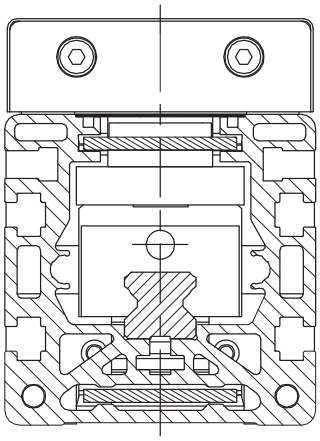
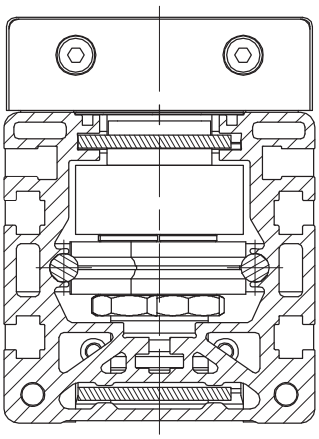
CHARACTERISTICS

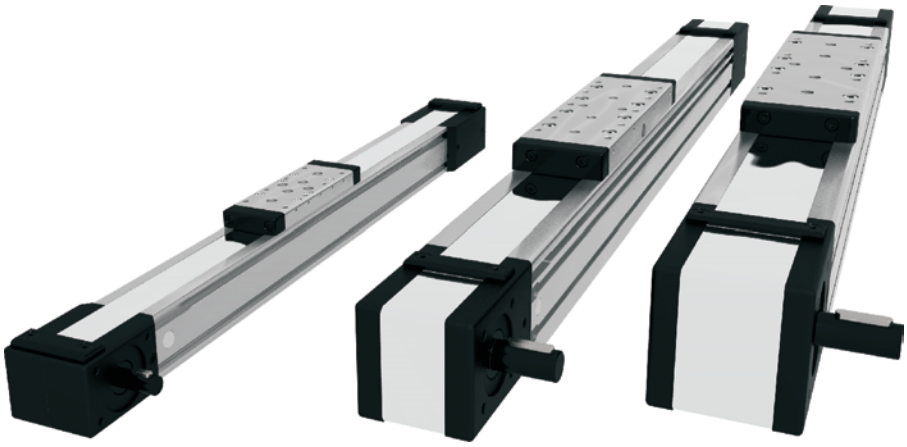
MTJ and **MRJ** Linear Units with toothed belt drive and compact dimensions provide high performance features such as, high speed, good accuracy and repeatability.
They can easily be combined to multi-axis systems.
Excellent price-/performance ratio and quick delivery time are ensured.
The compact, precision-extruded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



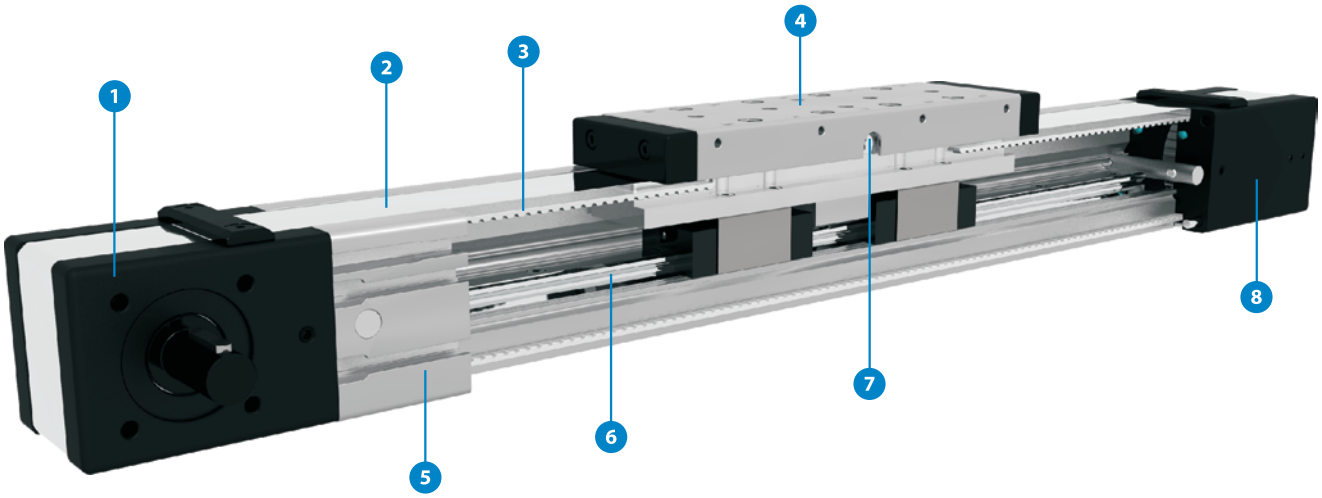


The aluminium profiles are manufactured according to the medium EN 12020-2 standard

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

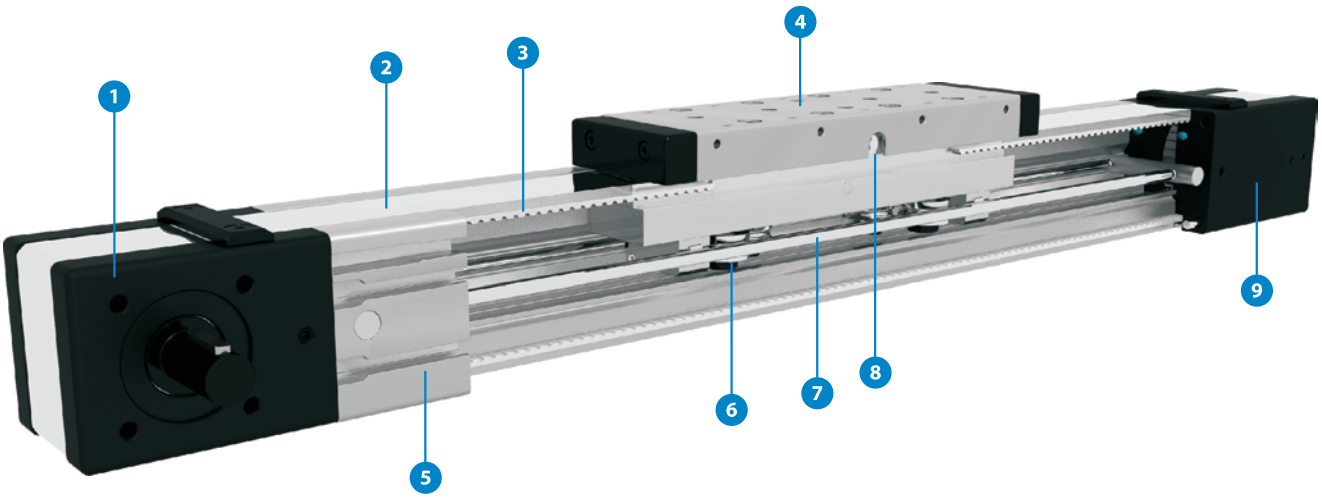
STRUCTURAL DESIGN

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

Linear Unit	Carriage length	Dynamic load capacity			Dynamic moment			Max. permissible loads					Moved mass	Max. Repeatability	* Max. length	* Max. stroke	** Min. stroke
								Forces		Moments							
	Lv [mm]	C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]	[kg]	[mm]	Lmax [mm]	[mm]	[mm]
MTJ 40	92	4610	/	/	28	90	90	3850	3850	14	75	75	0,28	± 0,08	3000	2876	25
MRJ 40	92	/	3400	1700	20	21	25	1015	1090	13	14	7,6	0,26	± 0,08	6000	5876	0

*For lengths / stroke over the stated value in the table above please contact us.
Values for max. stroke are not valied for double carriage
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

**For minimum stroke below the stated value in the table above please contact us.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

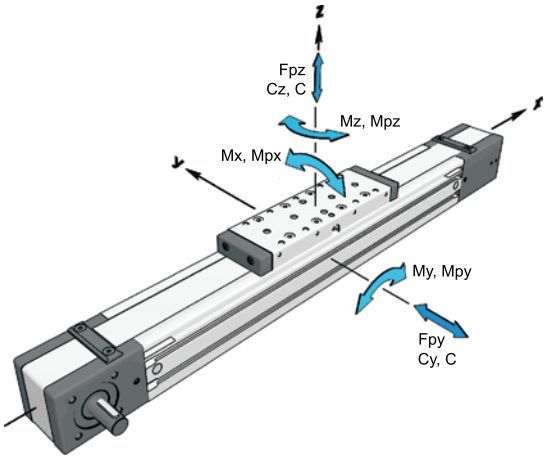
For operating temperature out of the presented range, please contact us.

Recommended values of loads

All the data of 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 :

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

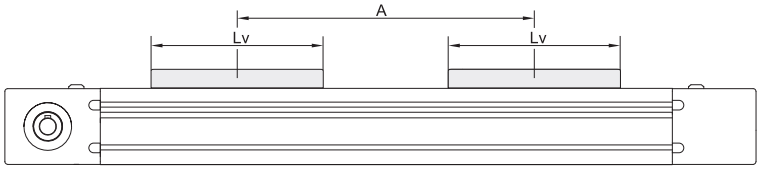


General technical data for double carriage

Linear Unit	Carriage version	Dynamic load capacity			* Dynamic moment			* Max. permissible loads				
								Forces		Moments		
		C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJ 40	2	9220	/	/	57	4,6 * A [mm]	4,6 * A [mm]	7690	7690	28	3,8 * A [mm]	3,8 * A [mm]
MRJ 40	2	/	6800	3400	40	1,7 * A [mm]	3,4 * A [mm]	2030	2180	26	1,1 * A [mm]	1,0 * A [mm]

*A - Distance between carriages. More info on following pages.

*Presented values are for informational purposes only. Exact values can be calculated using our sizing selection tool on Unimotion web site.
For grater number of carriages please contact us.*



Drive and belt data

Linear Unit	* Max. travel speed	Max. drive torque	** No load torque		Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmited by belt	Specific spring constant	* Max. acceleration
		Ma	With strip	Without strip						Cspec	
	[m / s]	[Nm]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]	[m/s^2]
MTJ 40	6	3,7	0,4	0,2	99	31,51	AT 3	20	235	225000	70
MRJ 40	10		0,4	0,2							

*Max. travel speed and max. acceleration of Linear unit with the Corrosion-resistant protection strip is 1,5 m/s and 50 m/s, respectively.
For travel speed and acceleration over the stated value in the table above or diagrams please contact us.

