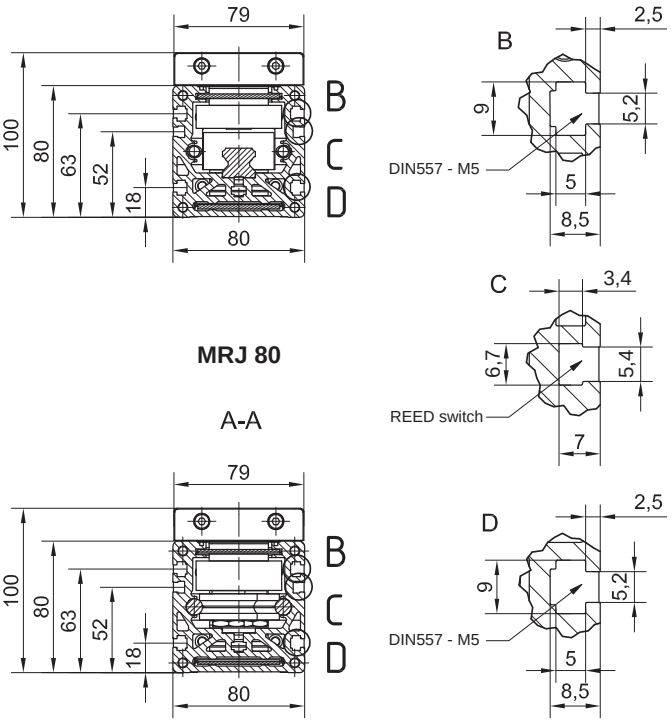


TYPE 2



DIMENSIONS

MTJ 80

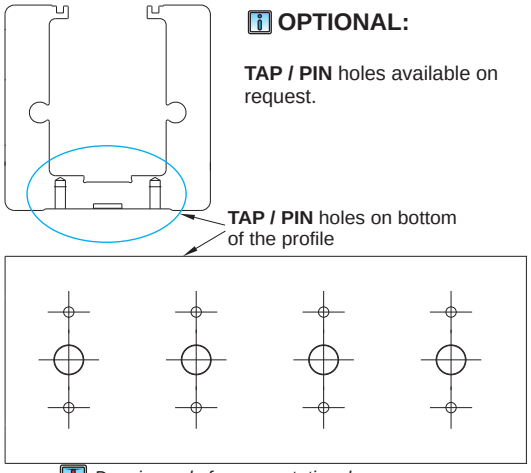


MRJ 80

All dimensions in mm; Drawings scales are not equal.

OPTIONAL:

TAP / PIN holes available on request.



Drawing only for presentational use.

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

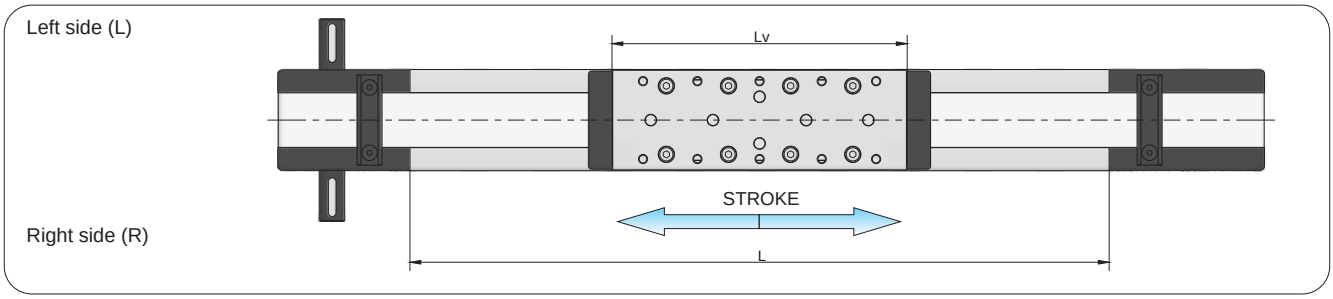
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + Lv + 42 mm

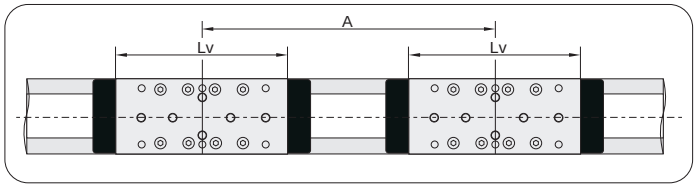
Ltotal = L + 215 mm

Lv - Long carriage = 260 mm

Lv - Short carriage = 170 mm



Double-Carriage



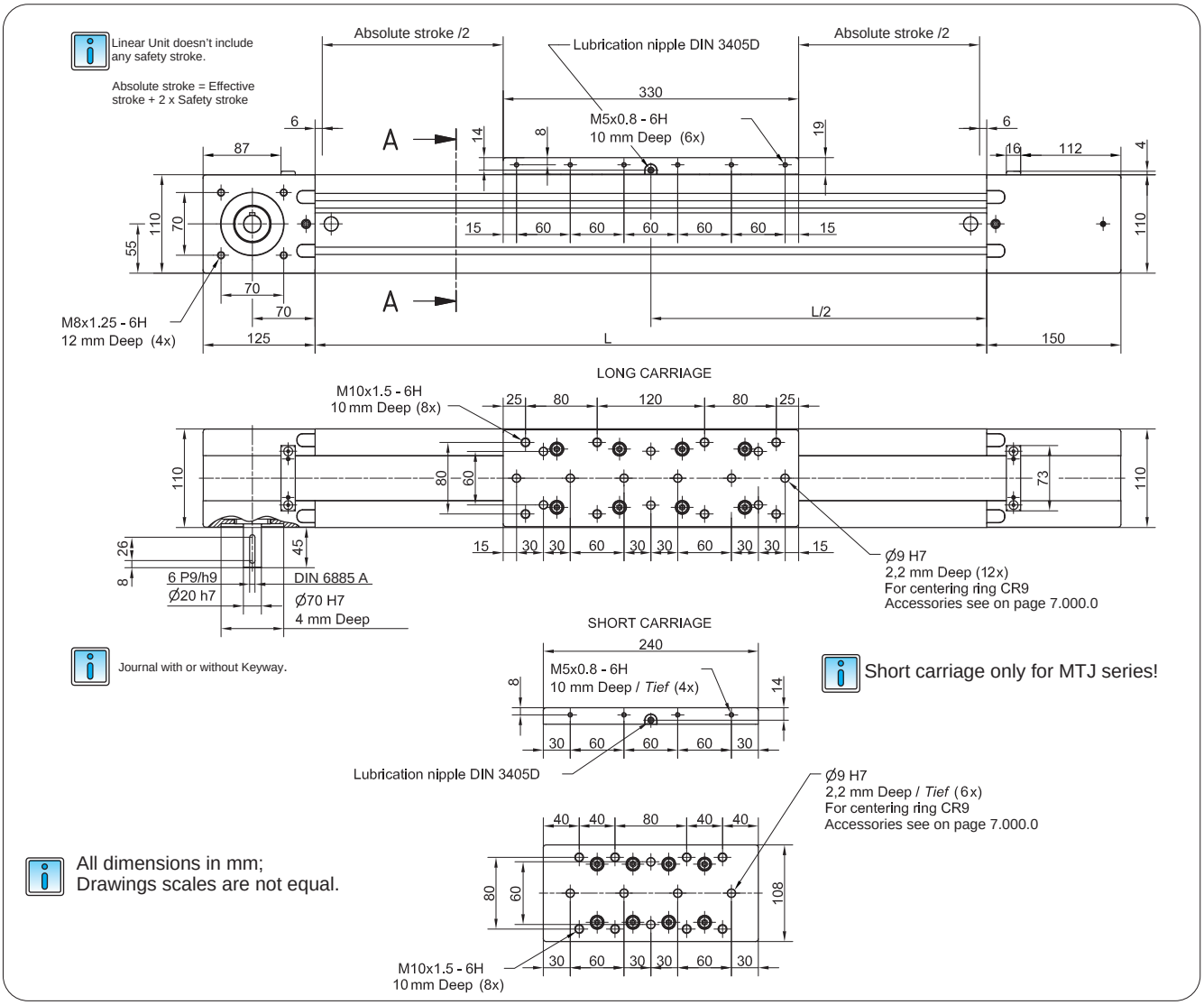
For ordering code please contact us.

L = Effective stroke + 2 × Safety stroke + Lv + A + 42 mm

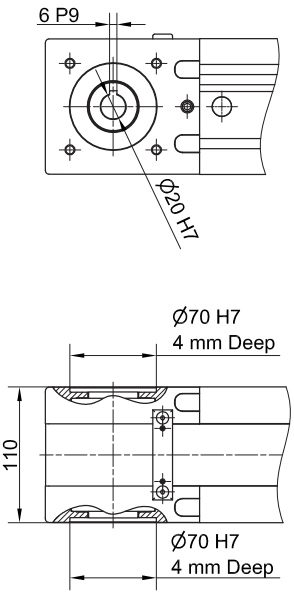
Ltotal = L + 215 mm

A ≥ Lv + 30 mm

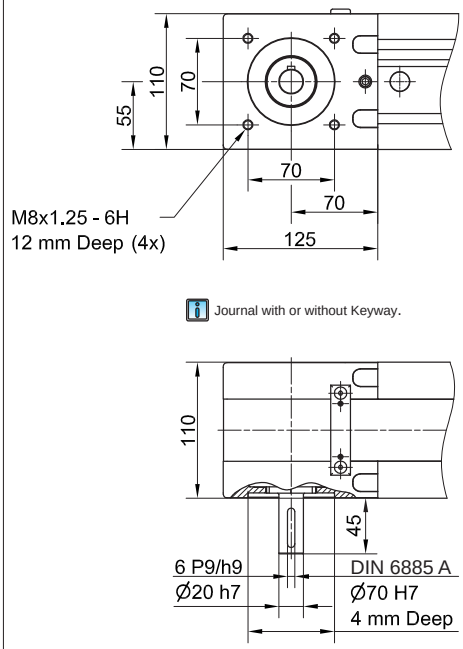
DIMENSIONS



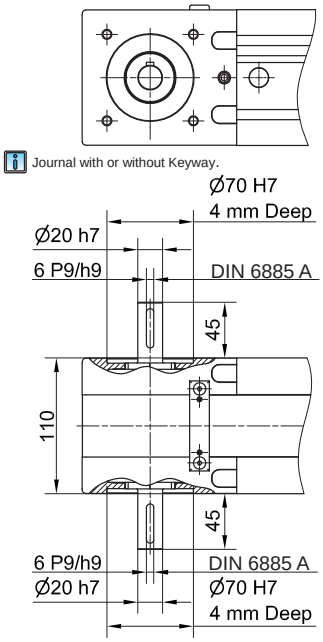
TYPE 0



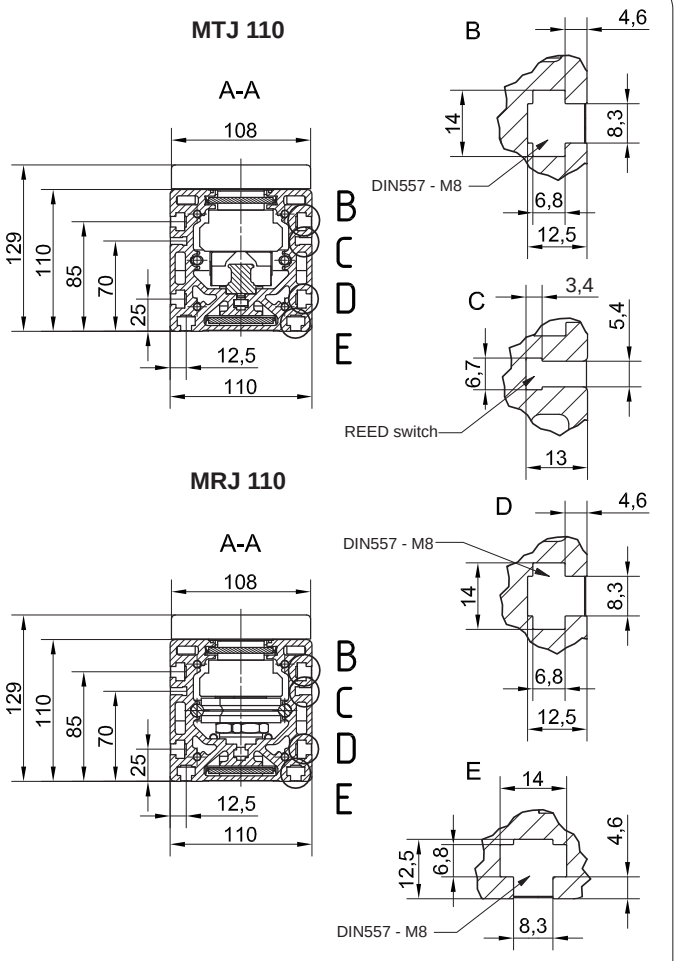
TYPE 1 L and 1 R



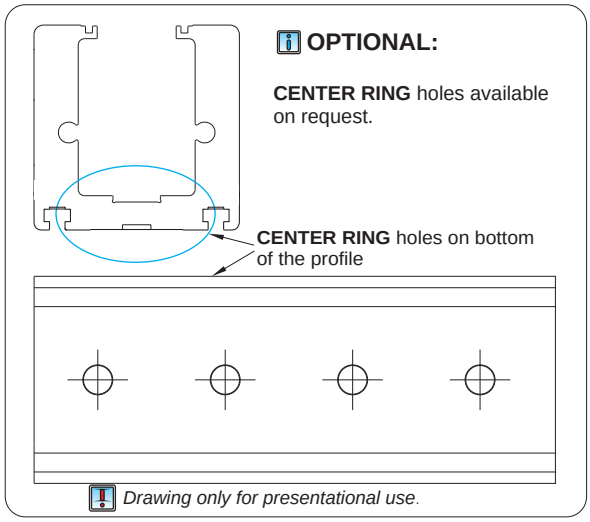
TYPE 2

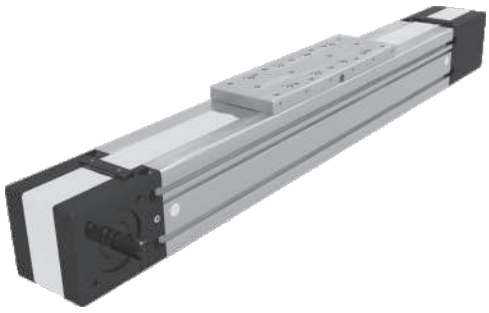


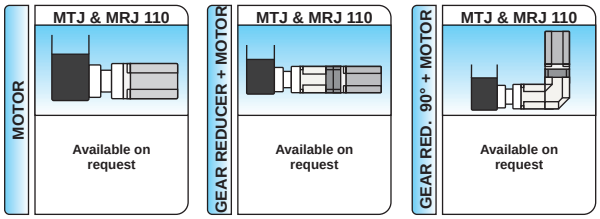
DIMENSIONS



All dimensions in mm; Drawings scales are not equal.







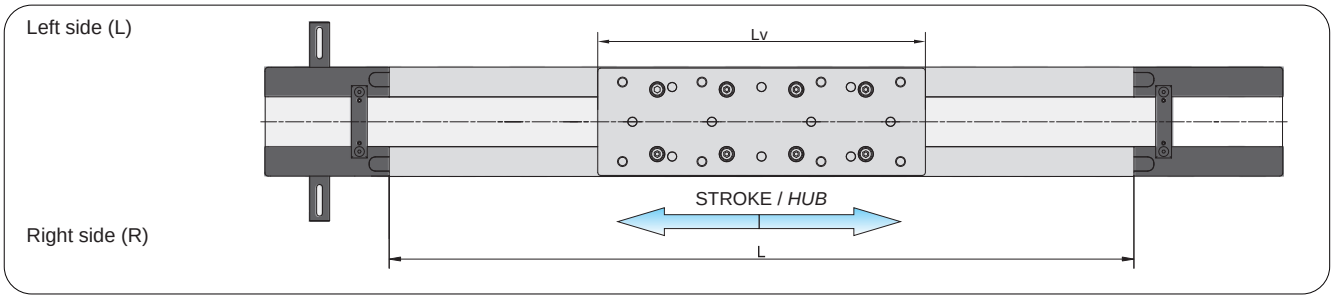
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + Lv + 12 mm

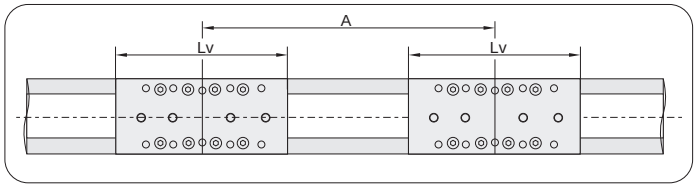
Ltotal = L + 275 mm

Lv - Long carriage = 330 mm

Lv - Short carriage = 240 mm



Double Carriage



For ordering code please contact us.

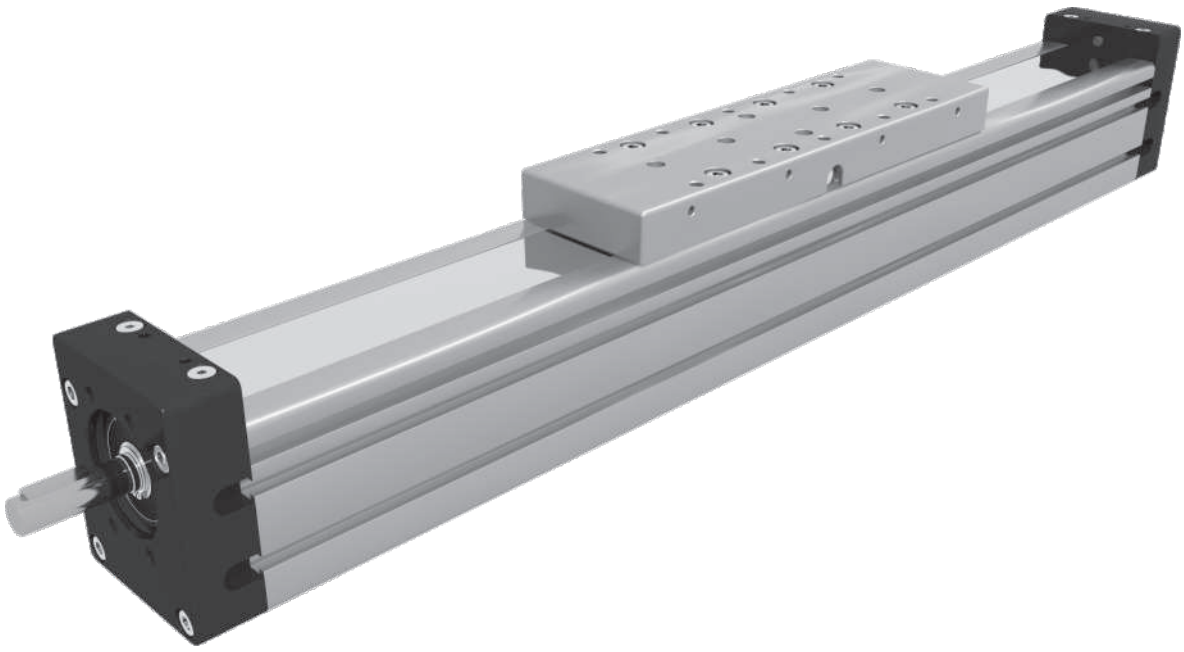
L = Effective stroke + 2 × Safety stroke + Lv + A + 12 mm

Ltotal = L + 275 mm

A ≥ Lv

CHARACTERISTICS

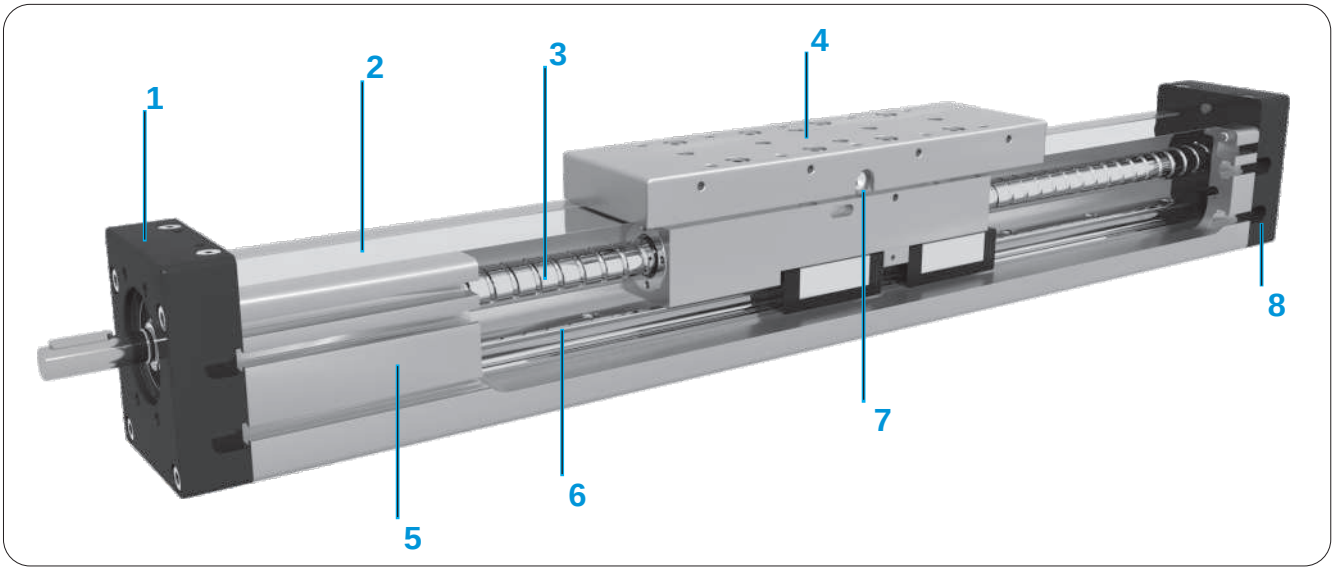
*The **MTV** series describes Linear Units with precision ball screw drive, integrated guide rail and compact dimensions. They provide high performances features, such as high speeds, good accuracy and repeatability.*
They can easily be combined to multi-axis systems.
Excellent price-/performance ratio 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

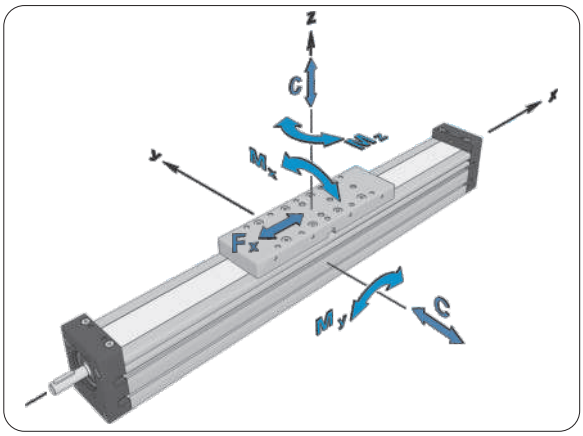
General technical data for MTV series

Linear Unit	Carriage length	Load capacity		Dynamic moment			Moved mass	* Maximum length	Planar moment of inertia	
	Lv [mm]	Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	Lmax [mm]	Iy [cm^4]	Iz [cm^4]
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 (fs =5.0)



Modulus of elasticity

E = 70000 N / mm^2

Ball Screw Drive data

Liner unit	[1] Maximal travel speed [m / s]		[2] No load torque [Nm]	Lead constant [mm / rev]	Ball screw [d × l]	[3] Max. Repeatability precision [mm] STANDARD ISO7	ISO5	Dynamic load capacity BS Ca [N]	Max. axial load Fx [N]	Maximal drive torque Ma [Nm]
MTV 65	$34{,}2 \cdot 10^3 \cdot I / L^2$ [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	$64{,}2 \cdot 10^3 \cdot I / L^2$ [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	$108 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 0,18	045	5	32 × 5	± 0,02	± 0,01	18850	18850	16,7
	$99{,}0 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 0,50	0,50	10	32 × 10	± 0,02	± 0,01	33400	29600	52,3
	$105 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 1,00	0,55	20	32 × 20	± 0,02	± 0,01	29700	14800	52,3
	$103 \cdot 10^3 \cdot I / L^2$ [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.

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

Mass and mass moment of inertia

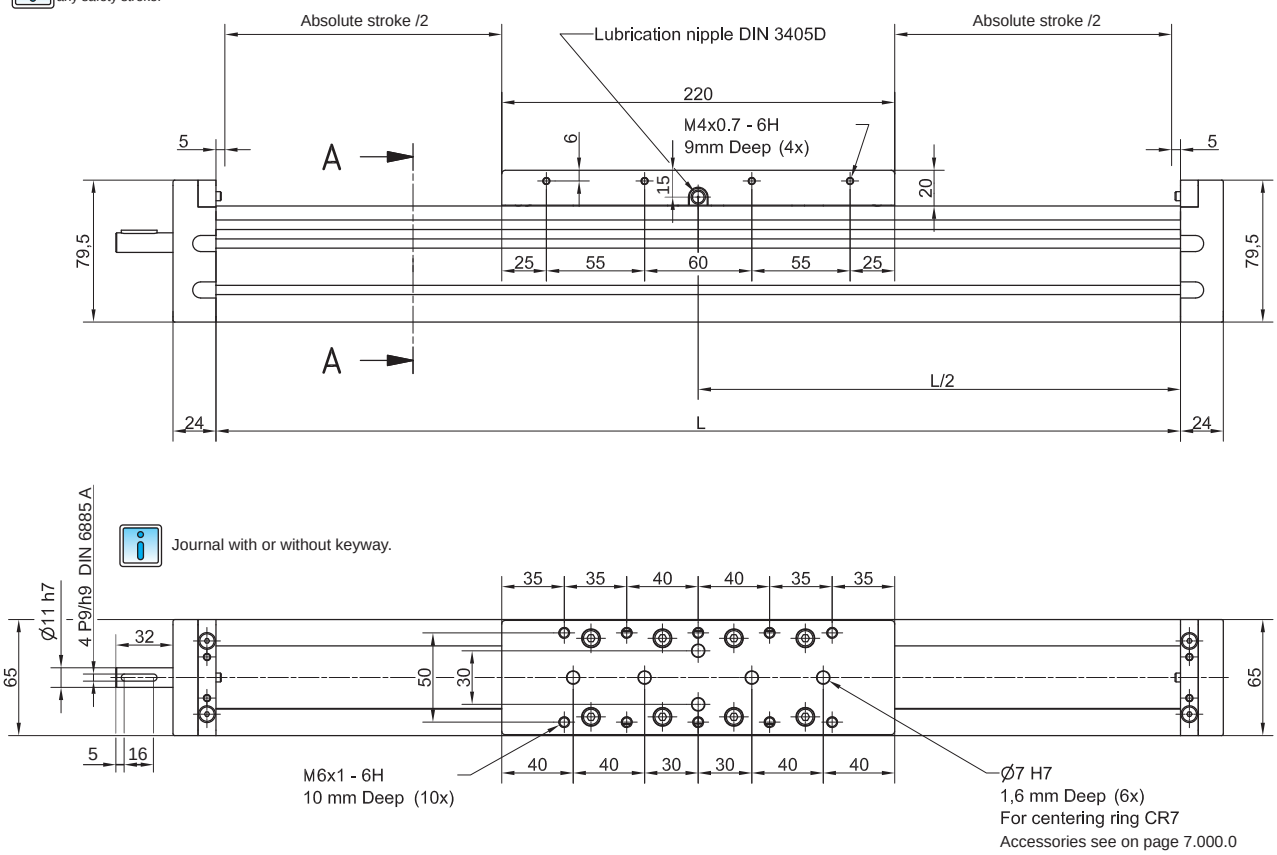
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg·m^2]
MTV 65	220	4 + 0,0073 * Stroke [mm]	2,5 + 0,0051 * Stroke [mm]
MTV 80	290	8,2 + 0,0114 * Stroke [mm]	8,5 + 0,0127 * Stroke [mm]
MTV 110	330	17,3 + 0,0216 * Stroke [mm]	47,0 + 0,0690 * Stroke [mm]

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

DIMENSIONS

Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



Accessories see on page 7.000.0

All dimensions in mm;
Drawings scales are not equal.

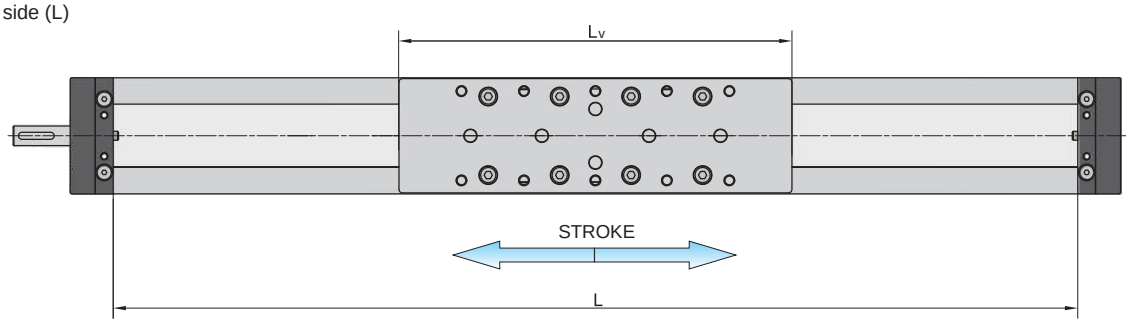
Defining of the linear module length

L* = Effective stroke + 2 × Safety stroke + *Lv* + *10 mm

Lv = 220 mm

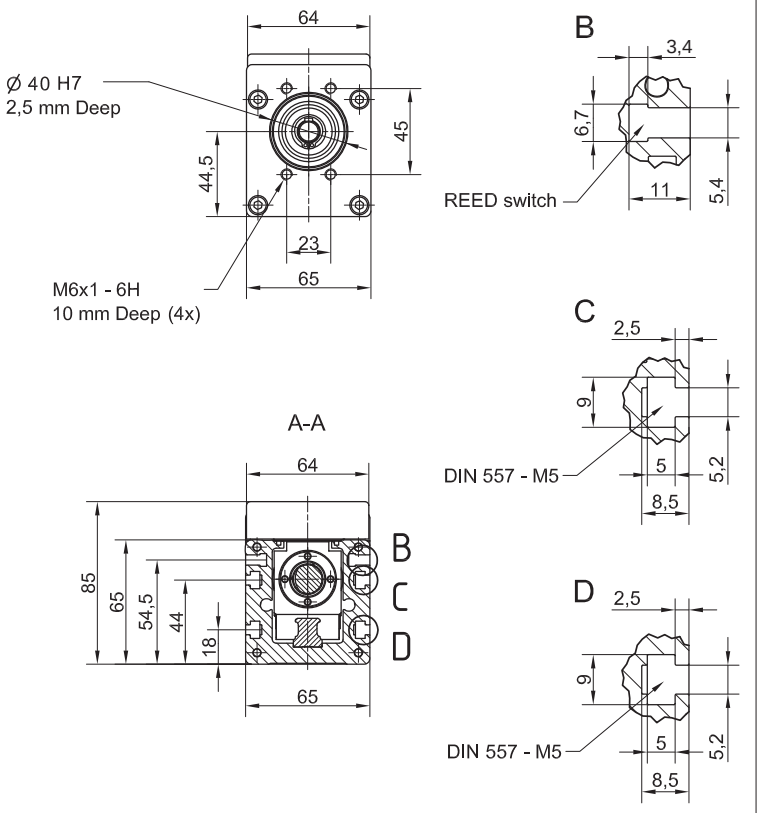
Ltotal = L + 48 mm

Left side (L)

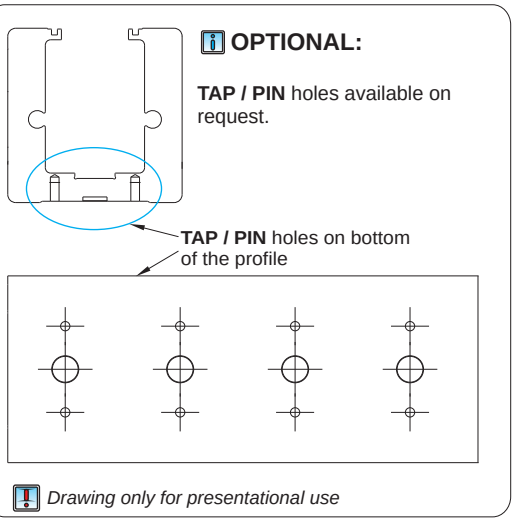


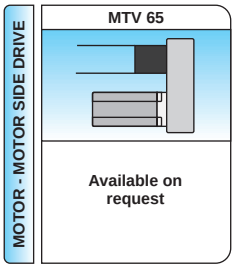
Right side (R)

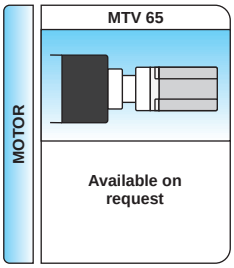
DIMENSIONS

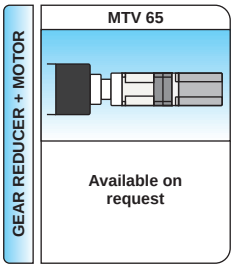


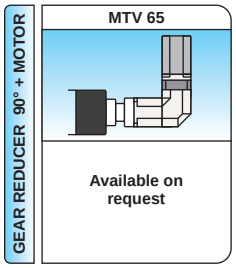
All dimensions in mm;
Drawings scales are not equal.

