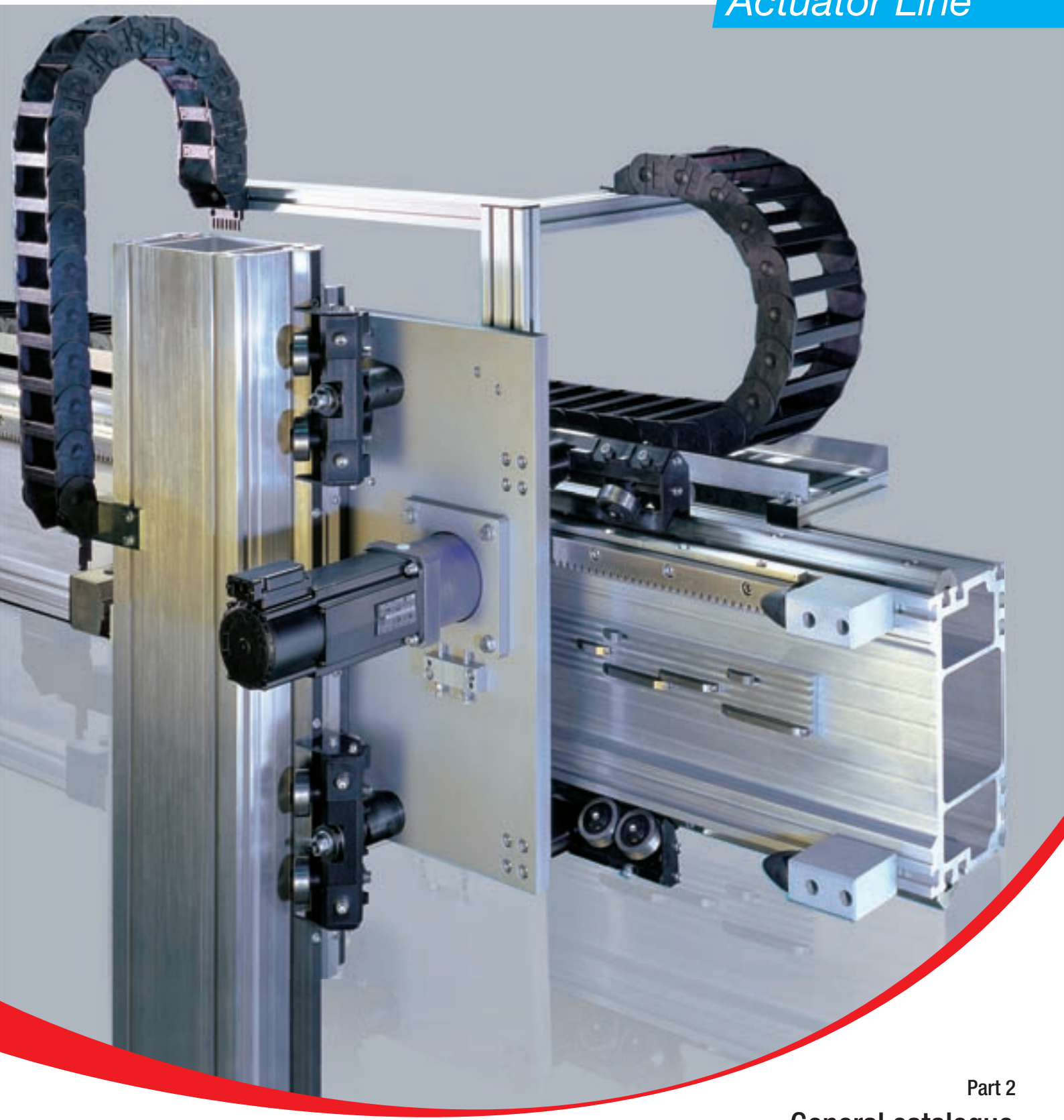
ROLLON®

Linear Evolution

Actuator Line



Part 2

General catalogue

English

www.rollon.com

When you move. We move

Rollon S.p.A. was founded in 1975 as a manufacturer of linear motion components. Today Rollon group is a leading name in the design, production, and sale of linear rails, telescopic rails, and actuators, with headquarters based in Italy and offices and distributors located throughout the world. Rollon products are used in many industries, providing creative and efficient solutions in a wide variety of applications.

Rollon solutions for linear motion

Linear Line

Telescopic Line

Actuator Line

Actuator System Line

Linear Rails

Rails with roller bearings
Rails with caged ball bearings
Rails with recirculating ball bearing

Telescopic Rails

Rails with partial/total extension
Heavy duty rails
Rails for automated and manual applications

Actuators

Belt driven actuators
Ball screw driven actuators
Rack and pinion actuators

Solutions for industrial automation

Multi-axis for pick and place
Telescopic actuators
Seventh axis for robots
Solutions for metal sheet handling

Core Competencies

- Full range of linear rails, telescopic rails and actuators
- Worldwide presence with branches and distributors
- Fast delivery all over the world
- Large technical know-how for applications

Standard solutions

Wide range of products and sizes
Linear rails with roller and caged ball bearings
Heavy duty telescopic rails
Belt or ball screw driven linear actuators
Multi-axis systems

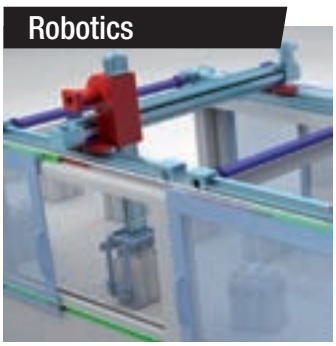
Collaboration

International know-how in several industries
Project consultancy
Maximizing performance and cost optimization

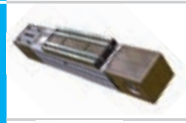
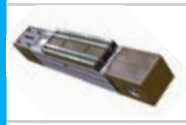
Customization

Special products
Research and development of new solutions
Technologies dedicated to different sectors
Optimal surface treatment

Applications

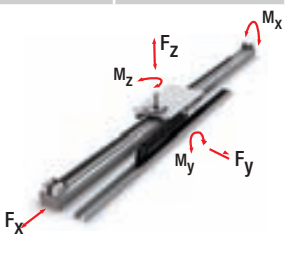


Technical features overview

Reference			Section		Driving			Anticorrosion	Protection
Family		Product	Balls	Rollers	Toothed belt	Ball screw	Rack and pinion		
TECLINE		PAR							
		PAS/M PAH/M							
MODLINE		MCH							
		MCR							
		TVS TVH							
		TCS TCH TECH							
		KCH							
		TCR TECR							
		MVS MVH							
		MVR							
MODLINE Z		ZCS ZCH							
		ZCR ZCY							
		ZMC							

Reported data must be verified according to the application.
For a complete overview about technical data, please consult our catalogues at www.rollon.com.
* Longer stroke is available for jointed version.
** When consulting the drawings in this catalog, always reference the legend listed on the same page.

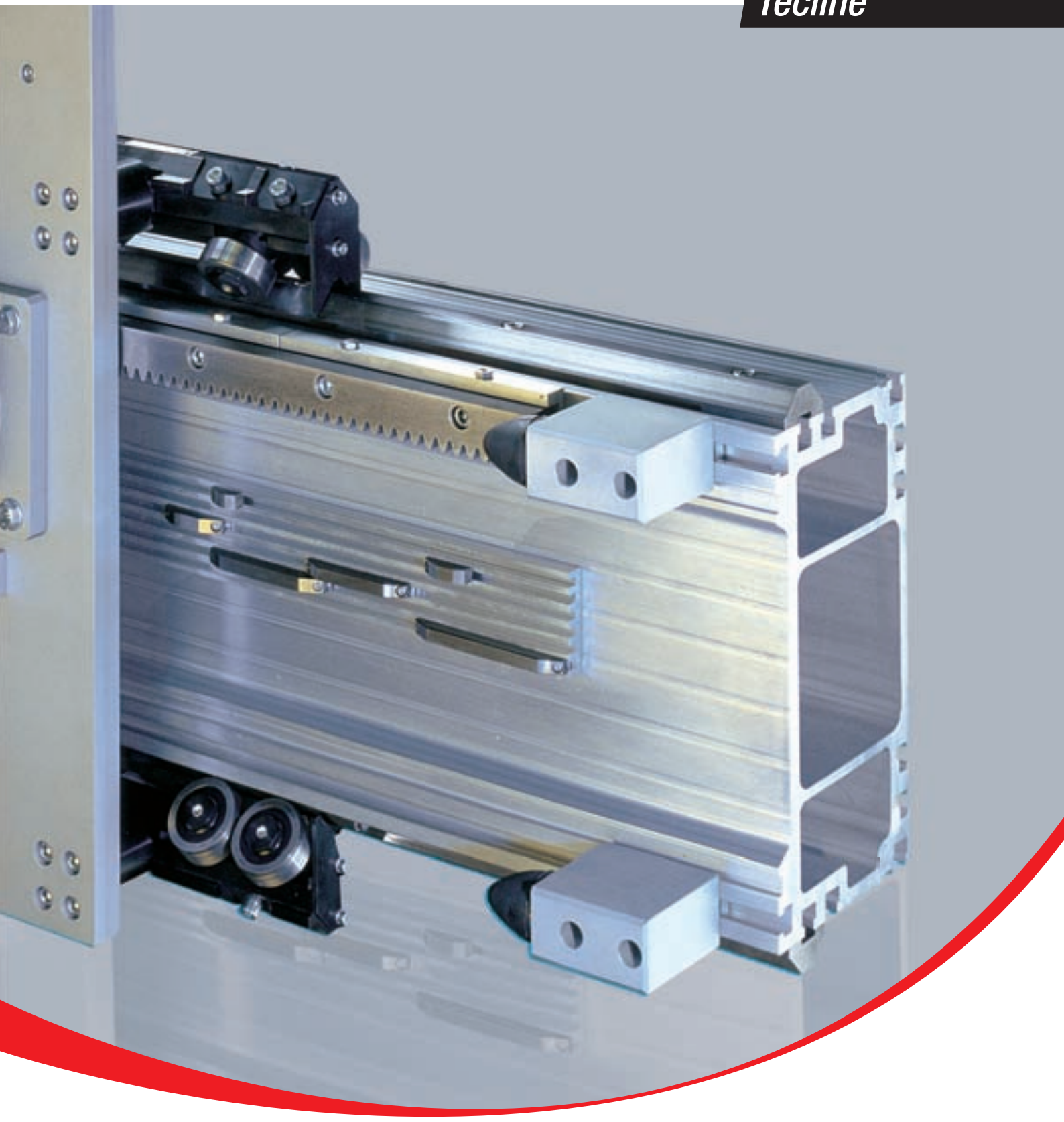
Size	Max. load capacity per carriage [N]			Max. static moment per carriage [Nm]			Max. travel speed [m/s]	Max. acceleration [m/s²]	Repeatability accuracy [mm]	Max. travel or stroke (per system) [mm]
	F_x	F_y	F_z	M_x	M_y	M_z				
170-180-200 220-280-360	10280	29900	44860	6900	13160	8800	3,5	10	± 0,2	10800*
170-180-200 220-280-360	11600	47350	47350	7240	13100	13100	3,5	10	± 0,05	10800*
65-80-105	3300	9550	9550	156	800	800	5	50	± 0,1	10100
65-80-105	3300	1500	2950	185	580	220	5	20	± 0,1	10100
170-180 220-280	6000	18300	18300	1300	3200	3200	1	5	± 0,05	4000
100-170 180-200-220 280- 360	8000	28600	28600	4000	5500	5500	5	50	± 0,1	11480
100-150-200	2150	6500	6000	110	680	680	4	50	0,1	5600
100-170 180-200-220 280- 360	8000	25400	25400	4900	5300	5300	7	20	± 0,1	11480
80-105	3000	9550	9550	156	800	800	0,75	5	± 0,05	5150
80-105	3000	1500	2950	185	580	220	0,75	5	± 0,05	5150
60-90-100 170-220	6000	10400	12000	810	2940	4560	4	25	± 0,1	11305
60-90-100 170-180-220	6000	7620	9500	440	1900	1485	4	25	± 0,1	11300
105	250	4500	4500	260	700	700	4	25	± 0,1	2000

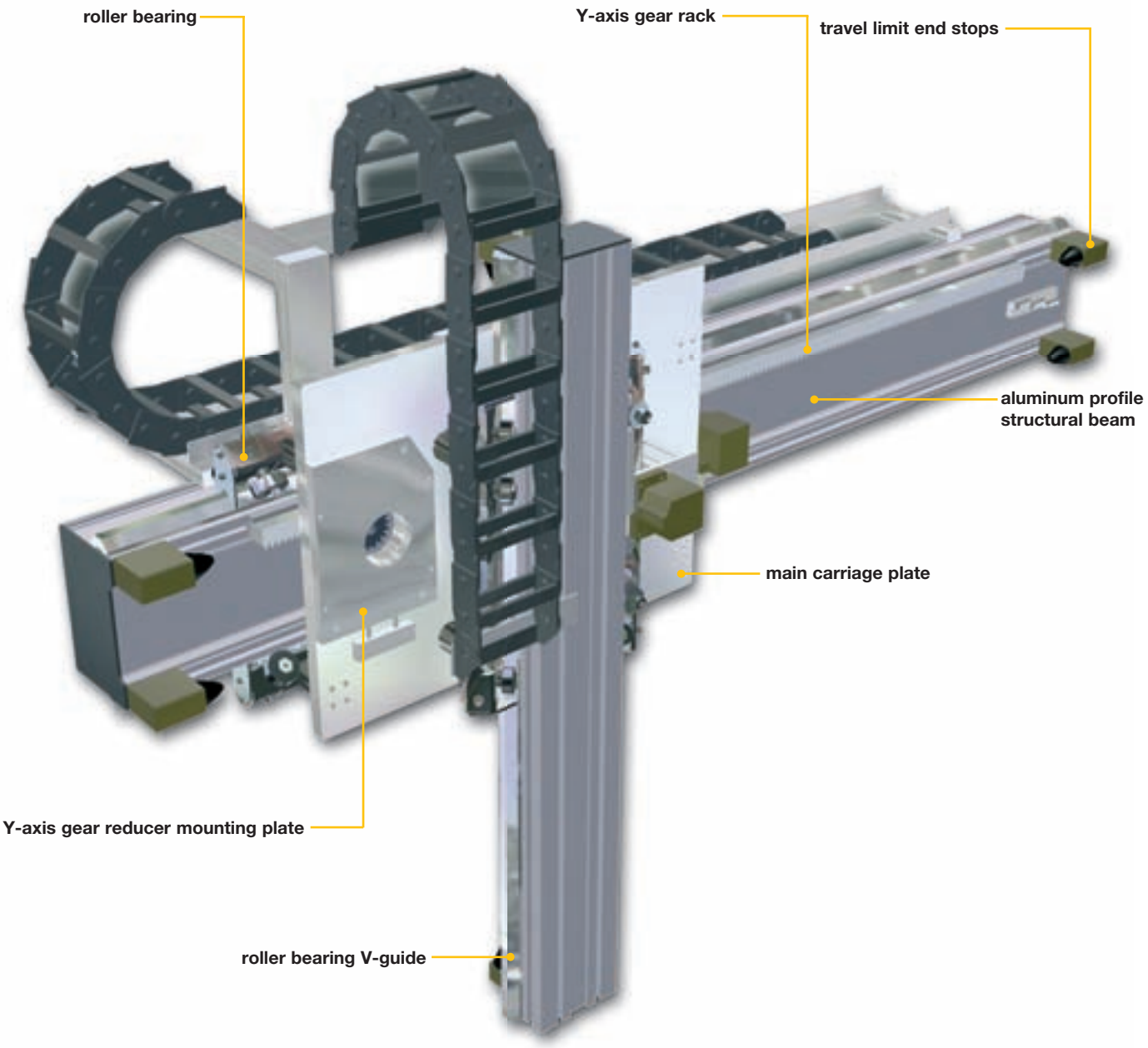


ROLLON®

Linear Evolution

Tecline





Our **tecline linear system** range is suitable for the handling of loads from 10 up to 1000 kg, by manufaturing **one or more axis systems** according to the customer **requirements**.