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

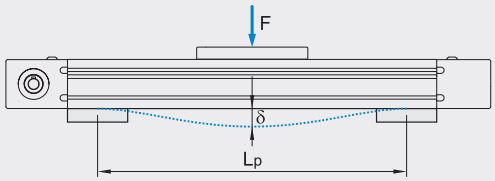
TECHNICAL DATA

Mass and mass moment of inertia

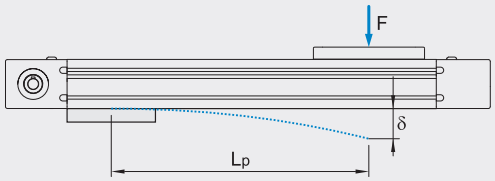
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg * m^2]	Planar moment of inertia Iy [cm^4]	Iz [cm^4]
MTJ 40	92	1,3 + 0,0024 * Stroke [mm]	9,7 + 0,0035 * Stroke [mm]	9,8	11,6
MRJ 40	92	1,25 + 0,0022 * Stroke [mm]	9,3 + 0,0035 * Stroke [mm]		

Deflection of the linear unit

Fixed - fixed mounting



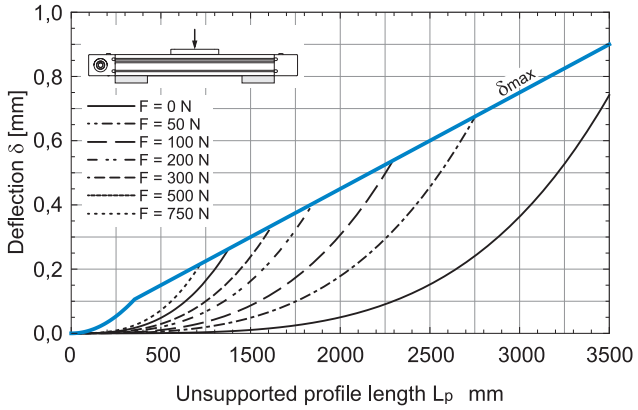
Fixed - free mounting

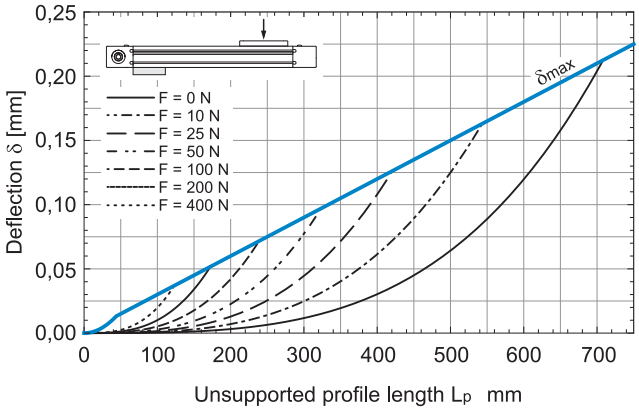


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

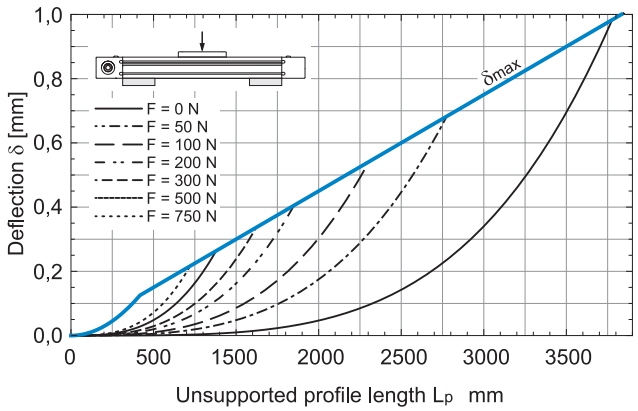
The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

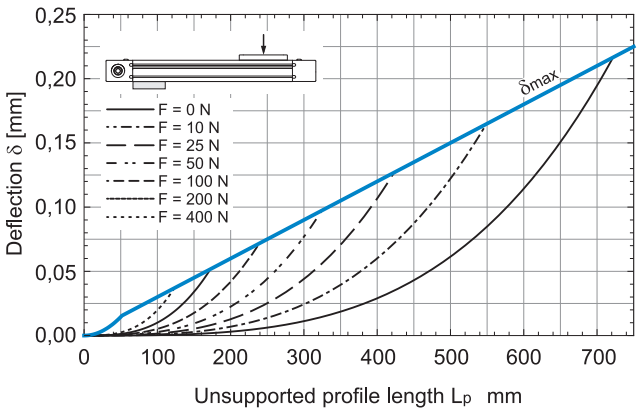
MTJ 40





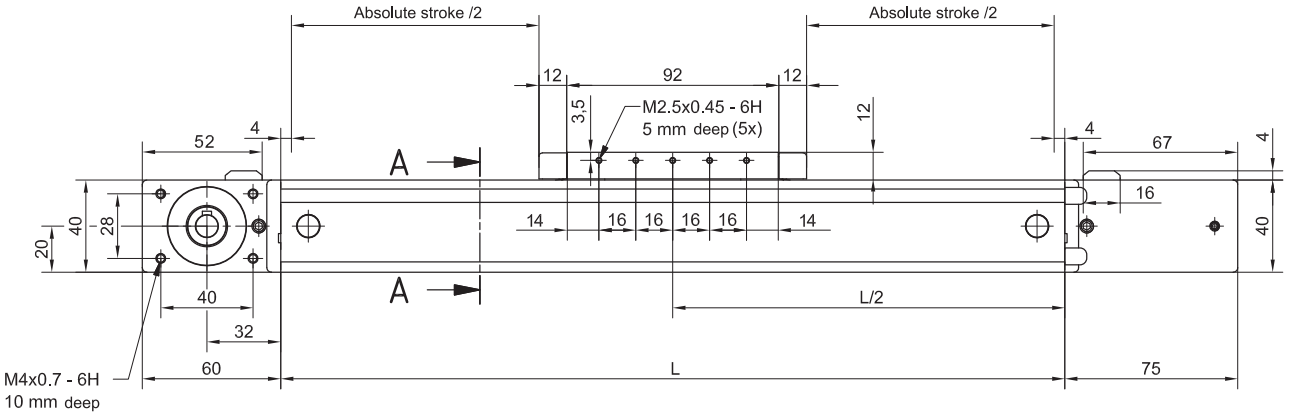
MRJ 40



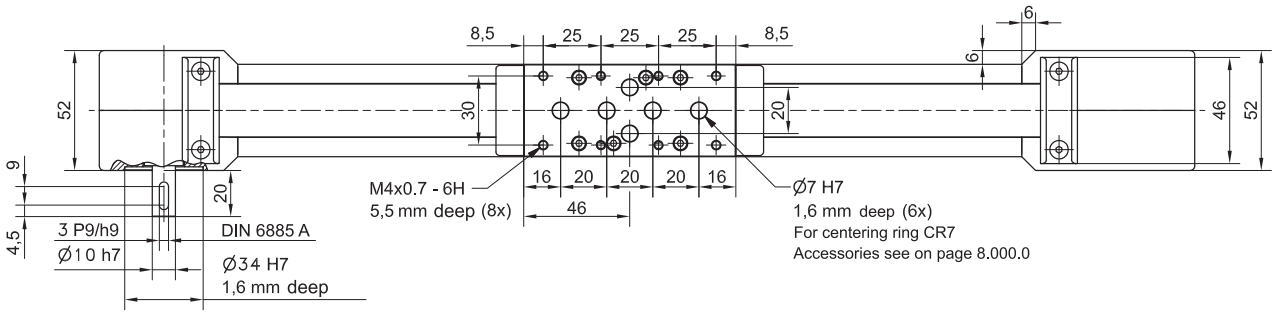


DIMENSIONS

Linear Unit doesn't include any safety stroke.
Absolute stroke = Effective stroke + 2 x Safety stroke



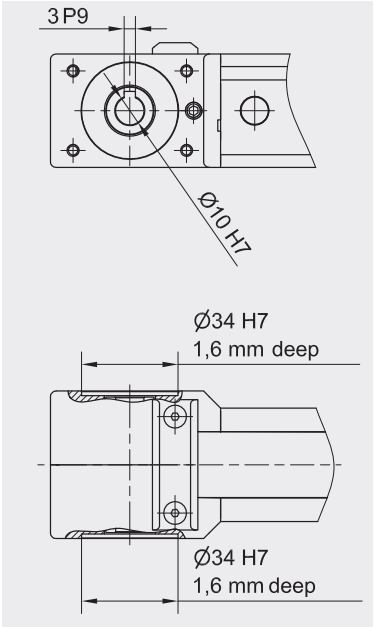
Lifetime lubricated!



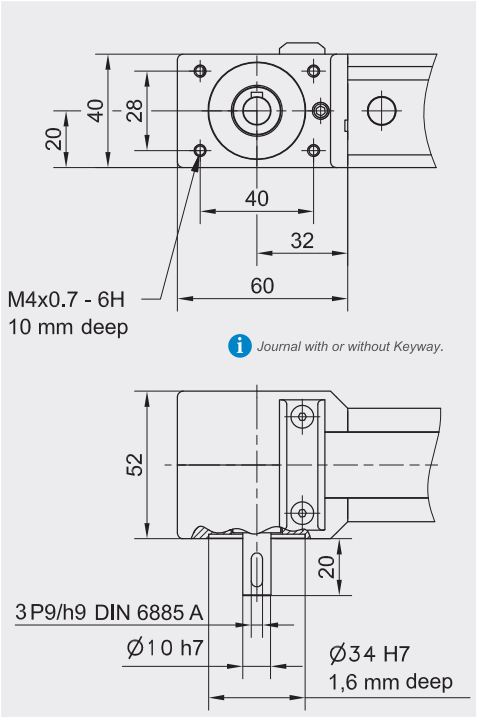
Journal with or without Keyway.

All dimensions in mm; Drawings scales are not equal.