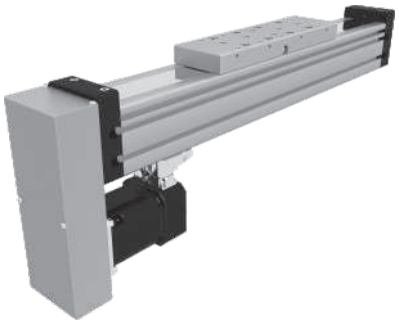










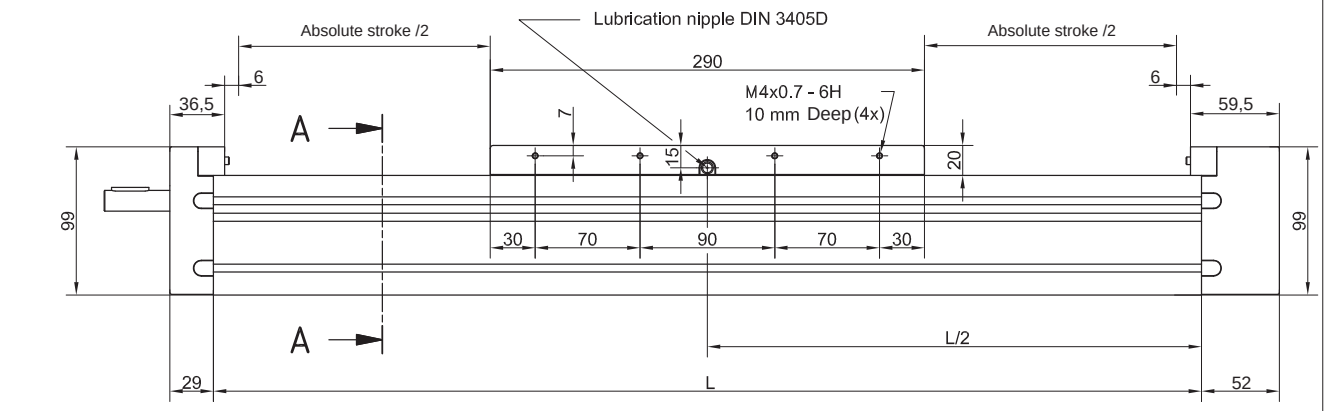


More info about MSD please refer to page 6.045.0

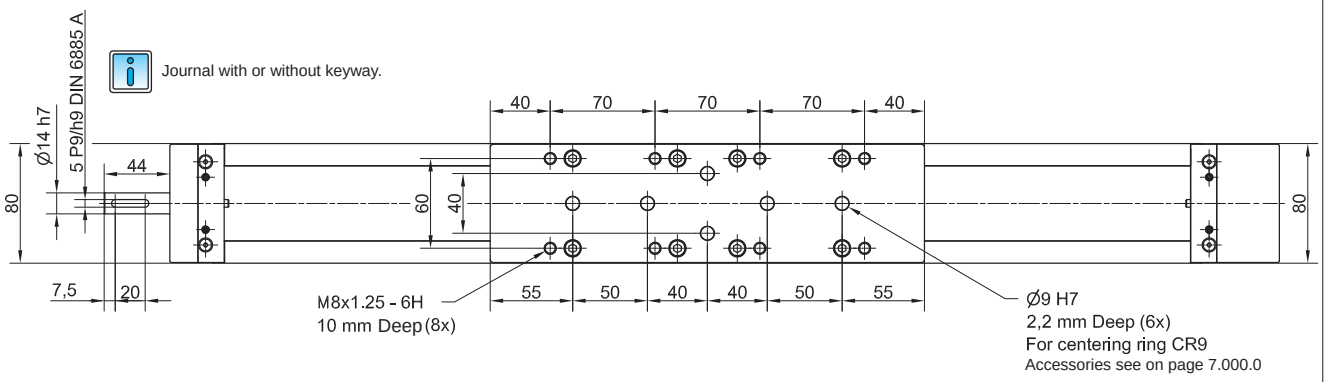
DIMENSIONS

Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke



Journal with or without keyway.



Accessories see on page 7.000.0

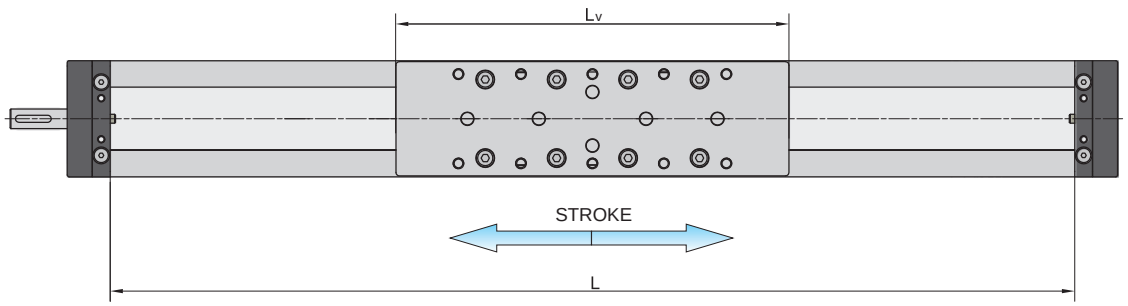
All dimensions in mm.;
Drawings scales are not equal.

Defining of the linear module length

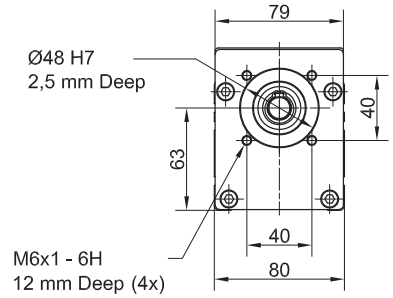
L* = Effective stroke + 2 × Safety stroke + *Lv* + *27 mm

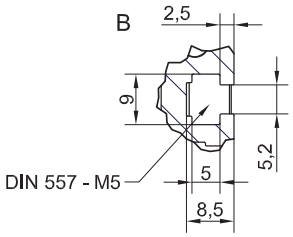
Lv = 290 mm

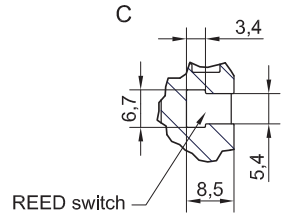
Ltotal = L + 81 mm

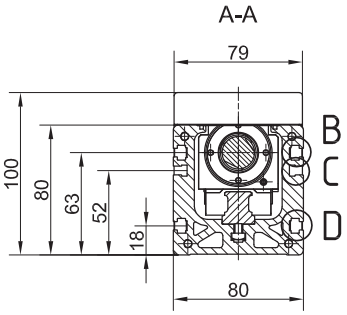


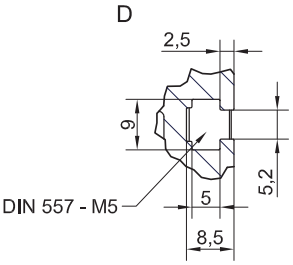
DIMENSIONS



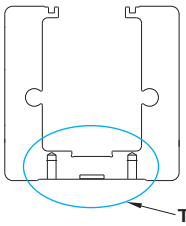








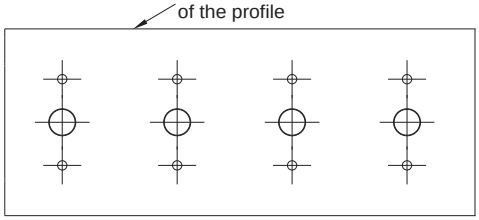
All dimensions in mm;
Drawings scales are not equal.



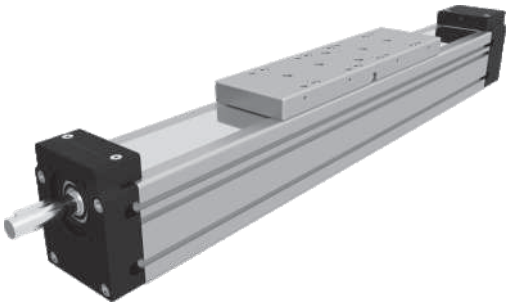
OPTIONAL:

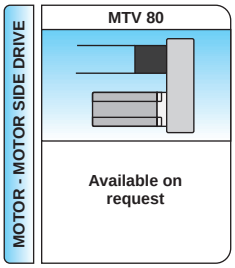
TAP / PIN holes available on request.

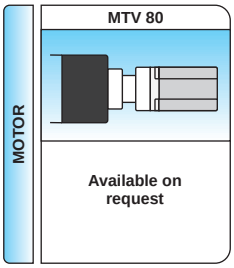
TAP / PIN holes on bottom of the profile

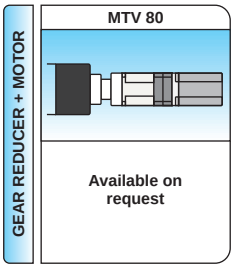


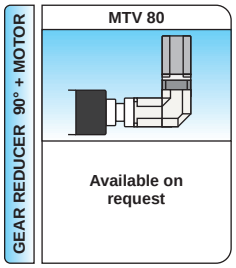
Drawing only for presentational use.

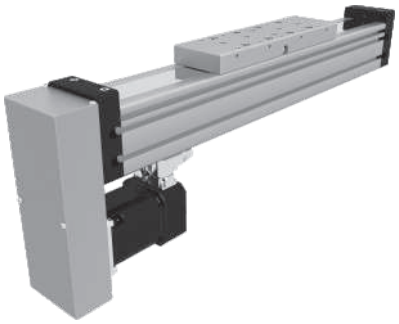










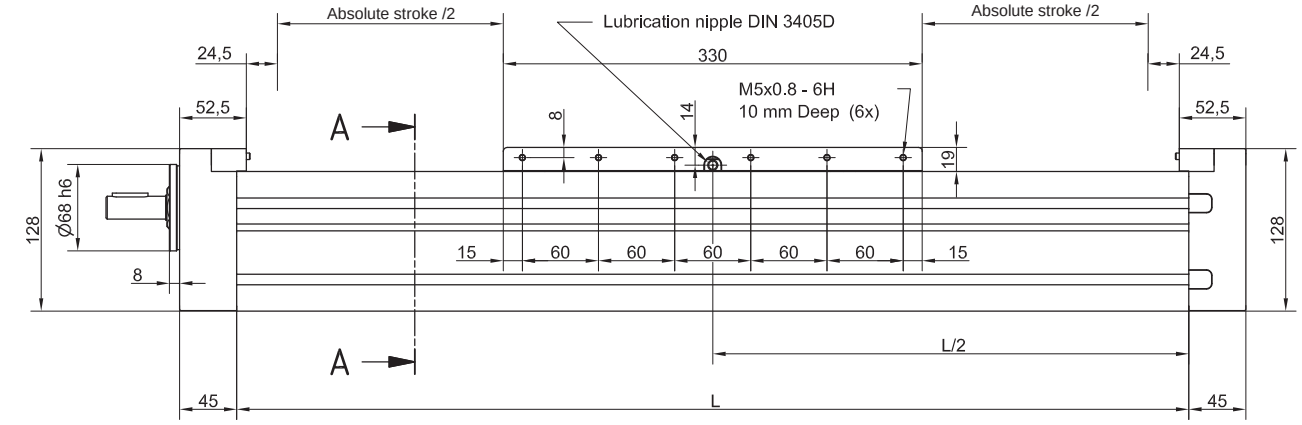


More info about MSD please refer to page 6.045.0

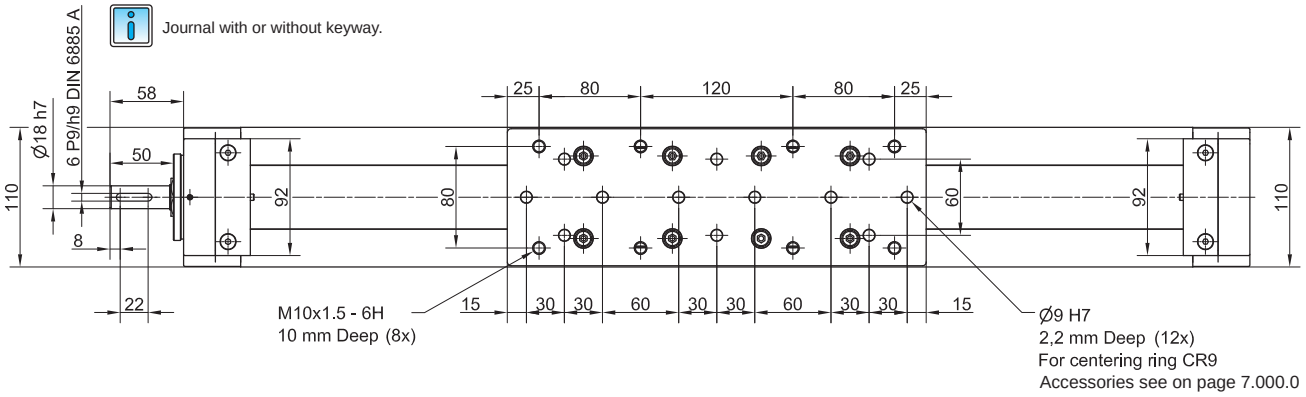
DIMENSIONS

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.

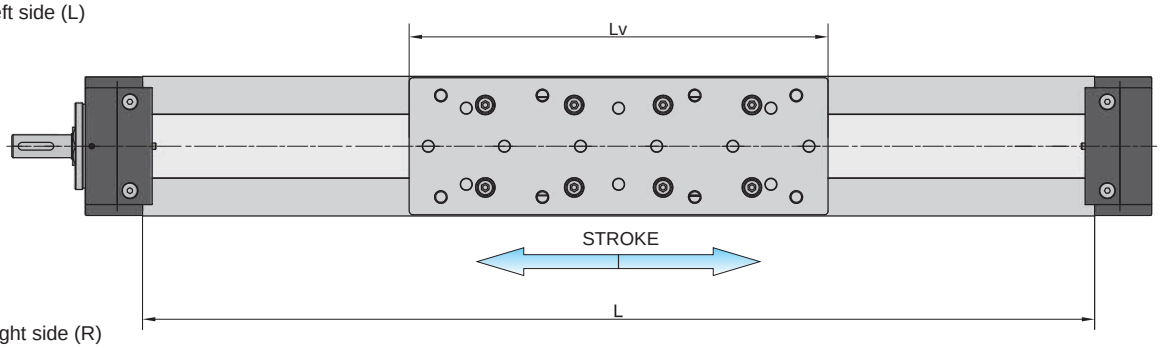
Defining of the linear module length

L* = Effective stroke + 2 × Safety stroke + *Lv* + *64 mm

Lv = 330 mm

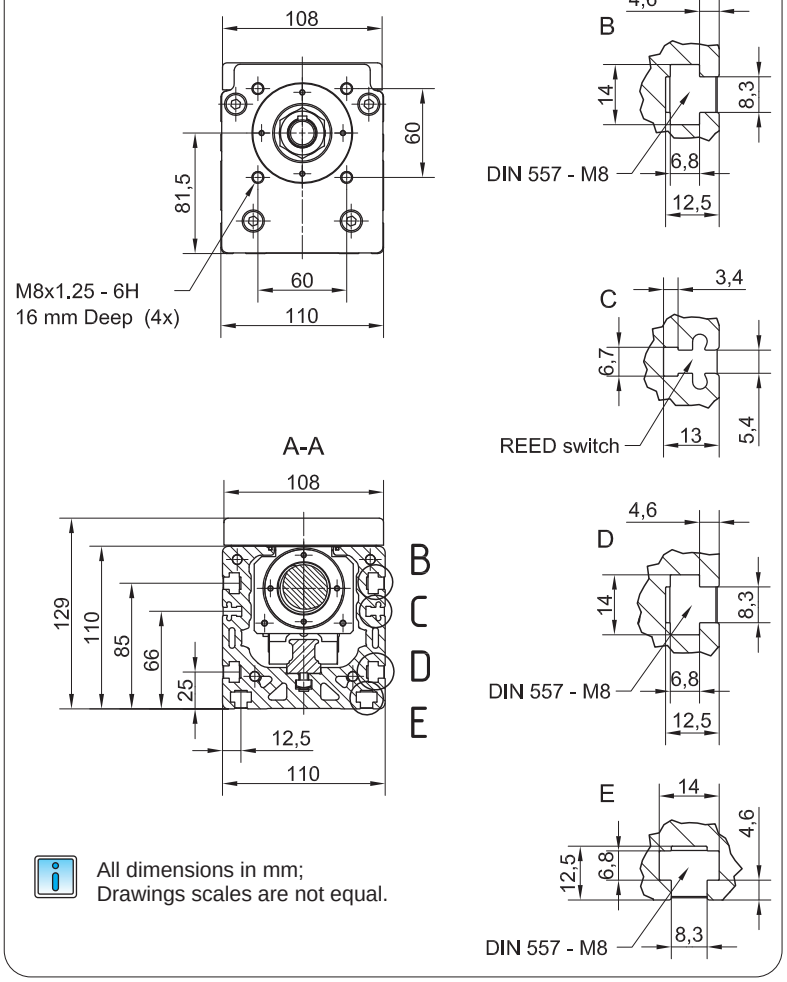
Ltotal = L + 90 mm

Left side (L)

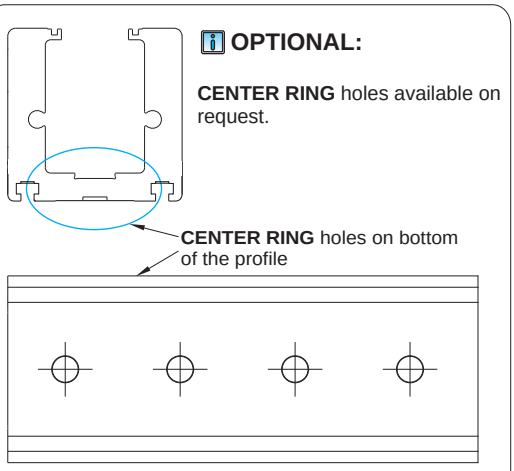


Right side (R)

DIMENSIONS



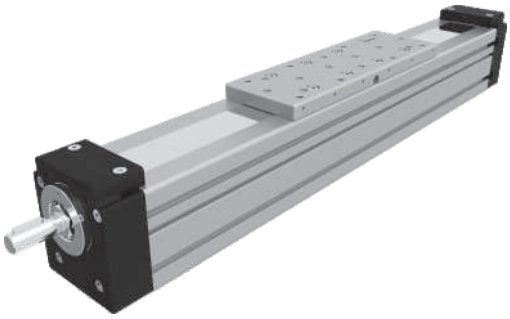
All dimensions in mm;
Drawings scales are not equal.

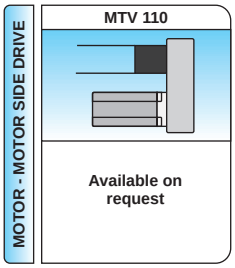


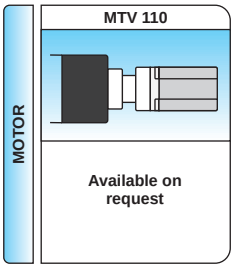
OPTIONAL:

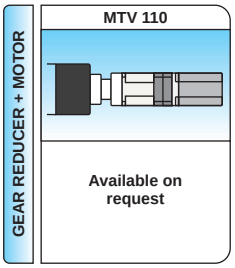
CENTER RING holes available on request.

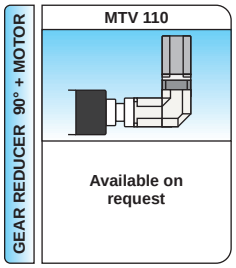
Drawing only for presentational use.

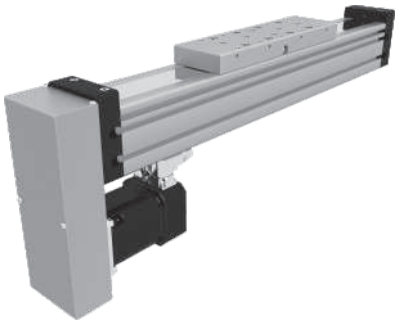








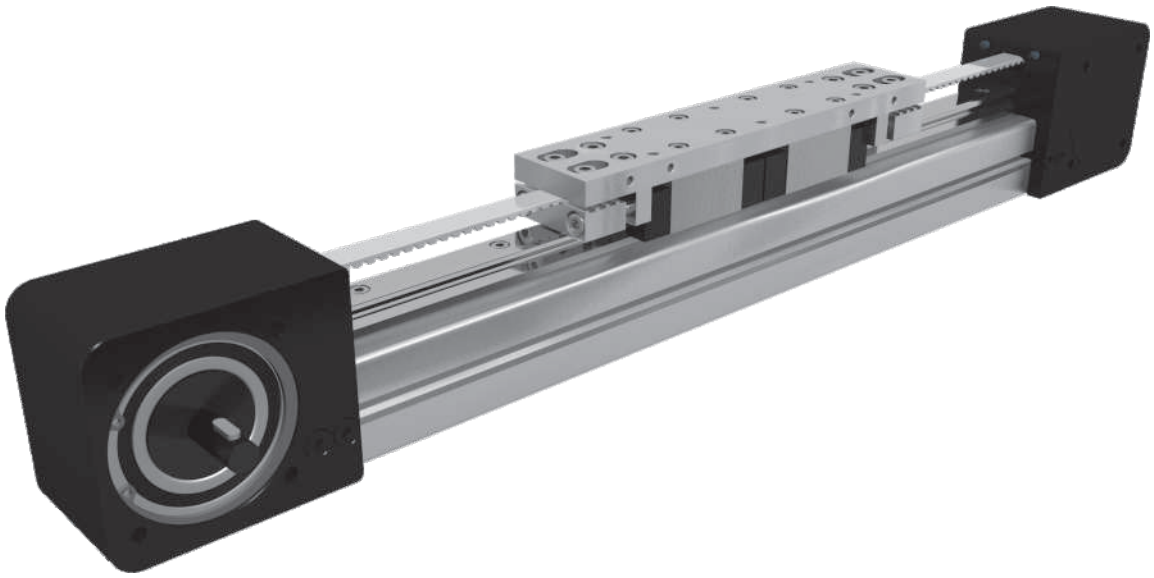




More info about MSD please refer to page 6.045.0

CHARACTERISTICS

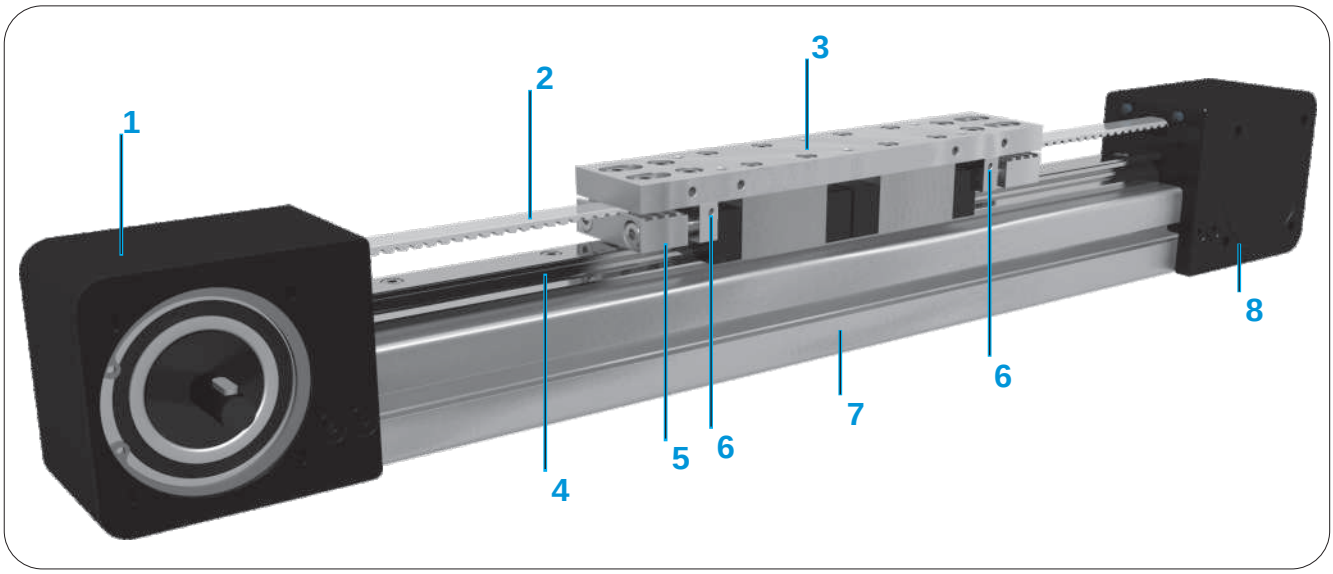
*The **MTJ ECO** series Linear Unit is a powerful and cost-effective Linear Unit with toothed belt drive and a Zero-backlash Ball rail guide system for easy and accurate linear movements.*
It can easily be combined to multi-axis systems.
Excellent price-/performance ratio and quick delivery time are 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) :

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

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	Load capacity		Dynamic moment			Moved mass	Maximum Repeatability	*Maximum length	Planar moment of inertia	
	Lv [mm]	Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	[mm]	Lmax [mm]	Iy [cm⁴]	Iz [cm⁴]
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			

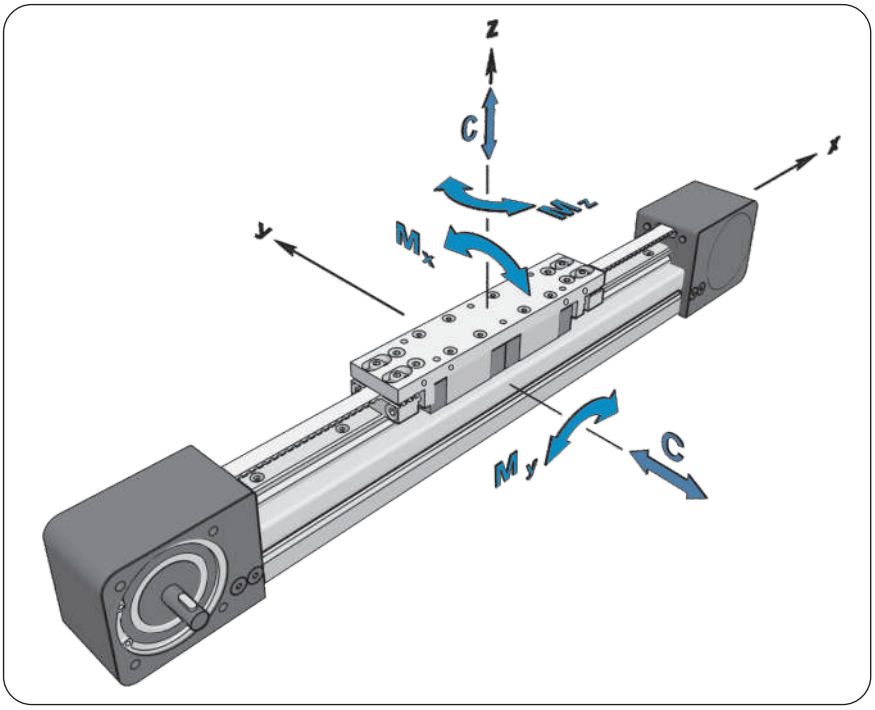
*For lengths over the stated value in the table above, please contact us.

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 (fs =5.0)

Modulus of elasticity

E = 70000 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 transmited 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						

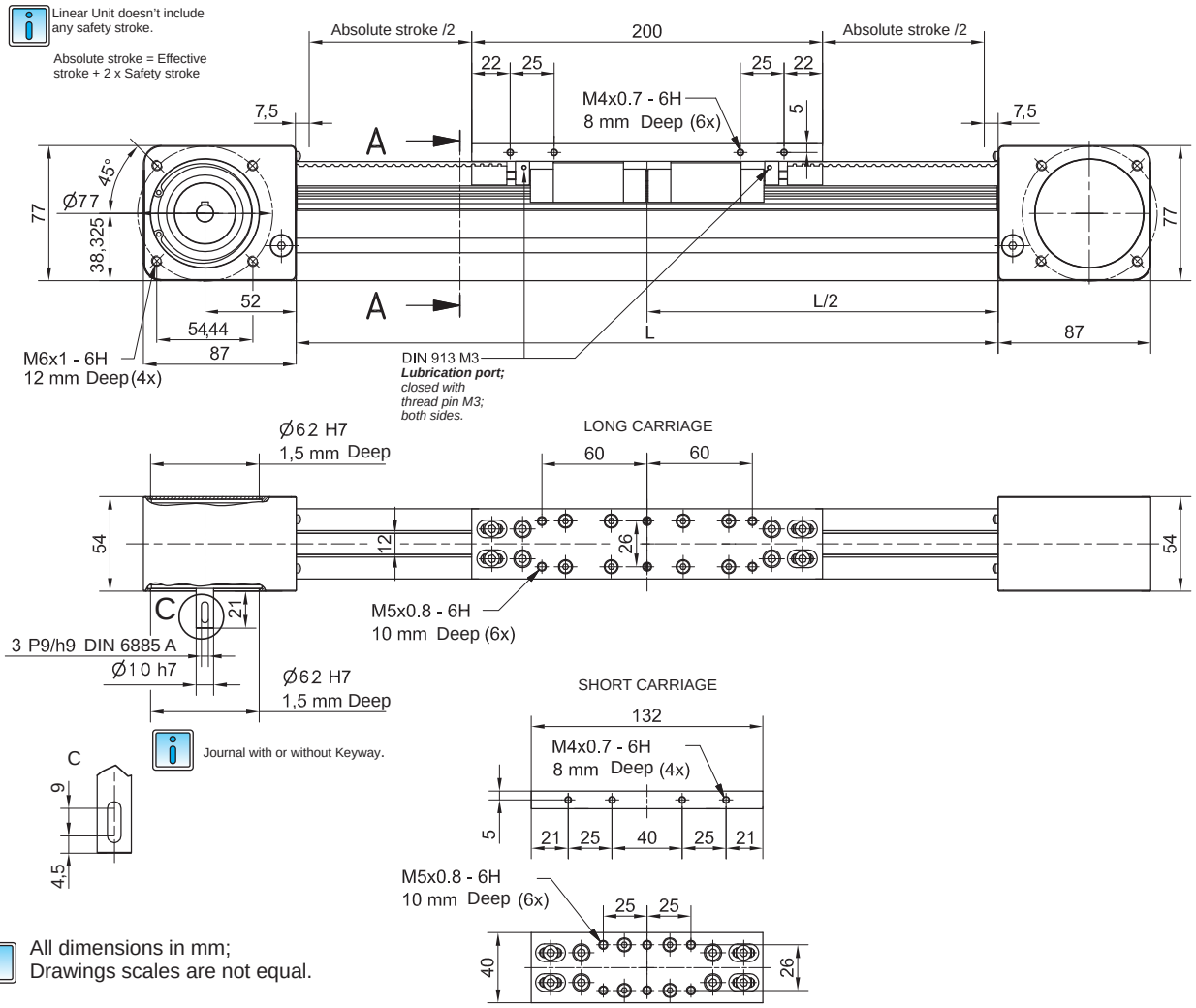
*The stated values are for strokes up to 500mm. No Load Torque value increases with stroke elongation

Mass and mass moment of inertia

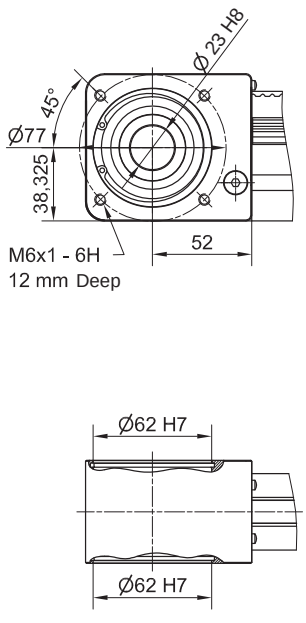
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg·m^2]
MTJ 40 ECO S	132	3,1 + 0,003 * Stroke [mm]	70,1 + 0,007 * Stroke [mm]
MTJ 40 ECO L	200	3,55 + 0,003 * Stroke [mm]	92,3 + 0,007 * Stroke [mm]

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

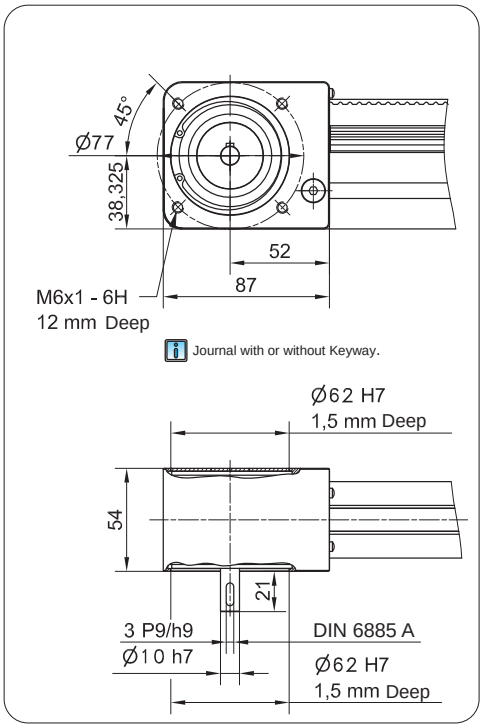
DIMENSIONS



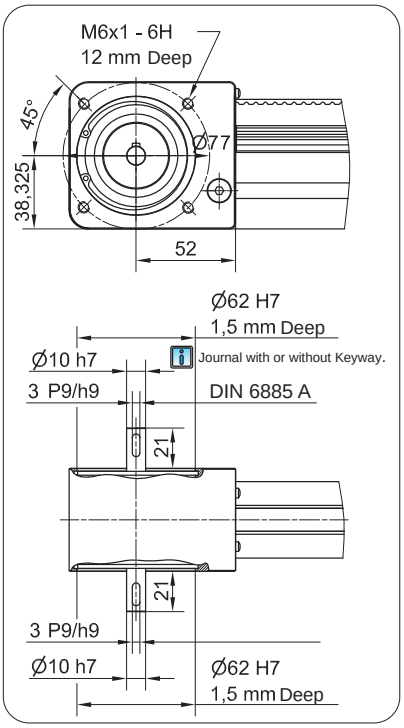
TYPE 0



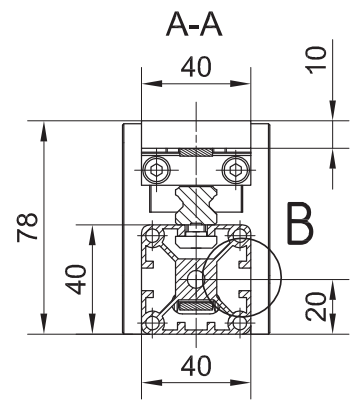
TYPE 1 L and 1 R

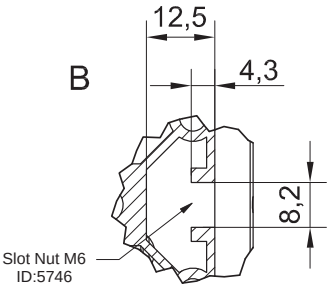


TYPE 2

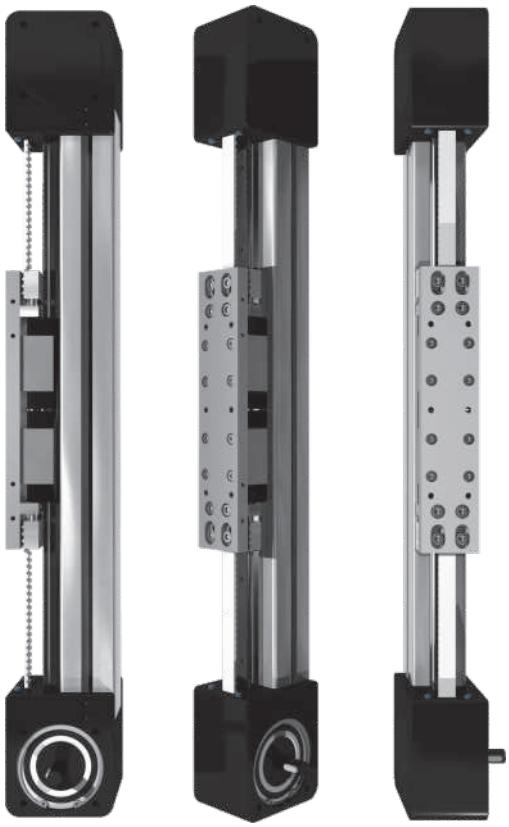


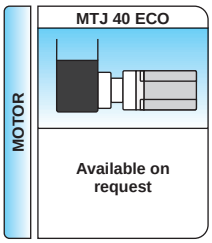
TECHNICAL DATA

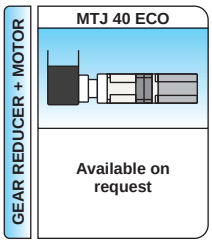


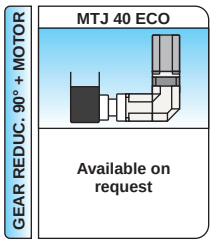


All dimensions in mm;
Drawings scales are not equal.