Our main application fields are: **robotics**, **palletization**, production **line**, **logistics** and **manufacturing machines** with Cartesian axis movements.

Our products stand out for their:

- **easy** and quick assembly
- **high quality** and **competitive** performances (profiles up to 12 m)
- **reduced** and simplified **maintenance**
- wide **range** of **integrated solutions**
- possibility of **customised solutions**
- **constant** technical **support** and CAD drawings available

Our Tecline linears strong points are:

- Solid beams obtained from aluminium alloy extruded profiles
- High-performance aluminium casting alloy plate and preset for tool assembly
- Adapting plate suitable for any commercial available gearboxes
- Fixed and oscillating roller slides, which can be adjusted through an eccentric bushing
- Without play and sealed rollers with a “for life” lubricating system
- Induction hardened and machined strong V-shaped steel guide rails
- Adjustable limit stops provided with rubber buffers
- Wide range of accessories for 3 or more axis linears

Linear systems with rack drive and components

INTRODUCTION

PROFILES

SINGLE AXES

DOUBLE AXES

COMPONENTS

ACCESSORIES

Edition 03-2016

Construction characteristics

Multiple-axis linear modules with rack drive

TECLINE linear systems are designed for ROBOTS with one, two or three CARTESIAN AXES and comprise Rollon linear modules with rack drive, in different sizes depending on the load to be translated. Modules with rack drive are suitable for transfer and positioning systems with an extremely low repeatability error and/or for dynamic performance and heavy loads.

They can be equipped / supplied with gearboxes.

Whatever the application, the configuration can be adapted using the complete order code, within an extensive range of components (energy-chains, guides, micro-switches, lubrication units, etc.) and accessories.
Our technical dept. is available to provide assistance with code setting.

Beams

Manufactured with Rollon s extruded and anodised (*) profiles, made of hardened and tempered aluminium alloy Al Mg Si 0.5, quality F25, Rm 245 N/mm, tolerance according to UNI EN 755-9. Profiles are specifically designed by Rollon to create rigid and light structures, suitable for manufacturing linear transfer machines. The guide and rack housings on modules equipped with ball roller slides (PASM family) are milled.
(*) Valyda and Logyca profiles are anodised up to 12 m. Pratyca and Solyda are anodised upon request

Modules can be supplied with head-pieced beams, upon request

Plates

Manufactured with flattened extra-fine rolled sections made of high-performance casting alloy (tensile strength, Rm = 290 MPa, HB = 77). Standard plates can be machined according to drawings (code D).

V-shaped guide rails, PAR version

Made of specially treated high-carbon steel. Standard versions include induction hardened rails section 28.6x11, 35x16 and 55x25 (max. length 4000 mm). Joints bevel cut at an angle of 20°.

Roller slides, PAR version

Body in aluminium alloy G AL SI 91 hardened and tempered according to EN AB 46400, rollers with double rows of angular contact ball bearings, backlash-free, long life lubrication: Ø 30, Ø 40, Ø 52, Ø 62 mm rollers. Adjustable tolerance between rollers and guides. Complete with wiper scraper.

Caged ball roller slides and guide rails, PASM version

Systems are supplied with caged ball roller slides. The cage included in the slides has two purposes: it reduces the friction between the guide rail and the slide and prolongs their service life, and allows lubrication refills to be performed more rarely. The modules and guide rails are suitable for composing sections more than 10 m long. The assembled guide rails have a run parallelism of less than 0.030 mm. The assembly of caged ball roller slides and guide rails normally also involves the machining of the related seat in the profile (code M).

Racks / Toothed pinions

Racks with helical teeth, made of induction-hardened steel and hardened and tempered alloy steel, are available with three different modules: m2, m3 and m4.
PAR versions with guide rails and roller slides, assembled with ground, KSD induction-hardened racks with pinions in high-performance tempered and surface-hardened steel (RD). PASM versions with guide rails and caged ball roller slides, are normally assembled with KSD induction hardened racks with pinions in hardened and tempered RD steel. High-performance KRD racks are available upon request (Rs>900 MPa): hardened and tempered, induction-hardened, and fully ground (page TL-56). With RD pinions, KRD racks and continuous lubrication, speeds of up to 5 m/s can be reached.

Stop bumpers

Important: the rubber stop bumpers provided with standard linear models are suitable and regarded as static limit switches. For special needs, such as stops if the drive breaks, please specify loads, dynamics, details and discuss the use of specific parts, accessories and devices (reinforced plates and attachments - shock absorbers, anti-drop devices, etc.) with our technical dept.

Energy chains or accessories

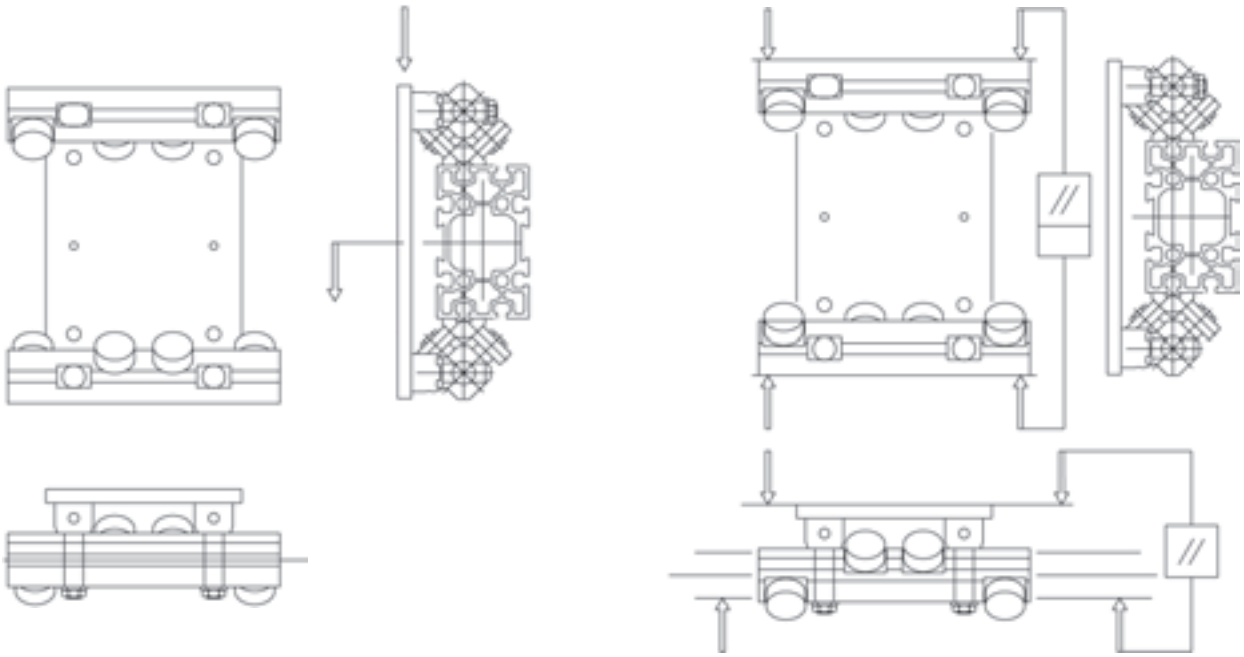
Energy chains are provided upon request, together with a wide range of accessories. Adjustable brackets and supports are included. Standard sizes are those shown in the catalogue. Energy chains and accessories can be added using the order code on page TL-11.

Anti-oxidation parts and coatings

Rack modules with anti-oxidation coating are available upon request. Materials with special coatings and lubrication are selected according to the environment of use (food industry, health sector, marine environment, exposure to weather, etc.)

A - Features of the system with roller slides

The translation system consists of a plate to which two roller slides with concentric pins and two with eccentric pins are fixed. The eccentric pins help to adjust the tolerance between the roller slide and the sliding track. Check that the angular position of the rollers is such that they can support the max. working load. See page TL-62 and TL-68.



A - Assembly and adjustment of the roller slide.

Check the sense of direction of the roller slide as shown in point A. Check the alignment. Bring the roller slides with concentric pin into contact with the sliding tracks. Adjust the eccentric pins until there is no clearance and the carriage can slide easily along the bar.

IMPORTANT: overloading is easily achieved: this may result in premature wear.

NOTE: always keep friction low: if friction is high, loosen and repeat the adjustment.

No adjustments are required with guide rails and recirculating caged ball linear guides. For high-precision applications, please order low-backlash roller slides.

B - Alignment

All profile anchor supports must be perfectly aligned (with axes side by side: perfectly parallel and coplanar).
When mounting the linear axes in parallel, it is necessary to not only verify the parallelism between the linear units themselves, but also the coplanarity of the surfaces of the heads so that the maximum error does not exceed 0.3 mm per meter between the parallel modules and within ± 0.03 mm compared to the parallelism."

C - Assembly of racks

The axis of the teeth and the guide rails must be parallel within tight tolerances. In the PASM version, the rack seat and the seat of the guide rails for the caged ball roller slide guides are machined together to ensure the correct assembly and positioning accuracy of the axis.

D - Tightening specifications and precautions

Make sure all parts are locked with the appropriate screws and with the right tightening torques.

E - Gearboxes

Supplied upon request. The use of right-angle reduction gears with hollow shaft and key is recommended. With this configuration the gearbox adapting plate is complete with shaft, pinion and step bearing. Otherwise, upon request, the adapting plate can be machined according to customer specifications and the pinion, if obtainable from the standard version. Backlash between the pinion and rack is only adjusted if the gearbox is supplied (or available).

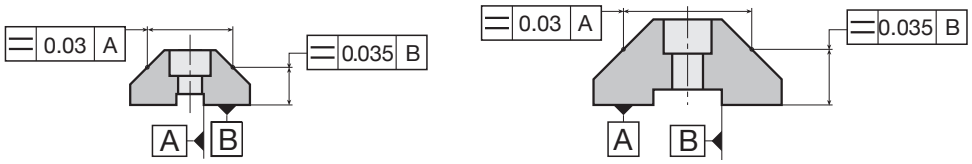
Accuracy

The accuracy of this system is based on the tolerance of:

1. guide rails
2. rolling parts
3. transmission chain (e.g. rack and pinion)

V-shaped guide rails

Made of specially treated high-carbon steel alloy. Their accuracy is shown in the figure below and they are supplied in the following version: induction-hardened with a special grinding process.
Hardness: induction hardened min. 58HRC;



Rolling parts

Rollers with double rows of angular contact ball bearings to absorb axial force have a low friction coefficient (± 0.03) and are complete with sliding sealing rings.
Roller tolerance and radial backlash are in line with DIN 620 parts 2 and 3 (except for the convex external ring R=500 mm), while the load and calculation coefficients comply with DIN ISO 281 and with DIN ISO 76.

Guide rails and caged ball roller slides

As a general rule, these are generally supplied in “normal” accuracy classes. Thus, they are suitable to ensure the appropriate combination of positioning precision, stiffness and self-alignment required for standard industrial applications.
Higher levels of accuracy with low backlash are available upon request.

Lubrication

Rack and pinion

These parts must be lubricated regularly with a gear grease (for high working pressures).
An automatic, programmable system is available to ensure correct lubrication of the teeth (page TL-61).
The tangential force and toque values shown in the table on page TL-61 refer to properly lubricated racks.

Rollers and roller slides

Roller slides and V-shaped rollers are provided with a permanent lubrication system. If properly used, this eliminates the need for any further maintenance, also considering the average life of handling devices.
Do not use solvents to clean rollers or roller slides, as you could unintentionally remove the grease lubricating coat applied to the rolling elements during assembly. However, grease may be added slowly to lithium soap according to DIN 51825 - K3N.

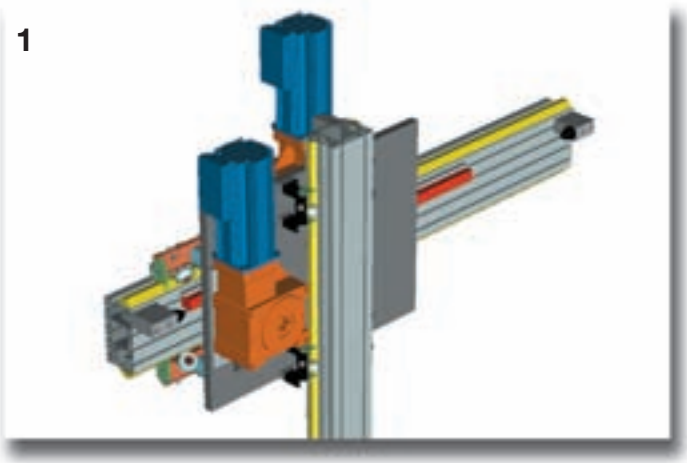
V-shaped guide rails

If properly assembled, with the felt scraper in place, these guides do not require any lubrication, which could attract impurities and have negative consequences.

Guide rails and caged ball roller slides

Due to the cage keeping the ball bearings apart, these units are regarded as permanently lubricated; considering the average life of handling devices, no maintenance is needed before 5000 Km. For applications where dynamic performance is required, our technical dept. will consider the need for special seals or suitable tanks or lubrication systems.