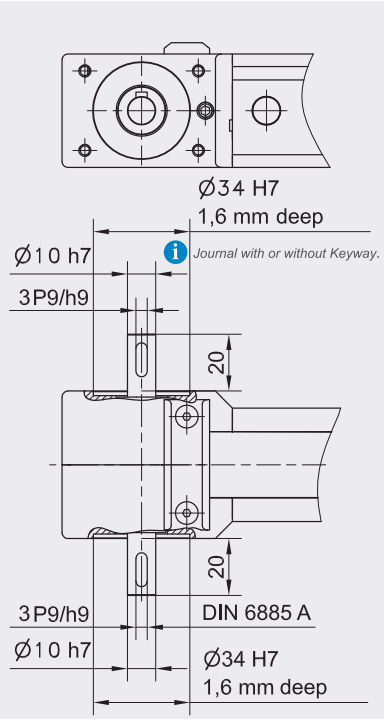
TYPE 0



TYPE 1 L and 1 R

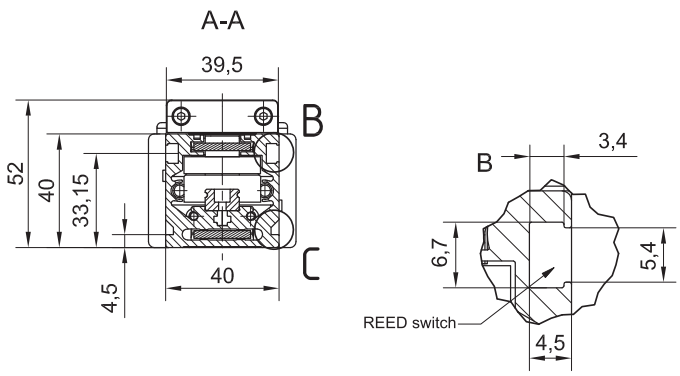


TYPE 2

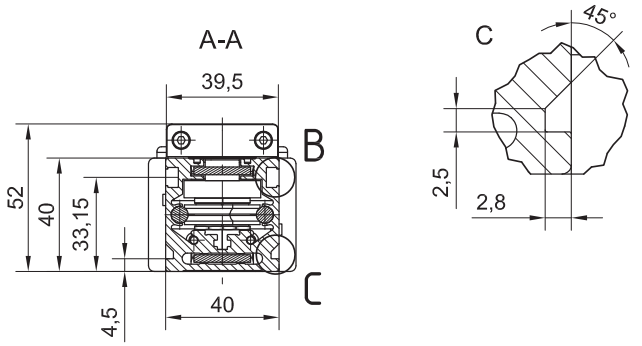


DIMENSIONS

MTJ 40

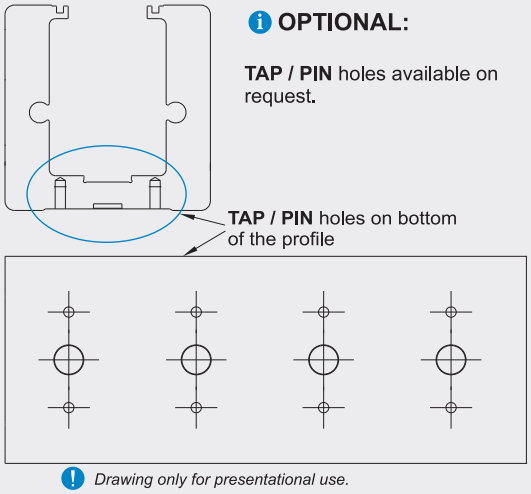


MRJ 40

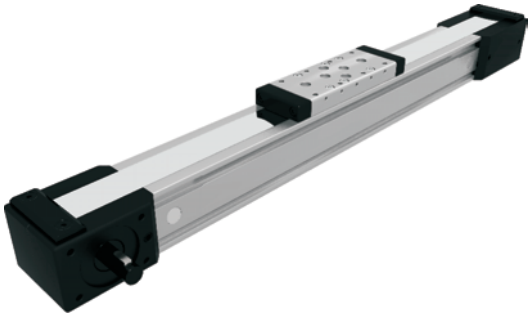


OPTIONAL:

TAP / PIN holes available on request.



Drawing only for presentational use.



All dimensions in mm; Drawings scales are not equal.

Mounting the drive

- by the **MOTOR ADAPTER WITH COUPLING** *(Page 8.020.0)*

Avalable on request.

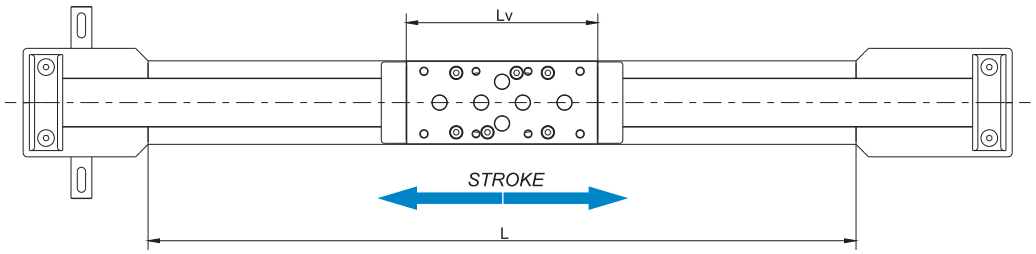
Defining of the linear unit length

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

Lv = 92 mm

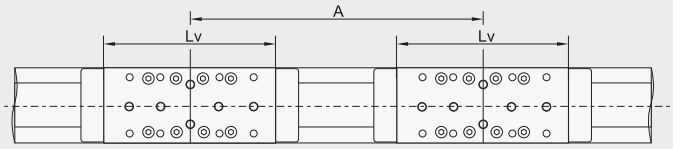
Ltotal = L + 135 mm

Left side (L)



Right side (R)

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

TECHNICAL DATA

General technical data

Linear Unit	Carriage length	Dynamic load capacity			Dynamic moment			Max. permissible loads					Moved mass	Max. Repeatability	* Max. length	* Max. stroke	** Min. stroke
								Forces		Moments							
	Lv [mm]	C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]	[kg]	[mm]	Lmax [mm]	[mm]	[mm]
MTJ 65 S	140	9900	/	/	79	59	59	3270	5100	34	34	34	1,00	± 0,08		5820	40
MTJ 65 L	190	19800	/	/	158	1025	1025	6540	10190	60	530	340	1,45	± 0,08	6000	5770	40
MRJ 65 L	190	/	8600	4400	74	186	425	1920	1470	25	62	95	1,31	± 0,08		5770	0

*For lengths / stroke over the stated value in the table above please contact us.
Values for max. stroke are not valied for double carriage
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

**For minimum stroke below the stated value in the table above please contact us.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

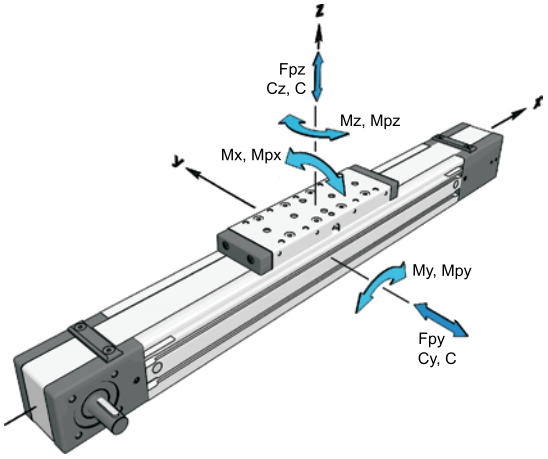
For operating temperature out of the presented range, please contact us.

Recommended values of loads

All the data of 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 :

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

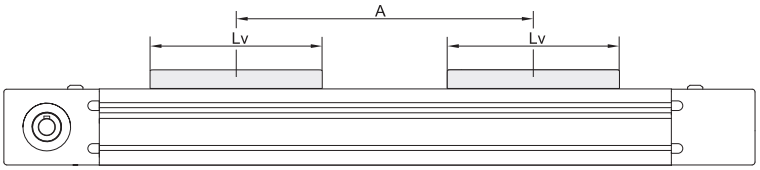


General technical data for double carriage

Linear Unit	Carriage version	Dynamic load capacity			* Dynamic moment			* Max. permissible loads				
								Forces		Moments		
		C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJ 65	S2	19800	/	/	158	9,9 * A [mm]	9,9 * A [mm]	6540	10190	68	5,1 * A [mm]	3,3 * A [mm]
MTJ 65	L2	39600	/	/	316	19,8 * A [mm]	19,8 * A [mm]	13080	20380	120	10,2 * A [mm]	6,5 * A [mm]
MRJ 65	L2	/	17200	8800	148	4,4 * A [mm]	8,6 * A [mm]	3850	2940	50	1,5 * A [mm]	1,9 * A [mm]

*A - Distance between carriages. More info on following pages.

*Presented values are for informational purposes only. Exact values can be calculated using our sizing selection tool on Unimotion web site.
For grater number of carriages please contact us.*



Drive and belt data

Linear Unit	* Max. travel speed	Max. drive torque	** No load torque		Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmited by belt	Specific spring constant	* Max. acceleration
		Ma	With strip	Without strip						Cspec	
	[m / s]	[Nm]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]	[m/s²]
MTJ 65 S	6	13,1	1,1	0,8	165	52,52	AT 5	32	500	600000	70
MTJ 65 L			1,2	0,9							
MRJ 65 L	10		1	0,7							

*Max. travel speed and max. acceleration of Linear unit with the Corrosion-resistant protection strip is 1,5 m/s and 50 m/s, respectively.
For travel speed and acceleration over the stated value in the table above or diagrams please contact us.

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

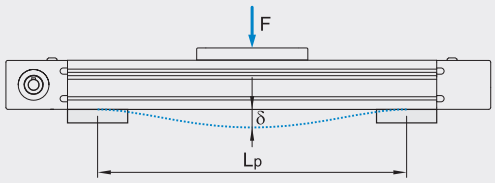
TECHNICAL DATA

Mass and mass moment of inertia

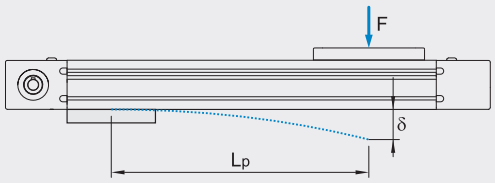
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg * m^2]	Planar moment of inertia Iy [cm^4]	Planar moment of inertia Iz [cm^4]
MTJ 65 S	140	4 + 0,0055 * Stroke [mm]	98,4 + 0,0154 * Stroke [mm]	59,7	74,4
MTJ 65 L	190	4,6 + 0,0055 * Stroke [mm]	130,1 + 0,0154 * Stroke [mm]		
MRJ 65 L	190	4,3 + 0,0047 * Stroke [mm]	120,4 + 0,0154 * Stroke [mm]		