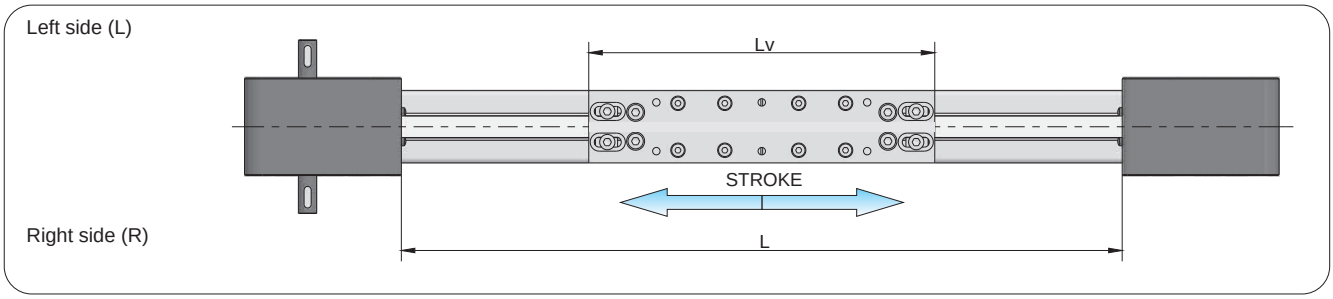
Defining of the linear module length

L* = Effective stroke + 2 × Safety stroke + *Lv* + *15 mm

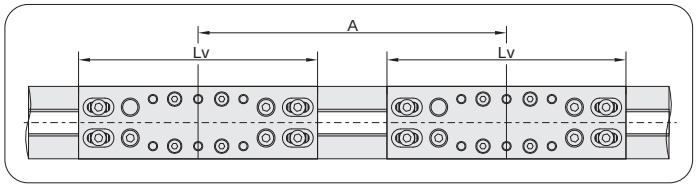
Ltotal = L + 174 mm

Lv - Long carriage = 200 mm

Lv - Short carriage = 132 mm



Double Carriage



For ordering code please contact us.

L = Effective stroke + 2 × Safety stroke + Lv + A + 15 mm

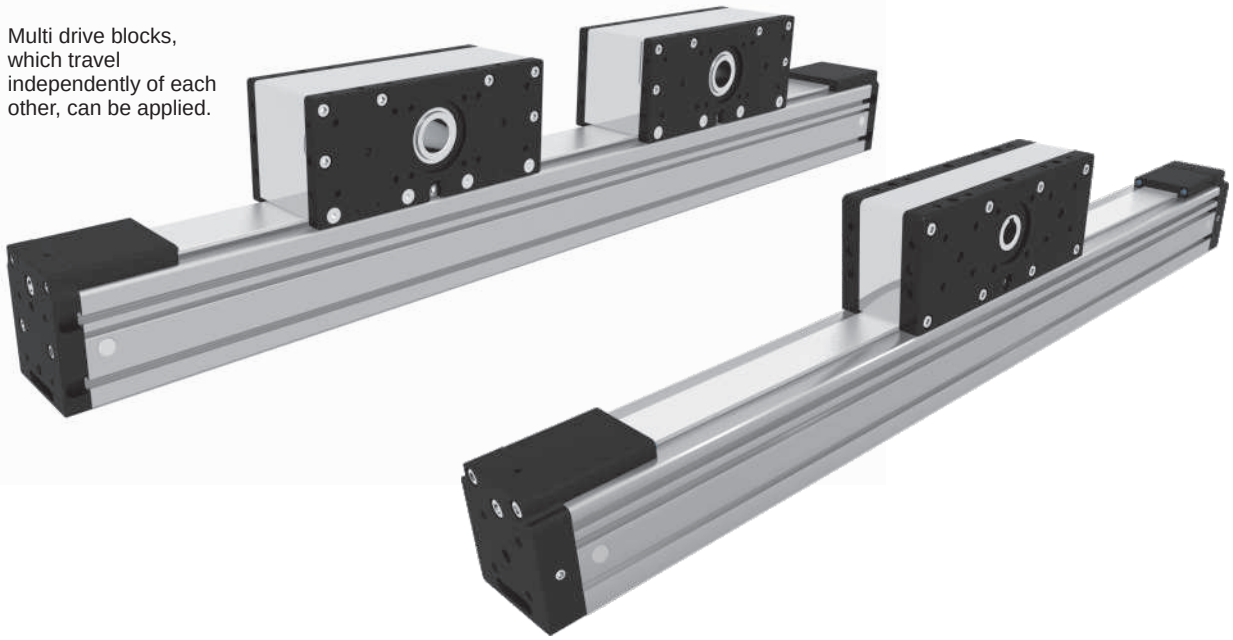
Ltotal = L + 174 mm

A ≥ Lv

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.

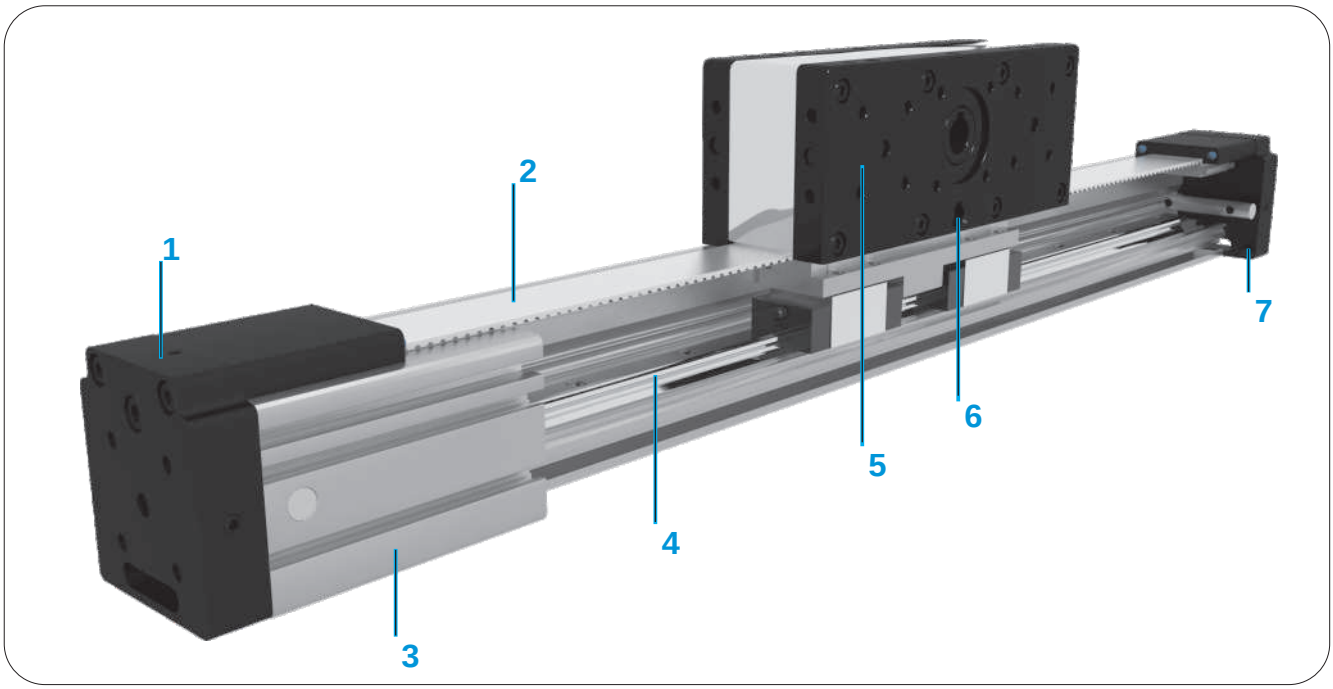
Multi drive blocks, which travel independently of each other, can be applied.



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

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

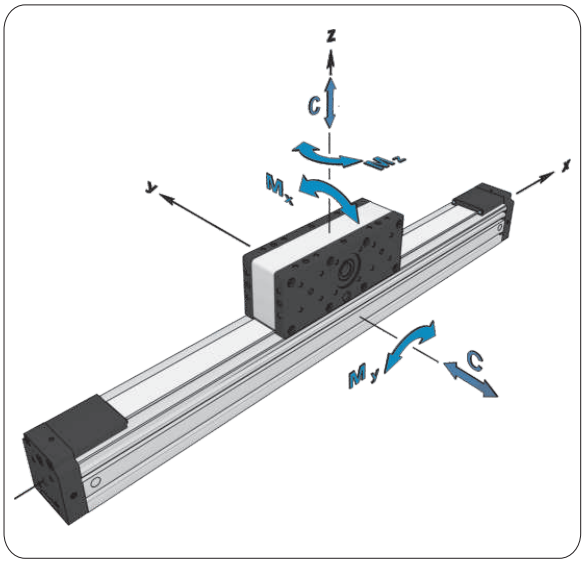
Linear Unit	Drive block length	Load capacity		Dynamic moment			Mass of drive block	Maximum Repeatability	* Maximum length **(Version 1)	* Maximum length **(Version 2)	Planar moment of inertia	
	Lv [mm]	Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	[mm]	Lmax [mm]	Lmax [mm]	Iy [cm⁴]	Iz [cm⁴]
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

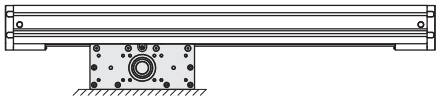
All the data of static and dynamic moments and load capacities stated in the upper table are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety. We recommend a minimum safety factor (fs =5.0)

Modulus of elasticity: E = 70000 N / mm²

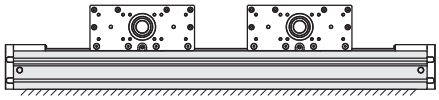


** Mounting versions

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	Maximum drive torque	Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmited by belt	Specific spring constant Cspec
	[m / s]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[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

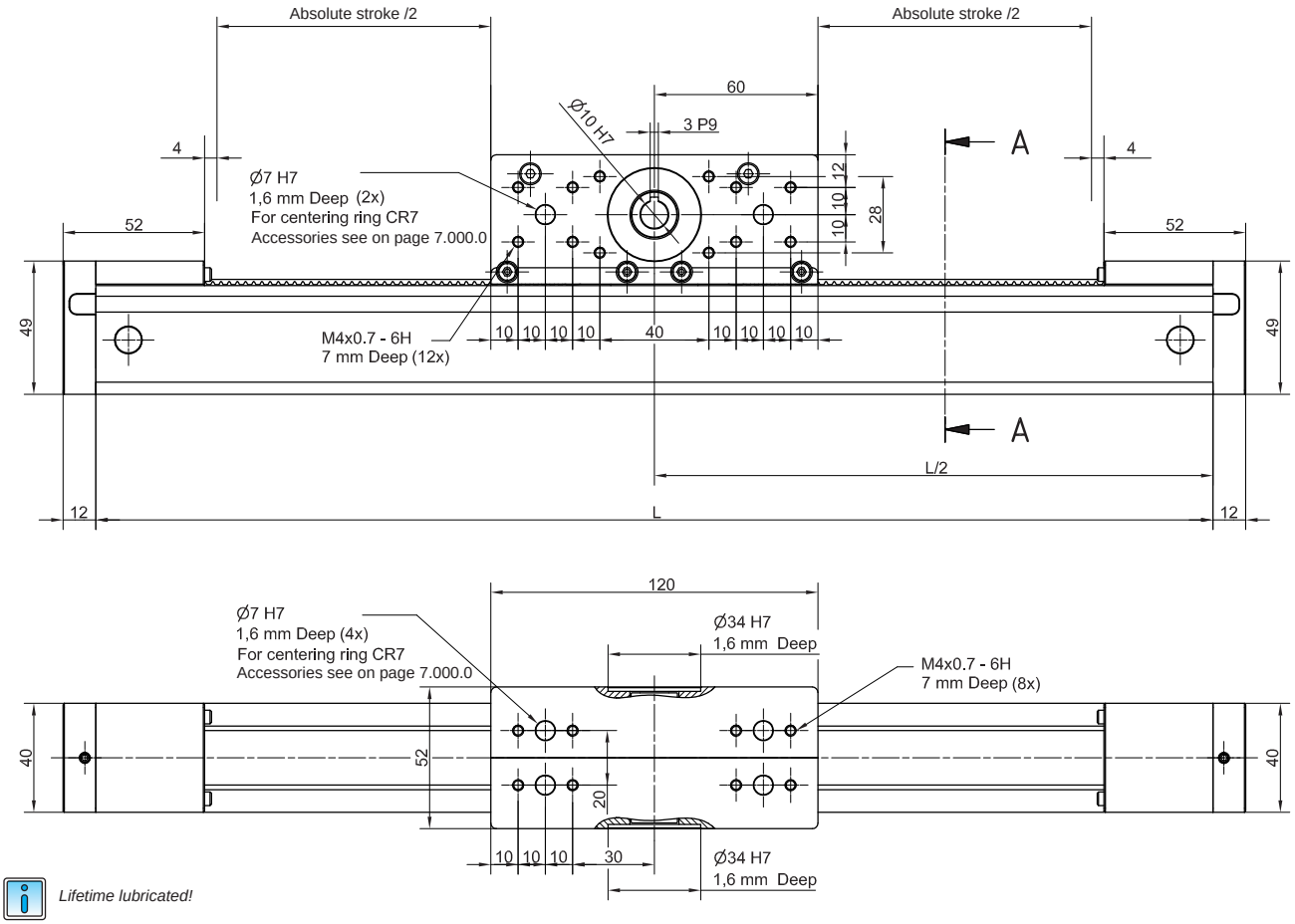
Linear Unit	Mass of linear unit	Mass moment of inertia of drive block
	[kg]	[10^{-4} kg·m²]
MTJZ 40	1,7 + 0,0023 * Stroke [mm]	2,3 + 0,0058 * Stroke [mm]
MTJZ 65	5,7 + 0,0054 * Stroke [mm]	18,9 + 0,0374 * Stroke [mm]
MTJZ 80	9,7 + 0,0083 * Stroke [mm]	60,5 + 0,0922 * Stroke [mm]
MTJZ 110	21,7 + 0,0147 * Stroke [mm]	273,0 + 0,3358 * Stroke [mm]

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

DIMENSIONS

Linear Unit doesn't include any safety stroke.

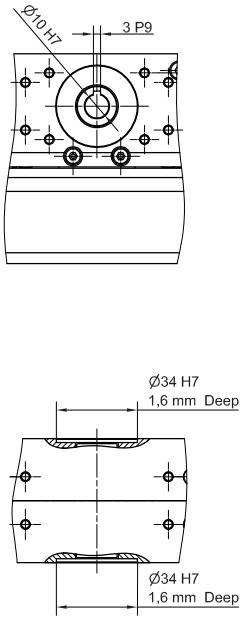
Absolute stroke = Effective stroke + 2 x Safety stroke



Lifetime lubricated!

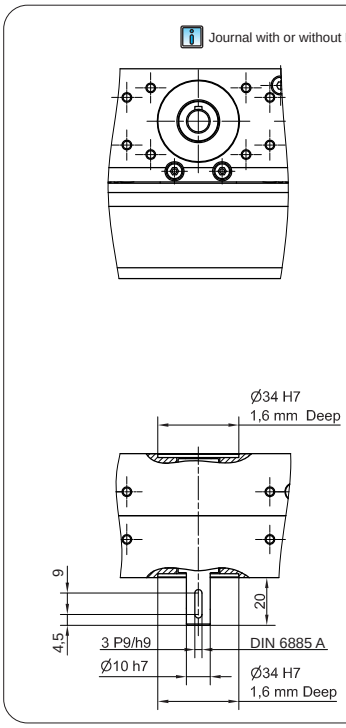
All dimensions in mm; Drawings scales are not equal.

TYPE 0



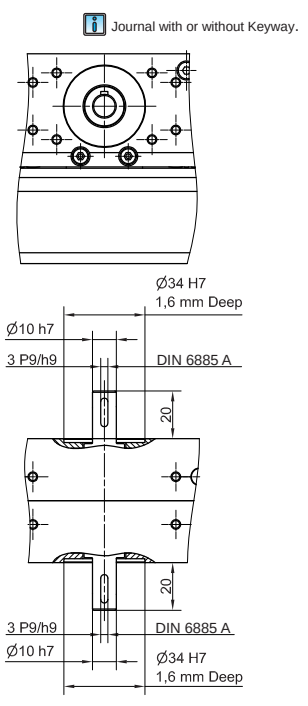
TYPE 1

Journal with or without Keyway.

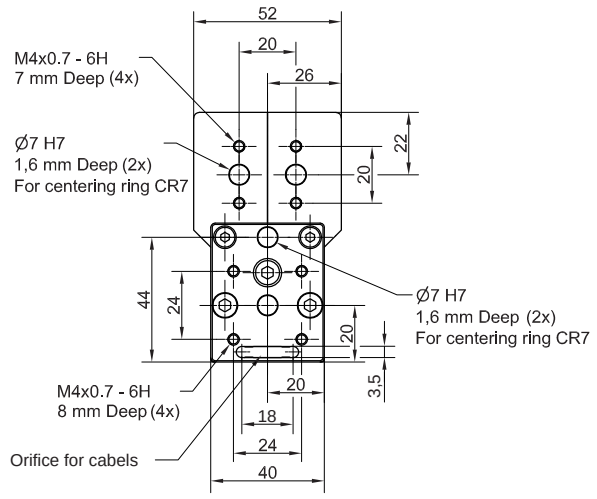


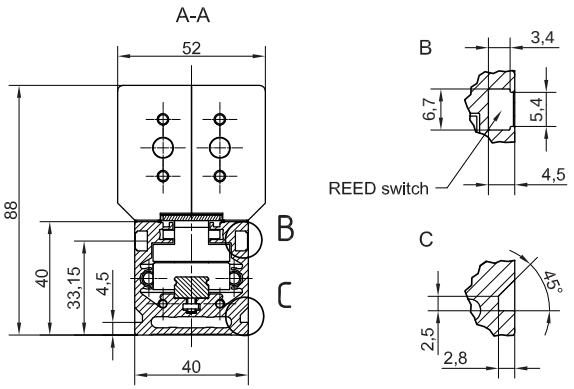
TYPE 2

Journal with or without Keyway.



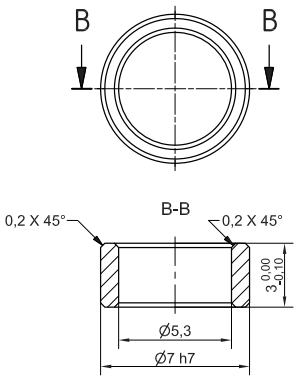
DIMENSIONS

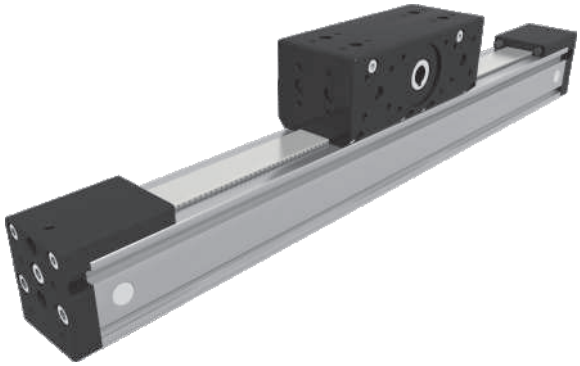




All dimensions in mm; Drawings scales are not equal.

CENTERING RING CR7
Material: 1.4305 (AISI303)

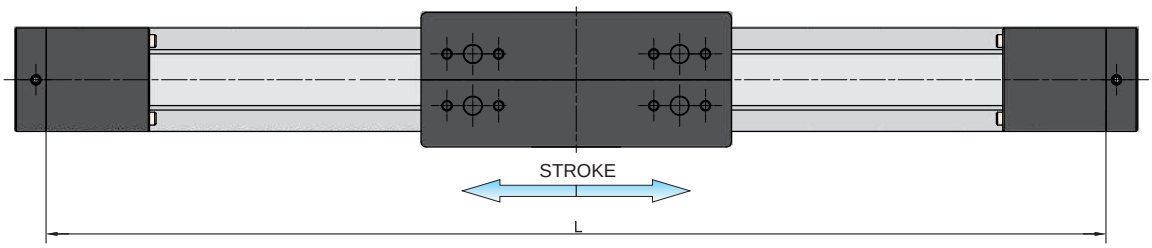




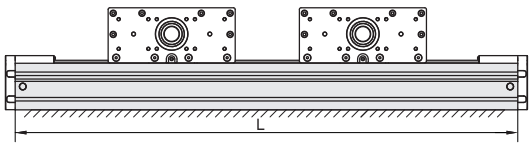
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + 208 mm

Ltotal = L + 24 mm



Multi drive block



L = Effective stroke + 2 × Safety stroke + 120 × n_b + 88 mm

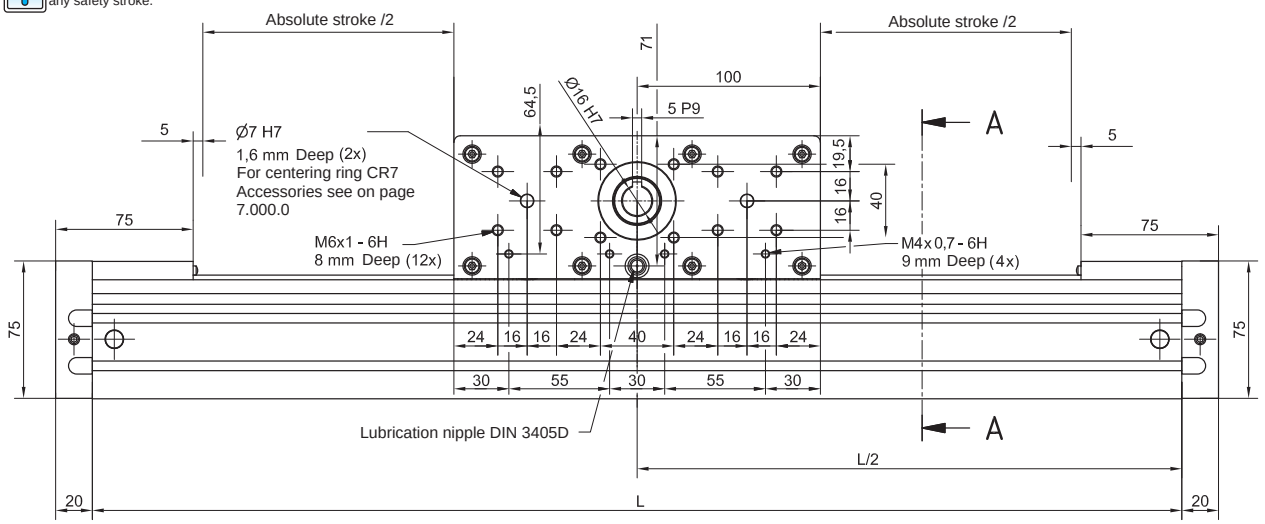
n_b - number of drive blocks

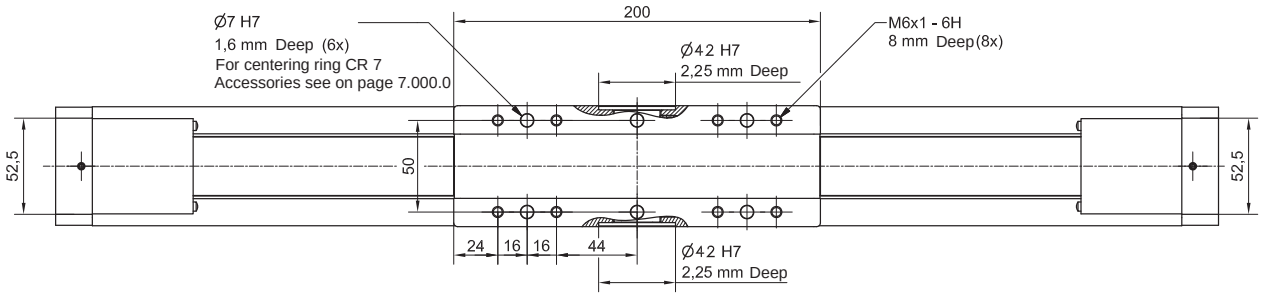
Ltotal = L + 24 mm

DIMENSIONS

Linear Unit doesn't include any safety stroke.

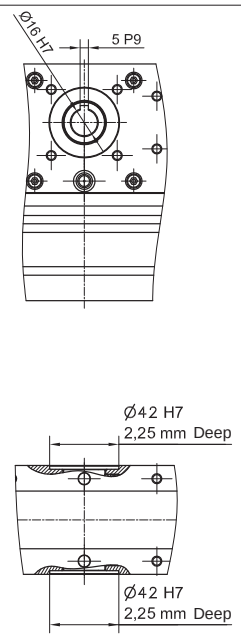
Absolute stroke = Effective stroke + 2 x Safety stroke



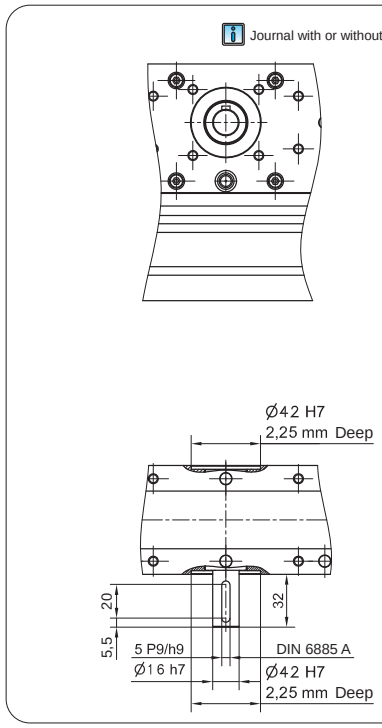


All dimensions in mm; Drawings scales are not equal.

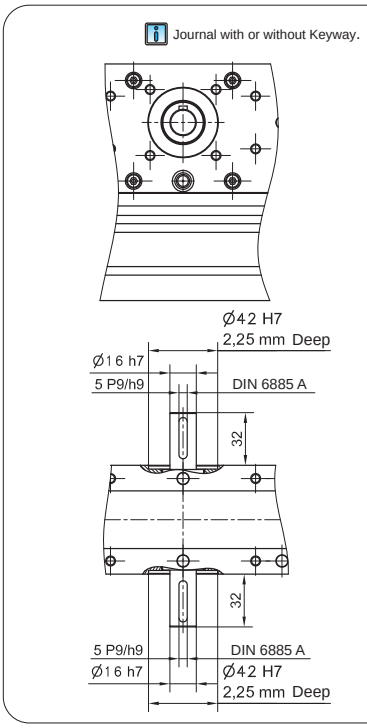
TYPE 0



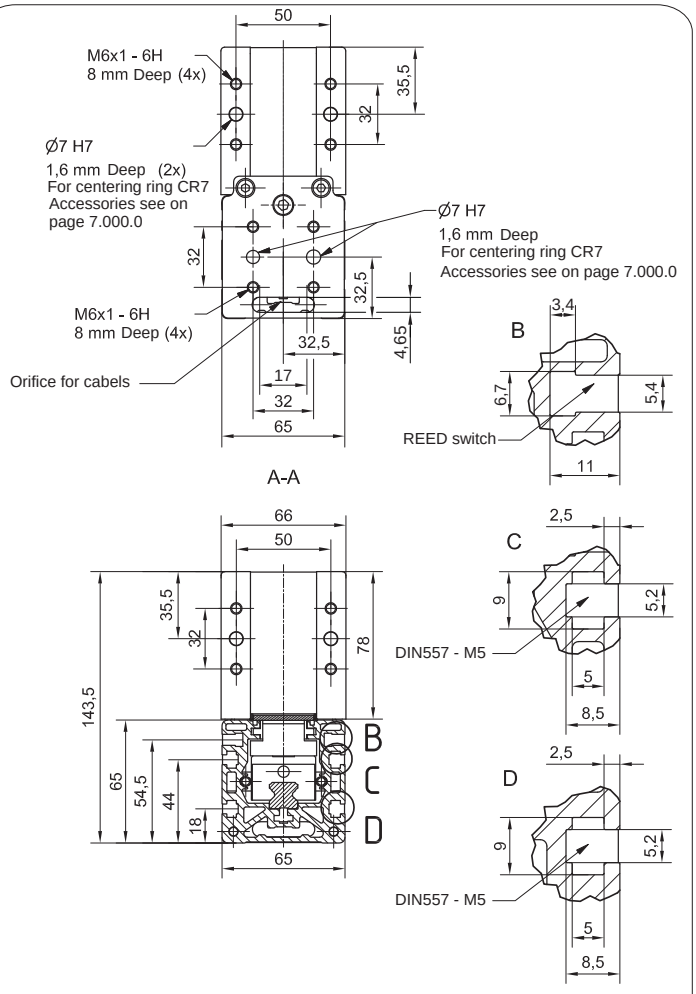
TYPE 1



TYPE 2

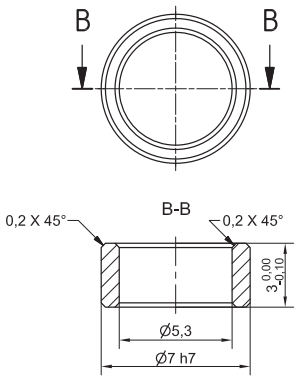


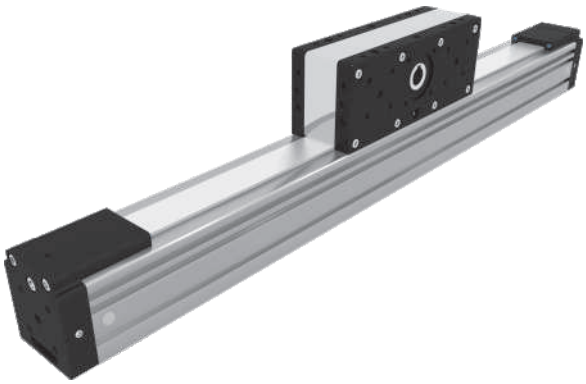
DIMENSIONS



All dimensions in mm; Drawings scales are not equal.