1



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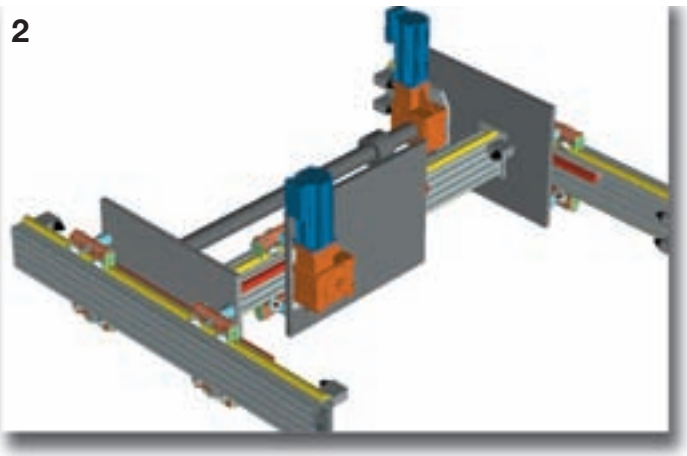

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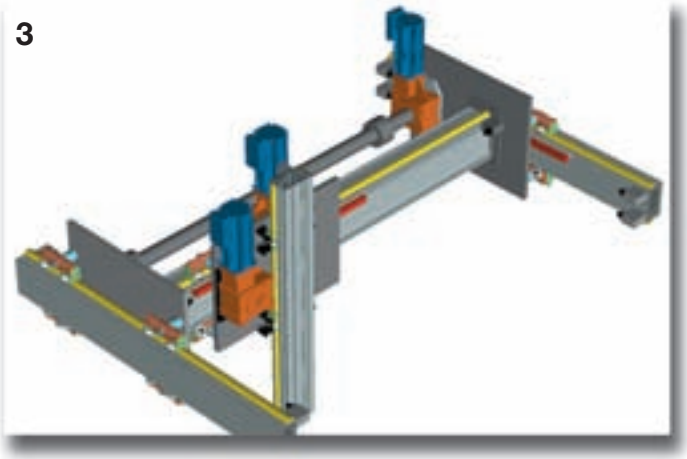

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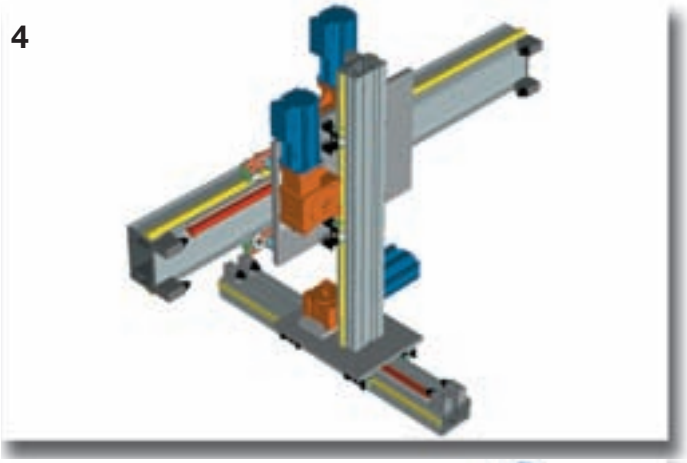

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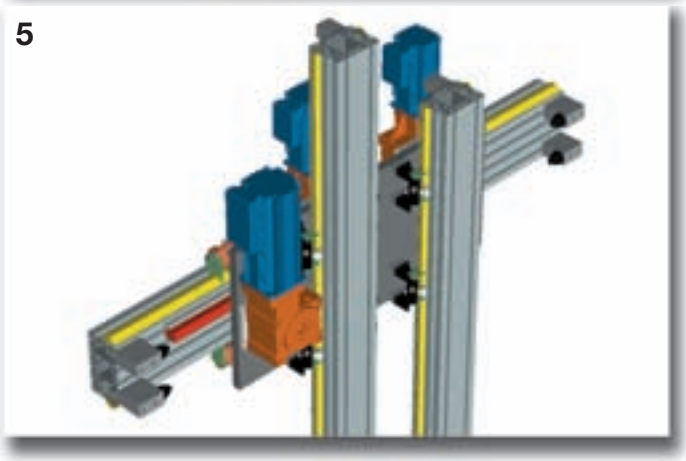

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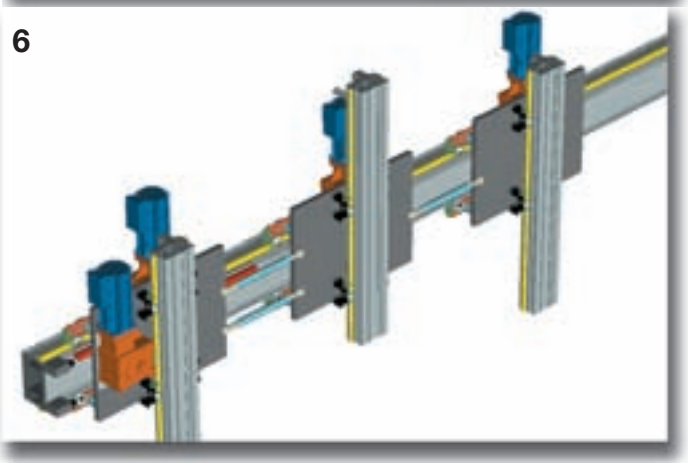

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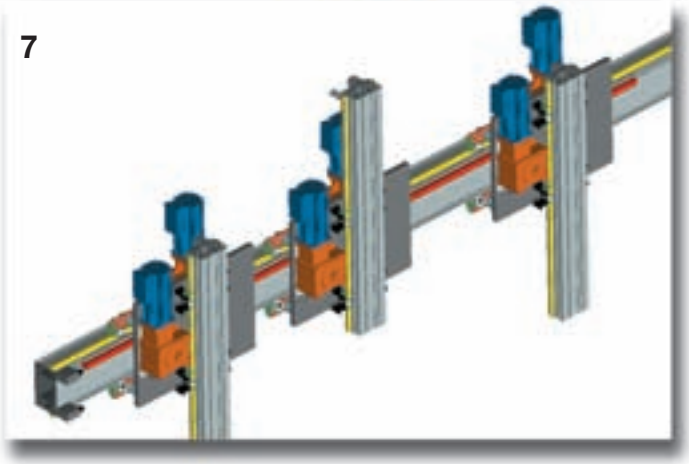

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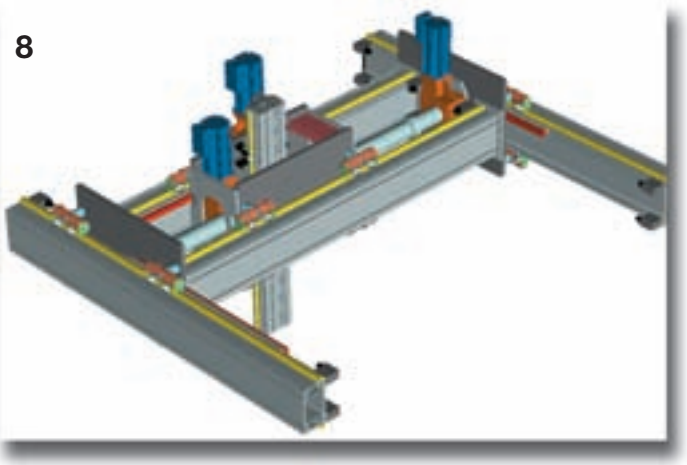
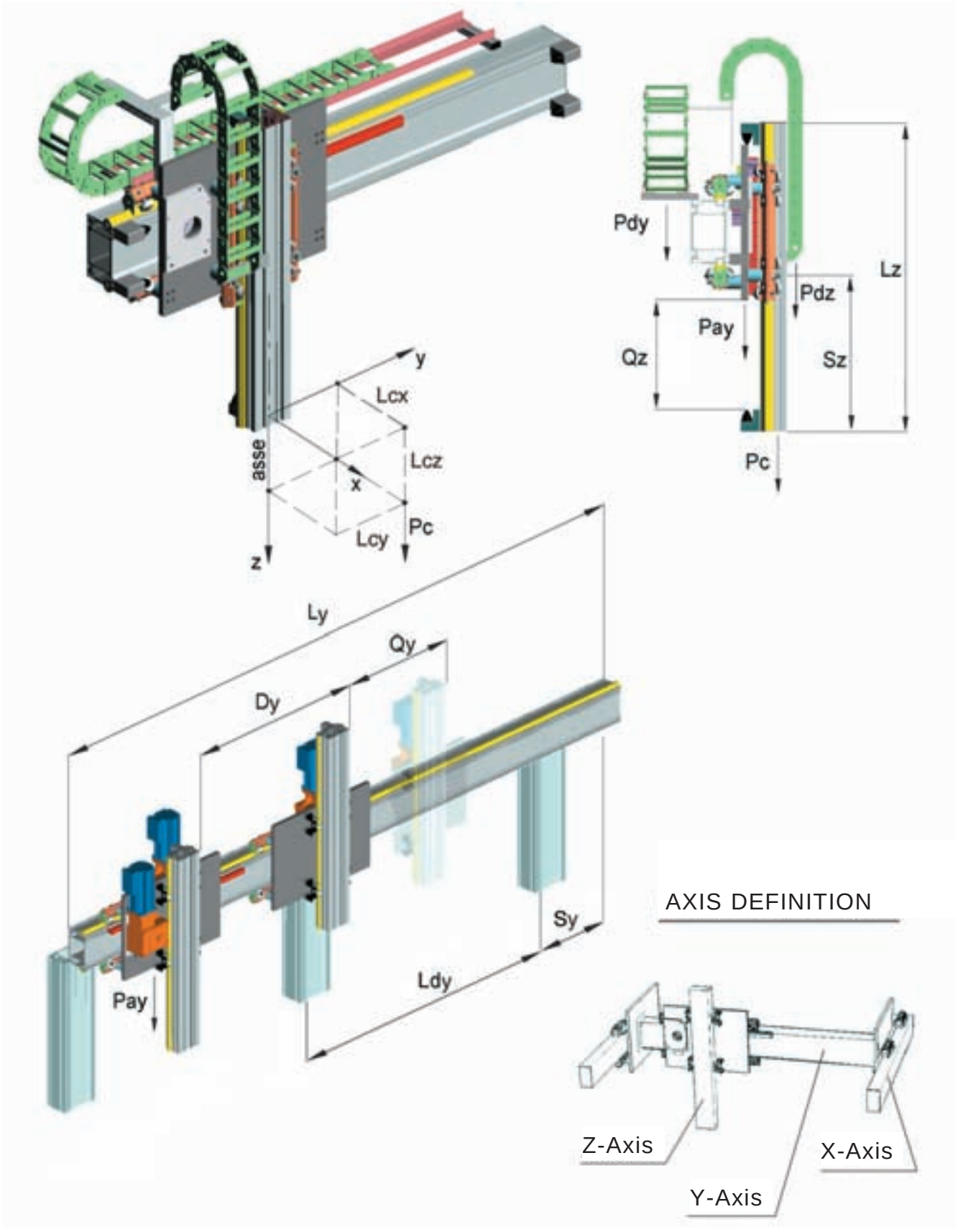


Sizing template

Our **technical department** is available to check sizing calculations. Please fill in the form with all the necessary data and send it to our technical dept., which will recommend the most suitable size according to the forces applied and precision required.



For a correct design of the system, please fill the form below and send it to our technical dept.

Date: .....Request n°.....

Filled in by.....

Company.....

Address.....

Phone .....Fax.....

E-mail .....

SIZING TEMPLATE

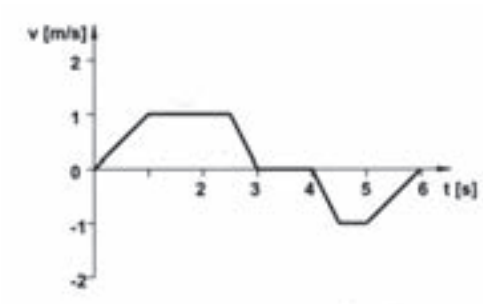
required data | optional data

Assembly solutions (see page TL-5) no.....

		Z-Axis		Y-Axis		X-Axis	
Total length	Lz		Ly		Lx		[mm]
Total working load including EOAT (add Z axis for Y and X axes)	Pc		Py		Px		[kg]
Equipment weight on carriage (gearbox, cylinder, OPTIONAL)			Pay		Pax		[kg]
Weight distributed on the beam (energy chain)	Pdz		Pdy		Pdx		[kg/m]
Beam supports			n°		n°		
Max. projection (any cantilever, the largest)	Sz		Sy		Sx		[mm]
Span (largest)			Ldy		Ldx		[mm]
Offset load's centre of gravity (X-axis)	Lcx						[mm]
Offset load's centre of gravity (Y-axis)	Lcy						[mm]
Offset load's centre of gravity (Z-axis)	Lcz						[mm]
Additional force, if any	F		F		F		[N] +/-
Possible distance between the carriages (see solutions 6 - 7 on page TL-5)			Dy		Dx		[mm]
Transmission performance	η						
Assembly: vertical= 90° - slope = 30°, 45°, 60° - horizontal = 0°	$\alpha°$						
Stroke	Qz		Qy		Qx		[mm]
Speed	Vz		Vy		Vx		[m/s]
Acceleration	Az		Ay		Ax		[m/s^2]
Cycle time	Tz		Ty		Tx		[s]
Positioning accuracy	+/-						
Repeatability	+/-						[mm]
Work environment (temperature and cleanliness)							
Daily working cycles	N°						
Minimum service life requested							[Km]

Working cycle

Working cycle example



Remarks: .....

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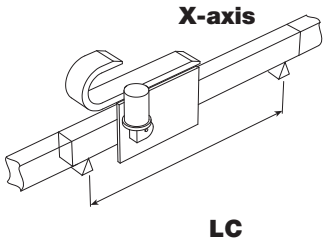
Preliminary selection table (1-2-3 axes)

These tables are useful for making a preliminary selection with load applied in a central position with respect to the plate or profile axis. Z axis length is < 1,600 mm.
Deflection is computed assuming continuous beams having the same span and concentrated static loads.

In the following table, select the appropriate X axes according to the load.