Deflection of the linear unit

Fixed - fixed mounting



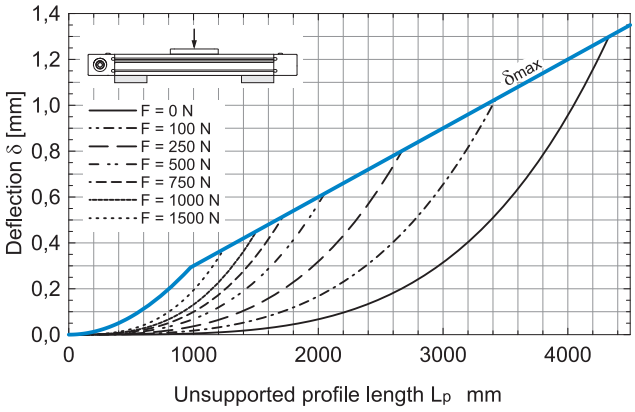
Fixed - free mounting

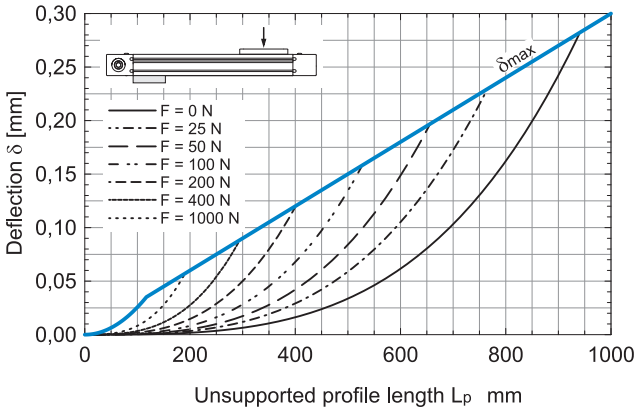


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

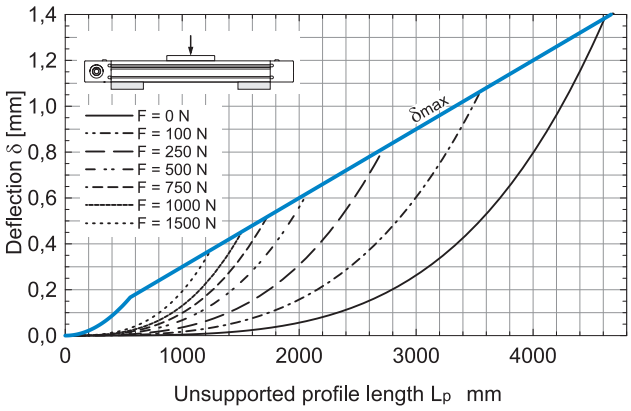
The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

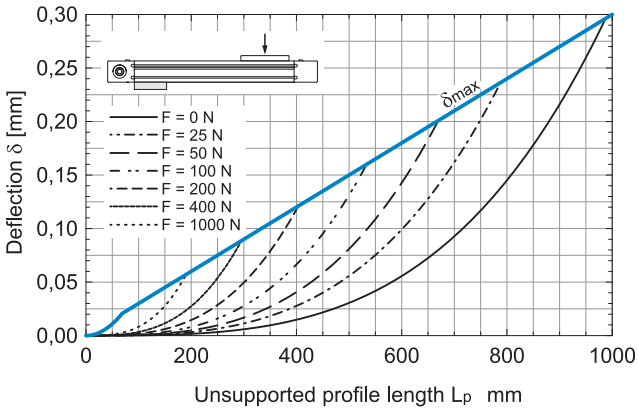
MTJ 65



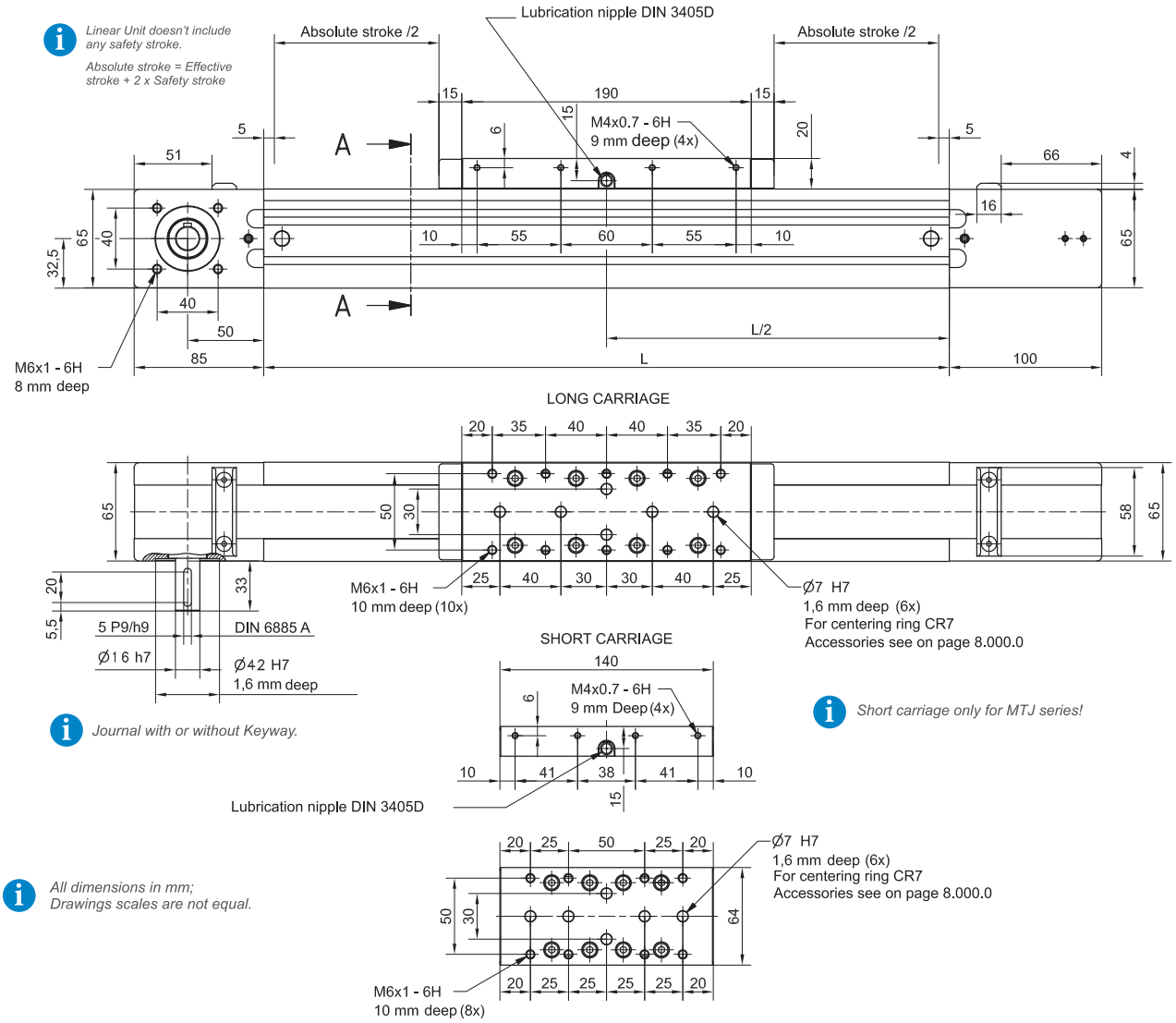


MRJ 65

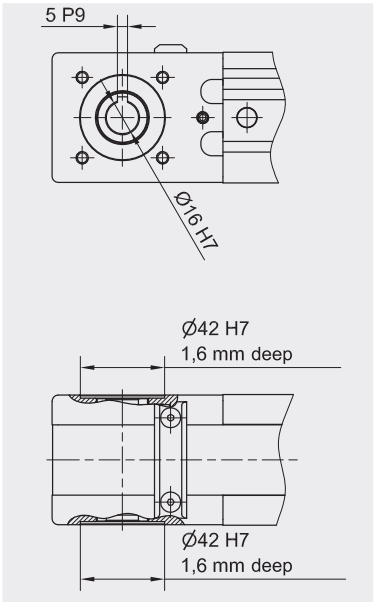




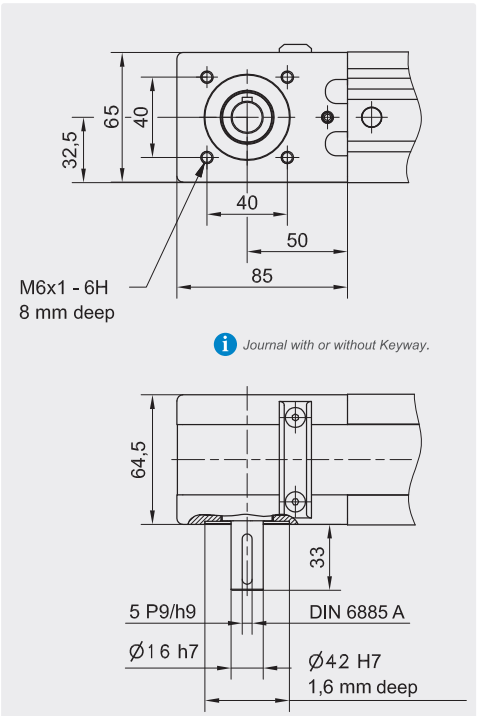
DIMENSIONS



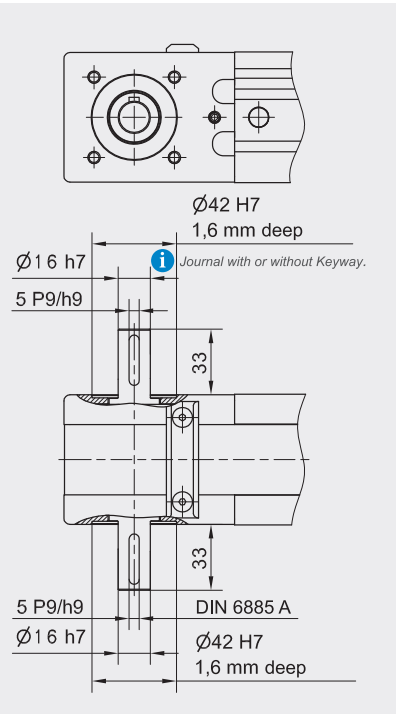
TYPE 0



TYPE 1 L and 1 R

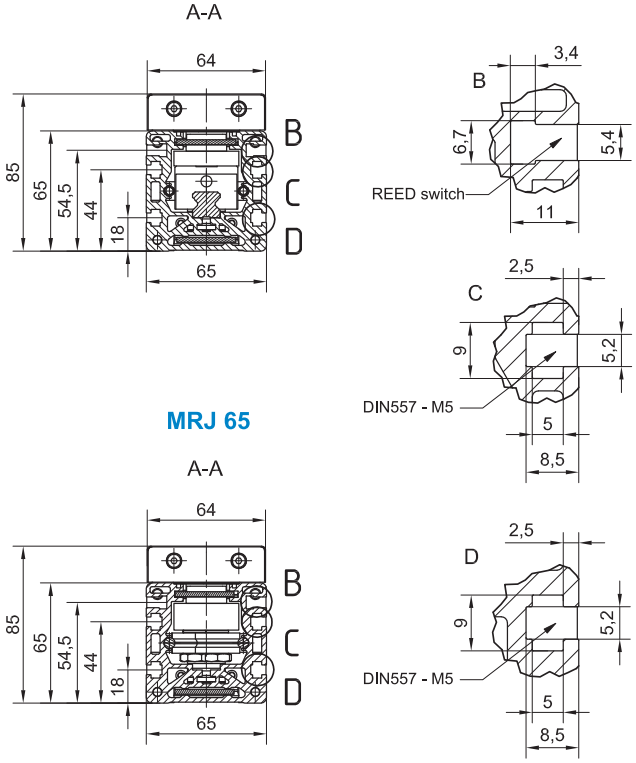


TYPE 2



DIMENSIONS

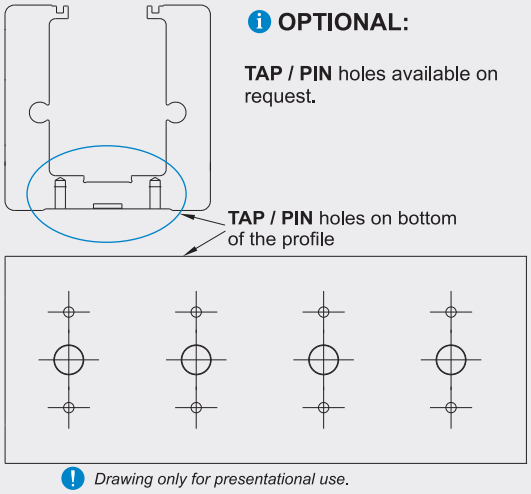
MTJ 65



MRJ 65

OPTIONAL:

TAP / PIN holes available on request.