CENTERING RING CR7
Material: 1.4305 (AISI303)

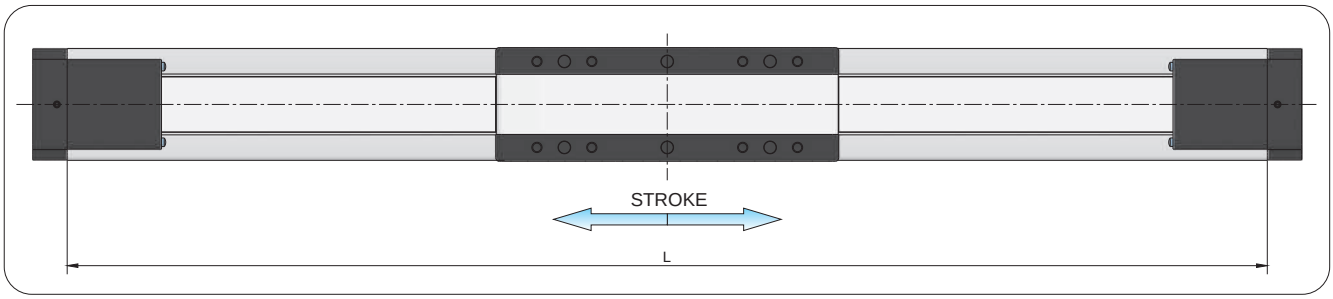




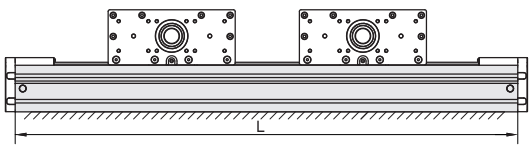
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + 320 mm

Ltotal = L + 40 mm



Multi drive block

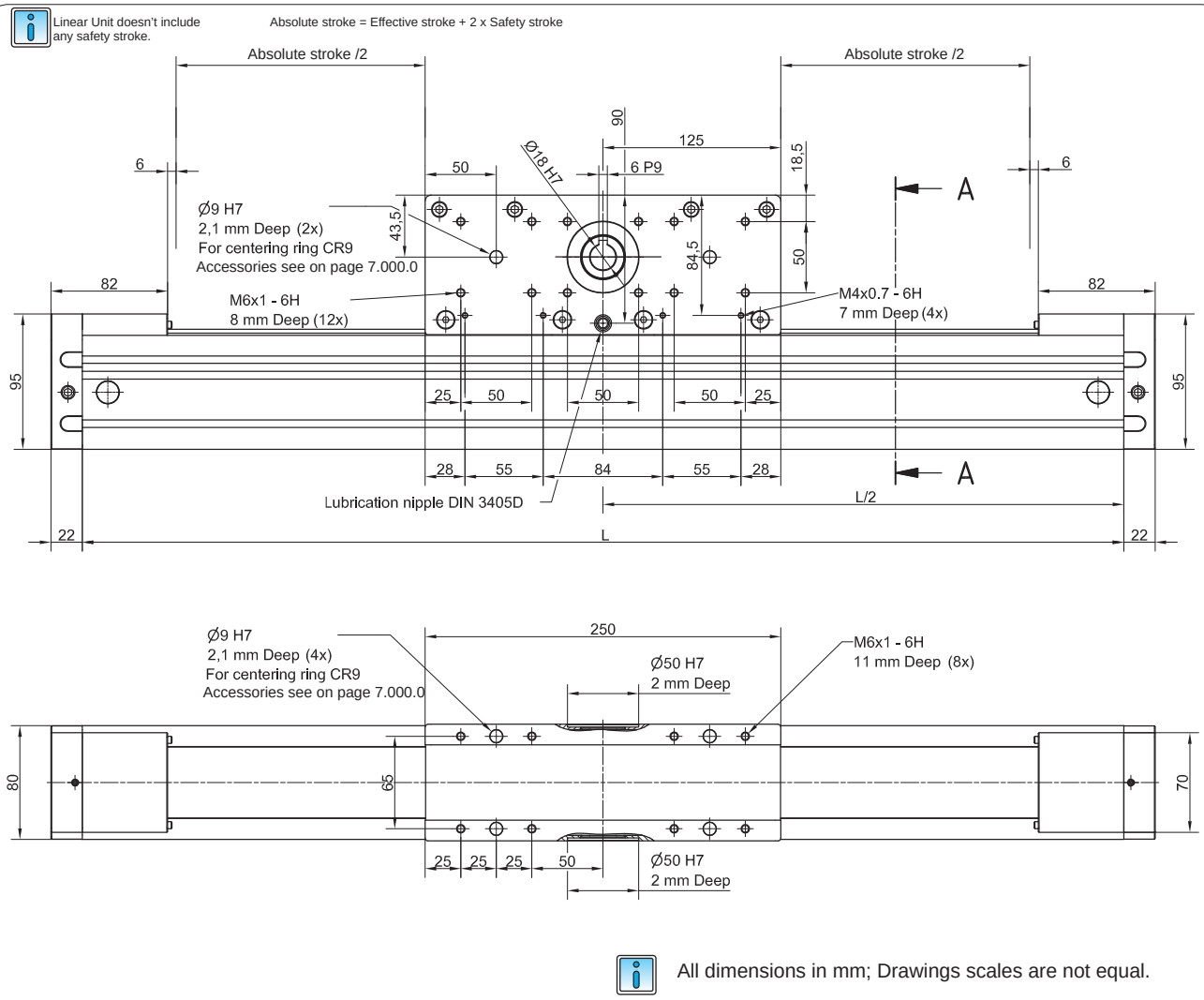


L = Effective stroke + 2 × Safety stroke + 200 × n_b + 120 mm

n_b - number of drive blocks

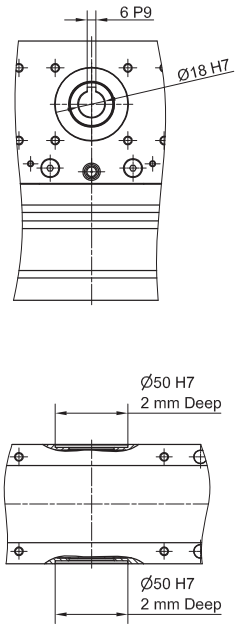
Ltotal = L + 40 mm

DIMENSIONS

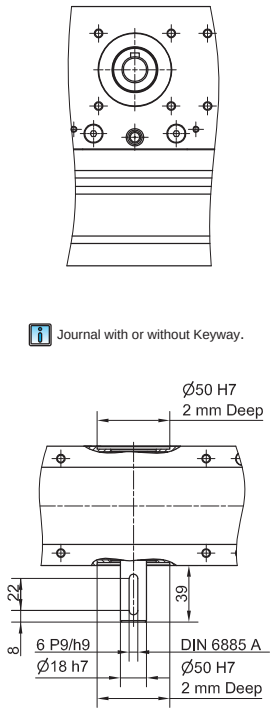


All dimensions in mm; Drawings scales are not equal.

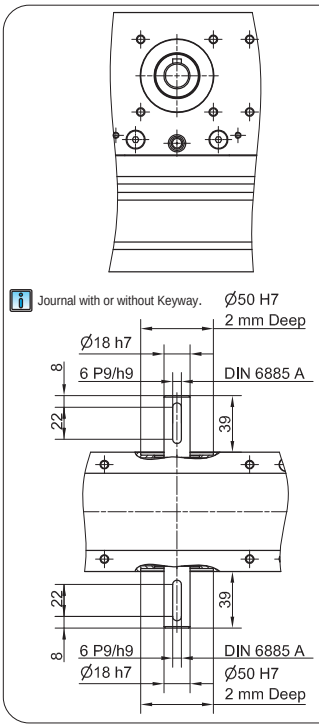
TYPE 0



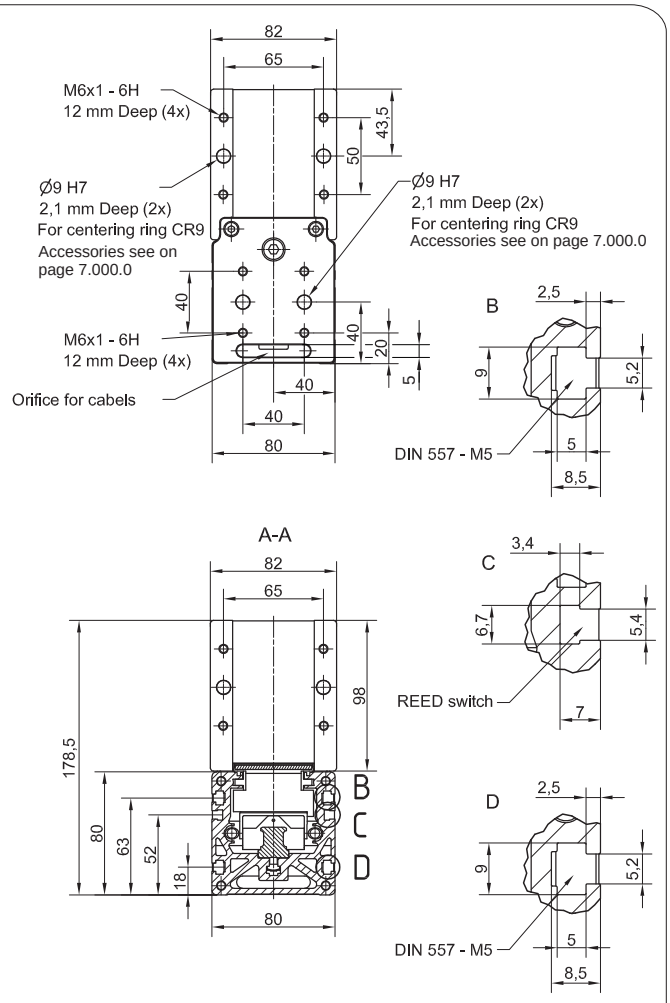
TYPE 1



TYPE 2

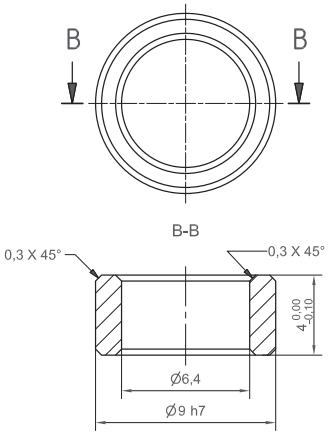


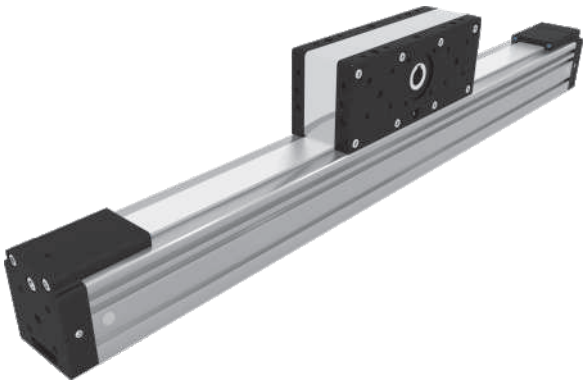
DIMENSIONS



All dimensions in mm; Drawings scales are not equal.

CENTERING RING CR9
Material: 1.4305 (AISI303)

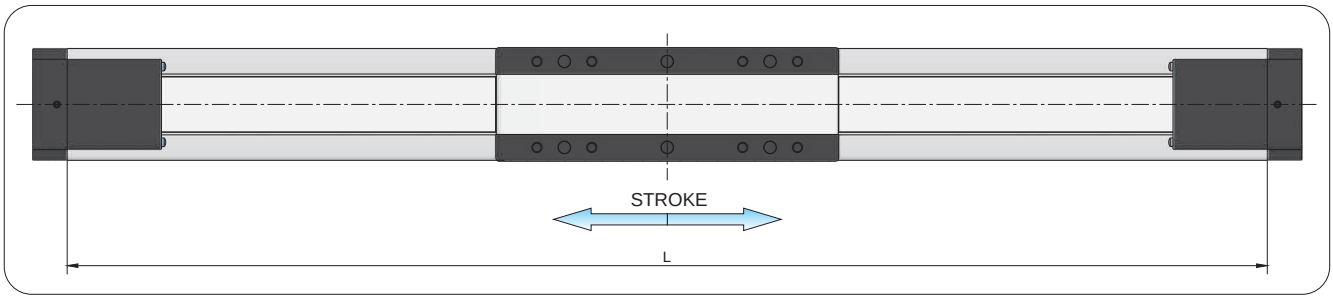




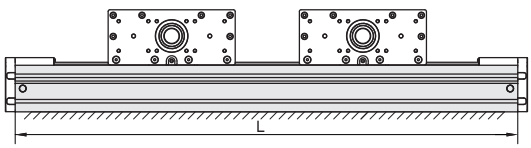
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + 382 mm

Ltotal = L + 44 mm



Multi drive block

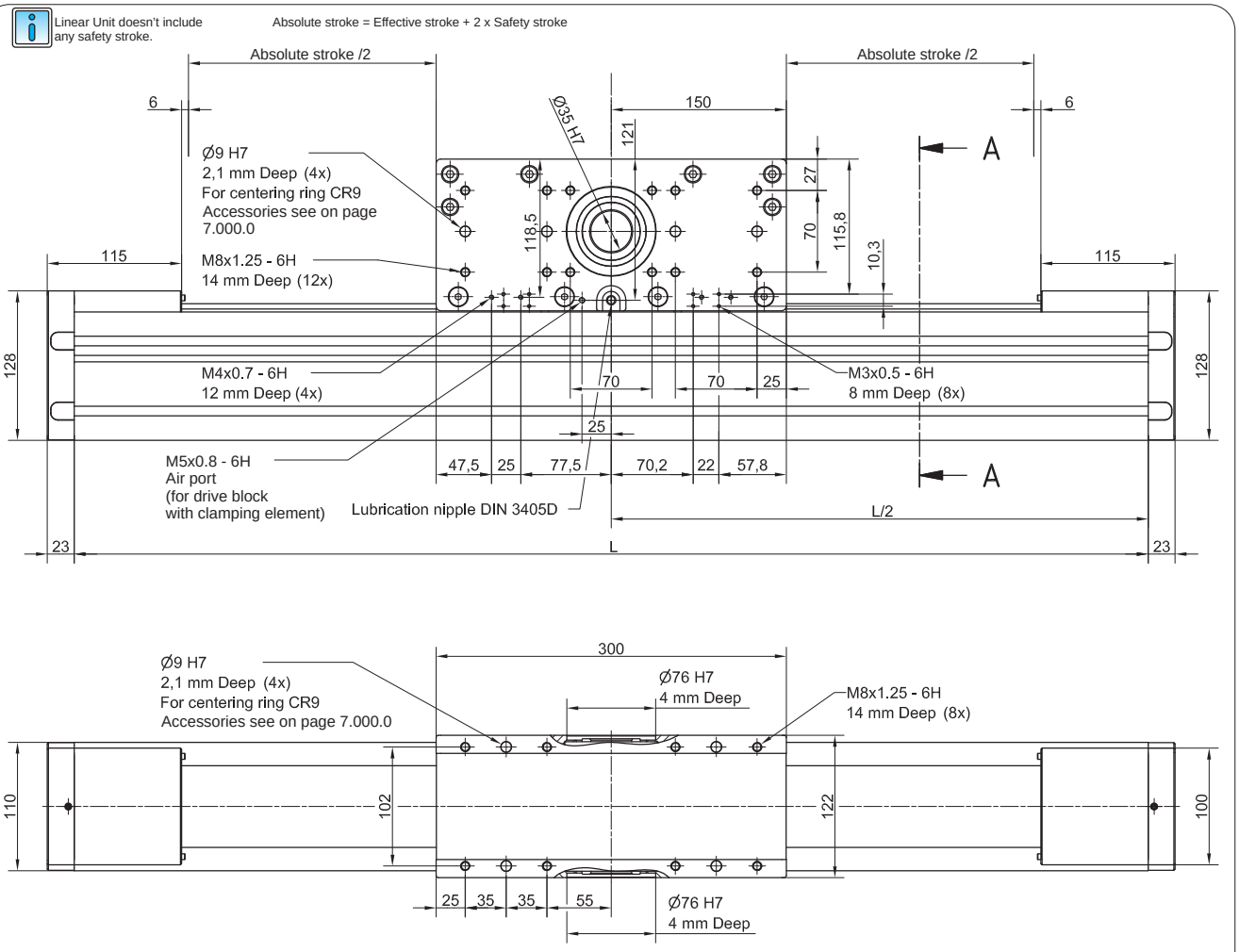


L = Effective stroke + 2 × Safety stroke + 250 × n_b + 132 mm

n_b - number of drive blocks

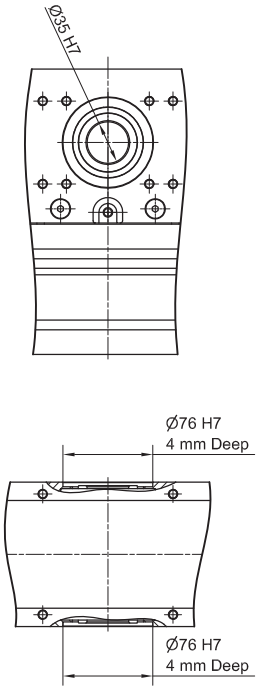
Ltotal = L + 44 mm

DIMENSIONS



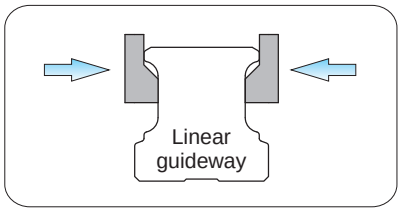
All dimensions in mm; Drawings scales are not equal.

TYPE 0



Drive block with clamping element

Clamping by spring-loaded energy

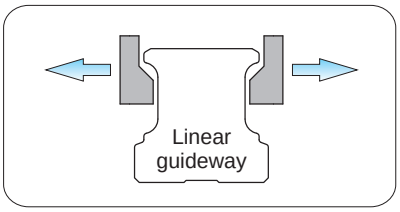


Air pressure = 0 bar

Holding force = 1400 N

Holding force is tested on clamping element using a slightly lubricated rail (ISO VG 68).

Opened by air pressure



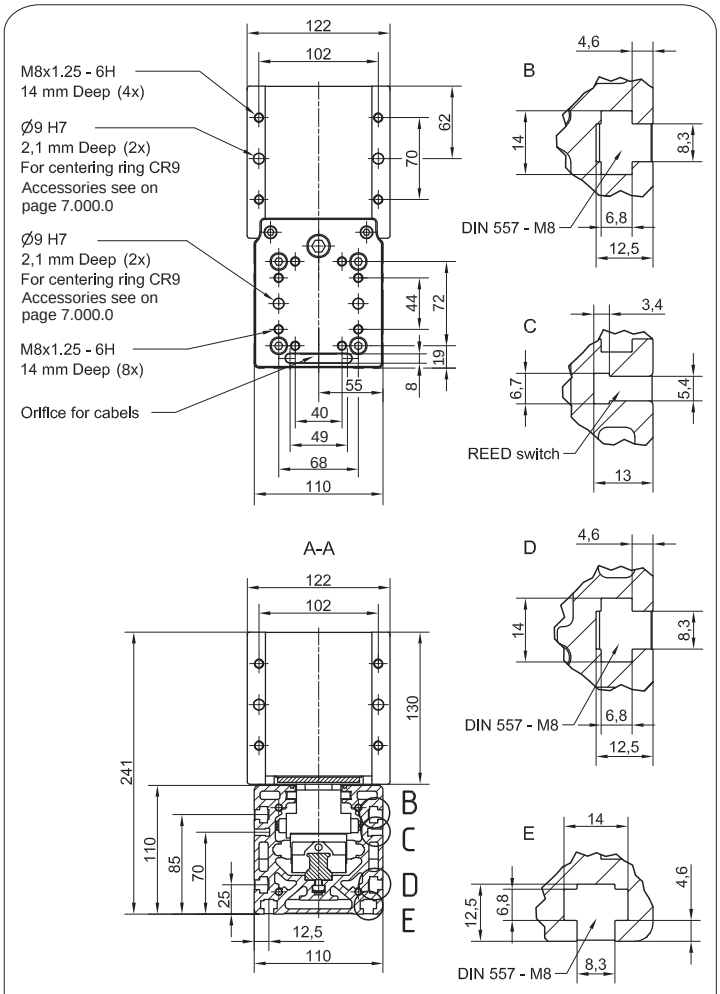
Opening air pressure = 5,5 - 8 bar

The air pressure opens clamping pistons. Free movement is allowed.

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

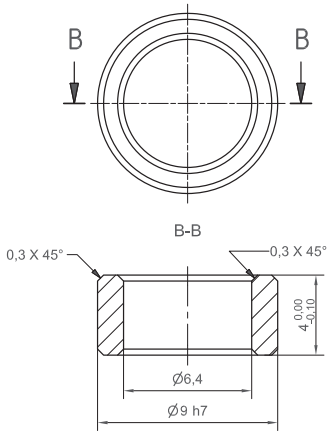
Linear Unit	Mass of drive block [kg]	Mass of linear unit [kg]
MTJZ 110	12,9	23,3 + 0,0147 * Stroke [mm]

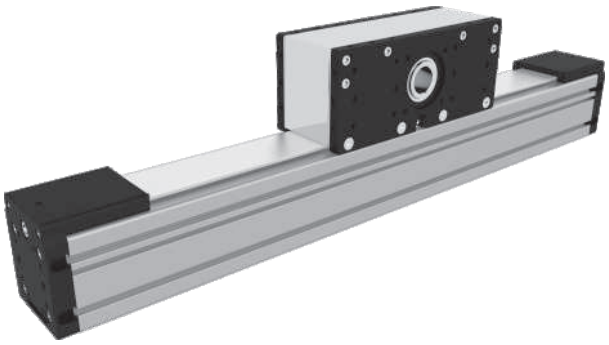
DIMENSIONS



All dimensions in mm; Drawings scales are not equal.

CENTERING RING CR9
Material: 1.4305 (AISI303)

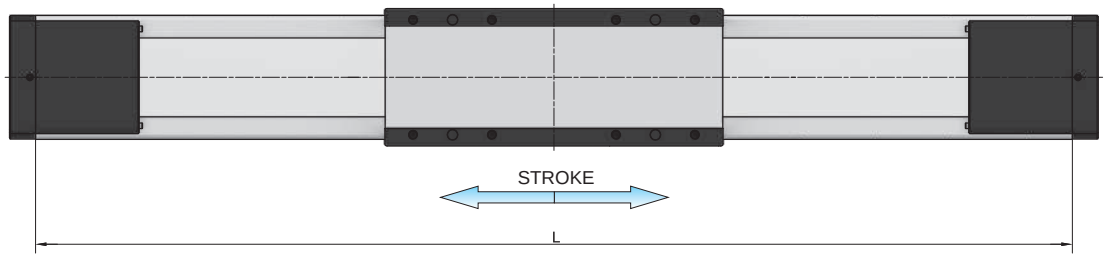




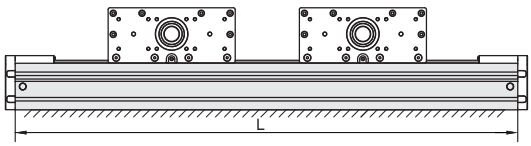
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + 496 mm

Ltotal = L + 46 mm



Multi drive block



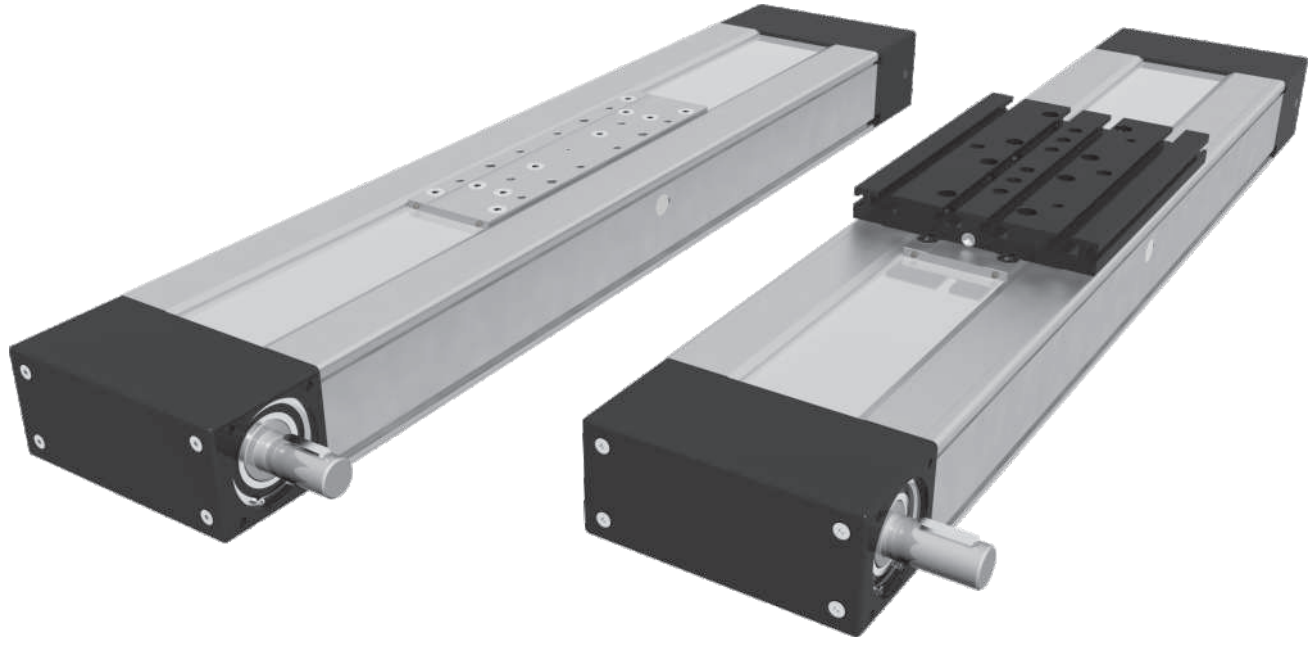
L = Effective stroke + 2 × Safety stroke + 300 × n_b + 196 mm

n_b - number of drive blocks

Ltotal = L + 46 mm

CHARACTERISTICS

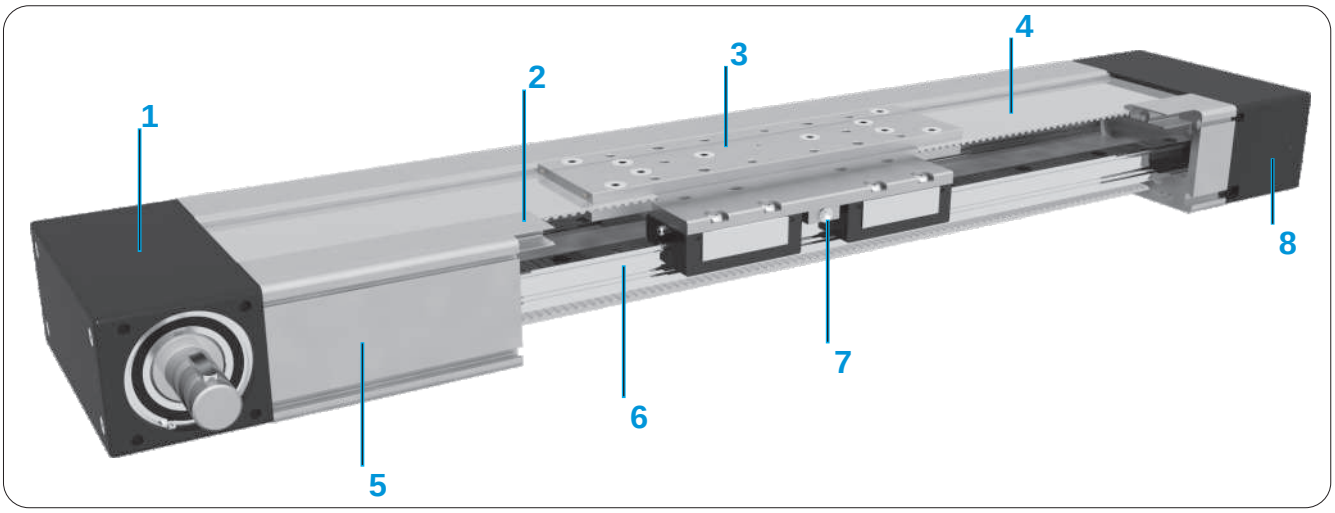
*The **CTJ** series includes Linear Units with a toothed belt drive and two parallel, integrated, Zero-backlash rail guides. Compact dimensions allow high performance features such as, high speed and repeatability. They can easily be combined to multi-axis systems.*
Excellent price-/performance ratio 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	Load capacity		Dynamic moment			Moved mass	Maximum Repeatability	* Maximum length	Planar moment of inertia	
	Lv [mm]	Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	[mm]	Lmax [mm]	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			

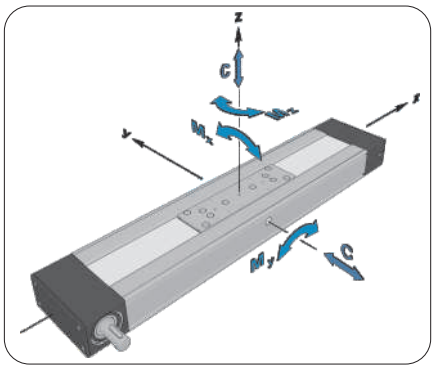
*For lengths over the stated value in the table above please contact us

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 / mm^2



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	Max. force transmited by belt	Specific spring constant Cspec
	[m / s]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]
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						

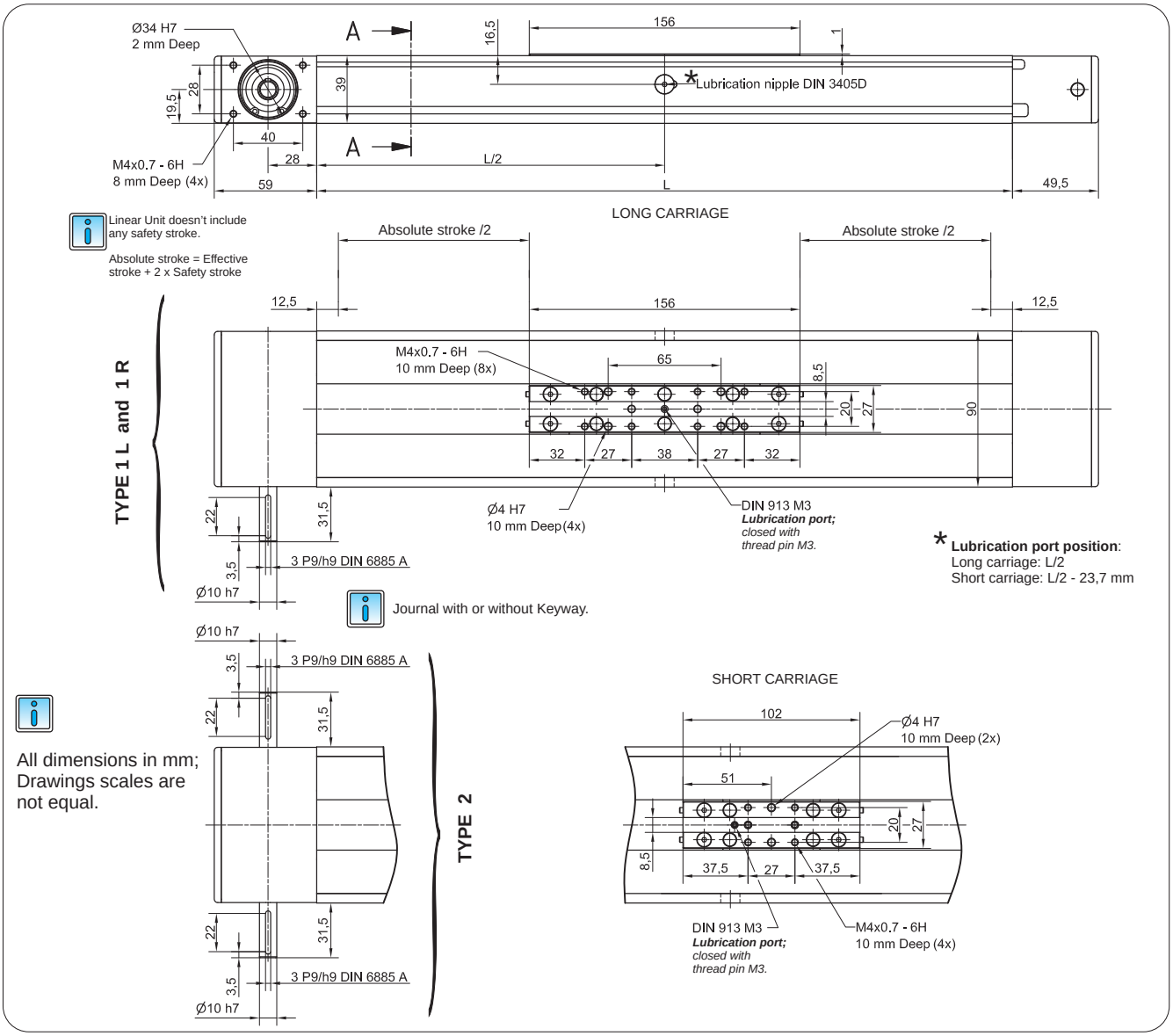
*The stated values are for strokes up to 500mm. No Load Torque value increases with stroke elongation

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

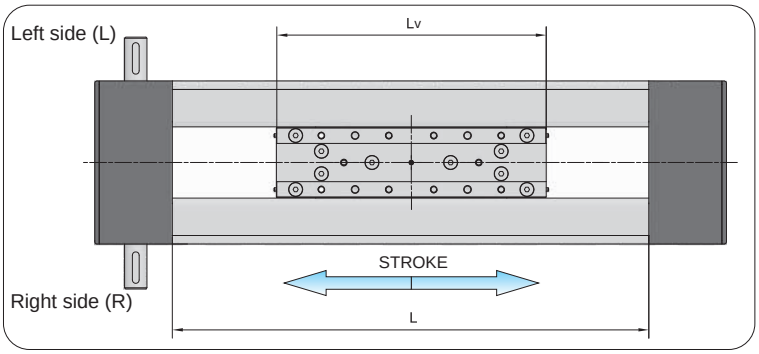


Defining of the linear module length

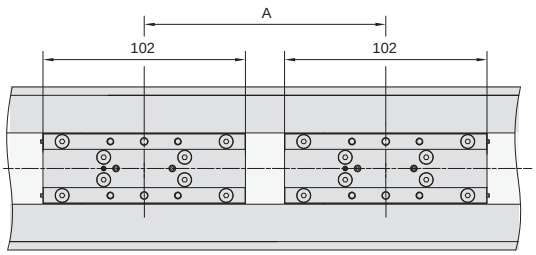
L = Effective stroke + 2 × Safety stroke + Lv + 25 mm

Ltotal= L + 108,5 mm

Lv - Long carriage = 156 mm
Lv - Short carriage = 102 mm



Double-Carriage



Only with **short** carriage version.