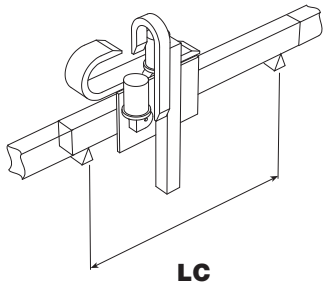
Max load capacity [kg.]	PA	2X	3X	4X	5X	6X	8X	10X	LC
		Deflection							
	50	1,4							5000
	100	1,8							5000
	200	2,7	1,8						5000
	300		2,3	2,7					5000
	400			3,3	2,4				5000
	500				2,8	1,8			5000
	600					2	2		6000
	800						2,5	1,8	6000
	1000							2,1	7000

N.B. per i PA 8X e 10X verticale compensare il carico.



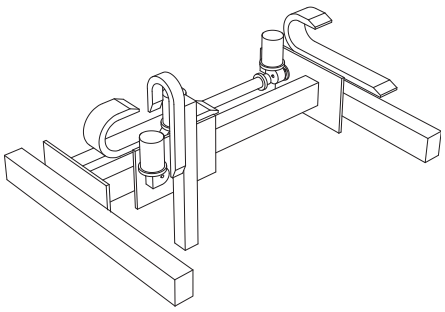
In the following table, select the appropriate Y-X axes according to the load.

Max load capacity [kg.]	PA	2/1	3/1	4/1	5/2	6/2	8/3	6/4	8/6	10/6	10/8	LC
		Deflection										
	50	1,9										5000
	100	2,4	1,7	2	1,6							5000
	200				2,2	0,8	0,8					5000
	300					1,6	1,6	1,6				6000
	400							1,9	2	0,9		6000
	500								2,2	1		6000
	600								2,5	1,2	1,2	6000
	800										2,2	7000



In the following table, select the appropriate X and Y-Z axes according to the load.

X-axis	PA	PA load [kg.]	2/1 100	3/1 100	4/1 100	5/2 200	6/2 200	8/3 300	6/4 400	8/6 600	10/6 600	10/8 700
			Y-Z-axes									
	2X	**(200)**										
	3X	**(300)**										
	4X	**(400)**										
	5X	**(500)**										
	6X	**(600)**										
	8X	**(800)**										
	10X	**(1000)**										



NB: The choice of X axis is based upon the actual load, the supporting points, max. deflection and the total weight of the Y-Z axes.

EXAMPLE: selection of 3-axis system with roller slides
(Please see page TL-10 and the system pages for the nomenclature)

DATA: Total working load 300 kg, X axis stroke: 5,000 mm, Y axis stroke: 4,000 mm, Z axis stroke: 2,000 mm, support points: 2

By analysing the table of Y-Z axes based on the working load (Pc), profile length (Ly) and deflection, the selection falls on one PA 8/3 (load 300 kg.) system.

Check: $P_{eff} = P_{max}$- (Lz - 1,600)/1,000•q_z = 300-(2,900-1,600)/1,000•35 = 254.5 kg. < di 300 kg (not sufficient).

Therefore select the larger size PA 6/4 (max. load capacity 400 kg.)

M_{toty+z} PA 6/4 = M_{base}+(q_y• strokeQ_y+q_z• strokeQ_z)/1000+Pc = 244+(66•4,000+48•2,000)/1,000+300 = 904 kg.

$P_{totx} = M_{tot}$ PA 6/4 (Y+Z)•0.66 = 596.6 kg.

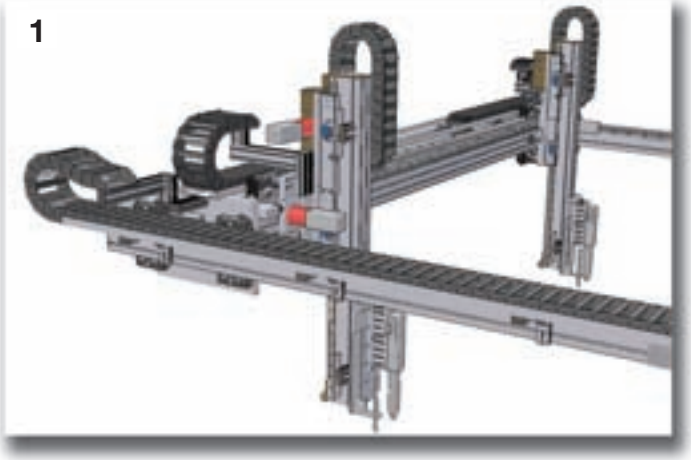
Lx = $stroke_x$ + 1,200 approx. = 5,000+1,200 = 6,200 mm

By analyzing the table of X axes based on the load (P_{totx}) profile length (Lx) and deflection, it is possible to select 2 linear axes PA 6X

Chosen composition: n°1 PA 6/4 + n° 2 PA 6X

Perform a final analysis by computing the deflection based on the actual size of the spans.
Our technical dept. is at your complete disposal to help you examine the most suitable applications for your requirements and help you ...with motor and drive sizing for the whole project.

1



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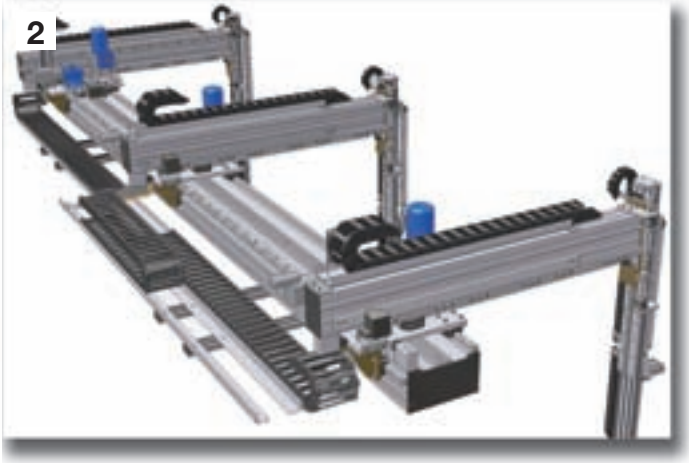

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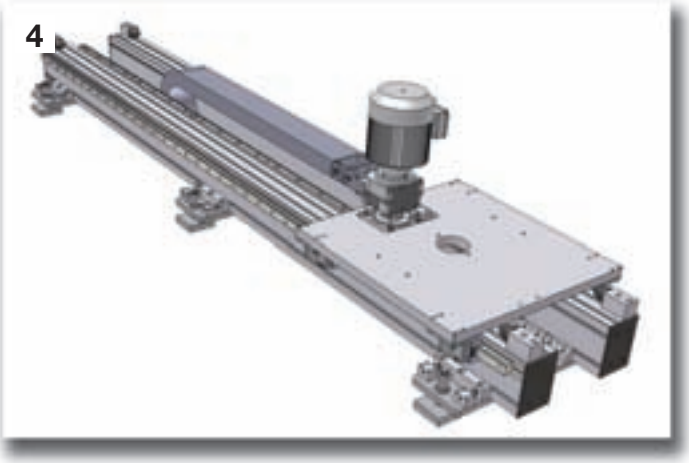
4



5

5

7

1/5 Pick and place system with twin vertical axis and rack and pinion drive for the production of panels in the construction industry.

2 Pipe handling system in welding plant.

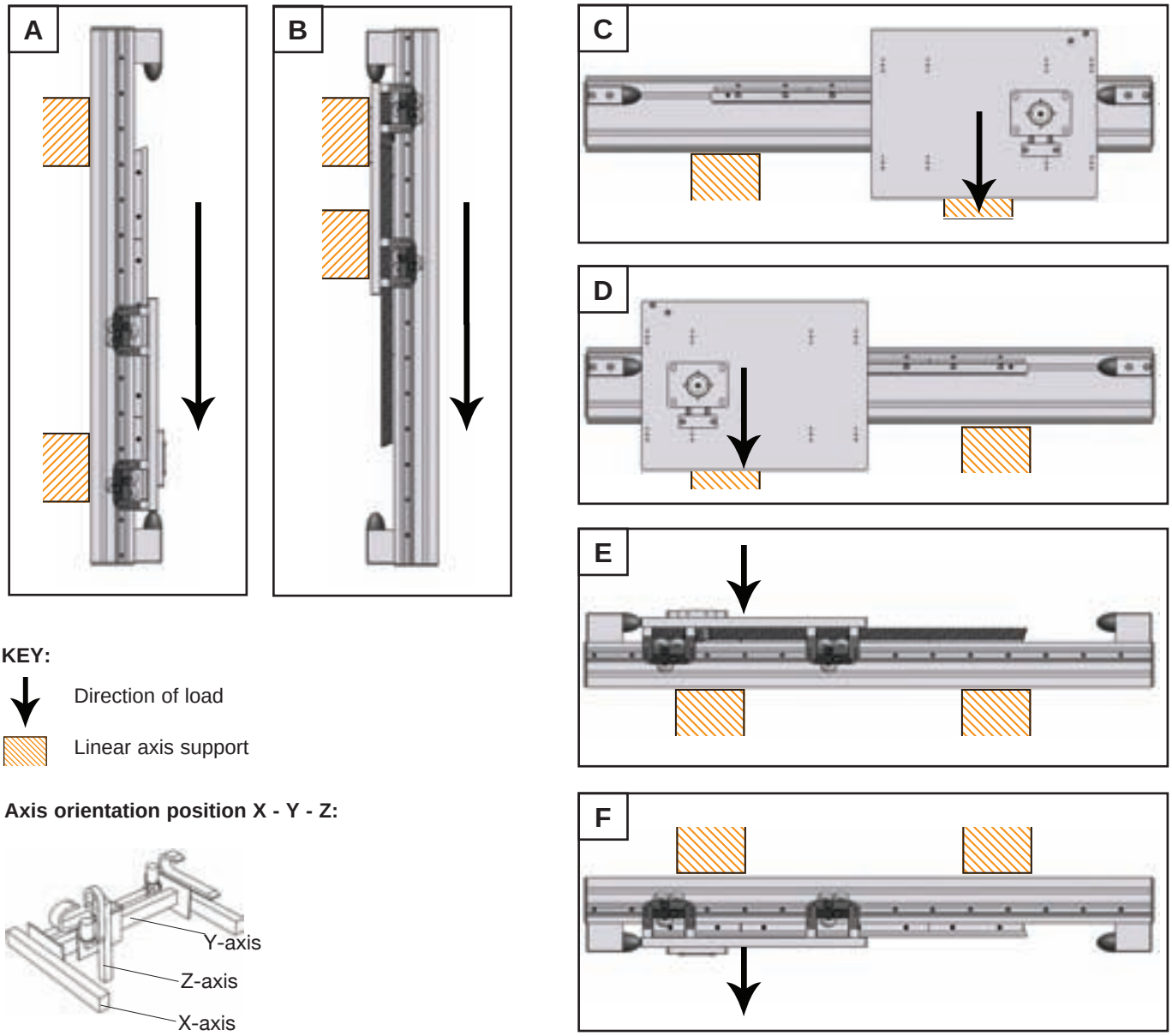
3/6 Multicarriage handling system with separate rack and pinion drive for each X and Y axis.

4 Shuttle system for 6-axis of SCARA robot.

7 Column lift - load 100 kg - stroke 17 m.

Assembly positions and load direction

For single-axis roller versions



KEY:

Direction of load

Linear axis support

Axis orientation position X - Y - Z:

Simplified code setting of the module

EXAMPLE	P	A	S	M	5	/	2	/	mm/mm/	...
SERIES	P									
SLIDE	A= rack									
DRIVE	R= Roller slides S= caged ball linear guides - high performance									
PROFILE MACHINING	M= profile with machined guide plane and rack plane									
SIZE OF X-AXIS	See catalog from page TL-16 to page TL-53									
SIZE OF Z-AXIS	See catalogue from page TL-16 to page TL-53 “X”= Z-axis not provided									
STROKE / Length	“mm” = X-axis / Y-axis / Z-axis									
ACCESSORY CODES	Various accessory codes									

Order code

Required | Accessories | **Complete for special versions**

Order code																														
Exemple	Y	C	P	A	R	-	280	m3	KSD	-	6000	7200	D	2	-	1800	FRD	-	-	-	-	R	-	-	S	-	-	-	-,-

Axis direction: Y (X, Y, Z)

See page TL-10 for assembly position. Exemple: C

Unit Type: P

Drive: A
Rack

Guide rails and roller slides: R
Guide rails 28x11 **RR**
Guide rails 35x16 **RQ**
Guide rails 55x25 **RP**
Guide rails and caged ball roller slides **S**
Without cage **H**

Profile machining: -
Profile machined **M**
Profile not machined **-**

Profile size: 280
60
90
100H/50
100
180
170
200
220
280
360

Rack rail size: -
m2
m3
m4

Rack rail type: -
Helical teeth, hardened, ground **KSD**
Helical teeth, hardened and tempered, ground **KRD**

Roller characteristic measurement: -
Ø **63**
Ø **75**
Ø **30**
Ø **40**
Ø **52**
Ø **62**

Caged ball roller slides size
15
20
25
30
35
45

Stroke: 6000

Total Length: 7200

Standard carriage: -
Drawing **D**
No plate (coupled unit) **X**
Not included **N**

Number of carriages: -

Special carriage dimensions: -

Carriage centre distance [mm]: -

Reducer flange, pinions: FRD
Pinion hardened and tempered, ground **FRD**

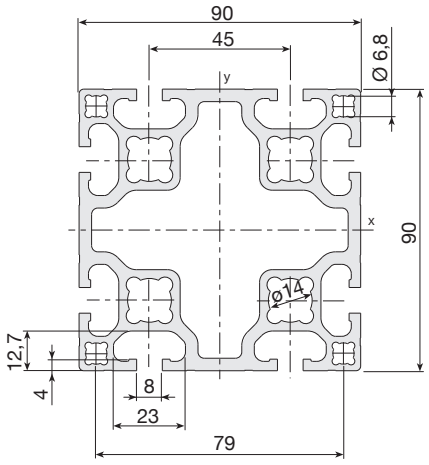
- Pinion pitch diameter
- Energy chain width
  K50 - K75 - K100 - K150 - K200
- **M** Micro-switch present
- **P** Cam-holder + cams
- **R** Gearbox assembly
- **C** Cylinder assembly
  C Ø32 ÷ Ø100
- **A/B** Anti-drop brake device
  A Ø63 ÷ Ø125
  B Ø63 ÷ Ø125
- **S** Lock-pin
  S Ø20
  S Ø30
- Connection shaft
  A1/Centre distance length
  A2/Centre distance length
  A3/Centre distance length
- Shaft torsional moment [Nm]
  20
  35
  70
  100
  190
  300
  420
- **SF** Bellow
  For caged roller slides
- Additional accessories

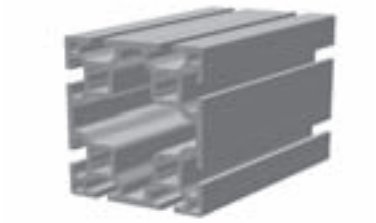
Additional accessories

- The energy chain is on request
- Pinion, reduction units, gearboxes and compensating cylinders supplied by the customer can be fitted upon request.
- Machining to specifications (drilling, hollowing, spot-facing, etc.) on the free surfaces of the plates.
- Customized applications (optional: systems with several plates, machining to drawing specifications, structural inspections for special loads, Cartesian robots with three or more axes, etc.)