Drawing only for presentational use.

All dimensions in mm; Drawings scales are not equal.

Mounting the drive

- by the **MOTOR ADAPTER WITH COUPLING** *(Page 8.020.0)*

Avalable on request.

Defining of the linear unit length

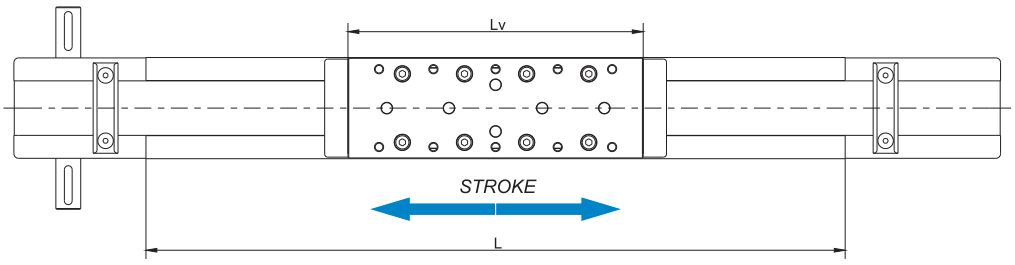
L = Effective stroke + 2 × Safety stroke + Lv + 40 mm

Ltotal = L + 185 mm

Lv - Long carriage = 190 mm

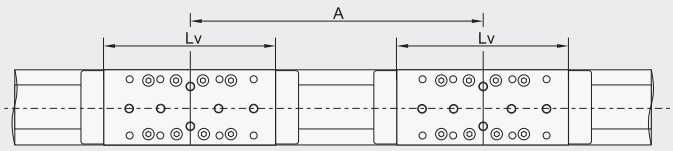
Lv - Short carriage = 140 mm

Left side (L)



Right side (R)

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

TECHNICAL DATA

General technical data

Linear Unit	Carriage length	Dynamic load capacity			Dynamic moment			Max. permissible loads					Moved mass	Max. Repeatability	* Max. length	* Max. stroke	** Min. stroke
								Forces		Moments							
	Lv [mm]	C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]	[kg]	[mm]	Lmax [mm]	[mm]	[mm]
MTJ 80 S	170	17100	/	/	185	130	130	4470	7530	110	122	100	1,72	± 0,08	6000	5788	55
MTJ 80 L	260	34200	/	/	370	2565	2565	8930	15060	150	1130	670	2,72	± 0,08		5698	55
MRJ 80 L	260	/	17100	9000	198	511	1145	3400	1760	39	101	228	2,73	± 0,08		5698	0

*For lengths / stroke over the stated value in the table above please contact us.
Values for max. stroke are not valied for double carriage
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

**For minimum stroke below the stated value in the table above please contact us.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

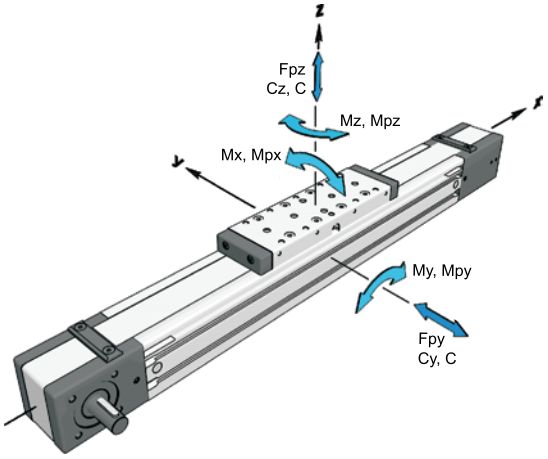
For operating temperature out of the presented range, please contact us.

Recommended values of loads

All the data of 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 :

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

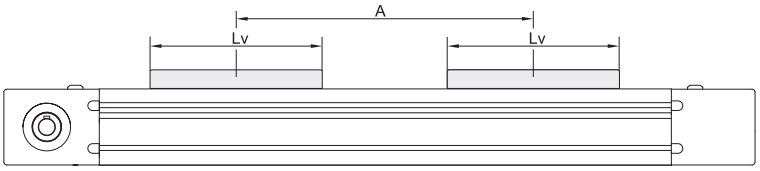


General technical data for double carriage

Linear Unit	Carriage version	Dynamic load capacity			* Dynamic moment			* Max. permissible loads				
								Forces		Moments		
		C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJ 80	S2	34200	/	/	370	17,1 * A [mm]	17,1 * A [mm]	8930	15060	220	7,5 * A [mm]	4,5 * A [mm]
MTJ 80	L2	68400	/	/	740	34,2 * A [mm]	34,2 * A [mm]	17860	30130	300	15,1 * A [mm]	8,9 * A [mm]
MRJ 80	L2	/	34200	18000	396	9,0 * A [mm]	17,1 * A [mm]	6800	3530	78	1,8 * A [mm]	3,4 * A [mm]

*A - Distance between carriages. More info on following pages.

*Presented values are for informational purposes only. Exact values can be calculated using our sizing selection tool on Unimotion web site.
For grater number of carriages please contact us.*



Drive and belt data

Linear Unit	* Max. travel speed	Max. drive torque	** No load torque		Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmited by belt	Specific spring constant	* Max. acceleration
		Ma	With strip	Without strip						Cspec	
	[m / s]	[Nm]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]	[m/s²]
MTJ 80 S	6	29,4	1,5	1,2	210	66,84	AT 5	50	880	960000	70
MTJ 80 L			1,7	1,4							
MRJ 80 L	10		1,4	1,1							

*Max. travel speed and max. acceleration of Linear unit with the Corrosion-resistant protection strip is 1,5 m/s and 50 m/s, respectively.
For travel speed and acceleration over the stated value in the table above or diagrams please contact us.

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

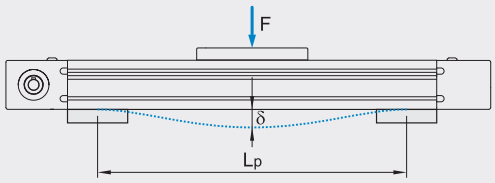
TECHNICAL DATA

Mass and mass moment of inertia

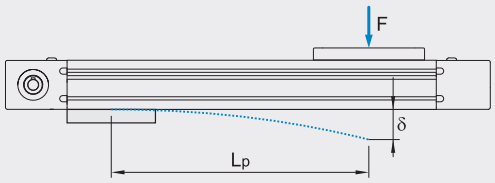
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg * m^2]	Planar moment of inertia Iy [cm^4]	Planar moment of inertia Iz [cm^4]
MTJ 80 S	170	6,8 + 0,0085 * Stroke [mm]	310,6 + 0,0391 * Stroke [mm]	129,1	173,4
MTJ 80 L	260	8,4 + 0,0085 * Stroke [mm]	423,3 + 0,0391 * Stroke [mm]		
MRJ 80 L	260	8,2 + 0,0075 * Stroke [mm]	424,4 + 0,0391 * Stroke [mm]		

Deflection of the linear unit

Fixed - fixed mounting



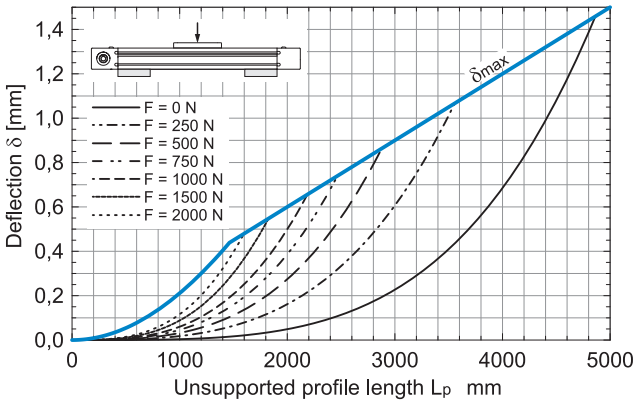
Fixed - free mounting

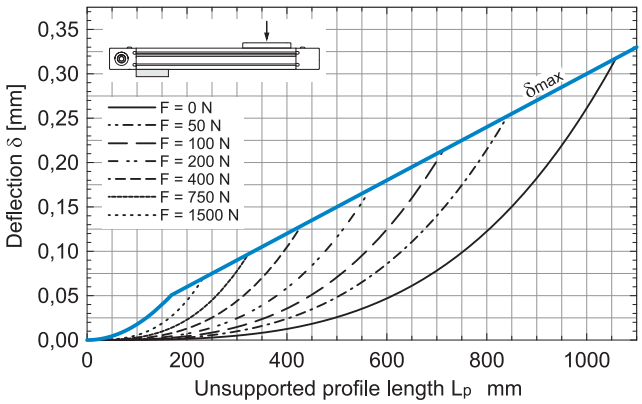


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

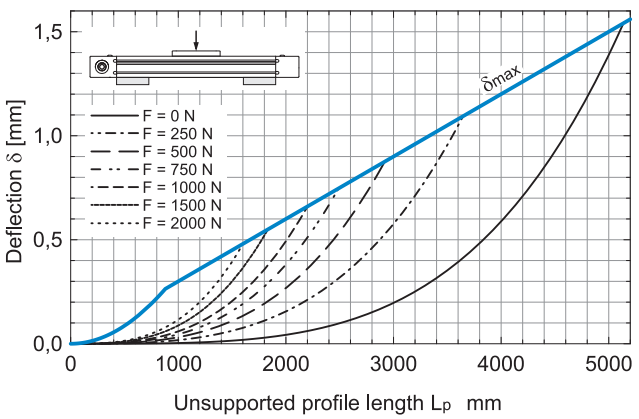
The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