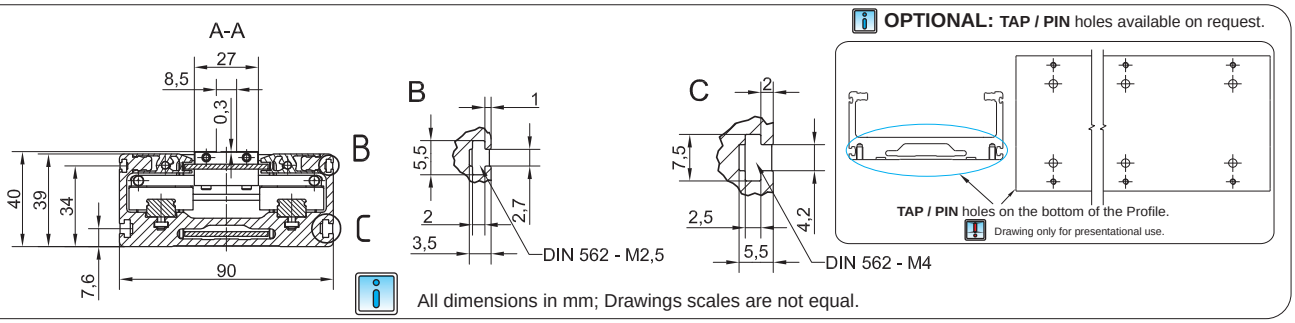
L = Effective stroke + 2 × Safety stroke + A + 127 mm

Ltotal = L + 108,5 mm

A ≥ 102 mm

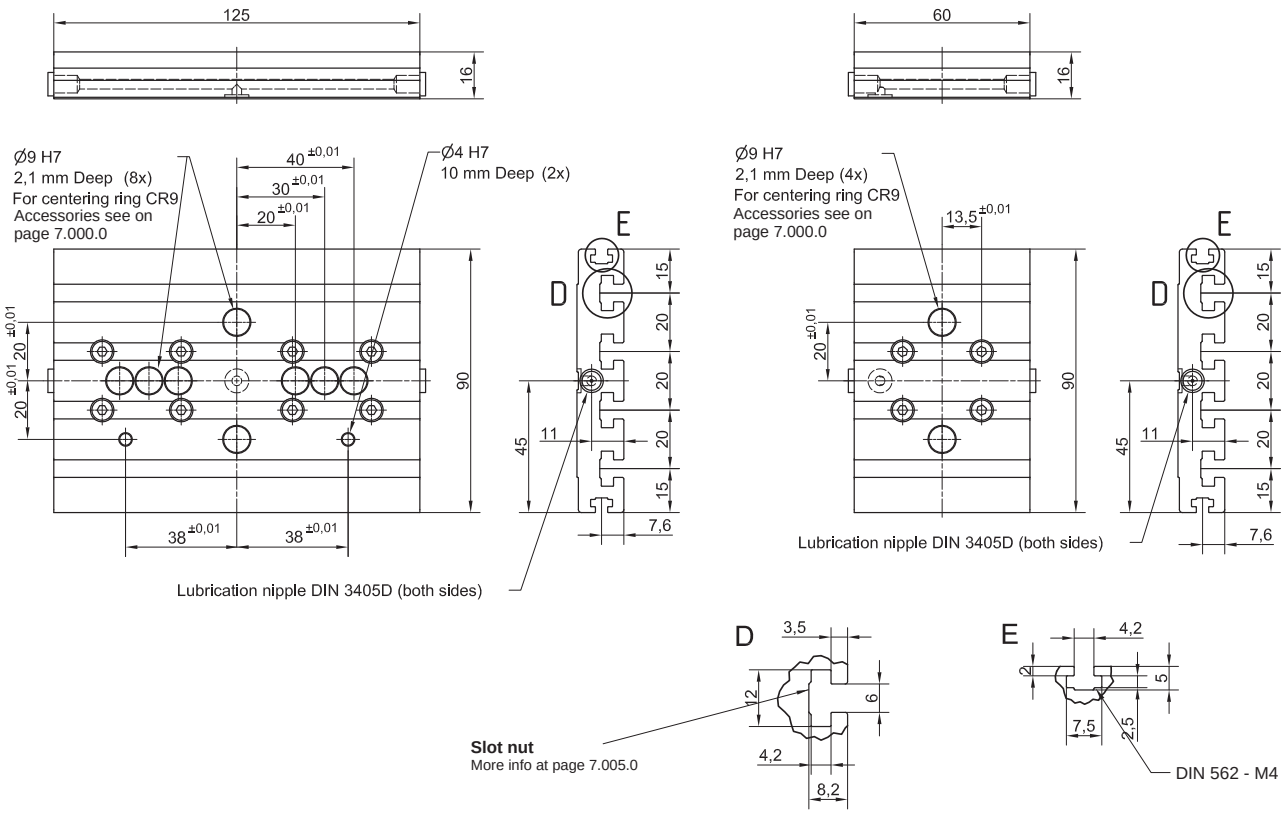
For ordering code please contact us.

DIMENSIONS



CONNECTION PLATE

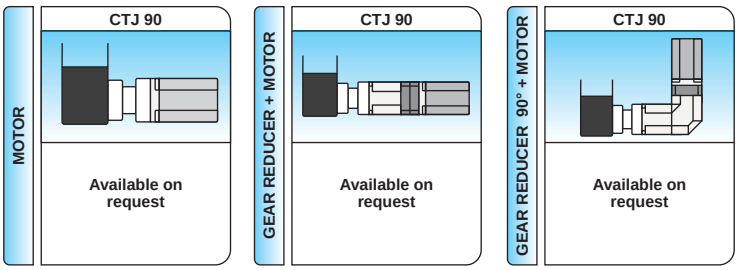
CTJ 90 L

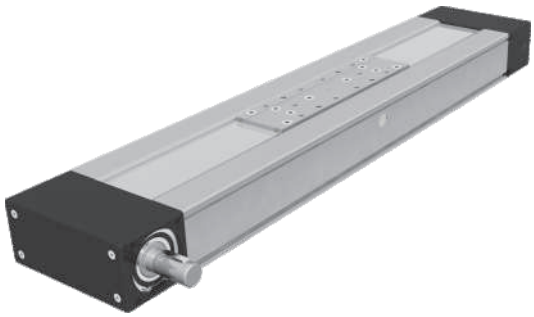


CTJ 90 S

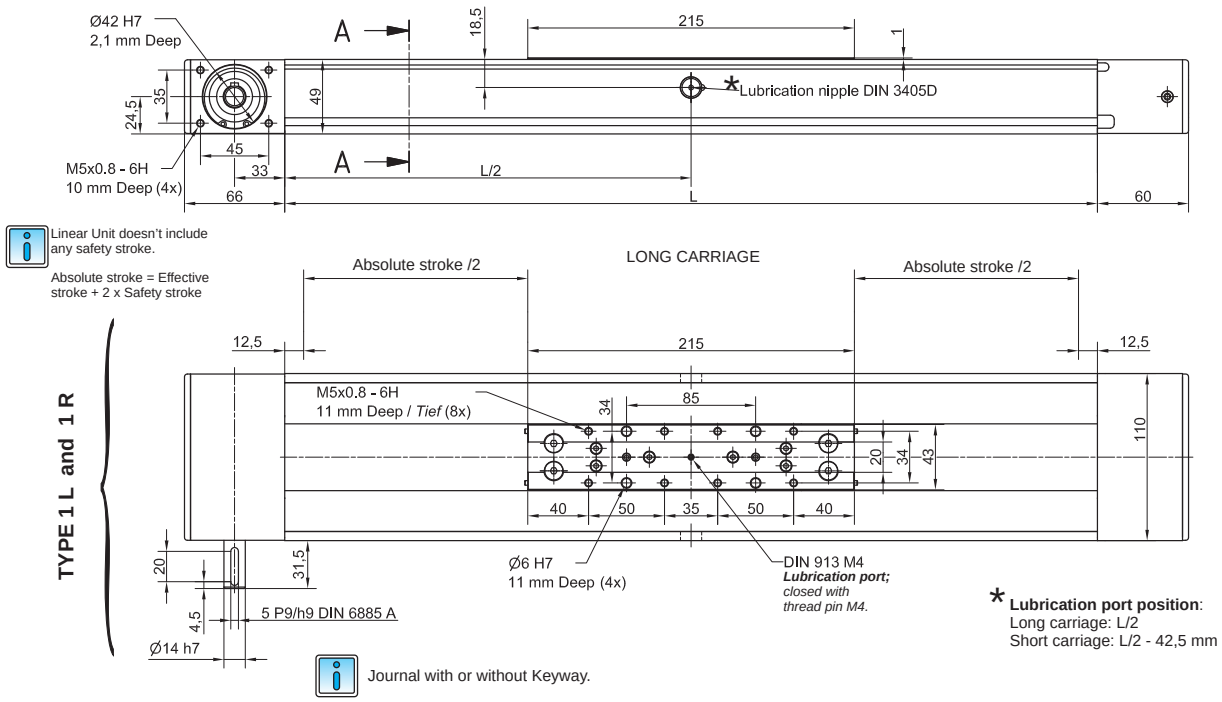
Linear Unit	Plate length [mm]	Weight [kg]	Code
CTJ 90 S	60	0,2	48853
CTJ 90 L	125	0,4	48854

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





DIMENSIONS



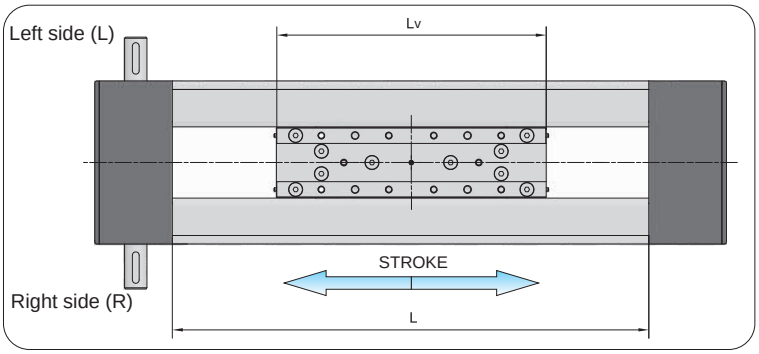
All dimensions in mm;
Drawings scales are not equal.

Defining of the linear module length

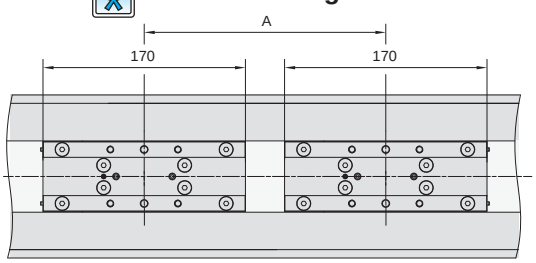
L = Effective stroke + 2 × Safety stroke + Lv + 25 mm

Ltotal = L + 126 mm

Lv - Long carriage = 215 mm
Lv - Short carriage = 170 mm



Double-Carriage



Only with **short** carriage version.

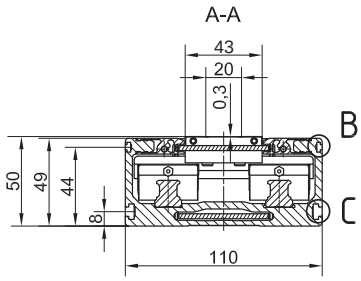
L = Effective stroke + 2 × Safety stroke + A + 195 mm

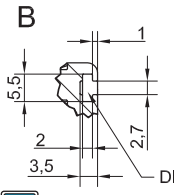
Ltotal = L + 126 mm

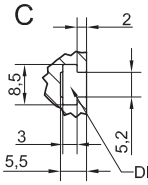
A ≥ 170 mm

For ordering code please contact us.

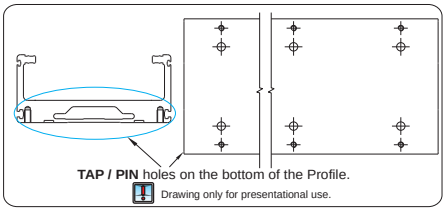
DIMENSIONS







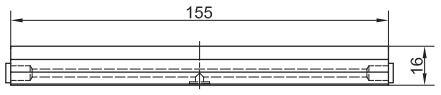
OPTIONAL: **TAP / PIN** holes available on request.

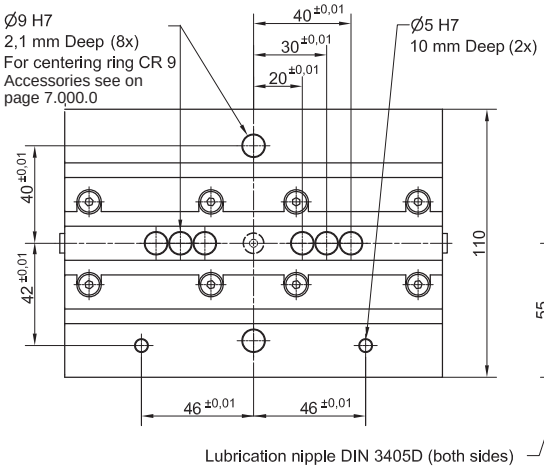


All dimensions in mm; Drawings scales are not equal.

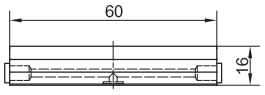
CONNECTION PLATE

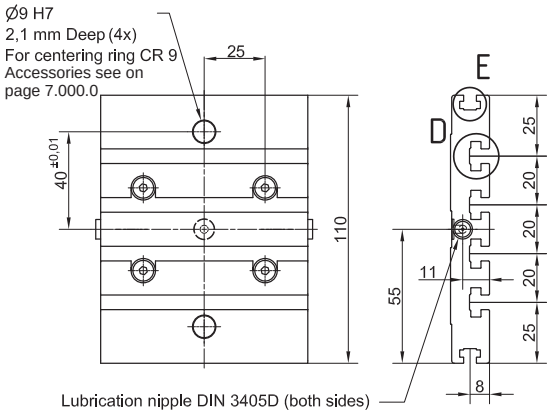
CTJ 110 L

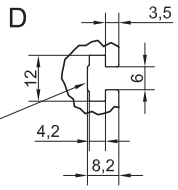




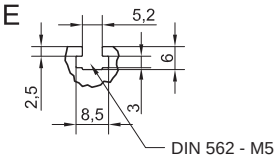
CTJ 110 S





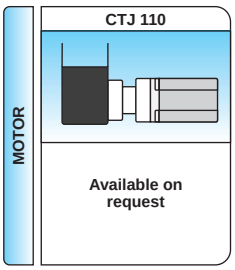


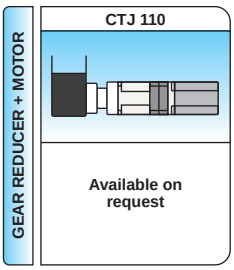
Slot nut
More info at page 7.005.0

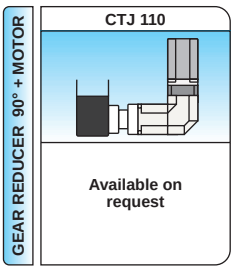


Linear Unit	Plate length [mm]	Weight [kg]	Code
CTJ 110 S	60	0,35	48525
CTJ 110 L	155	0,60	48480

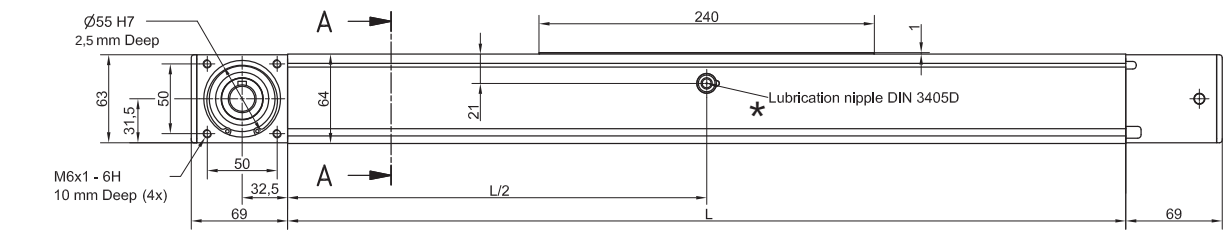
Mounting elements for mounting the connection plate on the Linear unit are inlcuded.





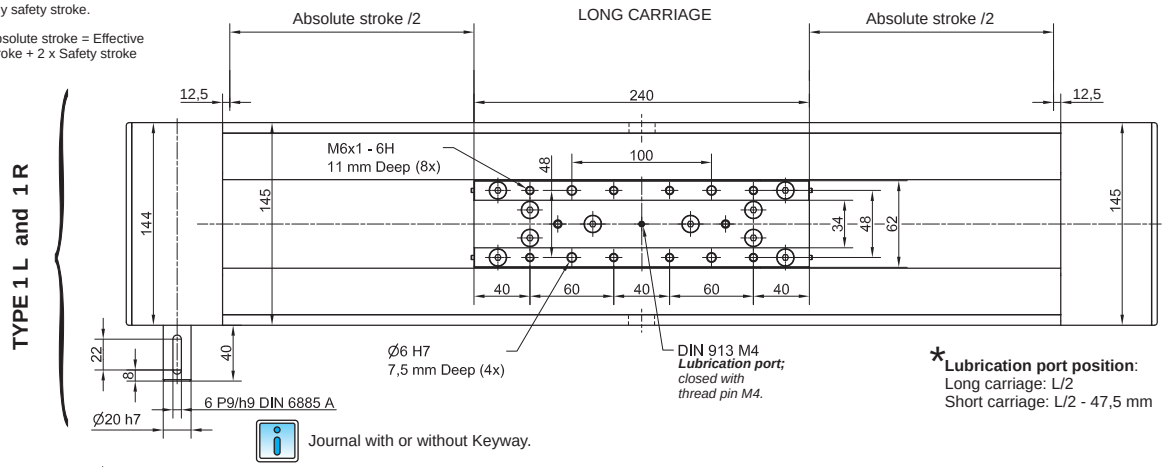


DIMENSIONS



Linear Unit doesn't include any safety stroke.

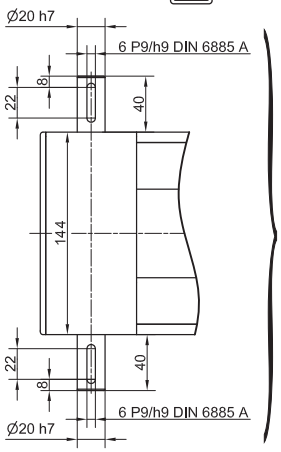
Absolute stroke = Effective stroke + 2 x Safety stroke

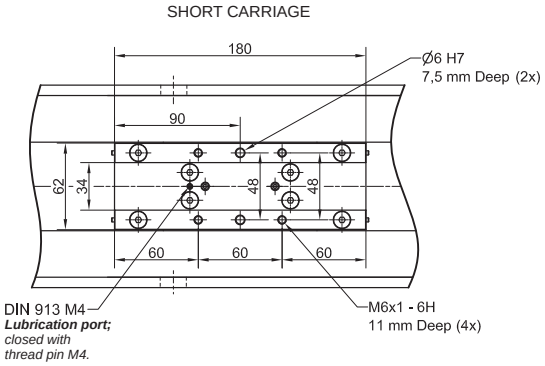


*Lubrication port position:
Long carriage: L/2
Short carriage: L/2 - 47,5 mm

Journal with or without Keyway.

All dimensions in mm; Drawings scales are not equal.



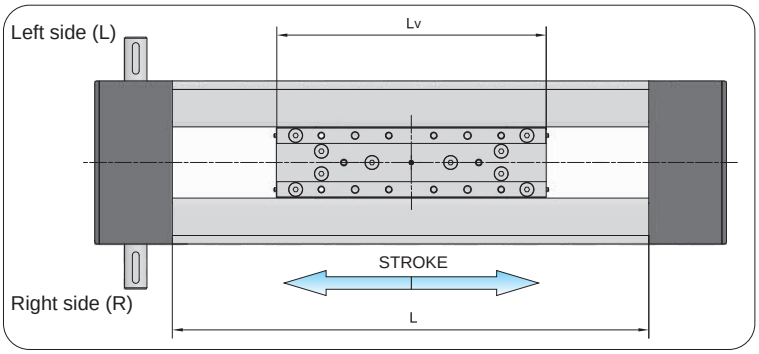


Defining of the linear module length

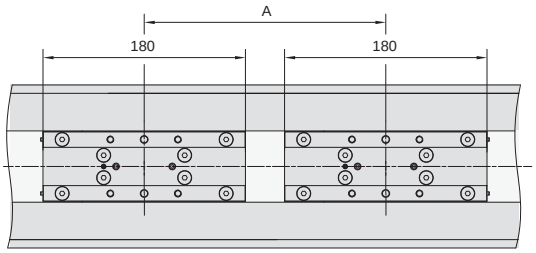
Lv - Long carriage = 240 mm
Lv - Short carriage = 180 mm

L = Effective stroke + 2 × Safety stroke + Lv + 25 mm

Ltotal = L + 138 mm



Double-Carriage



Only with **short** carriage version.

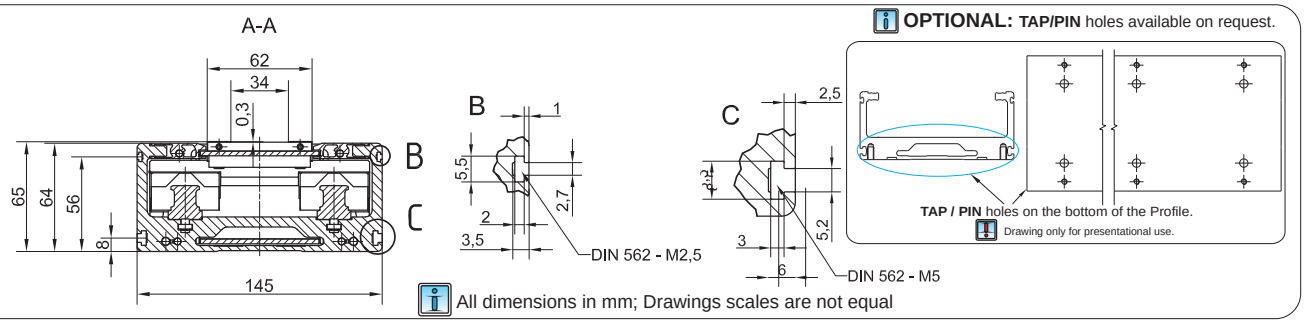
L = Effective stroke + 2 × Safety stroke + A + 205 mm

Ltotal = L + 138 mm

A ≥ 180 mm

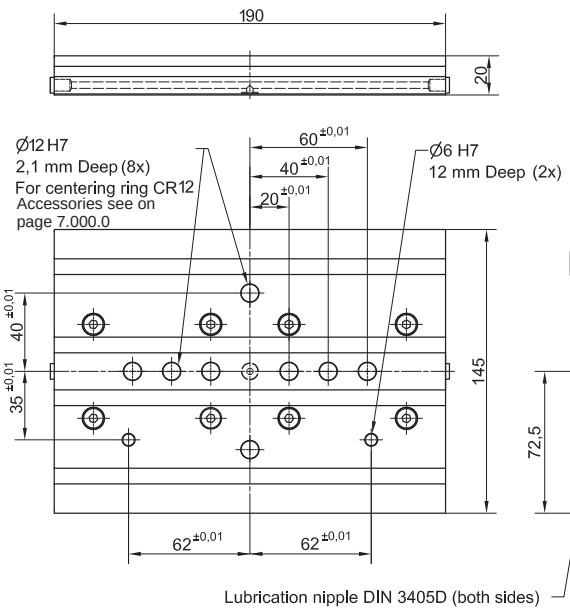
For ordering code please contact us.

DIMENSIONS

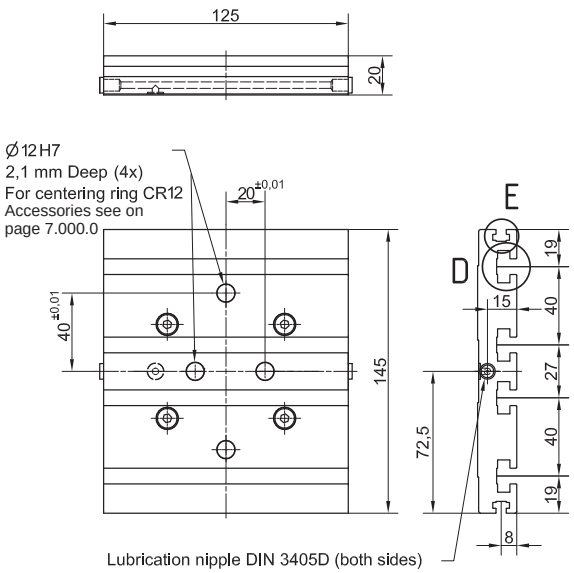


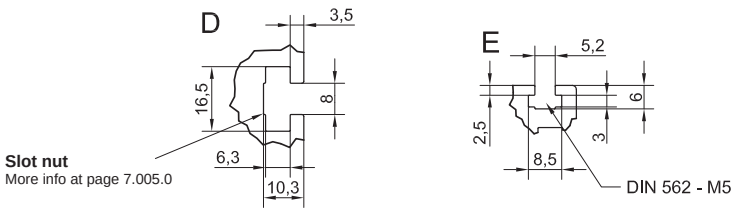
CONNECTION PLATE

CTJ 145 L



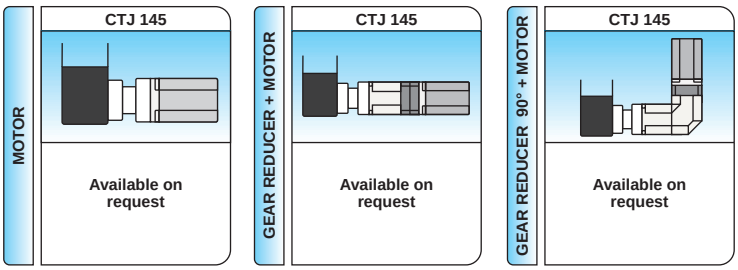
CTJ 145 S



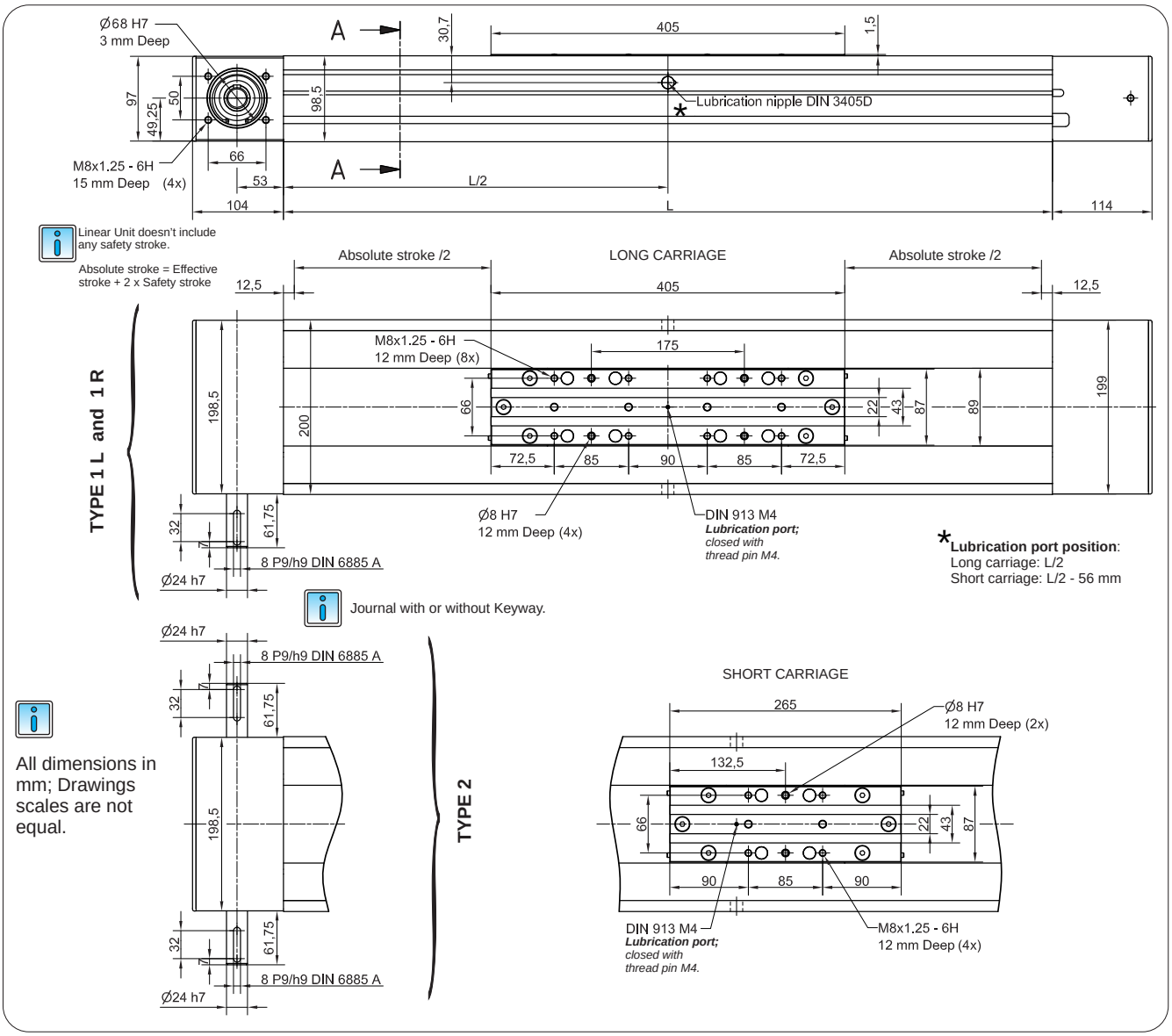


Linear Unit	Plate length [mm]	Weight [kg]	Code
CTJ 145 S	125	0,8	46776
CTJ 145 L	190	1,3	46775

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



DIMENSIONS

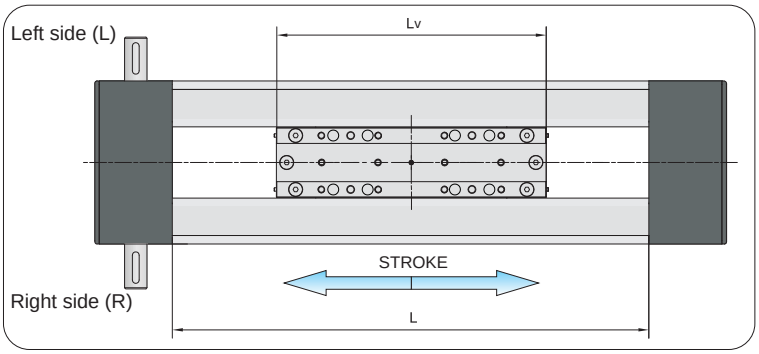


Defining of the linear module length

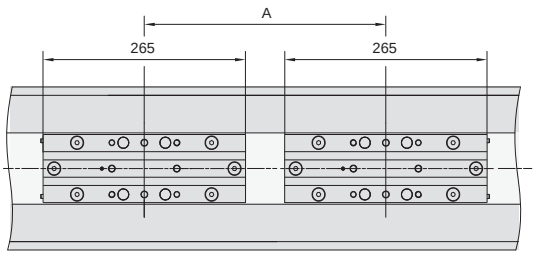
L = Effective stroke + 2 × Safety stroke + Lv + 25 mm

Ltotal= L + 218 mm

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



Double-Carriage



Only with **short** carriage version.