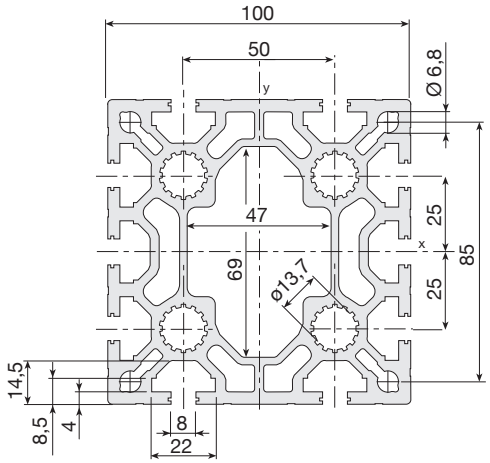
Profile specifications (see machining code table on page 80)

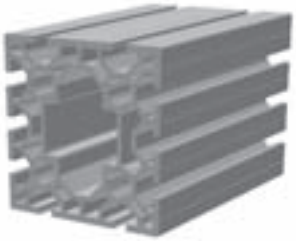
Medium profiles



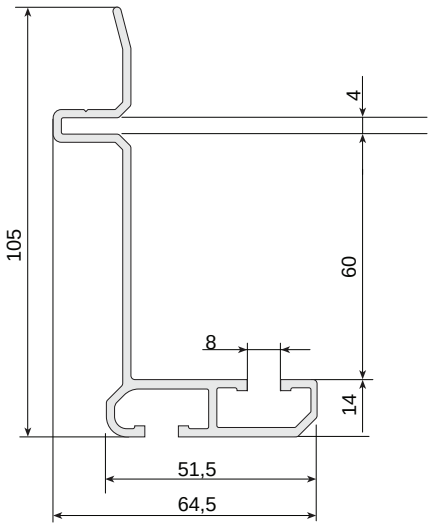


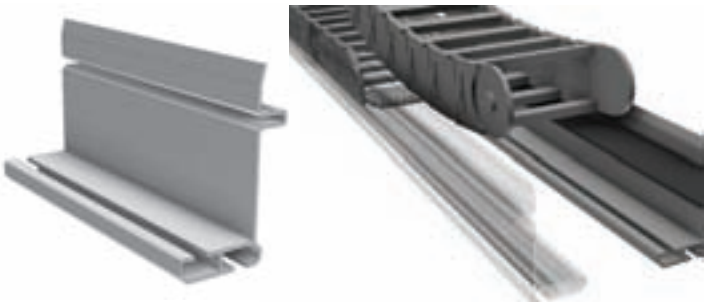
E 01-4 (90x90)		
Weight	6	kg/m
Max. length	6	m
Moment of inertia Ix	2,027,000	mm⁴
Moment of inertia Iy	2,027,000	mm⁴
Polar moment of inertia Iz	1,100,000	mm⁴
Bending section modulus Wx	45,040	mm³
Bending section modulus Wy	45,040	mm³



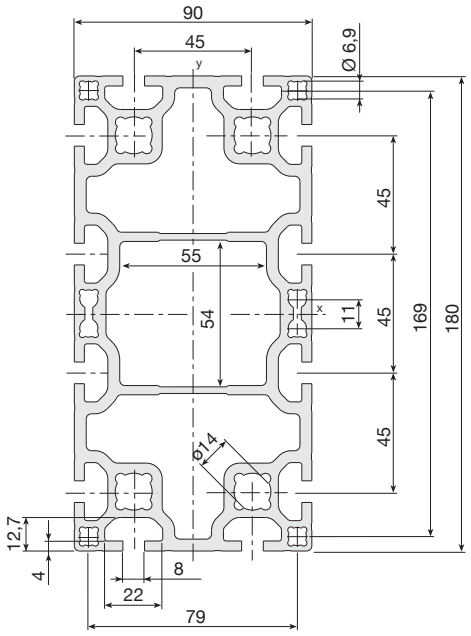


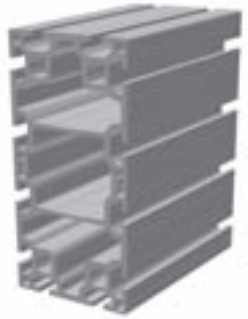
MA 1-5 (100x100)		
Weight	9.5	kg/m
Max. length	6	m
Moment of inertia Ix	3,800,000	mm⁴
Moment of inertia Iy	3,650,000	mm⁴
Polar moment of inertia Iz	1,900,000	mm⁴
Bending section modulus Wx	76,000	mm³
Bending section modulus Wy	73,000	mm³





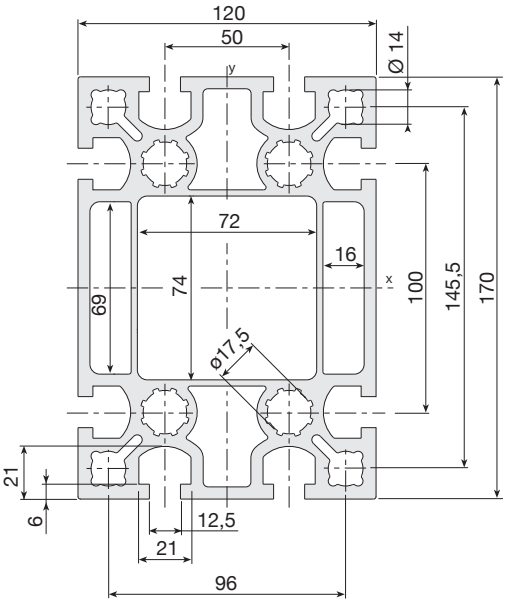
7400568 energy chain support profile		
Weight	1.3	kg/m
Available length	6	m

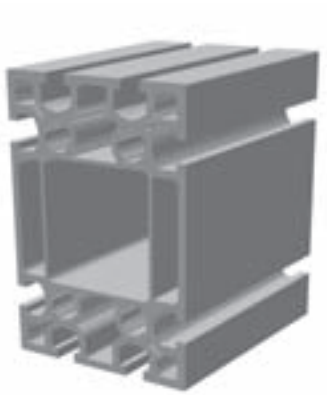




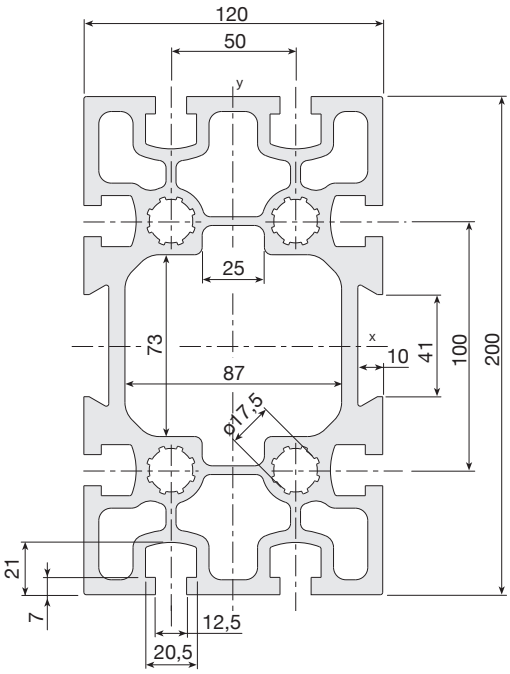
E 01-5 (90x180)		
Weight	approx. 12	kg/m
Max. length	8	m
Moment of inertia Ix	15,180,000	mm⁴
Moment of inertia Iy	4,420,000	mm⁴
Polar moment of inertia Iz	4,400,000	mm⁴
Bending section modulus Wx	168,670	mm³
Bending section modulus Wy	98,220	mm³

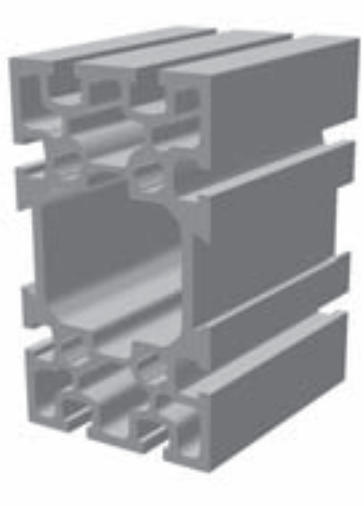
Load bearing profiles





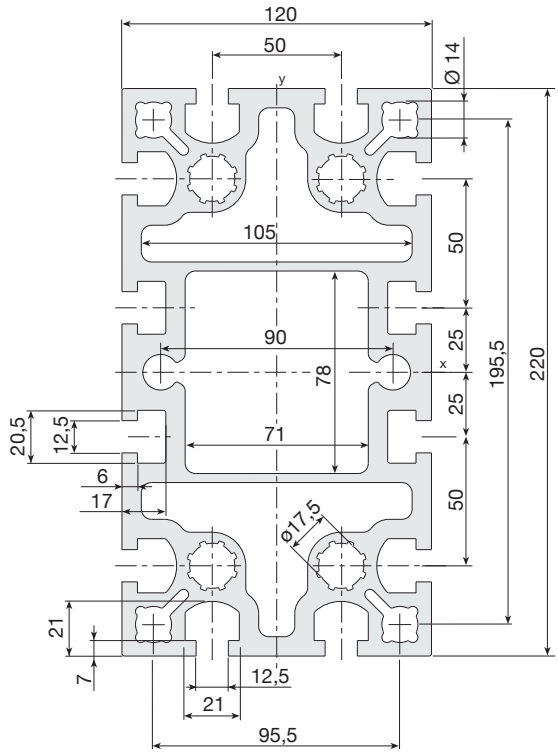
STATYCA (120x170)		
Weight	17	kg/m
Max. length	12	m
Moment of inertia Ix	20,360,000	mm⁴
Moment of inertia Iy	10,200,000	mm⁴
Polar moment of inertia Iz	8,460,000	mm⁴
Bending section modulus Wx	239,500	mm³
Bending section modulus Wy	170,000	mm³

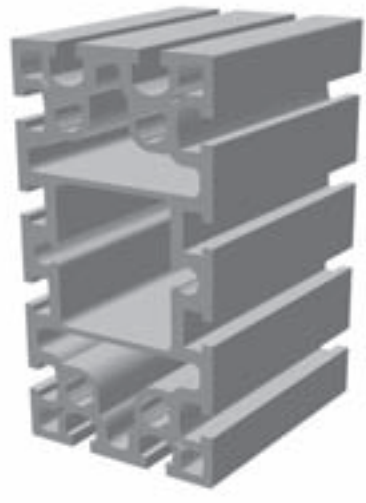




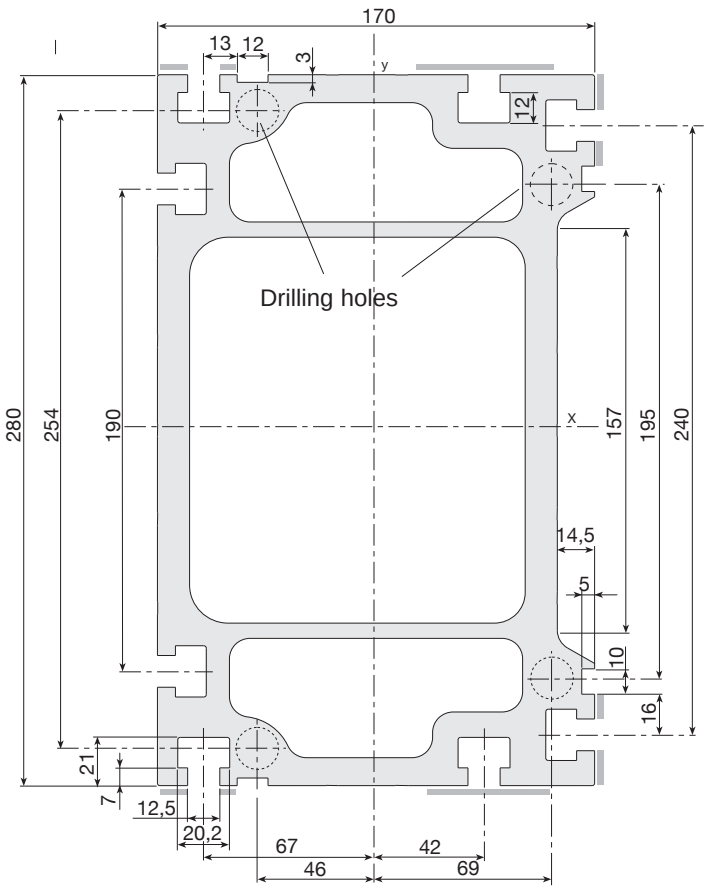
VALYDA (120x200)		
Weight	21	kg/m
Max. length	12	m
Moment of inertia Ix	32,980,000	mm⁴
Moment of inertia Iy	12,980,000	mm⁴
Polar moment of inertia Iz	10,500,000	mm⁴
Bending section modulus Wx	329,800	mm³
Bending section modulus Wy	215,130	mm³
Only anodized up to	9	m