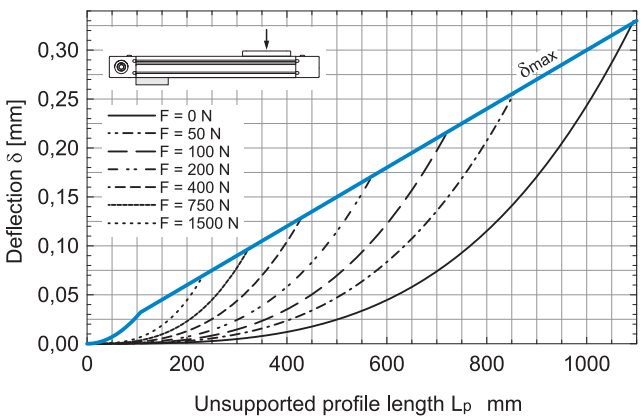
MTJ 80



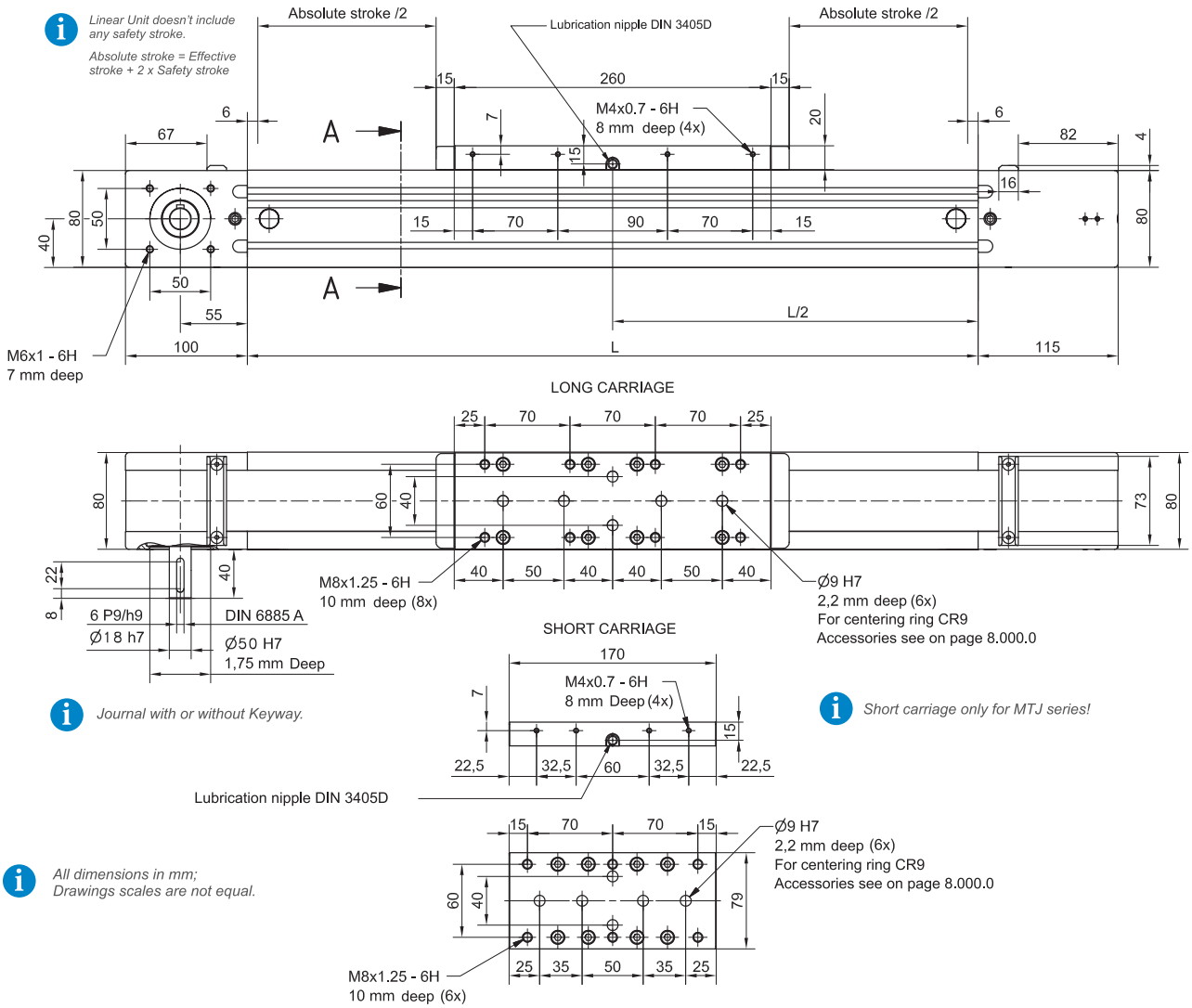


MRJ 80

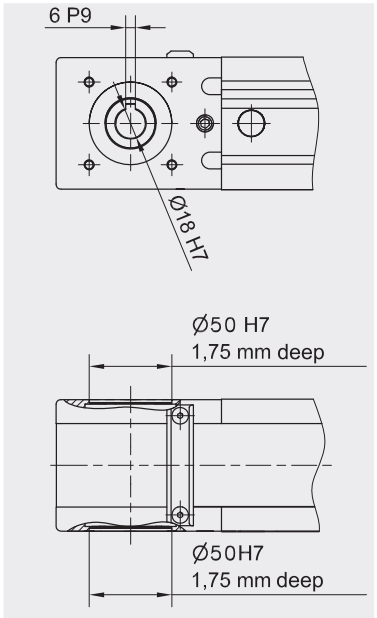




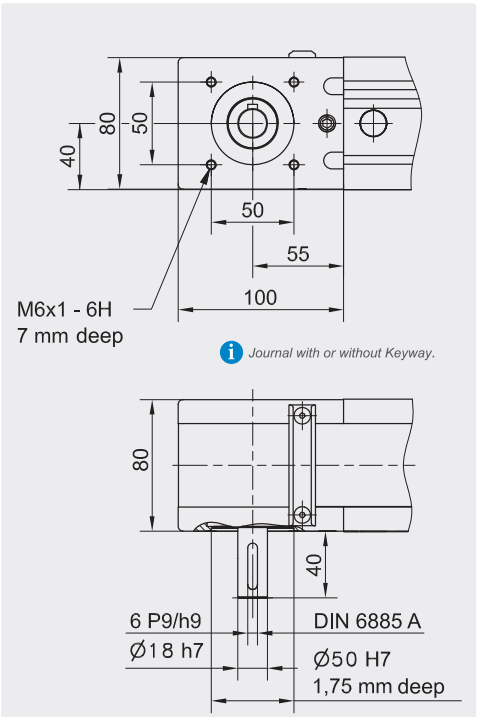
DIMENSIONS



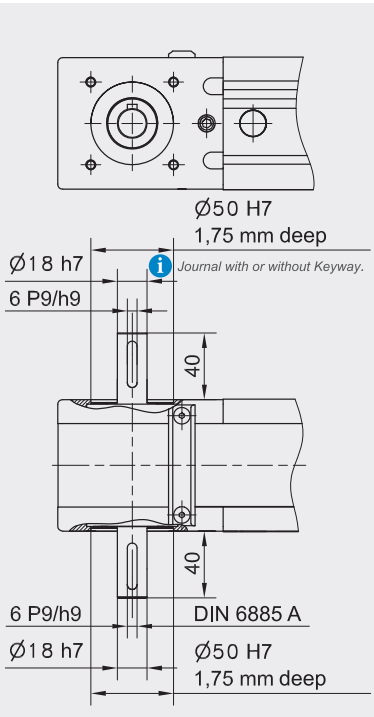
TYPE 0



TYPE 1 L and 1 R

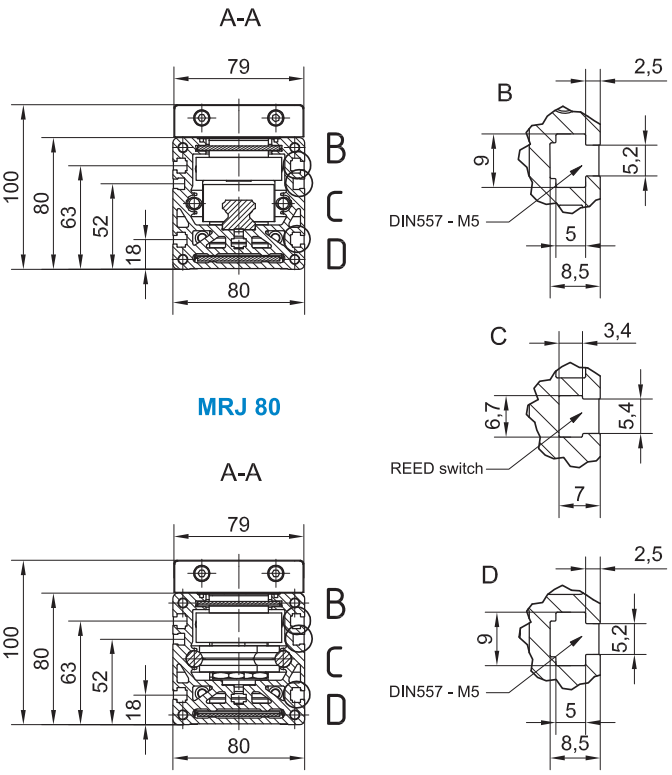


TYPE 2



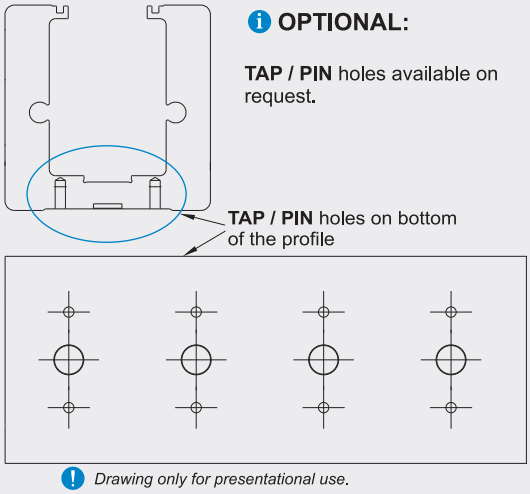
DIMENSIONS

MTJ 80



MRJ 80

All dimensions in mm; Drawings scales are not equal.



Drawing only for presentational use.

Mounting the drive

- by the **MOTOR ADAPTER WITH COUPLING** *(Page 8.020.0)*

Avalable on request.