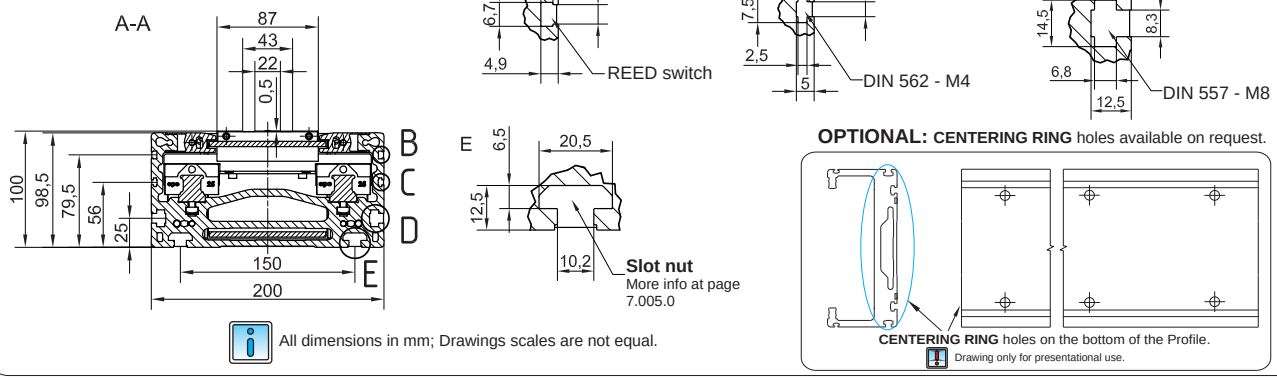
L = Effective stroke + 2 × Safety stroke + A + 290 mm

Ltotal = L + 218 mm

A ≥ 265 mm

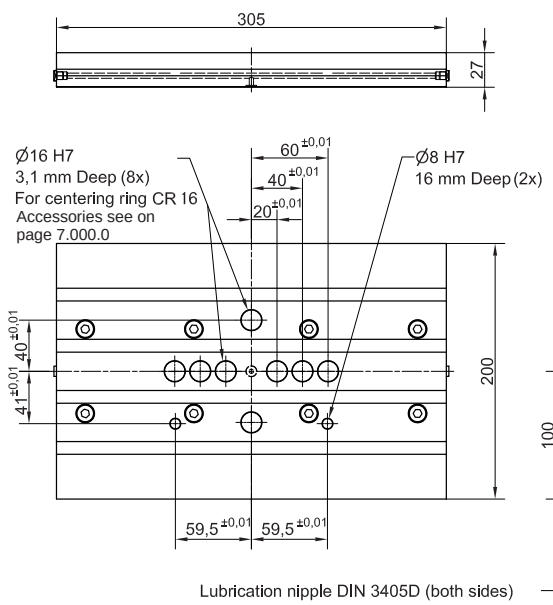
For ordering code please contact us

DIMENSIONS

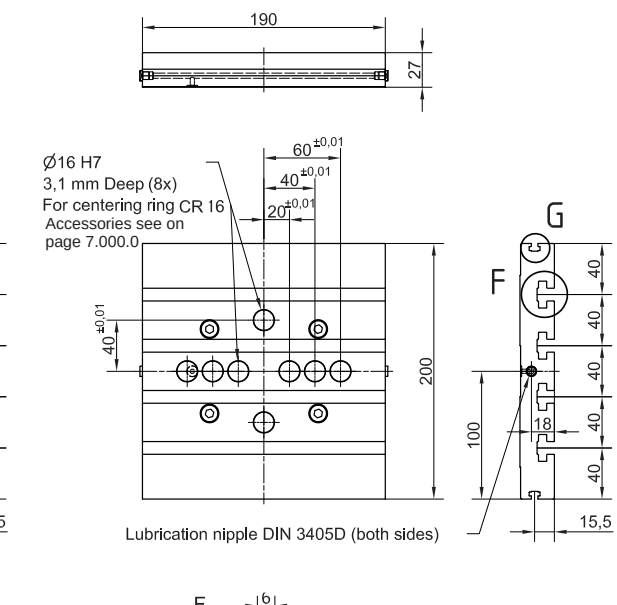


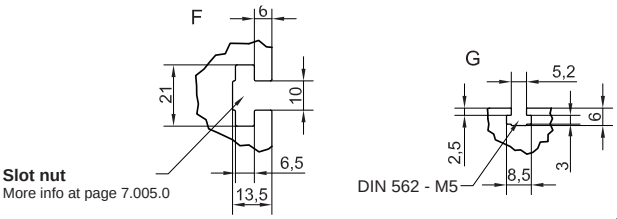
CONNECTION PLATE

CTJ 200 L



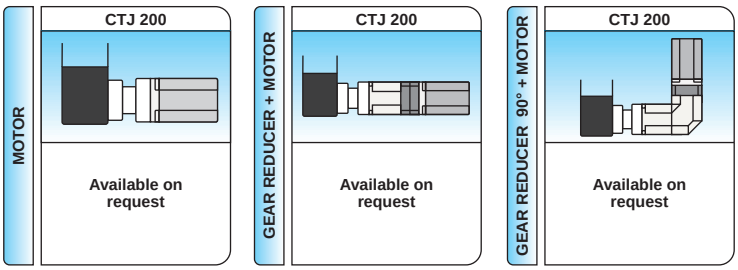
CTJ 200 S





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

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



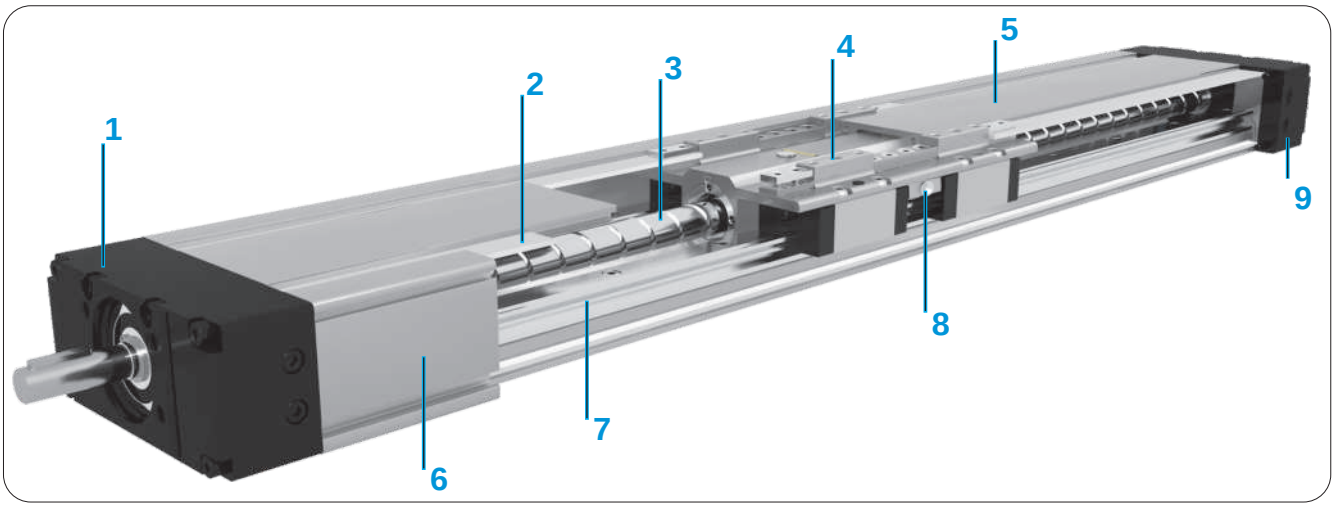
CHARACTERISTICS

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

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

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

STRUCTURAL DESIGN



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

HOW TO ORDER

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

Series:
CTV

Size:
90
110
145
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	Load capacity		Dynamic moment			Moved mass	*Maximum length	Planar moment of inertia	
	Lv [mm]	Dynamic C [N]	Static C0 [N]	Mx [Nm]	My [Nm]	Mz [Nm]	[kg]	Lmax [mm]	Iy [cm^4]	Iz [cm^4]
CTV 90 S	35	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	1500	29,1	196,0
CTV 110 L	124	39600	70000	1305	1680	1680	1,36			
CTV 145 S	49	34200	60000	1500	260	520	1,19	1800	85,3	682,3
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			

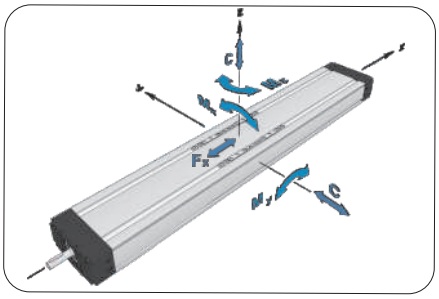
*For lengths over the stated value in the table above please contact us.

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 / mm^2



Ball Screw Drive data

Linear Unit	1 Maximal travel speed		2 No load torque		Lead constant	Ball screw	3 Max. repeteability precision [mm] STANDARD		Dynamic load capacity BS	Maximum Axial load	Maximal drive torque without Keyway
	[m / s]		Carriage: S [Nm]	Carriage: L [Nm]	[mm / rev]	[d × l]	ISO7	ISO5	Ca [N]	Fx [N]	Ma [Nm]
CTV 90	$38,7 \cdot 10^3 \cdot I / L^2$ [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	$49,6 \cdot 10^3 \cdot I / L^2$ [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	$64,2 \cdot 10^3 \cdot I / L^2$ [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	$108 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 0,18	0,45	0,55	5	32 × 5	± 0,02	± 0,01	18850	18850	16,7
	$99,0 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 0,50	0,50	0,60	10	32 × 10	± 0,02	± 0,01	33400	29600	52,3
	$105 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 1,00	0,55	0,65	20	32 × 20	± 0,02	± 0,01	29700	14800	52,3
	$103 \cdot 10^3 \cdot I / L^2$ [mm]	≤ 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.

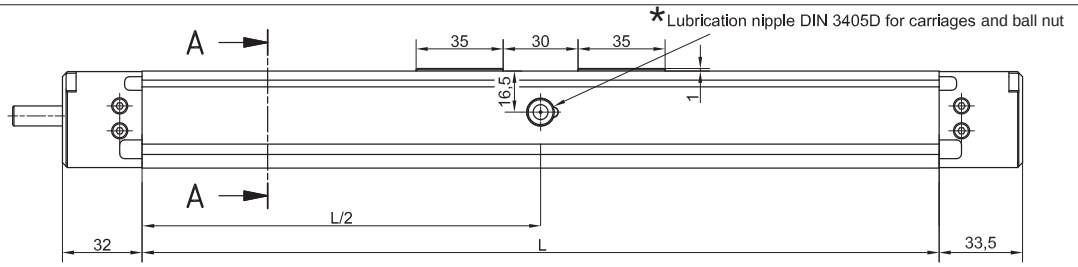
Linear Unit	Permissible drive torque (with Keyway) Ma [Nm]
CTV 90	-
CTV 110	5,5
CTV 145	11,9
CTV 200	27,3

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.

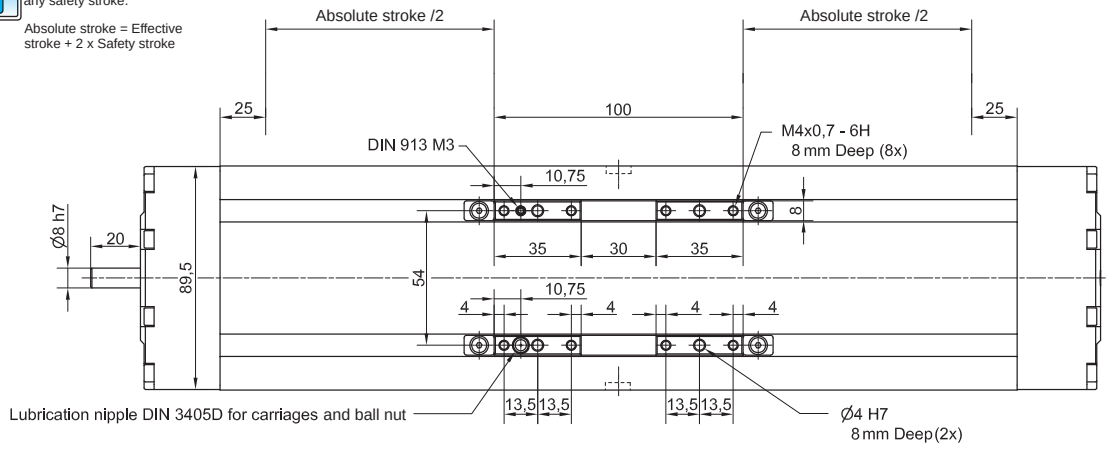
DIMENSIONS



Linear Unit doesn't include any safety stroke.

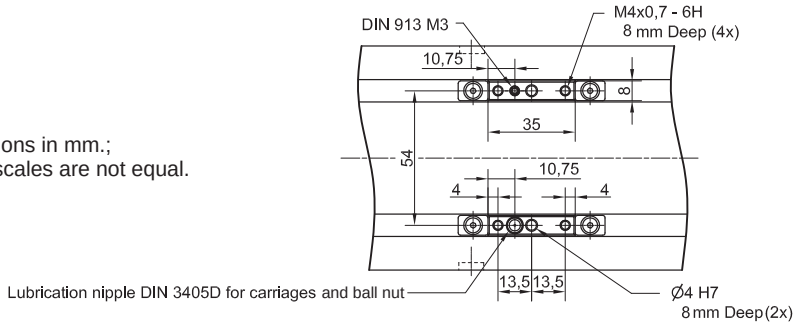
Absolute stroke = Effective stroke + 2 x Safety stroke

LONG CARRIAGE



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

SHORT CARRIAGE



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

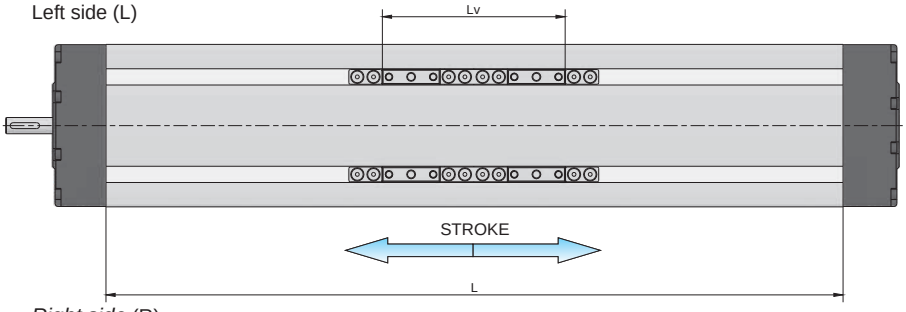
Defining of the linear module length

L = Effective stroke + 2 × Safety stroke + Lv + 50 mm

Ltotal = L + 65,5 mm

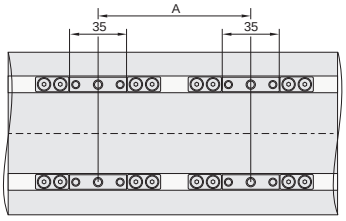
Lv - Long carriage = 100 mm
Lv - Short carriage = 35 mm

Left side (L)



Right side (R)

Double-Carriage



Only with **short** carriage version.

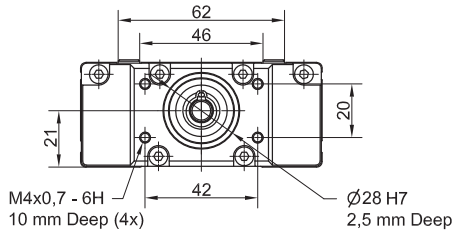
L = Effective stroke + 2 × Safety stroke + A + 85 mm

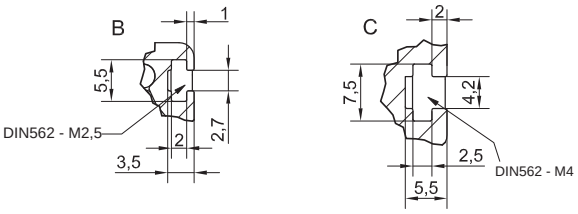
Ltotal = L + 65,5mm

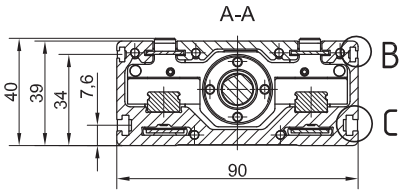
A ≥ 65 mm

For ordering code please contact us.

DIMENSIONS

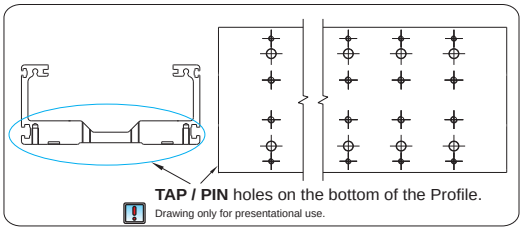






All dimensions in mm; Drawings scales are not equal.

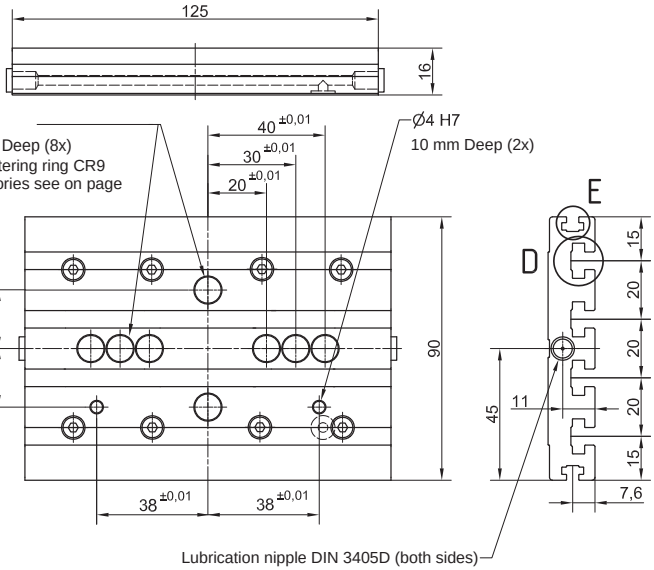
OPTIONAL: **TAP / PIN** holes available on request.

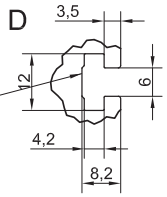


TAP / PIN holes on the bottom of the Profile.
Drawing only for presentational use.

CONNECTION PLATE

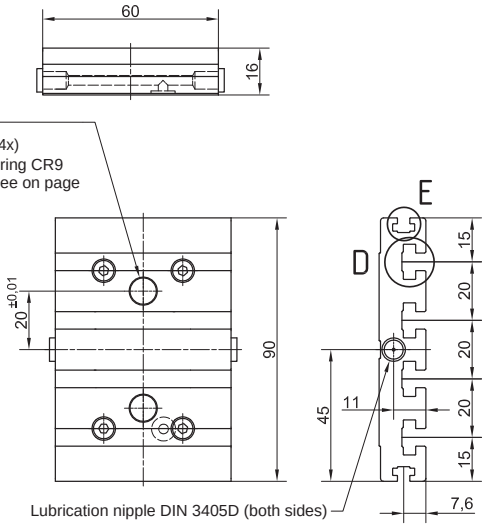
CTV 90 L

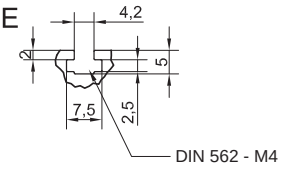




Slot nut
More info at page 7.005.0

CTV 90 S

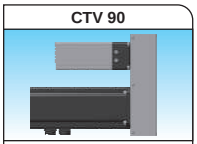




Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 90 S	60	0,21	46906
CTV 90 L	125	0,44	46907

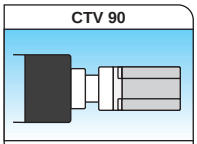
Mounting elements for mounting the connection plate on the Linear unit are inlcuded.

MOTOR - MOTOR SIDE DRIVE



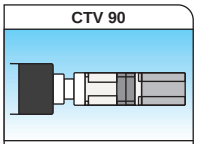
Available on request

MOTOR



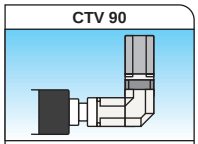
Available on request

GEAR REDUCER + MOTOR



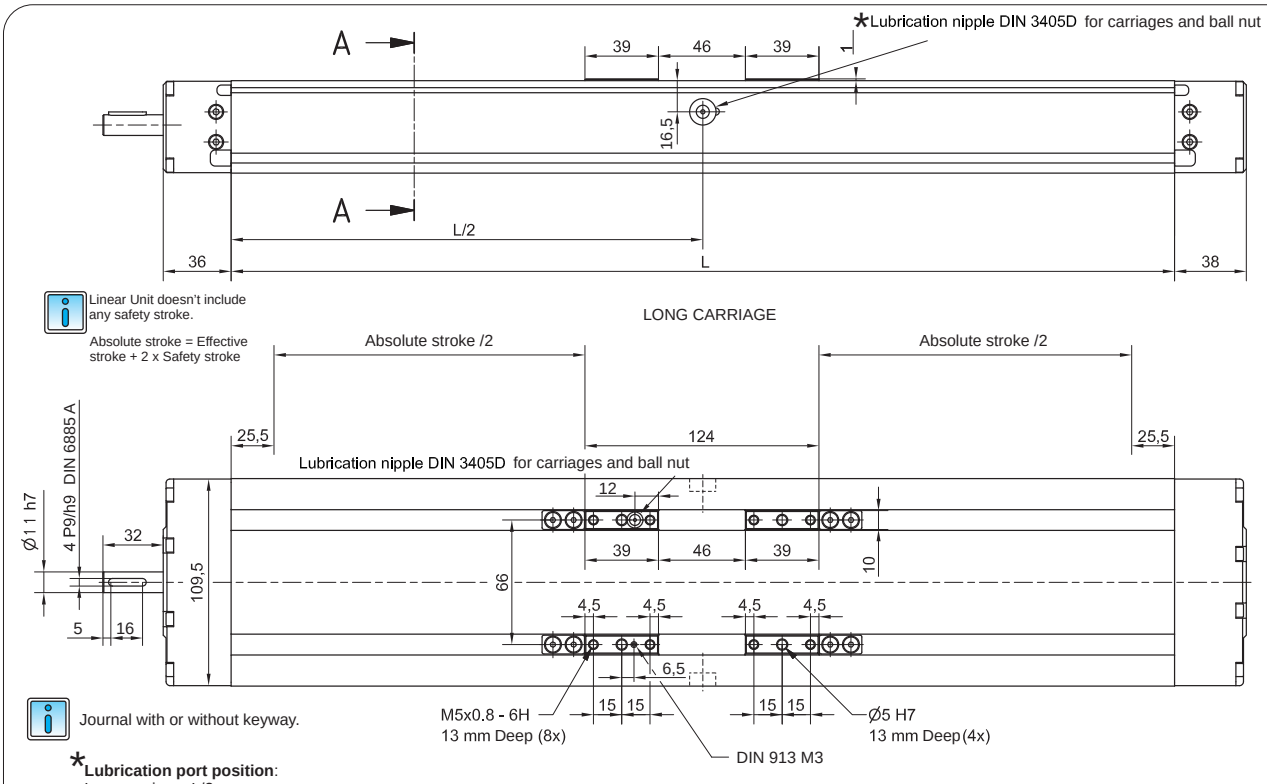
Available on request

GEAR REDUCER 90° + MOTOR



Available on request

DIMENSIONS



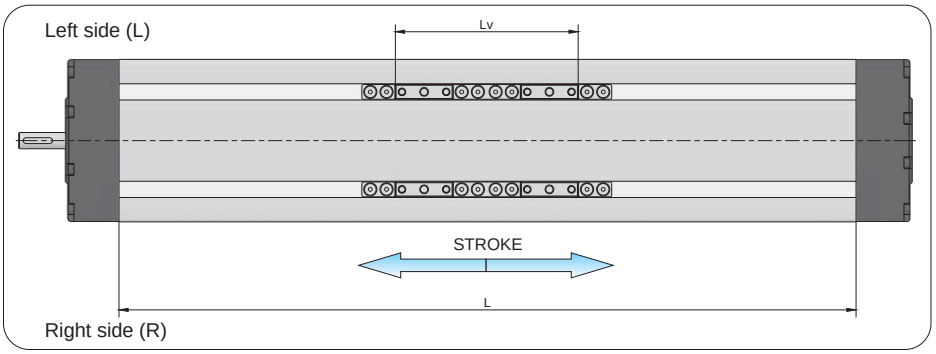
All dimensions in mm;
Drawings scales are not equal.

Defining of the linear module length

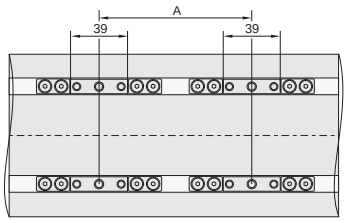
L = Effective stroke + 2 × Safety stroke + Lv + 51 mm

Ltotal = L + 74 mm

Lv - Long carriage = 124 mm
Lv - Short carriage = 39 mm



Double-Carriage



Only with **short** carriage version.

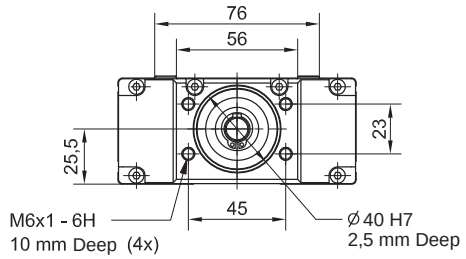
L = Effective stroke + 2 × Safety stroke + A + 90 mm

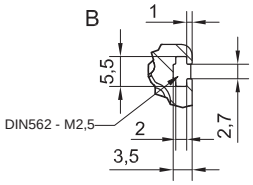
Ltotal = L + 74 mm

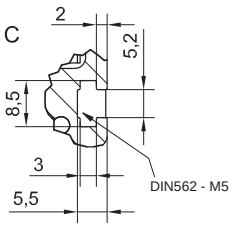
A ≥ 85 mm

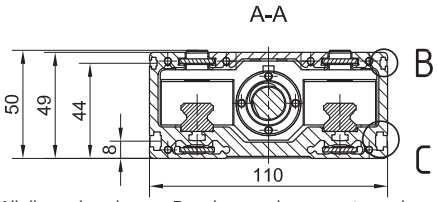
For ordering code please contact us

DIMENSIONS



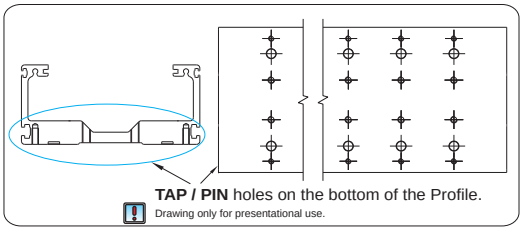






All dimensions in mm; Drawings scales are not equal.

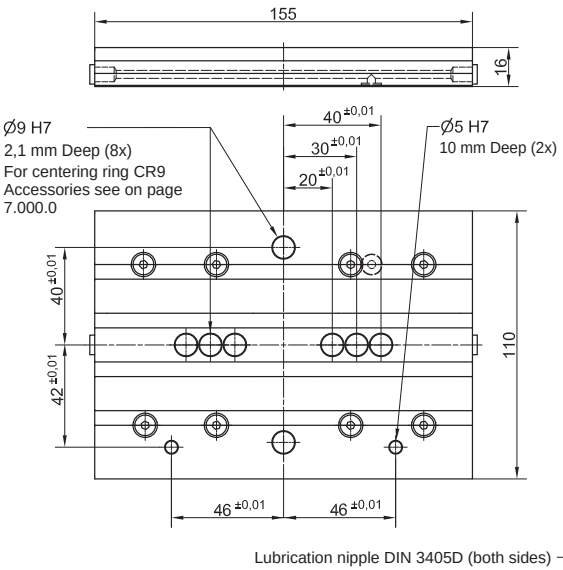
OPTIONAL: **TAP / PIN** holes available on request.

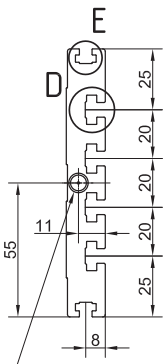


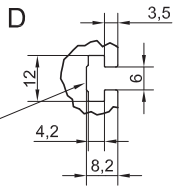
TAP / PIN holes on the bottom of the Profile.
Drawing only for presentational use.

CONNECTION PLATE

CTV 110 L

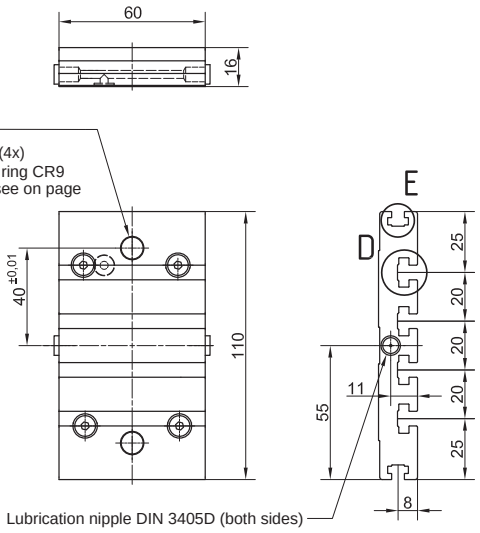


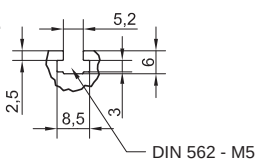




Slot nut
More info at page 7.005.0

CTV 110 S

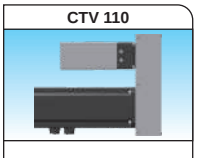




Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 110 S	60	0,37	48348
CTV 110 L	155	0,74	48349

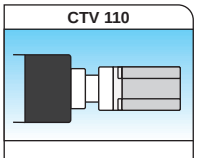
Mounting elements for mounting the connection plate on the Linear unit are inlcuded.

MOTOR - MOTOR SIDE DRIVE



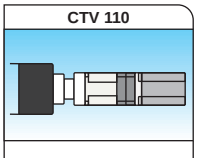
Available on request

MOTOR



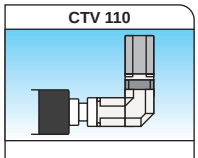
Available on request

GEAR REDUCER + MOTOR



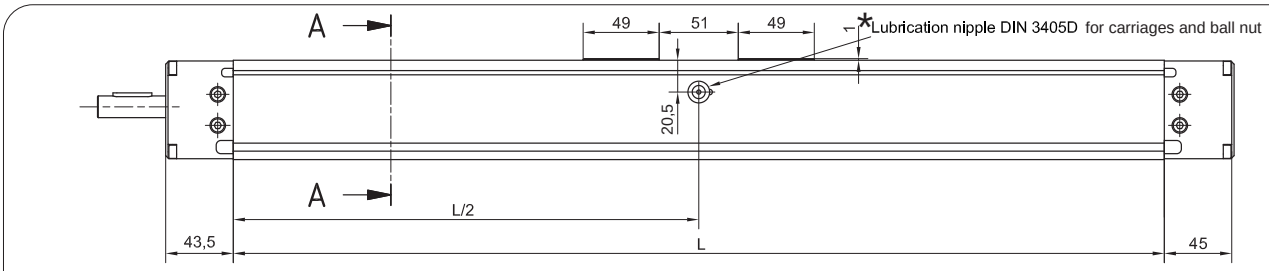
Available on request

GEAR REDUCER 90° + MOTOR



Available on request

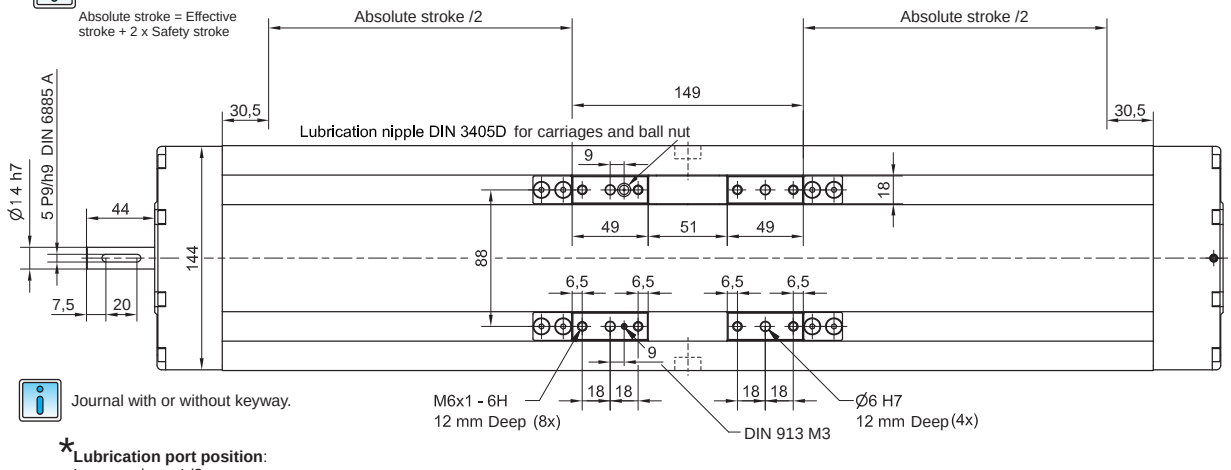
DIMENSIONS



Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke

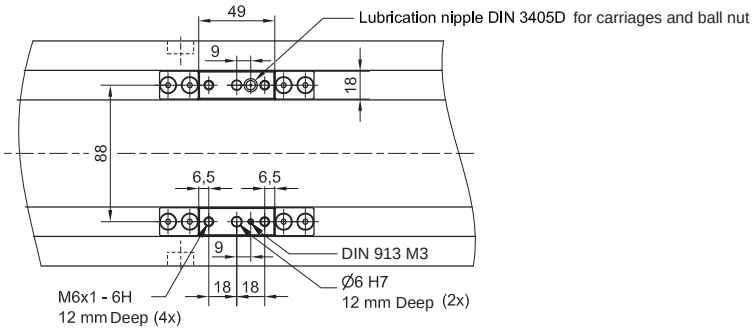
LONG CARRIAGE



Journal with or without keyway.