* Dovetail inserts available in various size

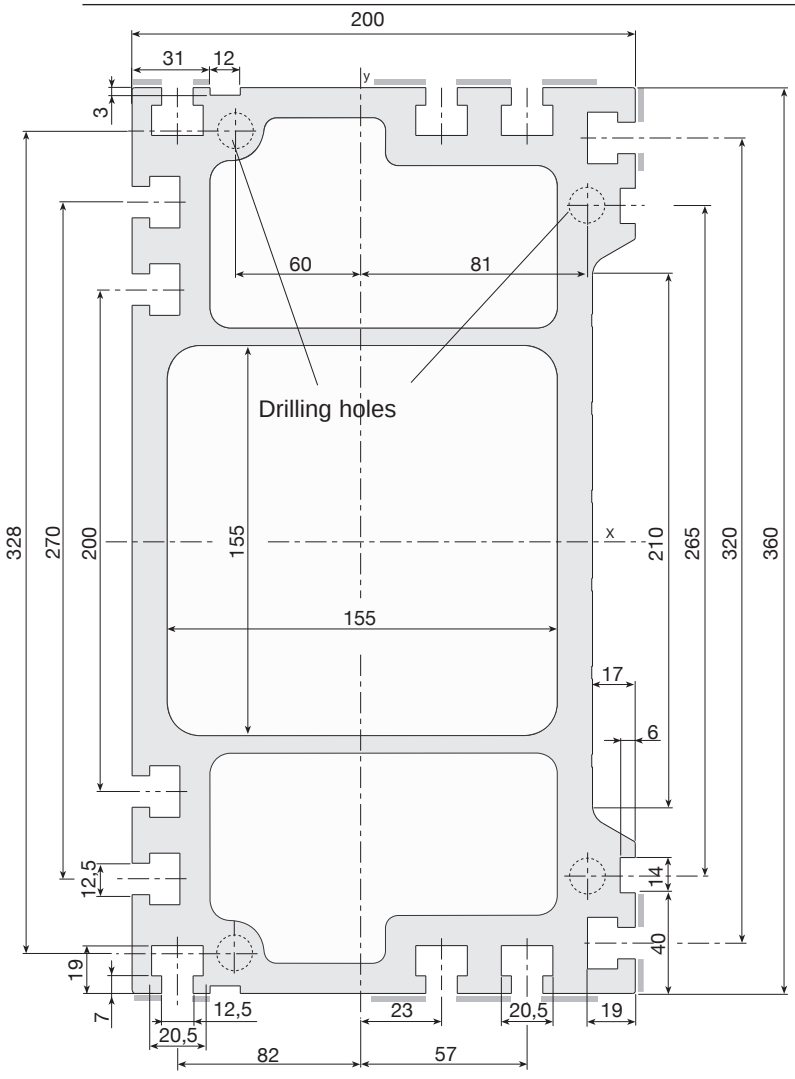


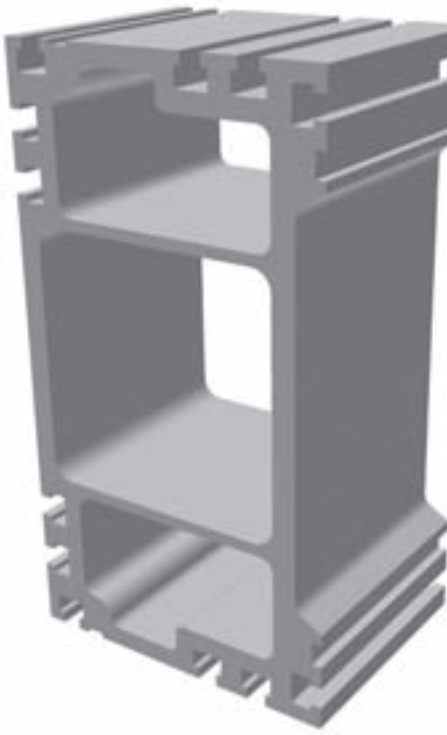


LOGYCA (120x220)		
Weight	25	kg/m
Max. length	12	m
Moment of inertia Ix	46,550,000	mm⁴
Moment of inertia Iy	15,650,000	mm⁴
Polar moment of inertia Iz	14,300,000	mm⁴
Bending section modulus Wx	423,182	mm³
Bending section modulus Wy	260,833	mm³
Only anodized up to	9	m



PRATYCA (170x280)		
Weight	40	kg/m
Max. length	12	m
Moment of inertia Ix	134,103,000	mm⁴
Moment of inertia Iy	50,288,000	mm⁴
Polar moment of inertia Iz	72,700,000	mm⁴
Bending section modulus Wx	957,790	mm³
Bending section modulus Wy	591,620	mm³





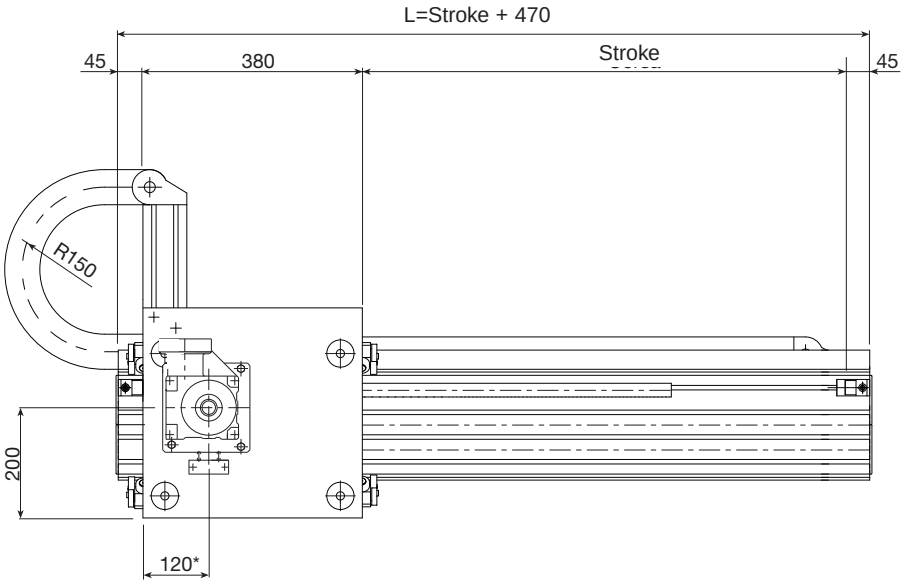
SOLYDA (200x360)		
Weight	60	kg/m
Max. length	12	m
Moment of inertia Ix	318,687,200	mm⁴
Moment of inertia Iy	105,533,000	mm⁴
Polar moment of inertia Iz	150,000,000	mm⁴
Bending section modulus (Wx)	1,770,500	mm³
Bending section modulus (Wy)	1,035,300	mm³

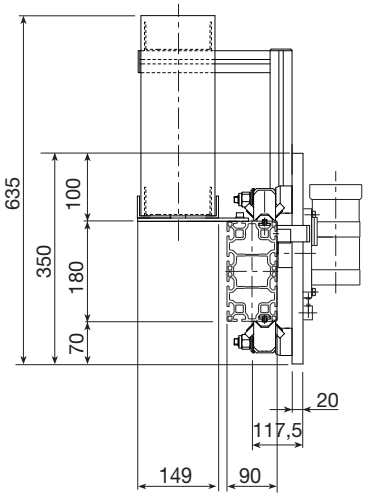
PAR 1

P / A / R / R / 180 / Stroke / Length / FRD / ...

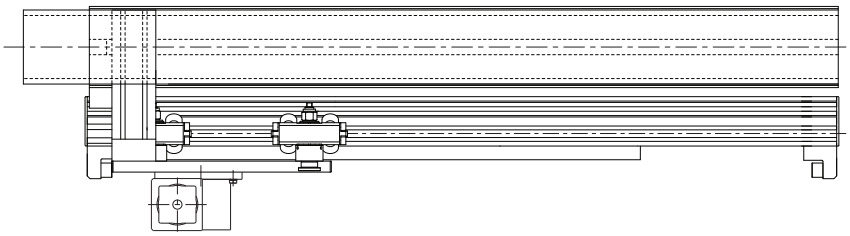
60 Kg PC **120 Kg**

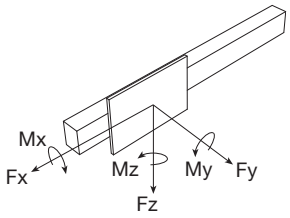
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3.5	[m/s]
Max. acceleration	8	[m/s²]
Repeatability	± 0.2	[mm]
Beam max. length without joint	8,000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 1	490	1,170	1,170	2,900	5,900	5,900

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Assembly positions and load direction, see page TL-10

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	E01-5	
Rack (hardened, helical teeth, ground: module KSD)	module 2	[mm²]
Guide rail	28x11 (hardened)	
Translation	4 roller slides with 4 rollers Ø30	
Room available for energy chain	115x45 approx.	[mm²]
Pinion pitch diameter type RD	44.56 (as an alternative 63.66)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 28	[kg]
Slide (plates + carriages)	M_{slide} = 15	[kg]
Beam (incl. guide rails and rack)	q_X = 19	[kg/m]

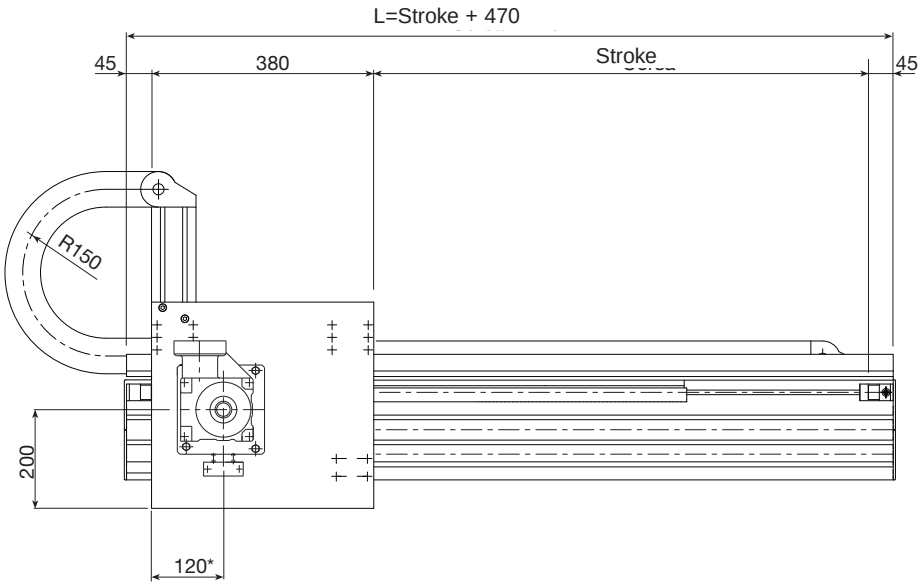
Formula:

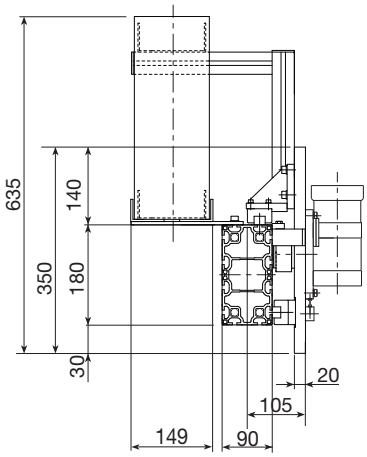
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ $Stroke_X$ [mm]

PAS 1

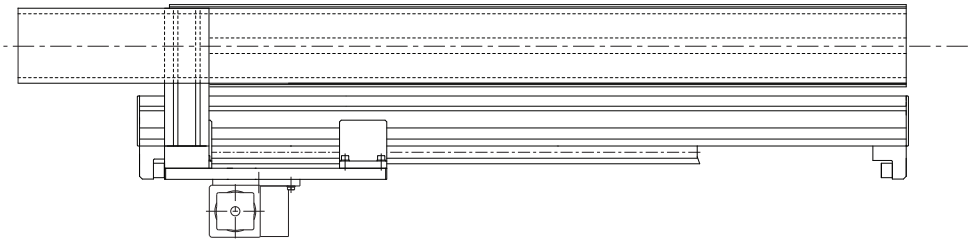
P / A / S / 180 / Stroke / Length / FRD / ...

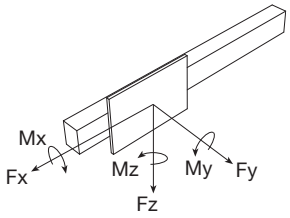
60 Kg PC **120 Kg**
High Cycle Rate Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3.5	[m/s]
Max. acceleration	10	[m/s²]
Repeatability	± 0.05	[mm]
Beam max. length without joint	8,000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAS 1	1,250	3,450	3,450	2,900	16,950	16,950

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	E01-5	
Rack (hardened, helical teeth, ground: module KSD)	module 2	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 20	
Room available for energy chain	115x45 approx.	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	44.56 (as an alternative 63.66)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 27	[kg]
Slide (plates + carriages)	M_{slitta} = 14	[kg]
Beam (incl. guide rails and rack)	q_X = 19	[kg/m]

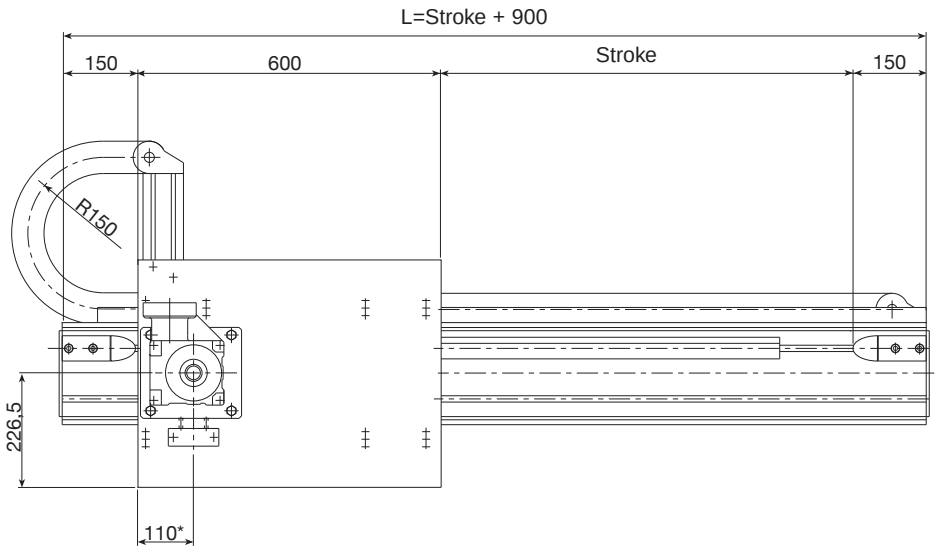
Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

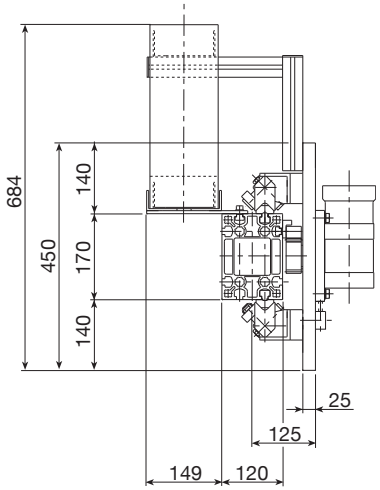
PAR 2

P / A / R / Q/ 170 / Stroke / Length / FRD / ...