Defining of the linear unit length

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

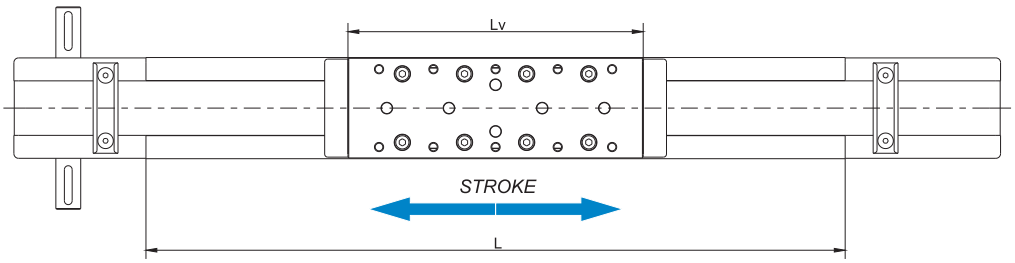
Ltotal = L + 215 mm

Lv - Long carriage = 260 mm

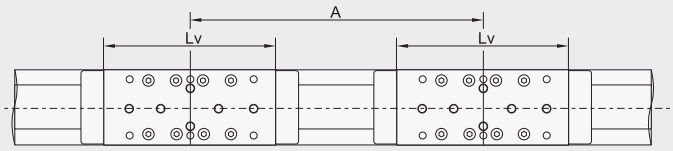
Lv - Short carriage = 170 mm

Left side (L)

Right side (R)



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

TECHNICAL DATA

General technical data

Linear Unit	Carriage length	Dynamic load capacity			Dynamic moment			Max. permissible loads					Moved mass	Max. Repeatability	* Max. length	* Max. stroke	** Min. stroke
								Forces		Moments							
	Lv [mm]	C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]	[kg]	[mm]	Lmax [mm]	[mm]	[mm]
MTJ 110 S	240	24800	/	/	315	220	220	5000	10130	135	180	100	3,25	± 0,08	6000	5748	65
MTJ 110 L	330	49600	/	/	630	3840	3840	10000	20260	295	1570	775	4,61	± 0,08		5658	65
MRJ 110 L	330	/	31000	14000	406	877	2325	6200	3410	99	214	465	4,78	± 0,08		5658	0

*For lengths / stroke over the stated value in the table above please contact us.
Values for max. stroke are not valied for double carriage
(equation of defining the linear unit length for particular size of the linear unit needs to be used).

**For minimum stroke below the stated value in the table above please contact us.

Operating conditions	
Operating temp.	0°C ~ +60°C
Duty cycle	100%

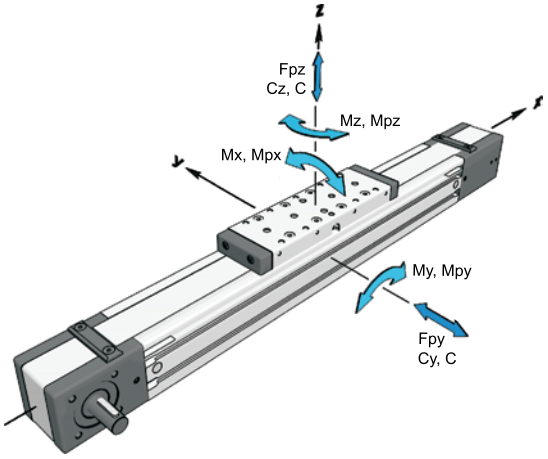
For operating temperature out of the presented range, please contact us.

Recommended values of loads

All the data of 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 :

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

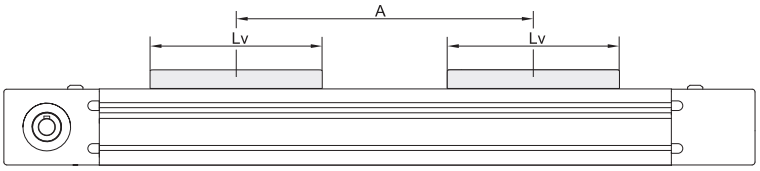


General technical data for double carriage

Linear Unit	Carriage version	Dynamic load capacity			* Dynamic moment			* Max. permissible loads				
								Forces		Moments		
		C [N]	Cy [N]	Cz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	Fpy [N]	Fpz [N]	Mpx [Nm]	Mpy [Nm]	Mpz [Nm]
MTJ 110	S2	49600	/	/	630	24,8 * A [mm]	24,8 * A [mm]	10000	20260	270	10,1 * A [mm]	5,0 * A [mm]
MTJ 110	L2	99200	/	/	1260	49,6 * A [mm]	49,6 * A [mm]	20000	40520	590	20,3 * A [mm]	10,0 * A [mm]
MRJ 110	L2	/	62000	28000	812	14,0 * A [mm]	31,0 * A [mm]	12400	6830	198	3,4 * A [mm]	6,2 * A [mm]

*A - Distance between carriages. More info on following pages.

*Presented values are for informational purposes only. Exact values can be calculated using our sizing selection tool on Unimotion web site.
For grater number of carriages please contact us.*



Drive and belt data

Linear Unit	* Max. travel speed	Max. drive torque	** No load torque		Puley drive ratio	Pulley diameter	Belt type	Belt width	Max. force transmited by belt	Specific spring constant	* Max. acceleration
		Ma	With strip	Without strip						Cspec	
	[m / s]	[Nm]	[Nm]	[Nm]	[mm / rev]	[mm]		[mm]	[N]	[N]	[m/s^2]
MRJ 110 L	10	68,5 mit Passfedernut 82,6 ohne Passfedernut	2,2	2	300	95,49	AT 10	50	1730	2145000	70
MTJ 110 S	6		2,2	2							
MTJ 110 L			2,7	3							

*Max. travel speed and max. acceleration of Linear unit with the Corrosion-resistant protection strip is 1,5 m/s and 50 m/s, respectively.
For travel speed and acceleration over the stated value in the table above or diagrams please contact us.

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

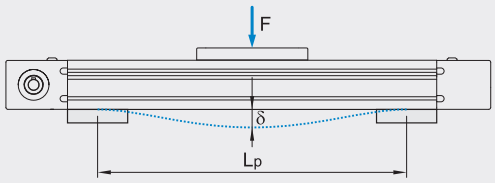
TECHNICAL DATA

Mass and mass moment of inertia

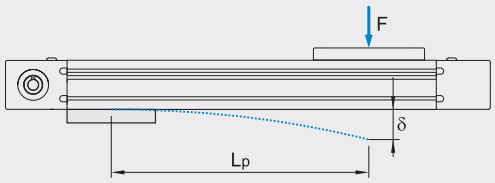
Linear Unit	Carriage length Lv [mm]	Mass of linear unit [kg]	Mass moment of inertia [10^{-5} kg * m^2]	Planar moment of inertia Iy [cm^4]	Planar moment of inertia Iz [cm^4]
MTJ 110 S	240	15 + 0,015 * Stroke [mm]	1065,0 + 0,1370 * Stroke [mm]	513,0	620,0
MTJ 110 L	330	17,7 + 0,015 * Stroke [mm]	1381,0 + 0,1370 * Stroke [mm]		
MRJ 110 L	330	16,3 + 0,0133 * Stroke [mm]	1420,0 + 0,1370 * Stroke [mm]		

Deflection of the linear unit

Fixed - fixed mounting



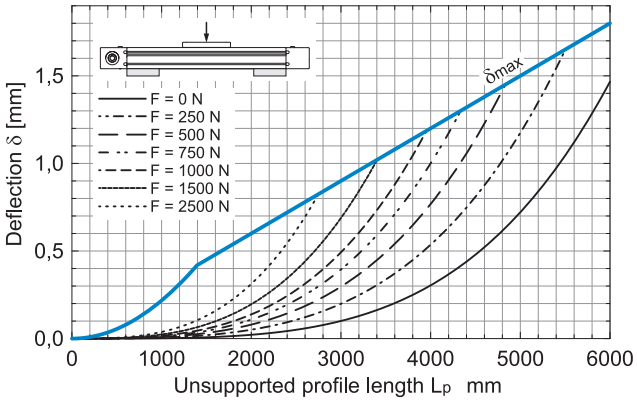
Fixed - free mounting

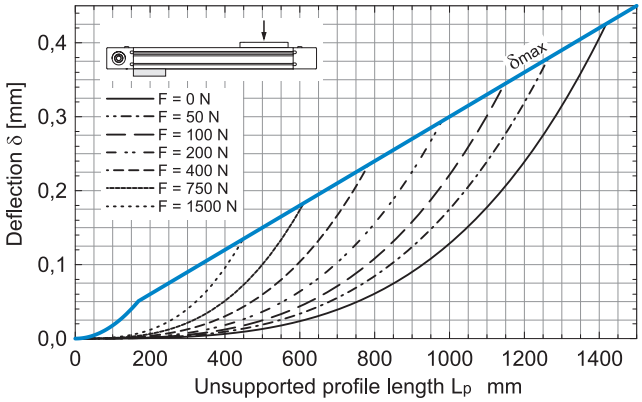


δ Maximum deflection of the linear unit [mm]
δmax Maximum permissible deflection of the linear unit [mm]
F Applied force [N]
Lp Unsupported profile length [mm]

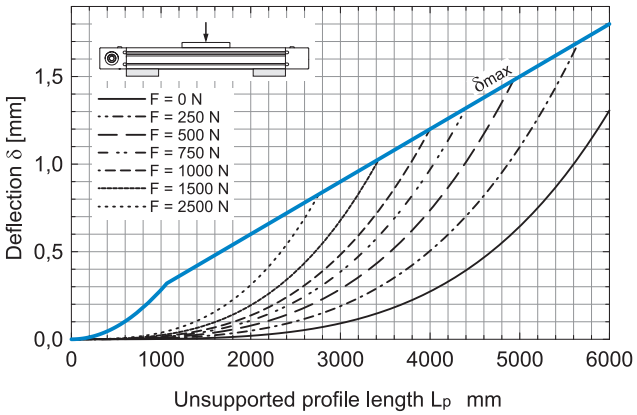
The maximum permissible deflection δmax must not be exceeded. In the case that maximum deflection δ exceeds the maximum permissible deflection δmax additional profile supports are needed.