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

SHORT CARRIAGE



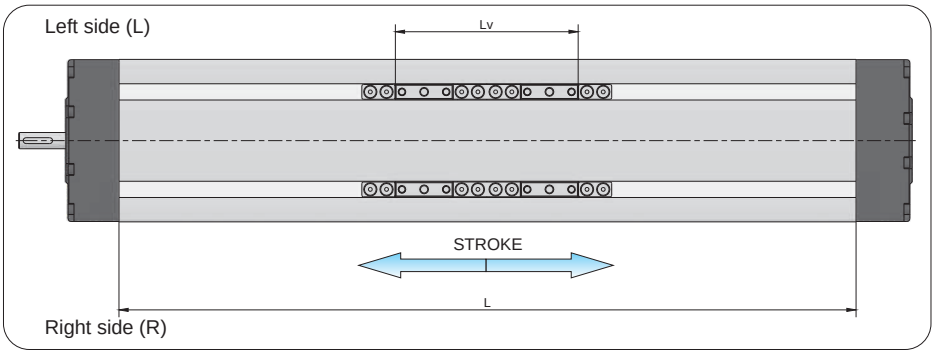
All dimensions in mm;
Drawings scales are not equal.

Defining of the linear module length

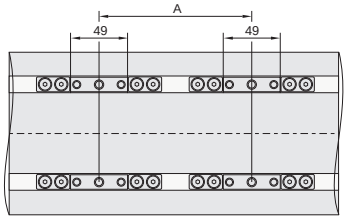
Lv - Long carriage = 149 mm
Lv - Short carriage = 49 mm

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

Ltotal = L + 88,5 mm



Double-Carriage



Only with **short** carriage version.

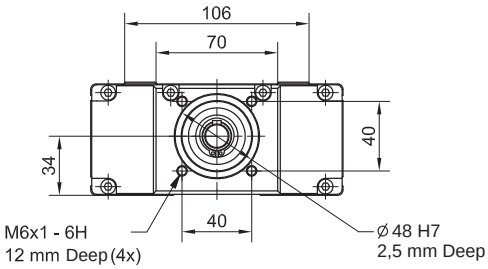
L = Effective stroke + 2 × Safety stroke + A + 110 mm

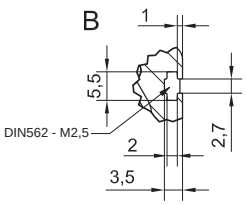
Ltotal = L + 88,5 mm

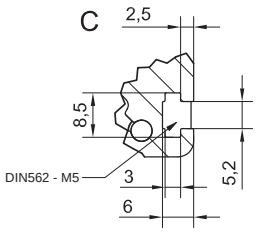
A ≥ 100 mm

For ordering code please contact us.

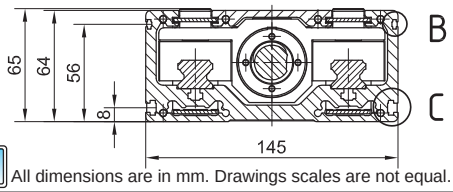
DIMENSIONS





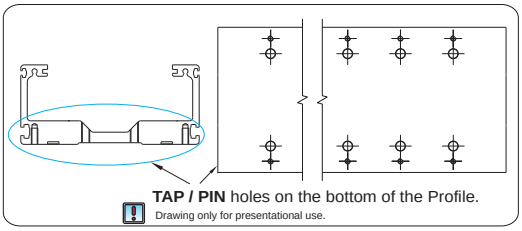


A-A



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

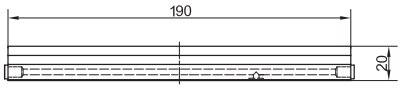
OPTIONAL: **TAP / PIN** holes available on request.

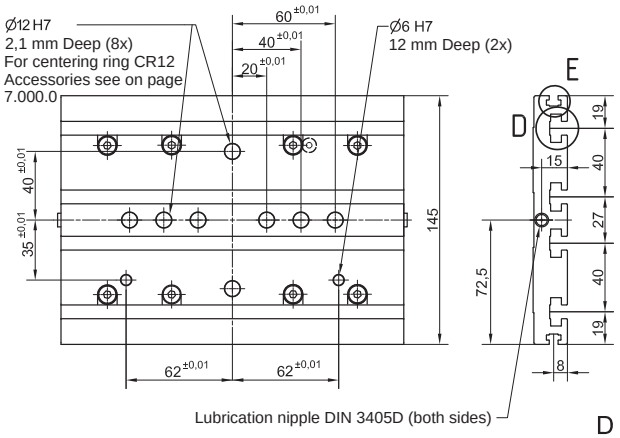


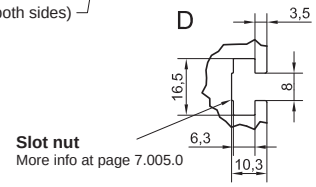
TAP / PIN holes on the bottom of the Profile.
Drawing only for presentational use.

CONNECTION PLATE

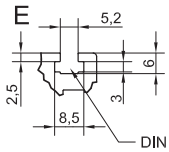
CTV 145 L



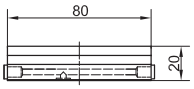


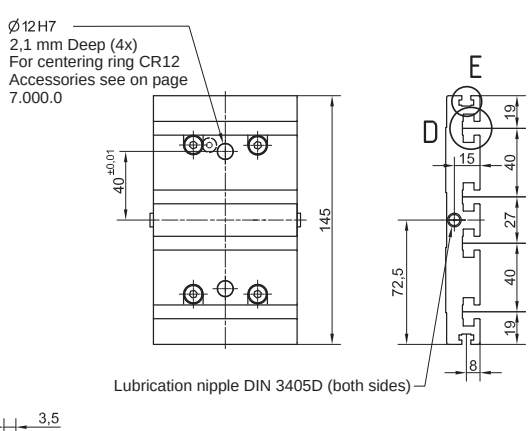


Slot nut
More info at page 7.005.0



CTV 145 S

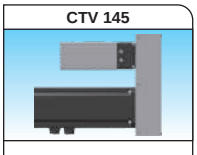




Linear Unit	Plate length [mm]	Weight [kg]	Code
CTV 145 S	80	0,78	48351
CTV 145 L	190	1,54	48350

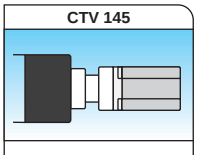
Mounting elements for mounting the connection plate on the Linear unit are inlcuded.

MOTOR - MOTOR SIDE DRIVE



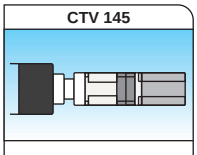
Available on request

MOTOR



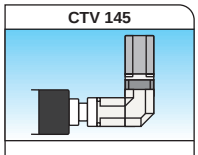
Available on request

GEAR REDUCER + MOTOR



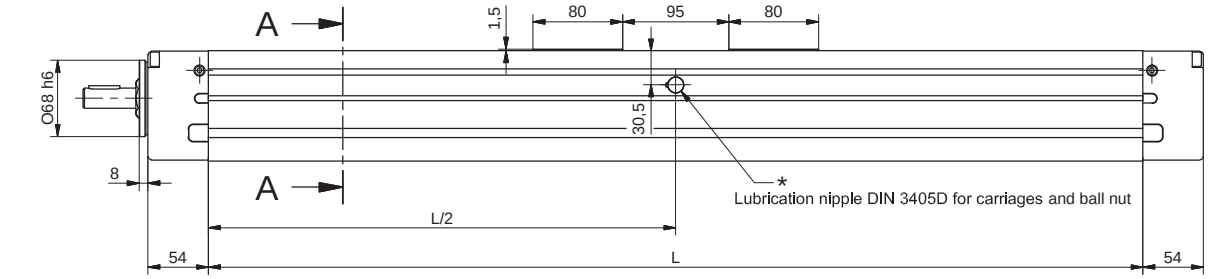
Available on request

GEAR REDUCER 90° + MOTOR



Available on request

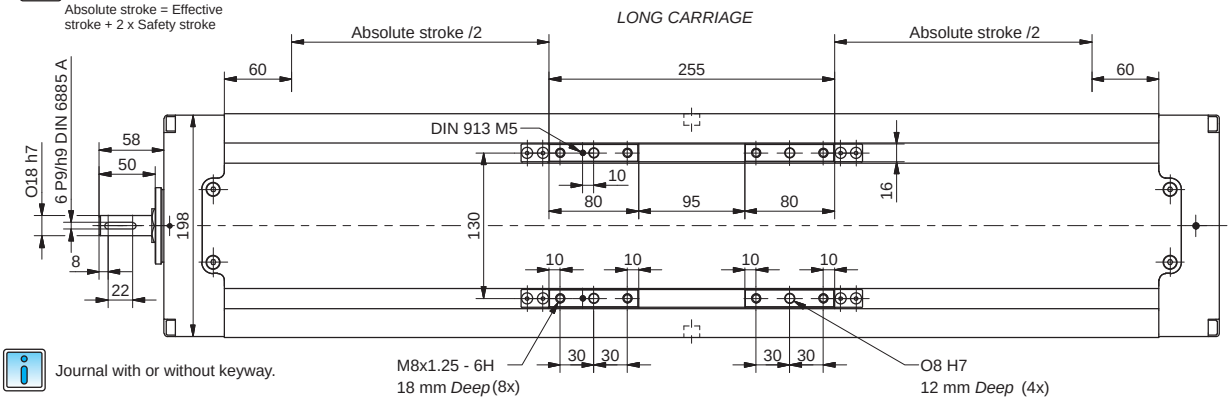
DIMENSIONS



Linear Unit doesn't include any safety stroke.

Absolute stroke = Effective stroke + 2 x Safety stroke

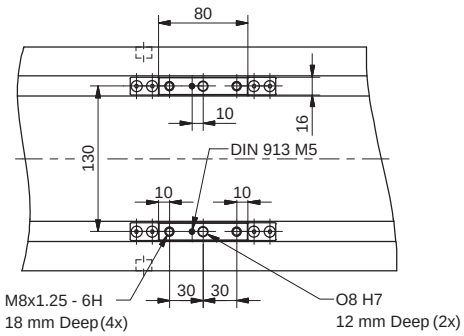
LONG CARRIAGE



Journal with or without keyway.

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

SHORT CARRIAGE



All dimensions in mm;
Drawings scales are not equal.

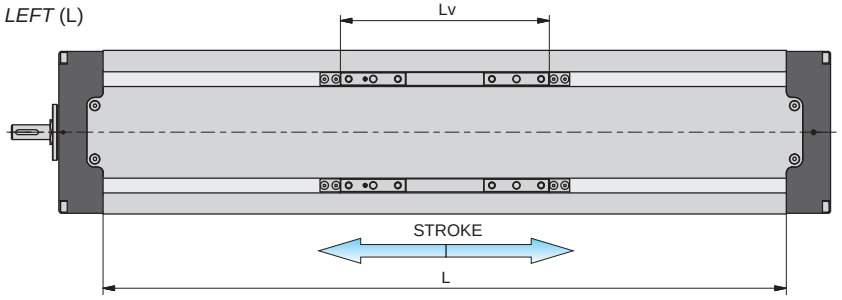
Defining of the linear module length

Lv - Long carriage = 255 mm
Lv - Short carriage = 80 mm

L = Effective stroke + 2 × Safety stroke + Lv + 120 mm

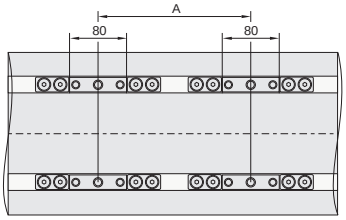
Ltotal = L + 108 mm

LEFT (L)



RIGHT (R)

Double-Carriage



Only with **short** carriage version.

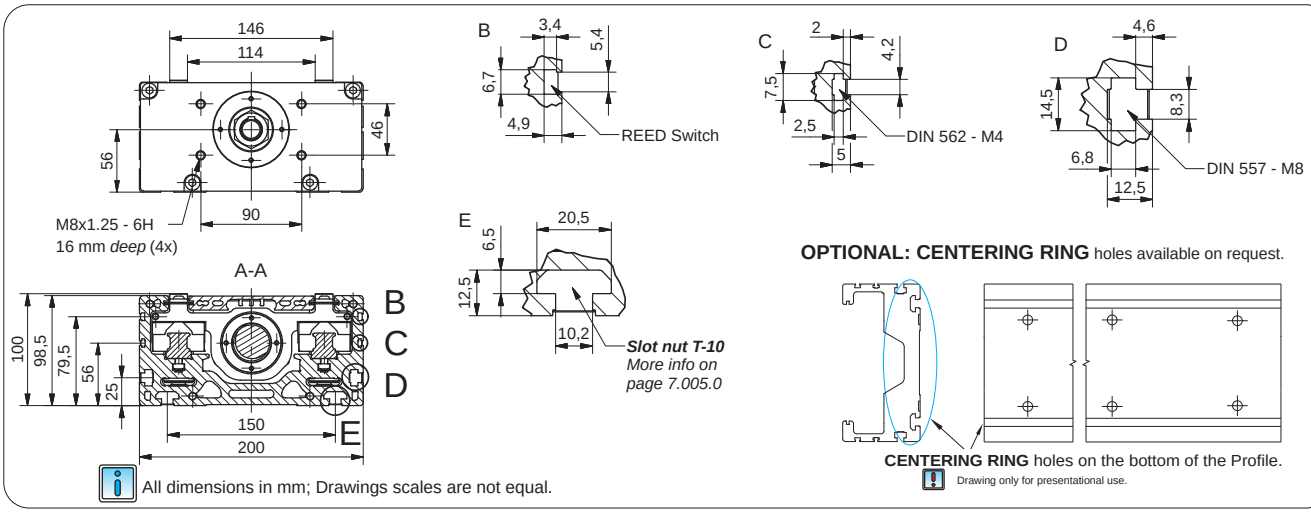
L* = Effective stroke + 2 × Safety stroke + A + 200 *mm

Ltotal = L + 108 mm

A ≥ 130 mm

For ordering code please contact us

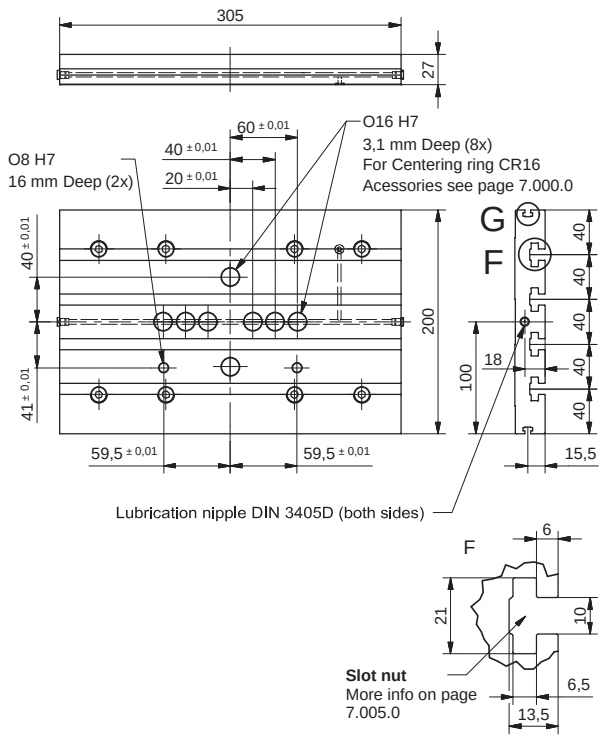
DIMENSIONS



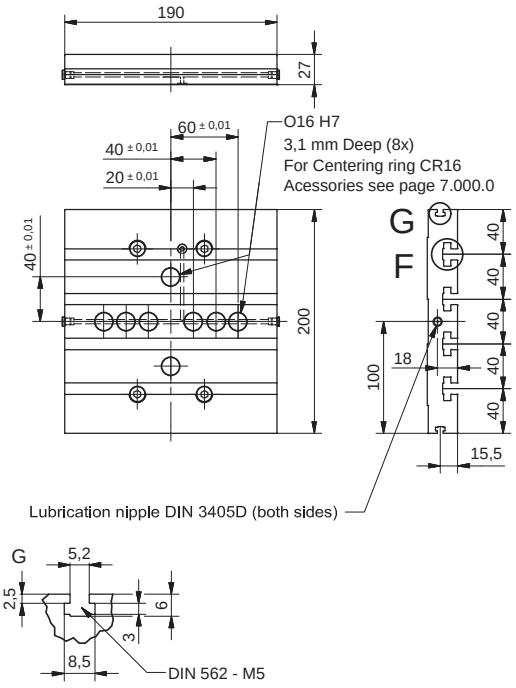
All dimensions in mm; Drawings scales are not equal.

CONNECTION PLATE

CTV 200 L



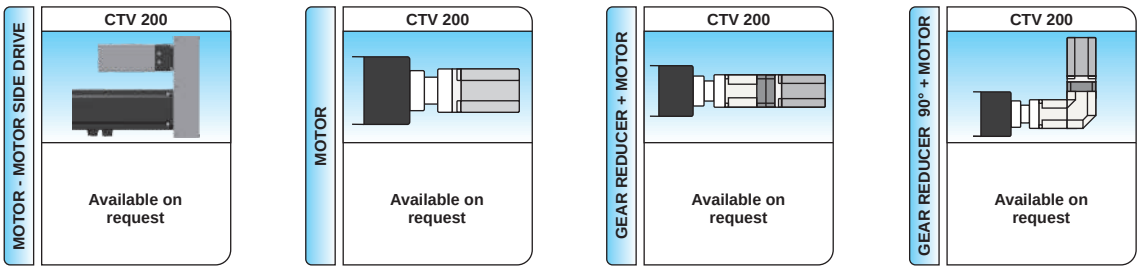
CTV 200 S



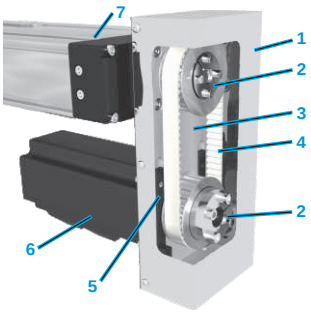
Linear unit	Plate length [mm]	Weight [kg]	Code
CTV 200 S	190	2,32	66669
CTV 200 L	305	3,75	66657

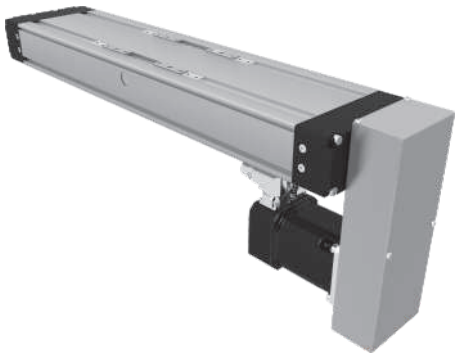
Mounting elements for mounting the connection plate on the Linear unit are inlcuded.

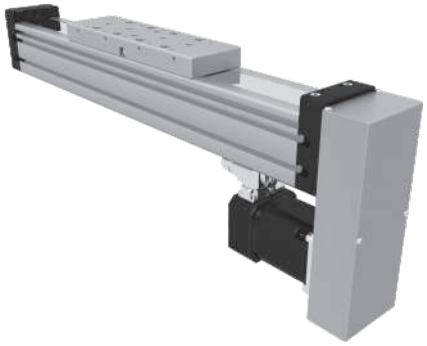
Please consider our advice in our Maintenance- and assembly instructions



STRUCTURAL DESIGN



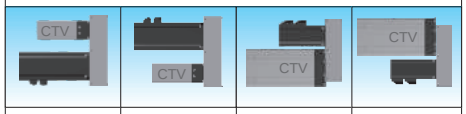




1 - Cover
2 - Attachment of pulley with clamping set
3 - Anodized aluminium housing
4- Toothed belt
5- Belt tensioning system (elongation and frequency of belt span provided with delivery of unit)
6 - Motor
7 - Linear unit - CTV / MTV

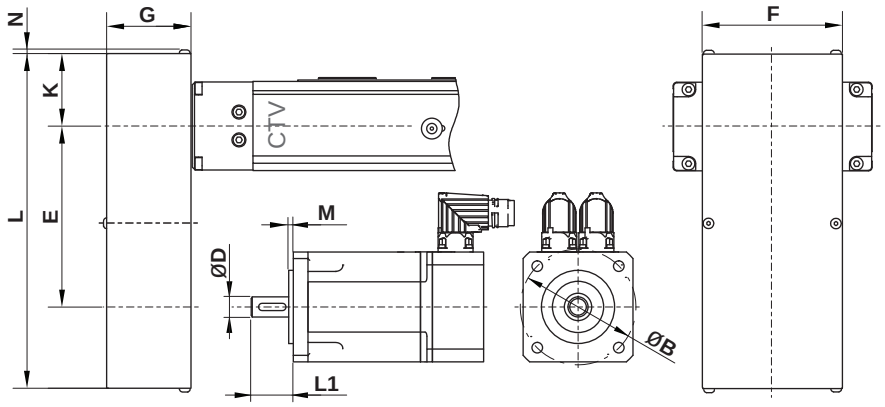
The linear unit must be executed with drive journal without keyway, so that the MSD belt drive can be mounted on it.

Possible installation positions of MSD

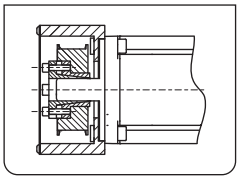


D	U	R	L
Down	Up	Right	Left

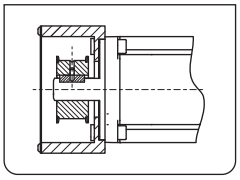
DIMENSIONS AND TECHNICAL DATA



Clamping set



Keyway



Linear Unit	Type	Gear ratio	Max. drive torque [Nm]	Mass moment of inertia [10^{-6} kg·m^2]	Mass [kg]	Motor size limits [mm] ØB max	M max	L1 min Clamping set	L1 min Keyway	L1 max	ØD max Clamping set	ØD max Keyway	Dimensions [mm] E	F	G	K	L	N
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		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		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 additonal 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:

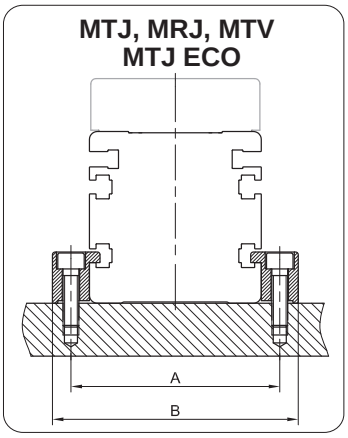
Linear Unit series :
CTV / MTV

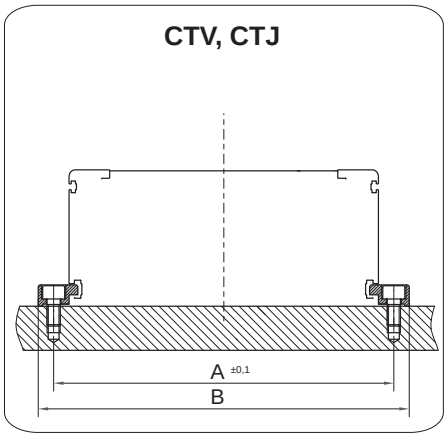
Type :

Gear ratio :

Motor type :
According to customer's drawing

FIXING SYSTEM

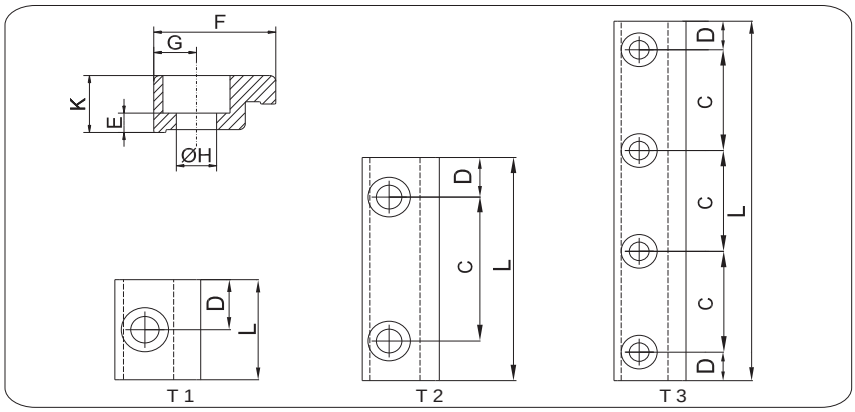




General

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!

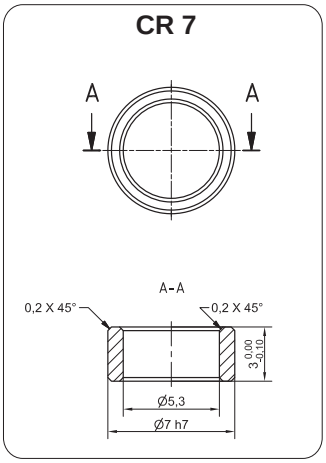


Linear Unit	Type	Dimensions [mm]										Screw	Countersink for	Weight [kg]	Code
		A	B	C	D	L	E	F	G	ØH	K				
MTJ, MRJ 40	T 2	50	64,4	40	7,5	55	2,5	15	7,2	5,5	8	M5	DIN 912	0,014	37139
MTJ, MRJ, MTV 65	T 2	78	93	40	10	60	11,5	20	7,5	6,5	20	M6	DIN 912	0,054	37129
MTJ, MRJ, MTV 80	T 2	93	108	40	10	60	11,5	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

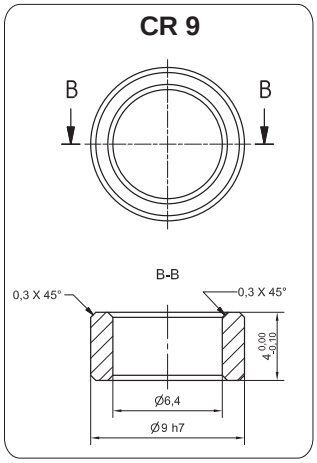
Recommended number of clamping fixtures: For T1 is recommended 6 pcs. per meter on each side, for T2 is recommended 3 pcs. per meter on each side and for T3 is recommended 3 pcs. per meter on each side.

CENTERING RINGS

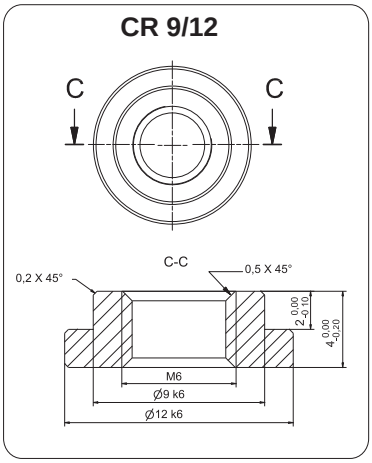
CR 7



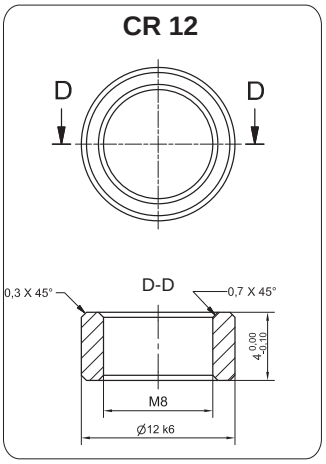
CR 9



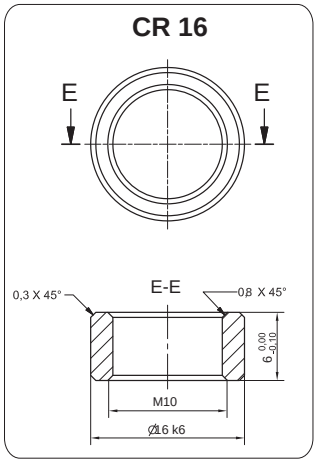
CR 9/12



CR 12



CR 16



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

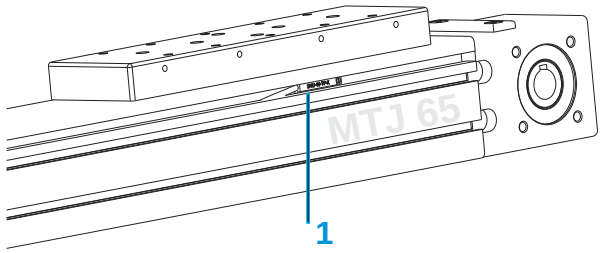
CODE	NUT TYPE	CTV 200 CTJ 200
5551	Slot Nut T-10-M8	X
5552	Slot Nut T-10-M6	X
5553	Slot Nut T-10-M5	X
5570	Slot Nut T-10-M8 L=90	X

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

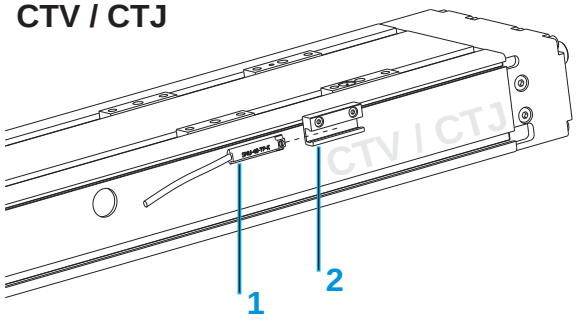
IDENT	NUT TYPE	CTV 110 CTJ 110	CTV 90 CTJ 90
48887	Slot Nut 6LM4	X	X
48888	Slot Nut 6LM5	X	X

MAGNETIC FIELD SENSORS

MTJ / MRJ / MTV



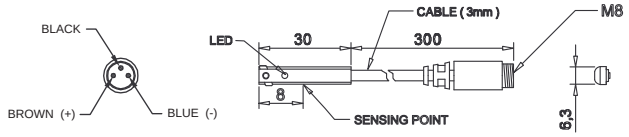
CTV / CTJ



1 - Magnetic field sensor
2 - Sensor holder

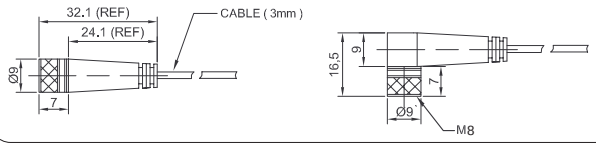
Mounting of Magnetic field sensor on **CTV** and **CTJ** series requires a HOM sensor holder. For CTV/CTJ 200 a HOM sensor holder is not needed.