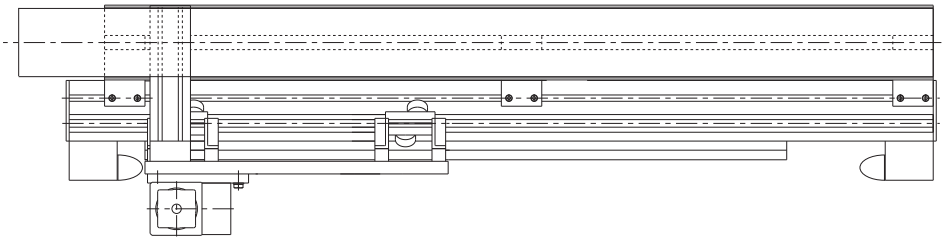
80 Kg PC **250 Kg**

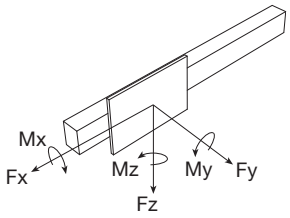
High Cycle Rate Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3.5	[m/s]
Max. acceleration	10	[m/s²]
Repeatability	± 0.2	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 2	560	1,350	1,350	5,980	7,000	7,050

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Assembly positions and load direction, see page TL-10

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Statyca	
Rack (hardened, helical teeth: module KSD)	module 3	[mm²]
Guide rail	35x16 (hardened and polished)	
Translation	4 roller slides with 2 rollers Ø40	
Room available for energy chain	115x45	[mm²]
Pinion pitch diameter type RD	63.66 (as an alternative 89.13)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 59 approx.	[kg]
Slide (plates + carriages)	M_{slide} = 29 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 31 approx.	[kg/m]

Formula:

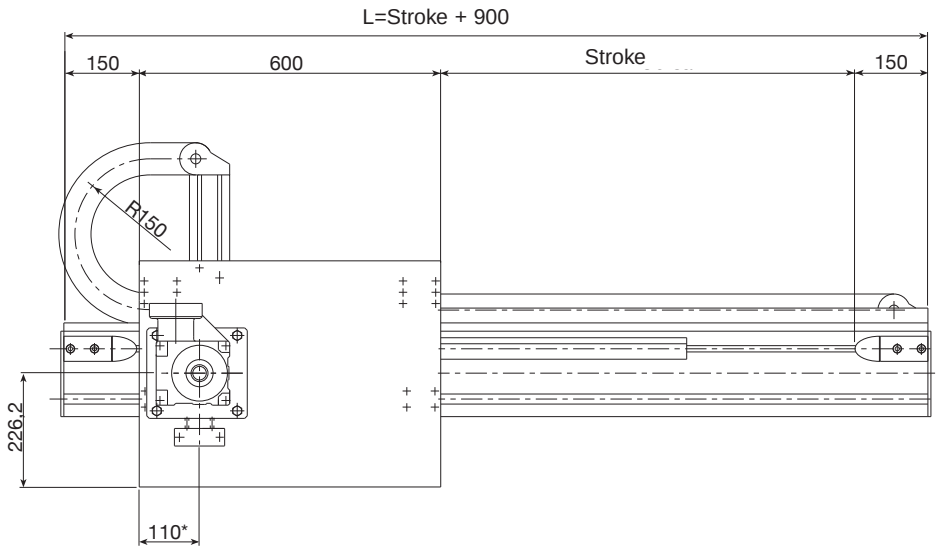
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ $Stroke_X$ [mm]

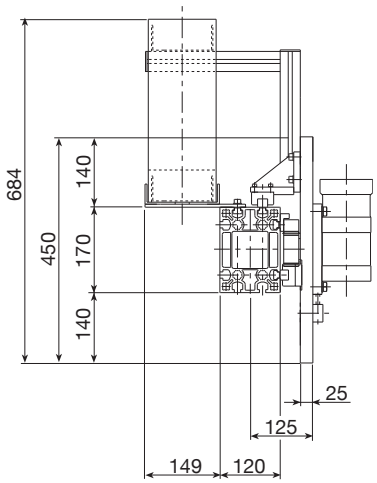
PASM 2

P / A / S / M / 170 / Stroke / Length / FRD / ...

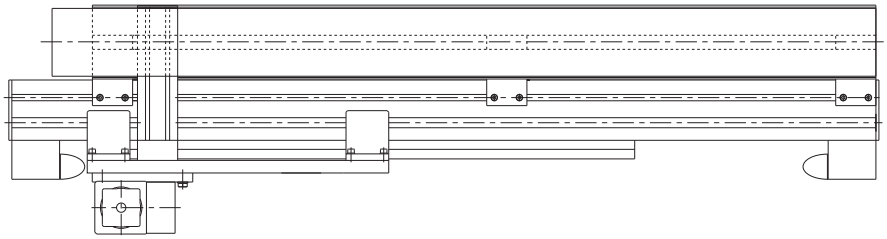
80 Kg PC **250 Kg**

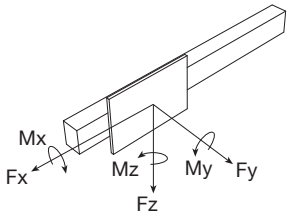
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3.5	[m/s]
Max. acceleration	10	[m/s²]
Repeatability	± 0.05	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM2	1,170	3,450	3,450	5,980	16,950	16,950

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Statyca	
Rack (hardened, helical teeth, ground: module KSD)	module 3	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 20	
Room available for energy chain	115x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	63.66 (as an alternative 89.13)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 57 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 29 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 29 approx.	[kg/m]

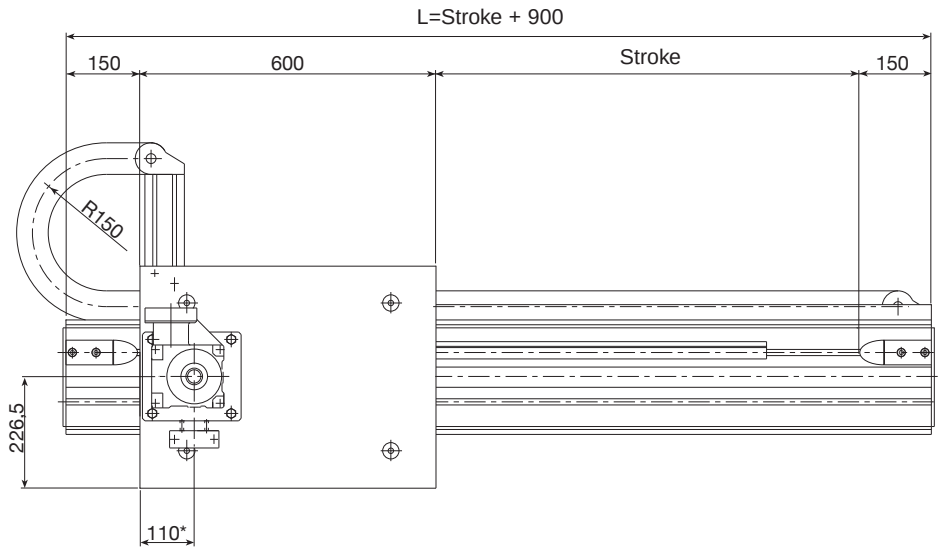
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

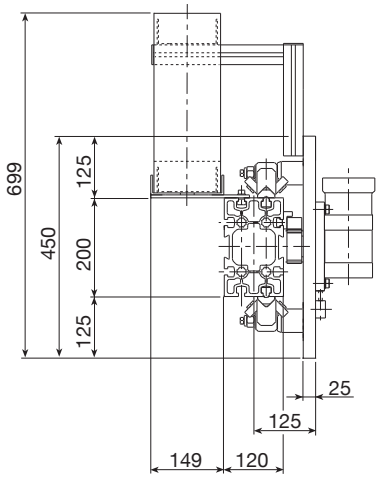
PAR 3

P / A / R / Q / 200 / Stroke / Length / FRD / ...

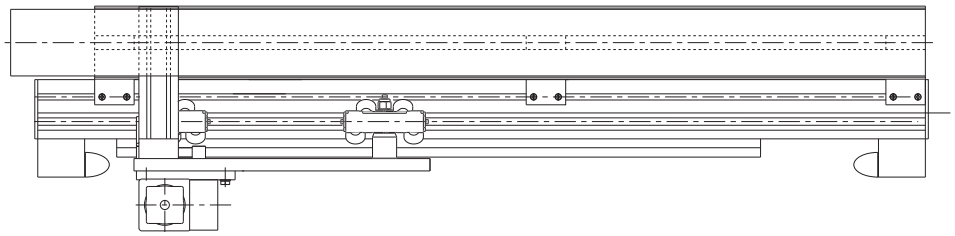
100 Kg PC **300 Kg**

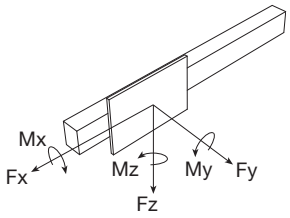
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	7	[m/s²]
Repeatability	± 0.2	[mm]
Beam max. length without joint	12000	[mm]

Assembly positions and load direction, see page TL-10

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 3	1,115	2,685	2,685	5,980	14,100	14,100

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 3	[mm²]
Guide rail	35x16 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø40	
Room available for energy chain	115x45	[mm²]
Pinion pitch diameter type RD	63.66 (as an alternative 89.13)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 70 approx.	[kg]
Slide (plates + carriages)	M_{slide} = 36 appox.	[kg]
Beam (incl. guide rails and rack)	q_X = 35 approx.	[kg/m]

Formula:

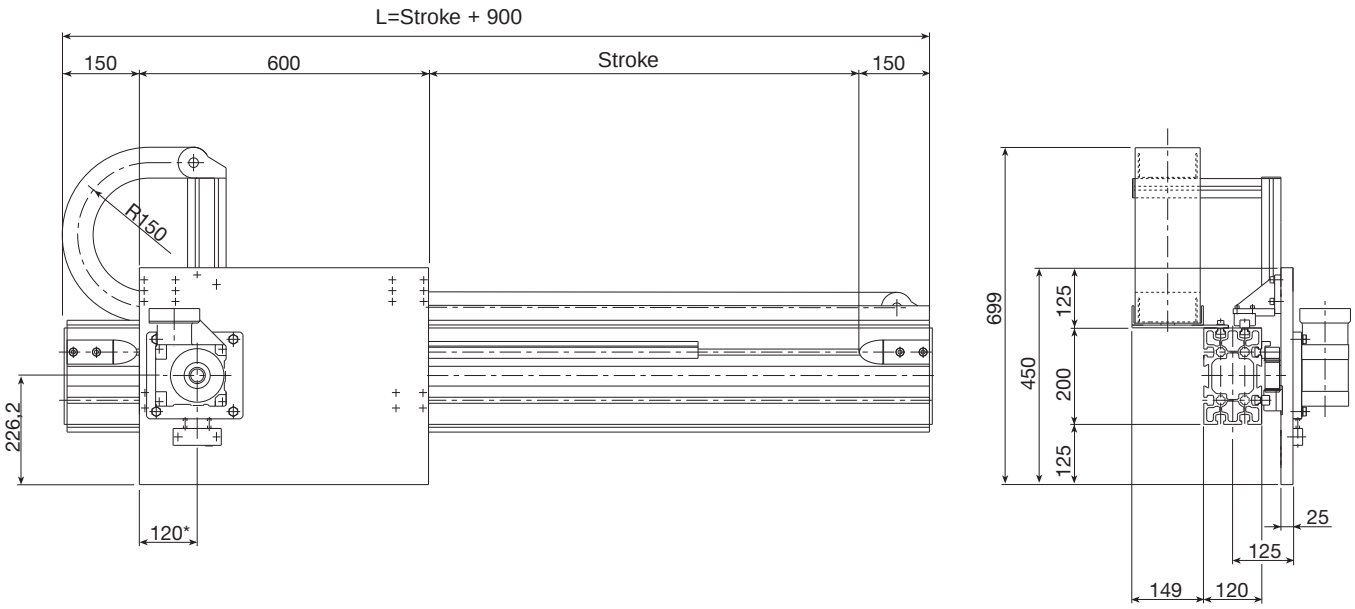
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

PASM 3

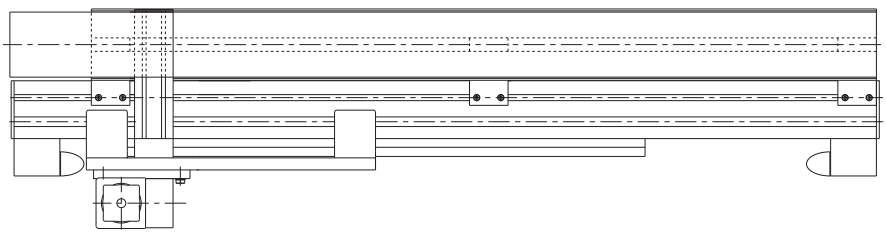
P / A / S / M / 200 / Stroke / Length / FRD / ...

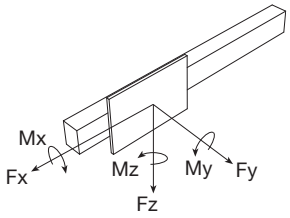
100 Kg PC **300 Kg**

High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	7	[m/s²]
Repeatability	± 0.05	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM3	1,280	3,500	3,500	5,980	16,950	16,950

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 3	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 20	
Room available for energy chain	115x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	63.66 (as an alternative 89.13)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 68 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 36 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 33 approx.	[kg/m]

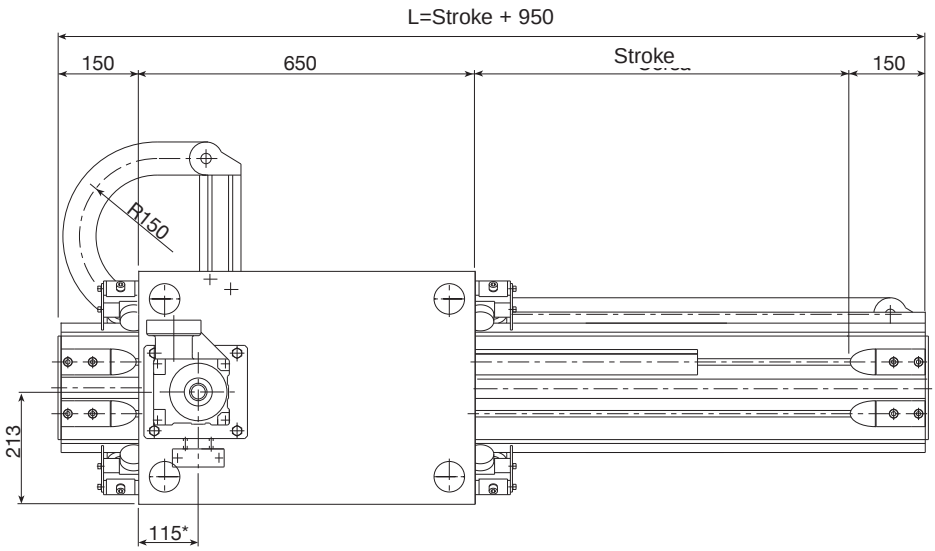
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ $Stroke_X$ [mm]

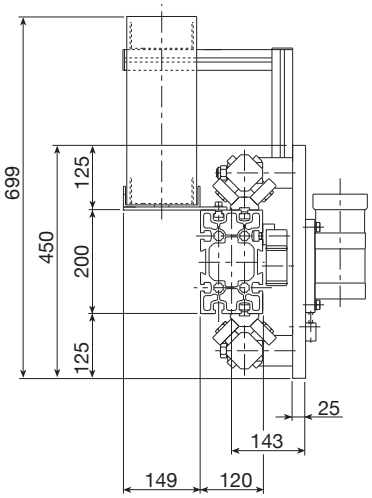
PAR 4

P / A / R / P / 200 / Stroke / Length / FRD / ...