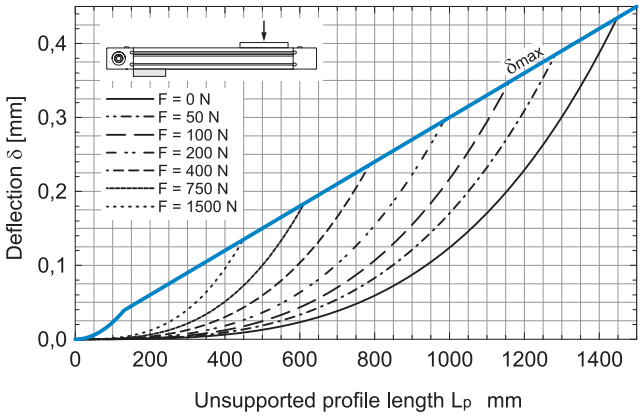
MTJ 110



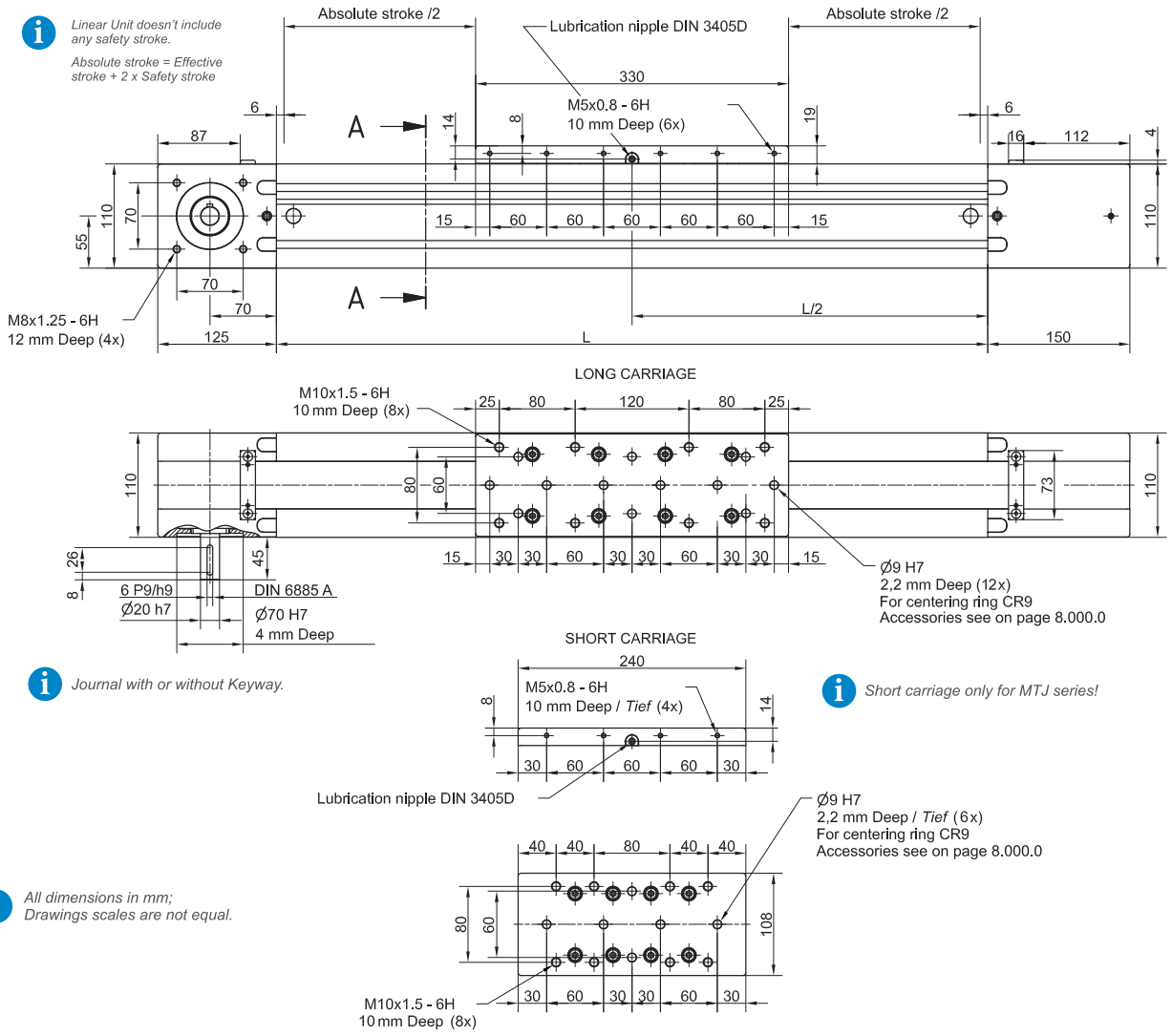


MRJ 110

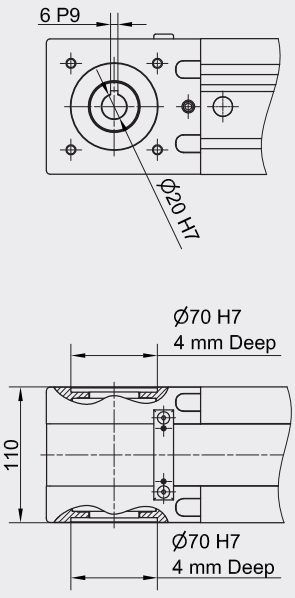




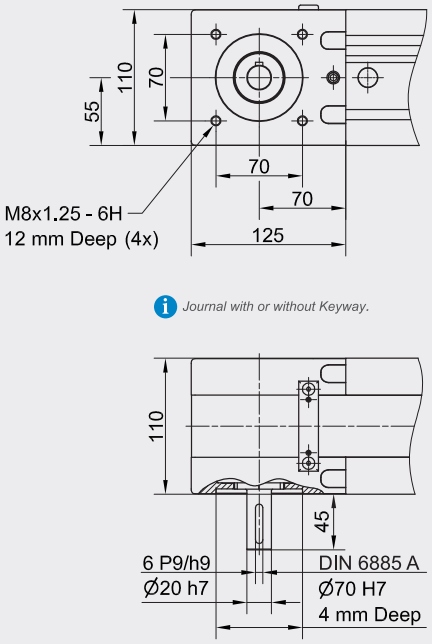
DIMENSIONS



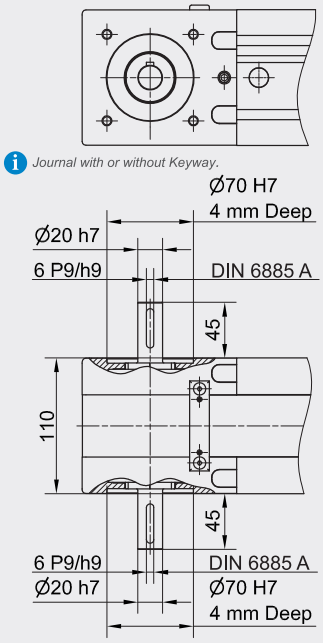
TYPE 0



TYPE 1 L and 1 R

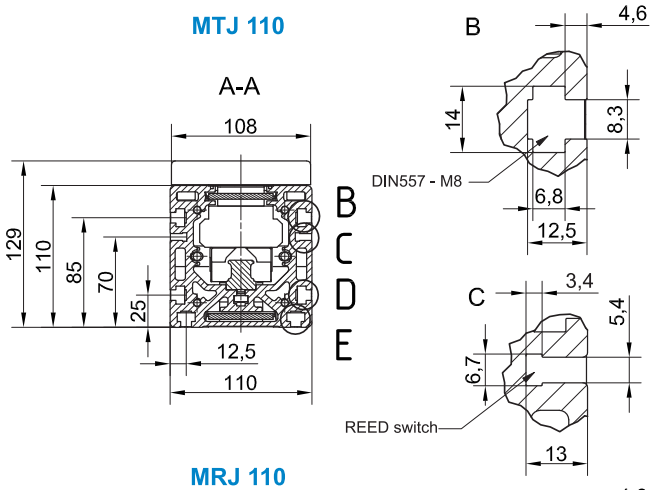


TYPE 2

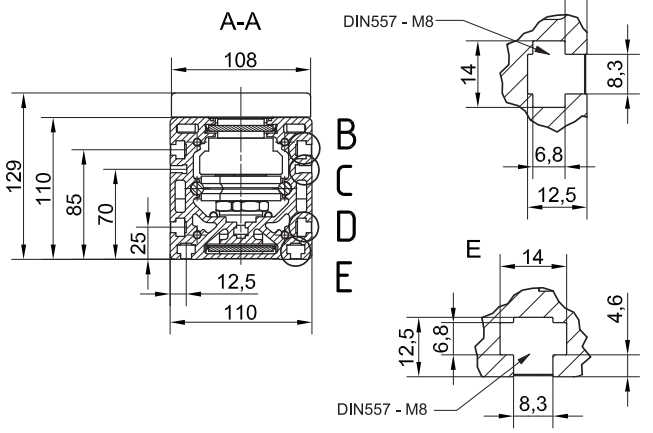


DIMENSIONS

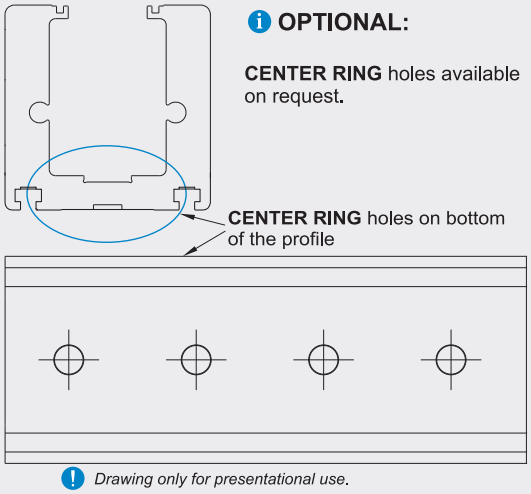
MTJ 110



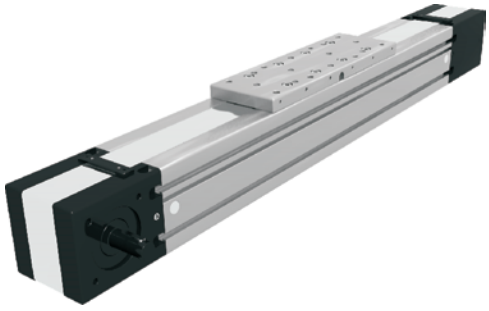
MRJ 110



All dimensions in mm; Drawings scales are not equal.



Drawing only for presentational use.



Mounting the drive

- by the **MOTOR ADAPTER WITH COUPLING** *(Page 8.020.0)*

Avalable on request.

Defining of the linear unit length

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

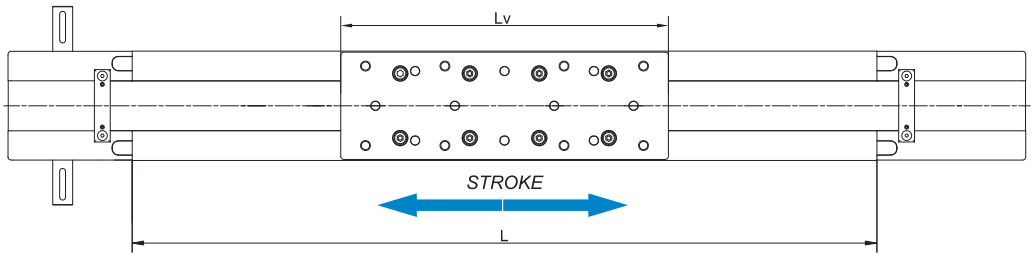
Ltotal = L + 275 mm

Lv - Long carriage = 330 mm

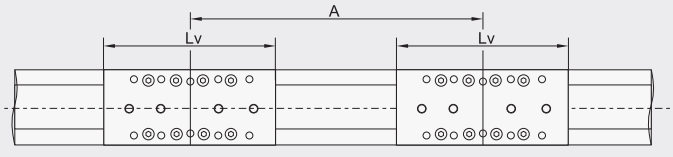
Lv - Short carriage = 240 mm

Left side (L)

Right side (R)



Double Carriage



For ordering code please contact us.

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

Ltotal = L + 275 mm

A ≥ Lv