SMU-40TP-K *PNP NO*



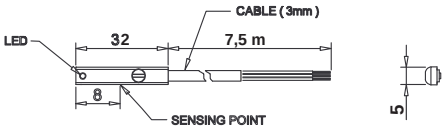
Code	Type	Compatibility	
43851	HOM sensor holder	CTV90, CTV110, CTV145, CTJ90, CTJ110, CTJ145	
40679	SMU-40TP-K	MTJ/MRJ/MTV/MTJZ:40,65,80,110 CTV/CTJ: 200	
45869	SMU-40TP-K + HOM	CTV90, CTV110, CTV145 CTJ90, CTJ110, CTJ145	

Extension cable with connector



Code	Type	
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	

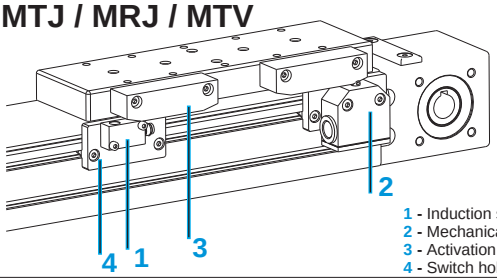
SME-8M-DO *PNP NC*



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	

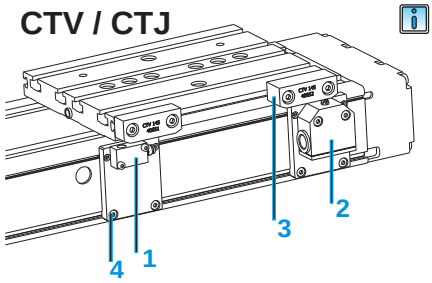
TECHNICAL DATA	SMU-40TP-K *PNP NO*	SME-8M *PNP NC*
Sensor Type	PNP	Contacting, Bipolar
Switching function	NO	NC
Operating voltage	10 ~ 30 V DC	5 ~ 30 V DC
Switching Current	100 mA max.	80 mA max.
Switching capacity	6 W max.	2,4 W max.
Voltage Drop	1,5 V max.	3,5 V max.
Current Consumption	20 mA / 24 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



1 - Induction switch
2 - Mechanical switch
3 - Activation block
4 - Switch holder

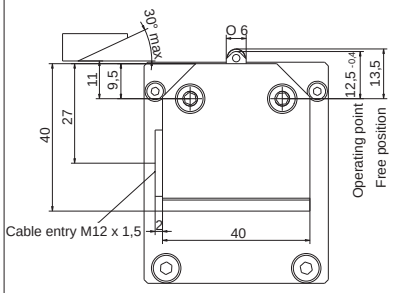
CTV / CTJ



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



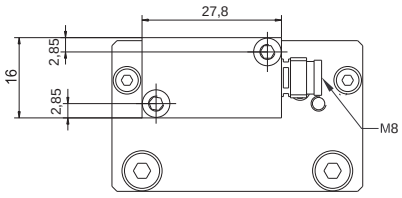
Protection class IEC 60529	IP 67
Ambient temperature	-5°C ...+80°C
Operating point accuracy	± 0.05 mm
Approach speed max.	45 m/min
Approach speed min.	0,01 m/min
Switching contact	1 changeover
Switching principle	Snap-action
Rated voltage	250 V AC
Switching current, min. at	10 mA
Switching voltage	24 V DC
Cable entry	M12 x 1,5

ORDERING CODES

		MTJ/MRJ 40	*MTJZ 40*	*MTJ/MRJ/MTV 65 MTJZ 65/80*	*MTJ/MRJ/ MTV 80*	*MTJ/MRJ/ MTV 110*	*MTJZ 110*	*MTJ ECO 40*	*CTV/CTJ 90*	*CTV/CTJ 110*	*CTV/CTJ 145*	*CTV/CTJ 200*
+ 2×	Activation block with fixing screws	43243	52022	43247	43256	47827	63702	49030	49032	49031	40652	40652
	Mechanical switch only					47921						
2× + + 2× +	Mechanical switch with mounting elements	40683		40687	40689	47826	63703	49035	49034	49033	47939	53055

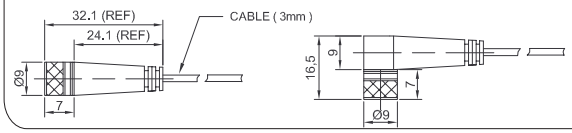
IS- Inductive switch

TECHNICAL DATA



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 with connector



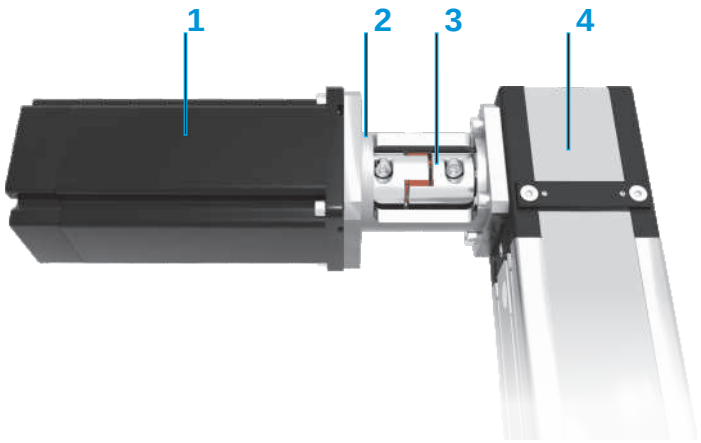
Extension cable	Energy chain compliant - bending radius 75 mm
Cable material-length	PU
Cable length	2m / 5m
Cable length	*M8, 3-pin Straight or Angeled connector*

ORDERING CODES

		MTJ/MRJ 40	*MTJZ 40*	*MTJ/MRJ/MTV 65 MTJZ 65/80*	*MTJ/MRJ/ MTV 80*	*MTJ/MRJ/ MTV 110*	*MTJZ 110*	*MTJ ECO 40*	*CTV/CTJ 90*	*CTV/CTJ 110*	*CTV/CTJ 145*	*CTV/CTJ 200*
+ 2×	Activation block with fixing screws	43243	52022	43247	43256	47827	63702	49030	49032	49031	40652	40652
	PNP NO Inductive switch only					40671						
2× + + 2× +	**PNP NO** Ind. switch with mounting elements	40680		48026	43233	48047	63705	45105	49039	49038	48058	53054
	PNP NC Inductive switch only					43570						
2× + + 2× +	**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

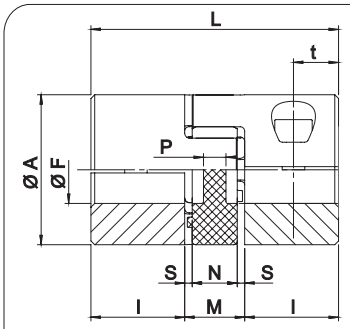
COUPLING - GESM14 - F8C - F14C

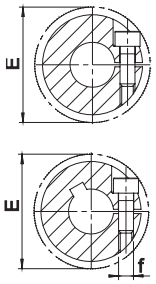
Coupling:

Coupling type / size:
7, 9, 14, 19/24, 24/28, 28/38, 38/45

Option:
C: with keyway
Leave blank: without keyway

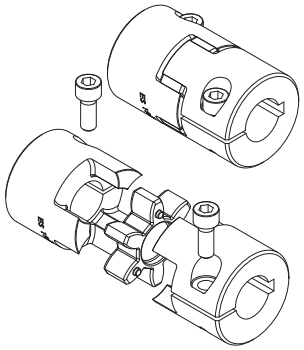
Hole diameter





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 W (Kg)	Hub J (Kgm^2)	n_{max} (min^{-1})	A (mm)	F (mm) [min]	F (mm) [max]	f (mm)	L (mm)	l (mm)	M (mm)	N (mm)	S (mm)	P (mm)	t (mm)	E (mm)
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!**

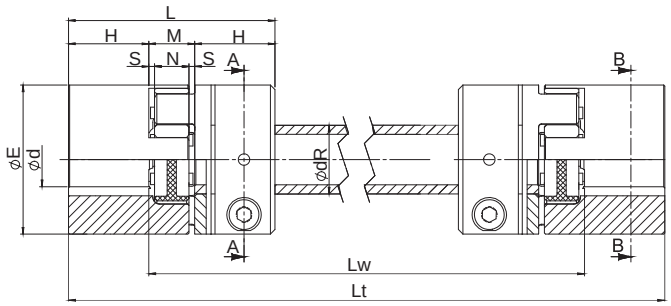
**for legend see page 7.025.0

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	ø35	ø38	ø40	ø42	ø45
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	158	166	174	187

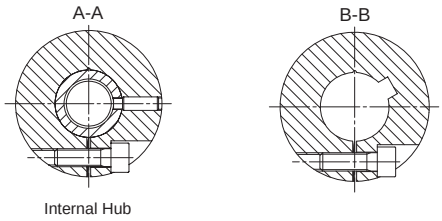
Ms	Screw tightening torque	Nm
W	Weight	Kg
J	Coupling moment of inertia	kgm^2
n_{max}	Maximum rpm	min^{-1}
T_{KN}	Coupling nominal torque	Nm
T_{kmax}	Coupling maximum torque	Nm

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

SYNCHRONISATION SHAFT OSL

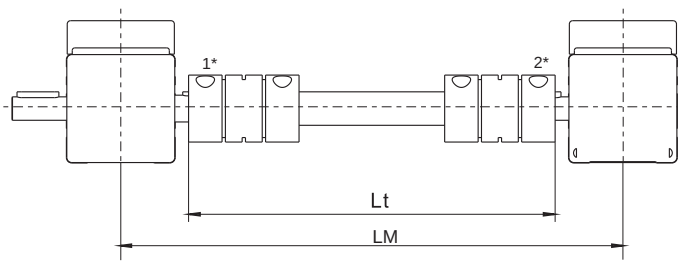


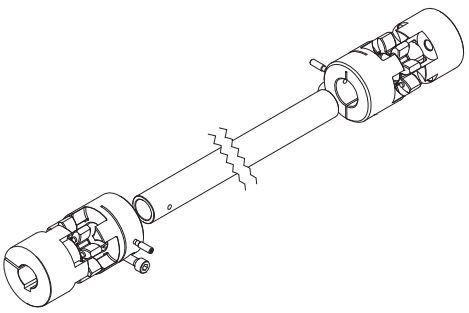
The maximum transmittable torque of the clamping hub depends on the bore diameter (see the upper table on page 7.025.0).



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^{-6}kg·m^2)
	Ms (Nm)	M_T (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

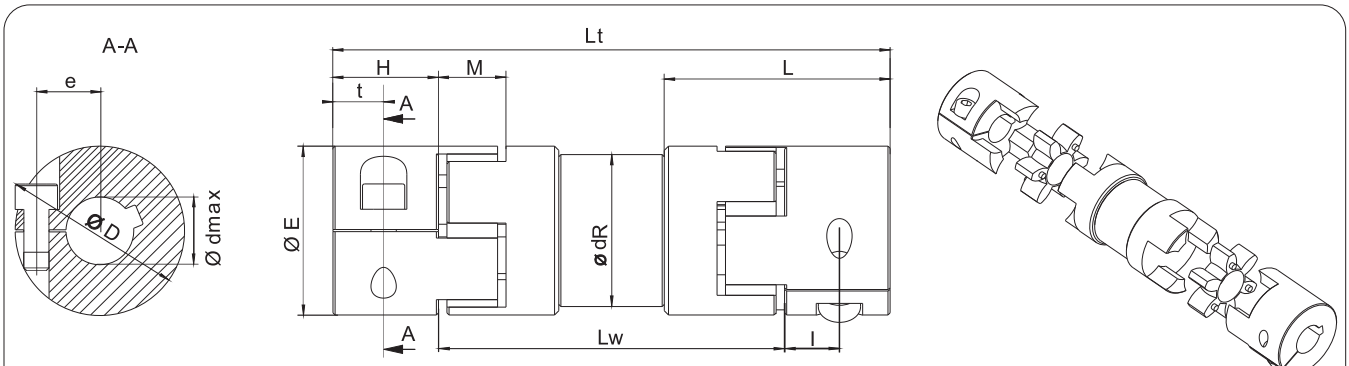




***** - see page 7.030.0 for more info

For longer distances Bearing Supports needed. Please contact us.

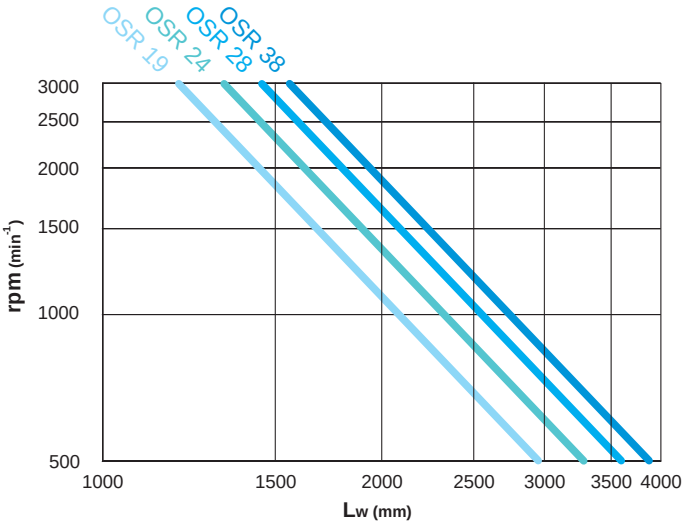
SYNCHRONISATION SHAFT OSR



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

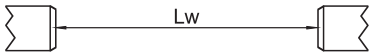
Size	d min (mm)	d max (mm)	Ms (Nm)	MT (Nm)	CT (Nm/rad)	E (mm)	H (mm)	l (mm)	L (mm)	M (mm)	Lw min (mm)	Lt (mm)	D (mm)	t (mm)	e (mm)	dR (mm)	Weight (kg)	Moment of inertia (10^{-6}kg·m^2)
19	10	20	10	39	1630	40	25	13	53,5	16	82	on request	47	12	15	36	0,30 + 0,00058·Lw	66,0 + 0,1679·Lw
24	10	28	10	53	3980	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
MT	Maximum transmissible torque	Nm
CT	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 lenghts available till 3m, for longer lengths please contact us.

HOW TO ORDER

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

Type:
OSL
OSR

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

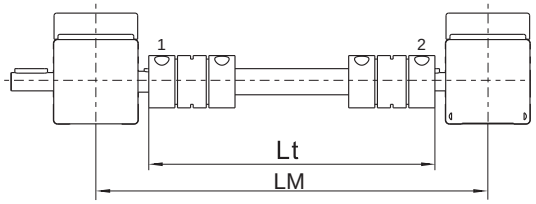
Linear unit series:
MTJ/MRJ/MTJ ECO: 40, 65, 80, 110
CTJ: 90, 110, 145, 200
Leave blank : not for linear unit

Length type:
LM (Middle distance of the linear units)
Lt (Production length of the sync. shaft)

Option:
C: with keyway
Leave blank: w/o keyway

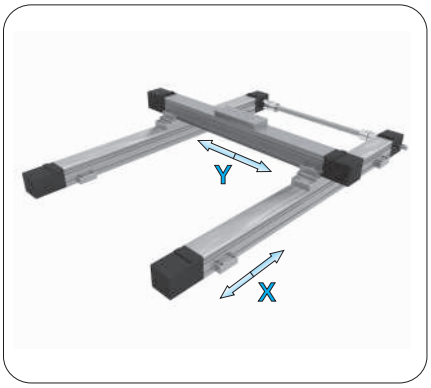
Hole diameter:
— one side end hub[1]
--- other side end hub[2]

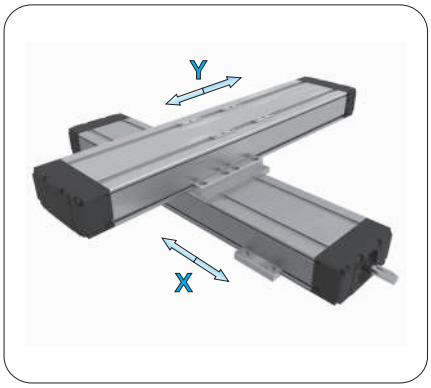
Length [mm]

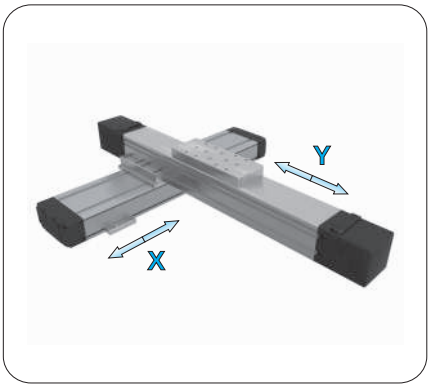


X-Y CONNECTION ELEMENTS

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

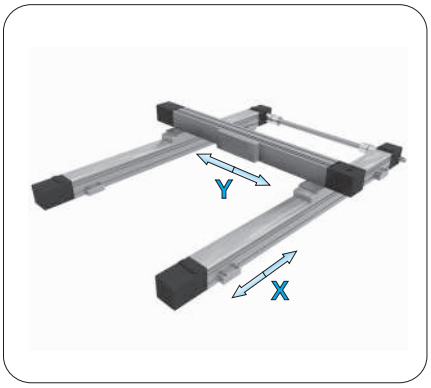


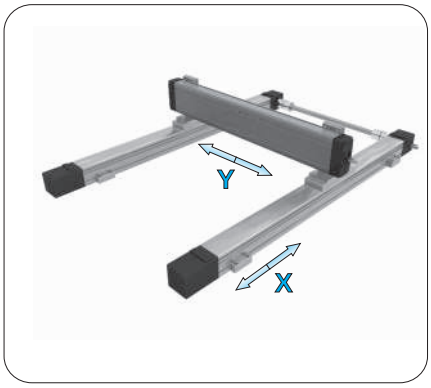


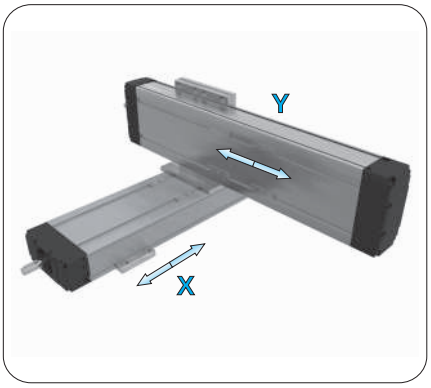


X-Axis	Y-Axis								
	MTJ, MRJ 40	MTJ, MRJ, MTV 65	MTJ, MRJ, MTV 80	MTJ, MRJ, MTV 110	MTJ 40 ECO	CTV, CTJ 90	CTV, CTJ 110	CTV, CTJ 145	CTV, CTJ 200
MTJ, MRJ 40	CP M40 0 M40 0	CP M40 0 M65 0			CP M40 0 E40 0	CP M40 0 C90 0			
MTJ, MRJ, MTV 65	CP M65 0 M40 0	CP M65 0 M65 0	CP M65 0 M80 0		CP M65 0 E40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



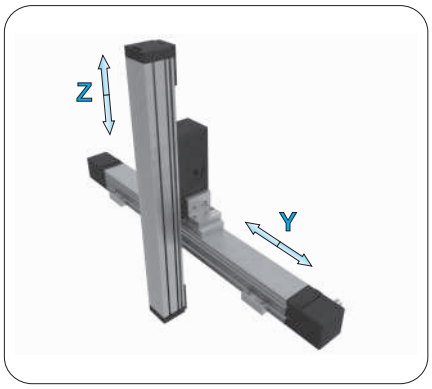


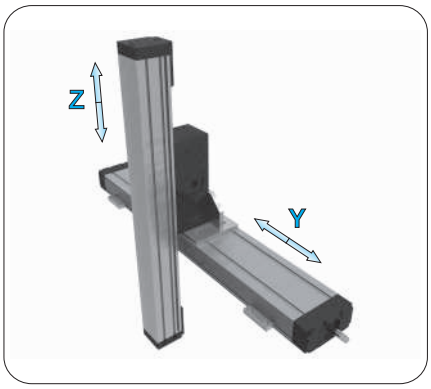


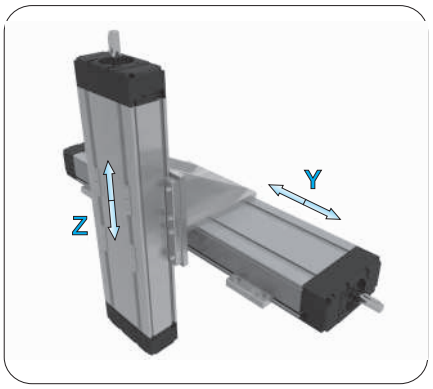
X-Axis	Y-Axis								
	MTJ, MRJ 40	MTJ, MRJ, MTV 65	MTJ, MRJ, MTV 80	MTJ, MRJ, MTV 110	MTJ 40 ECO	CTV, CTJ 90	CTV, CTJ 110	CTV, CTJ 145	CTV, CTJ 200
MTJ, MRJ 40	CP M40 0 M40 90	CP M40 0 M65 90			CP M40 0 E40 90	CP M40 0 C90 90			
MTJ, MRJ, MTV 65	CP M65 0 M40 90	CP M65 0 M65 90	CP M65 0 M80 90			CP M65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

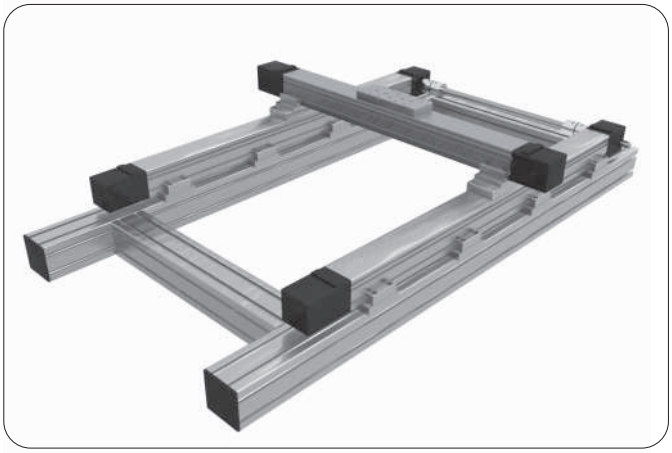


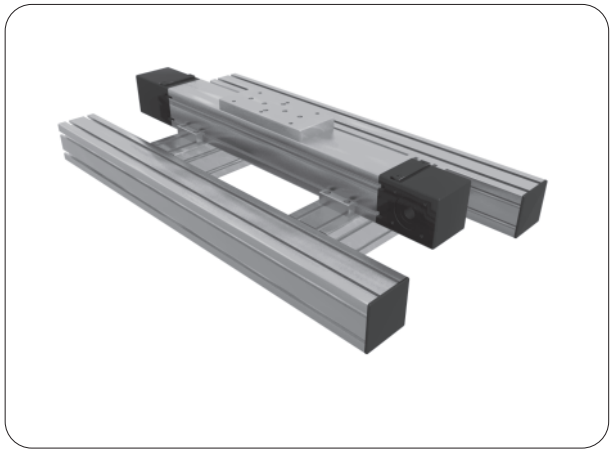




Y-Axis	Z-Axis									
	MTJZ 40	MTJZ 65	MTJZ 80	MTJZ 110	MTV 65	MTV 80	MTV 110	CTV 90	CTV 110	CTV 145
MTJ, MRJ 40	CP M40 0 Z40									
MTJ, MRJ, MTV 65	CP M65 0 Z40	CP M65 0 Z65			CP M65 0 ZM65					
MTJ, MRJ, MTV 80	CP M80 0 Z40	CP M80 0 Z65	CP M80 0 Z80		CP M80 0 ZM65	CP M80 0 ZM80				
MTJ, MRJ, MTV 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

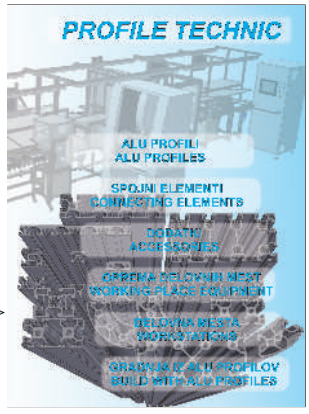
CONNECTION ELEMENTS FOR CUNSTRICTIONS WITH ALU PROFILES





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

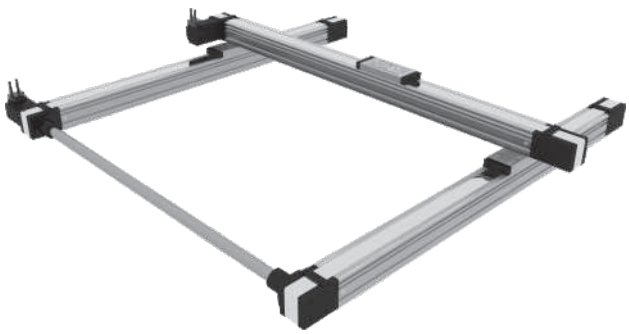
For more details about Alu profiles see PROFILE TECHNIC catalogue.



MULTI-AXIS SYSTEMS

We offer all neccessary 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.

1



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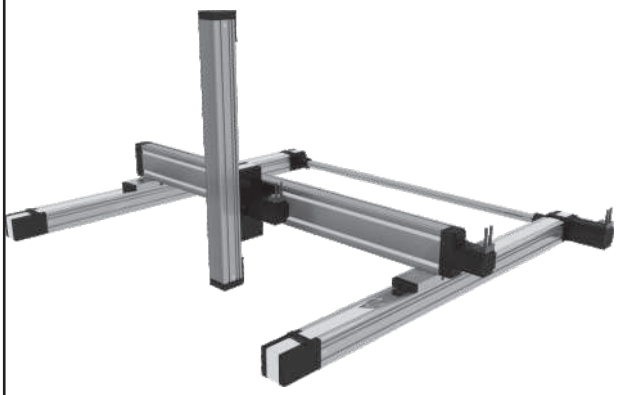

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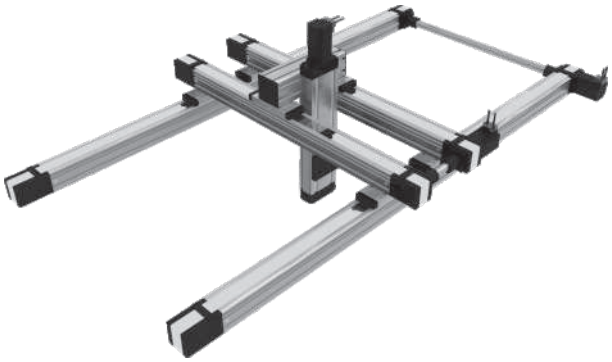

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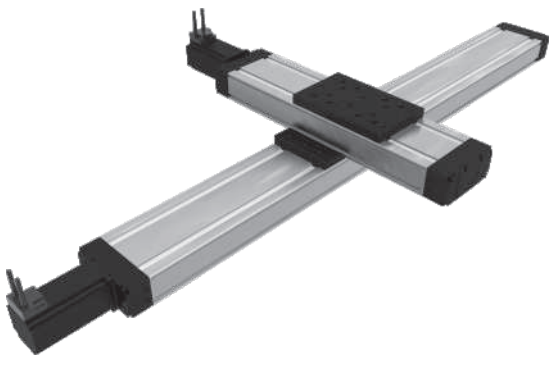

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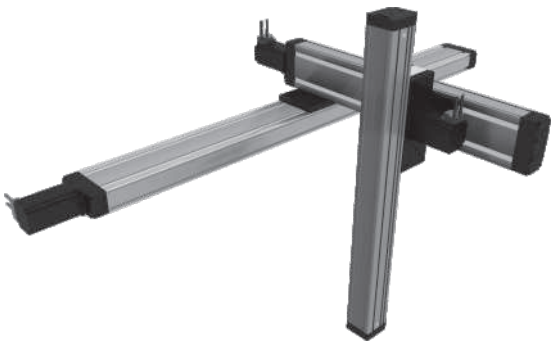
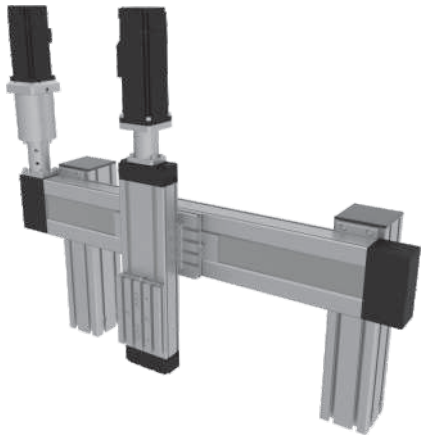


MULTI-AXIS SYSTEMS

7



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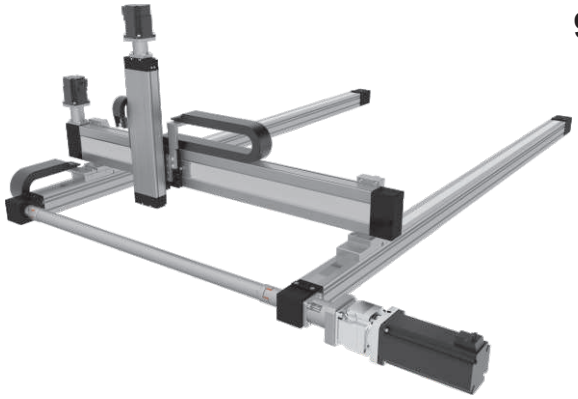

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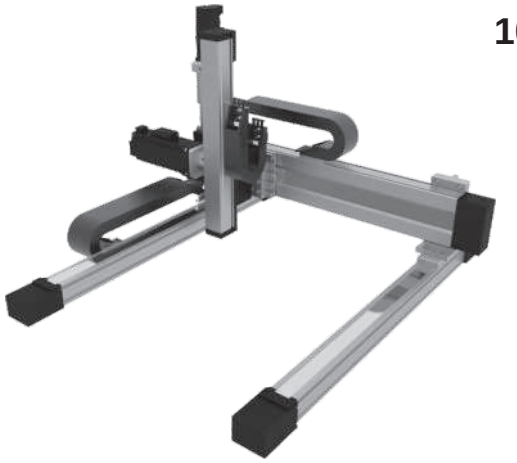
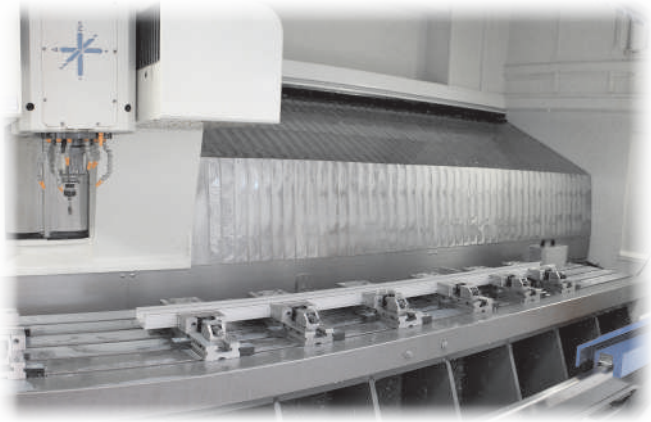
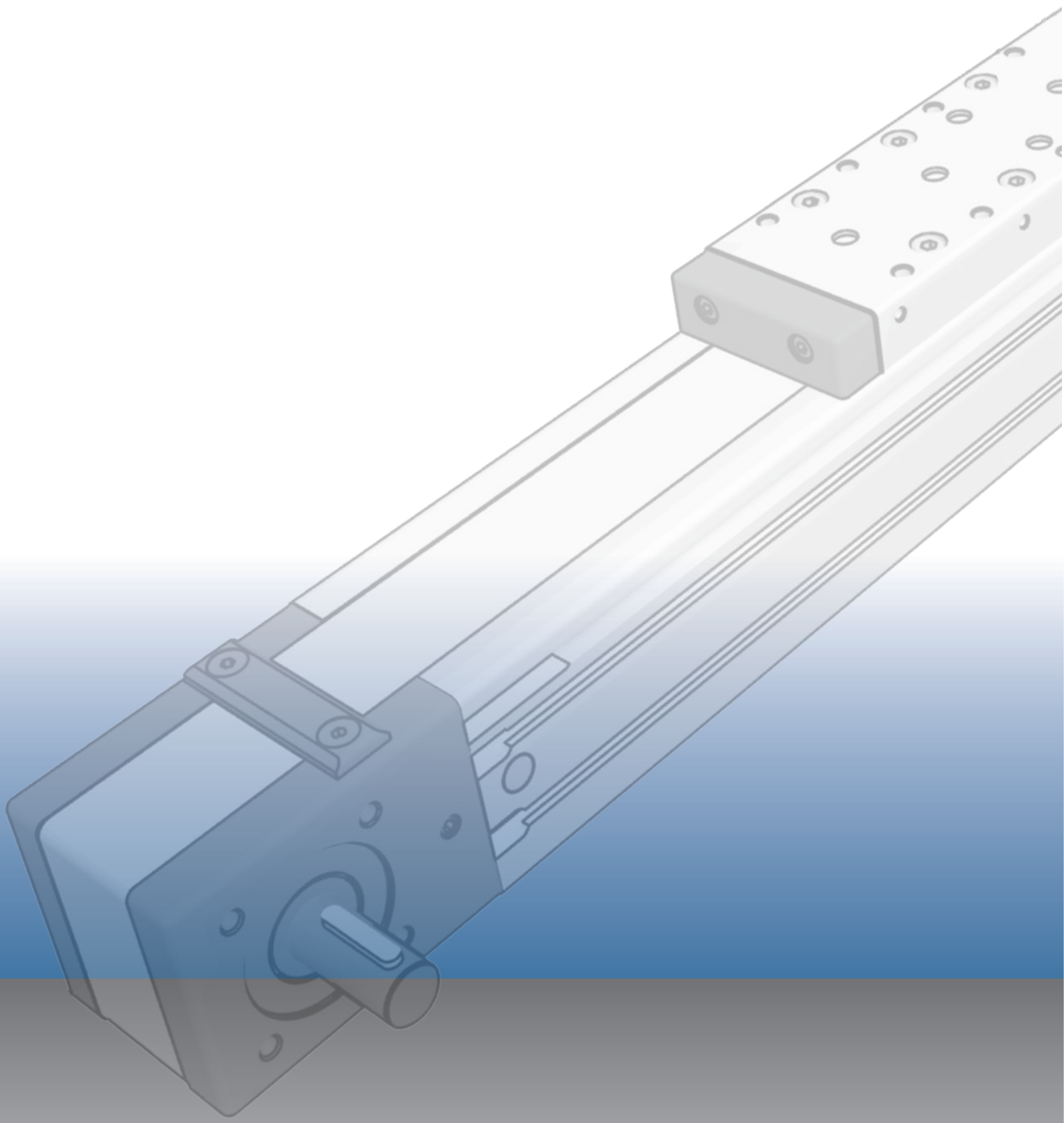


The calculation program “LINEAR UNITS SELECTION” enables fast and simple selection of a suitable linear axis based on your application data. As a result of the interpretation of this data, the program provides you with diverse information, e.g. driving torque, rotation speed, maximal process speed, durability 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.



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