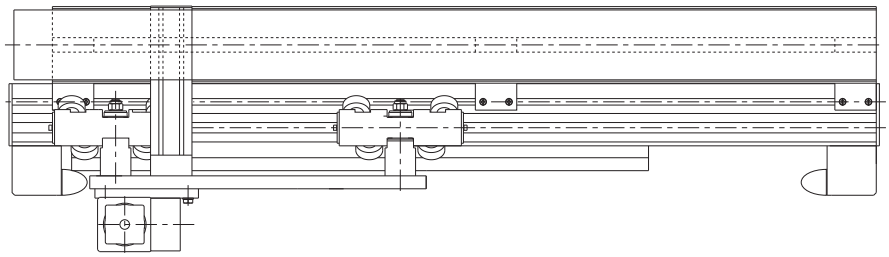
100 Kg PC **400 Kg**

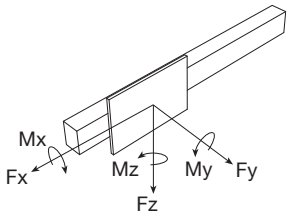
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	7	[m/s²]
Repeatability	± 0.2	[mm]
Beam max. length without joint	12000	[mm]

Assembly positions and load direction, see page TL-10

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 4	2,200	5,350	5,380	10,990	23,925	23,925

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm²]
Guide rail	55x25 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø52	
Room available for energy chain	115x45	[mm²]
Ø Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 96 approx.	[kg]
Slide (plates + carriages)	M_{slide} = 48 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 48 approx.	[kg/m]

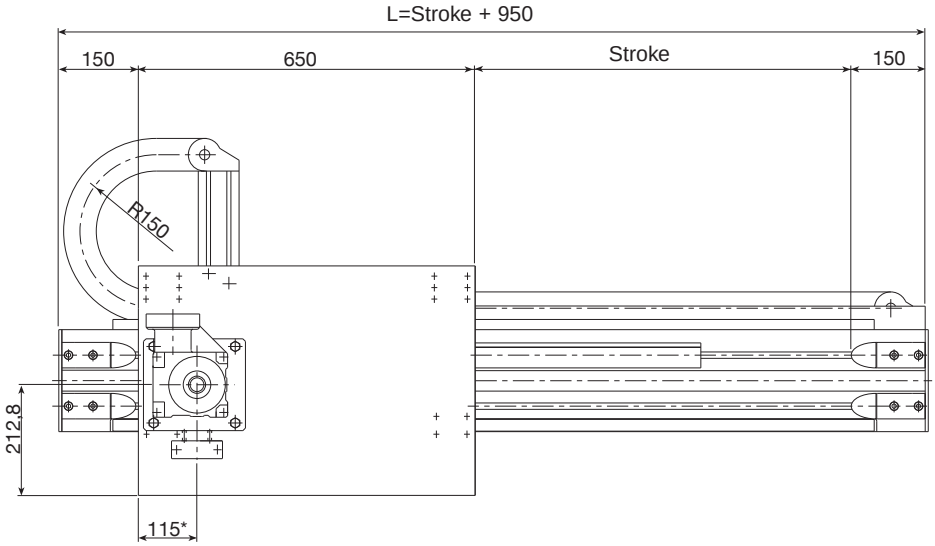
Formula:

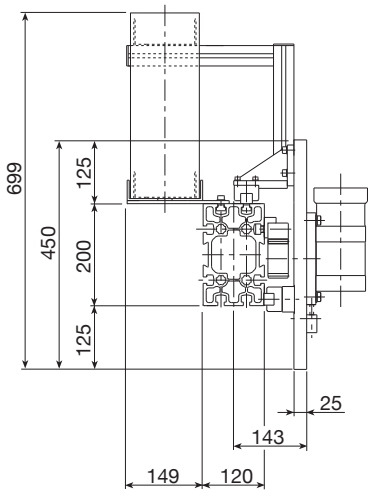
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ $Stroke_X$ [mm]

PASM 4

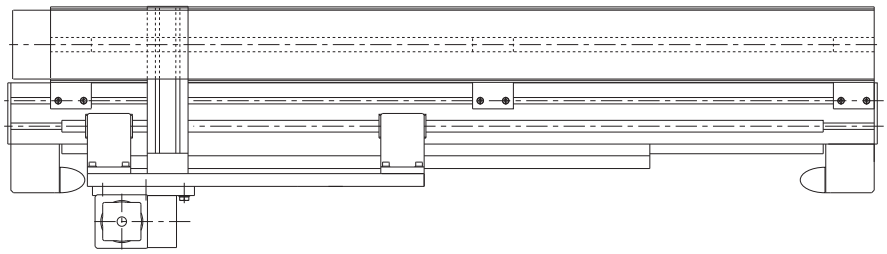
P / A / S / M / 200 / Stroke / Length / FRD / ...

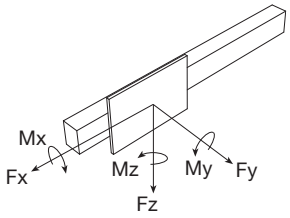
100 Kg PC **400 Kg**
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	7	[m/s²]
Repeatability	± 0,05	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM4	1,850	5,200	5,200	10,990	24,100	24,100

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 25	
Room available for energy chain	115x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 80 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 38 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 40 approx.	[kg/m]

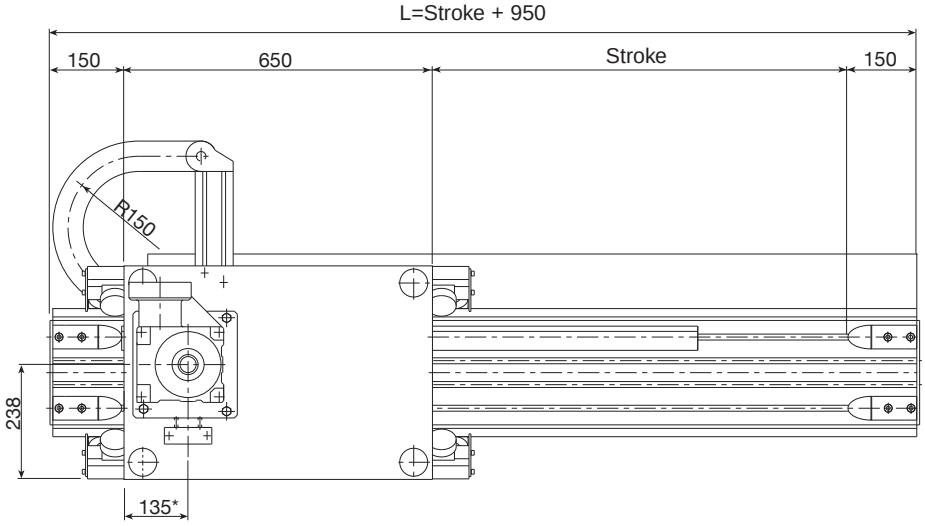
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

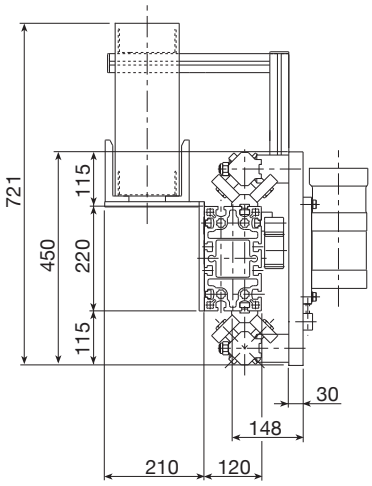
PAR 5

P / A / R / P / 220 / Stroke / Length / FRD / ...

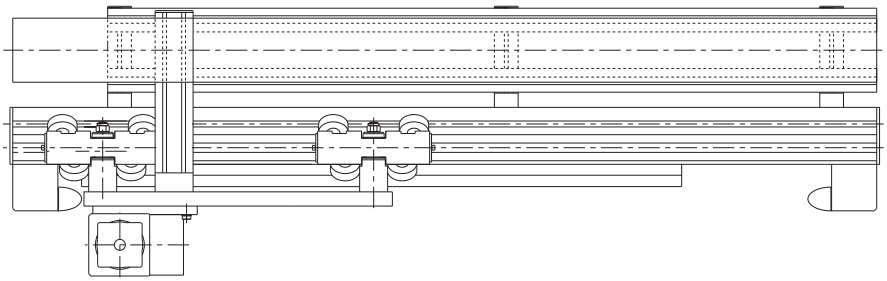
250 Kg PC **500 Kg**

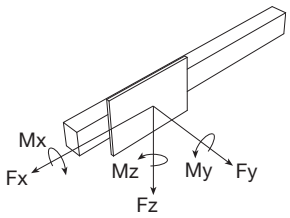
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc $_{max}$) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	6	[m/s^2]
Repeatability	± 0.2	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 5	3,000	6,720	6,720	10,990	29,900	29,900

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Assembly positions and load direction, see page TL-10

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Logyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm^2]
Guide rail	55x25 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø62	
Room available for energy chain	115x45	[mm^2]
Ø Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model (stroke$_x$=0)	M_{base} = 106 approx.	[kg]
Slide (plates + carriages)	M_{slide} = 54 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 52 approx.	[kg/m]

Formula:

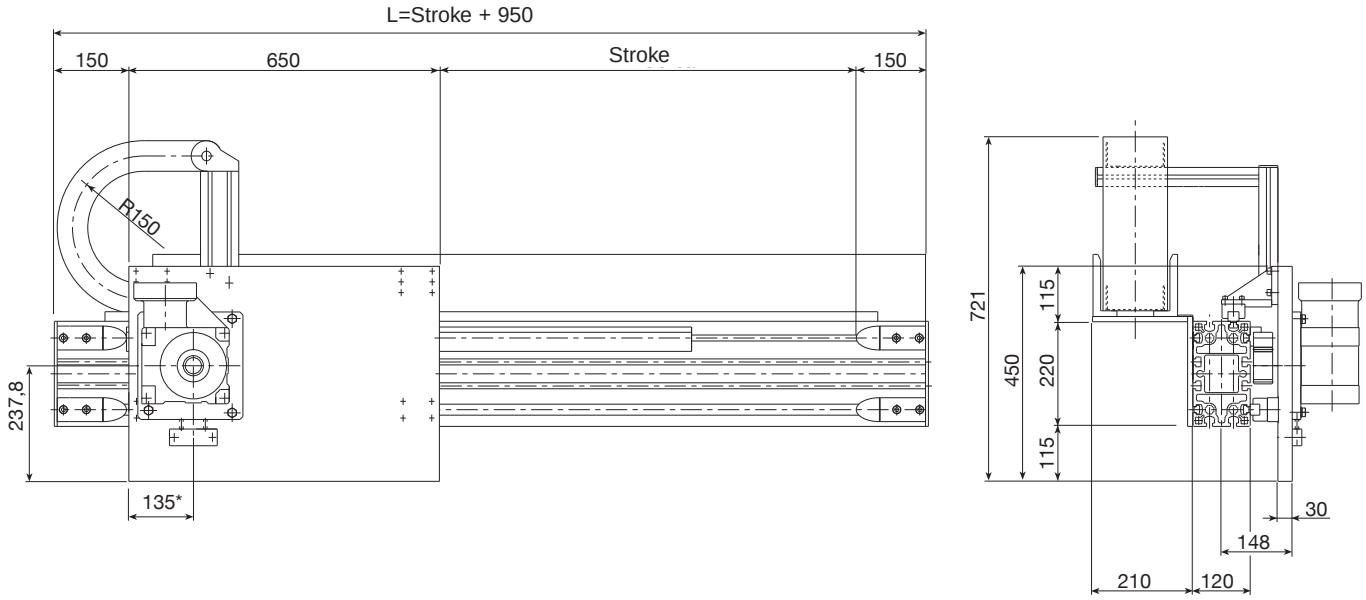
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ Stroke$_X$ [mm]

P / A / S / M / 220 / Stroke / Length / FRD / ...

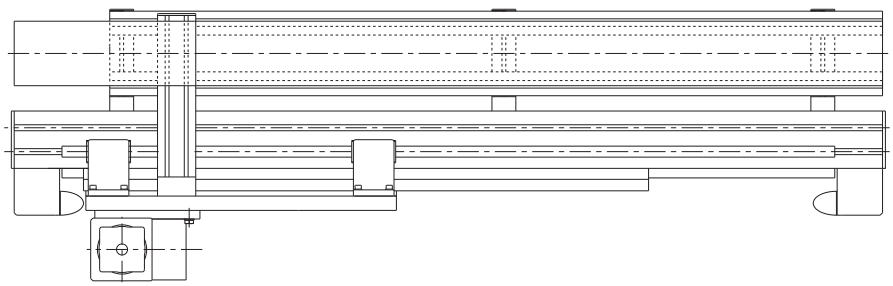
PC

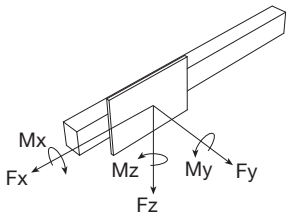
250 Kg — 500 Kg

High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc $_{max}$) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	6	[m/s^2]
Repeatability	± 0.05	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM 5	2,060	5,200	5,200	10,990	24,100	24,100

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Logyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm^2]
Translation: 4 caged ball roller slides and guide rails	Size 25	
Room available for energy chain	115x45	[mm^2]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
“Base” model (stroke$_x$=0)	M_{base} = 90 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 44 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 44 approx.	[kg/m]

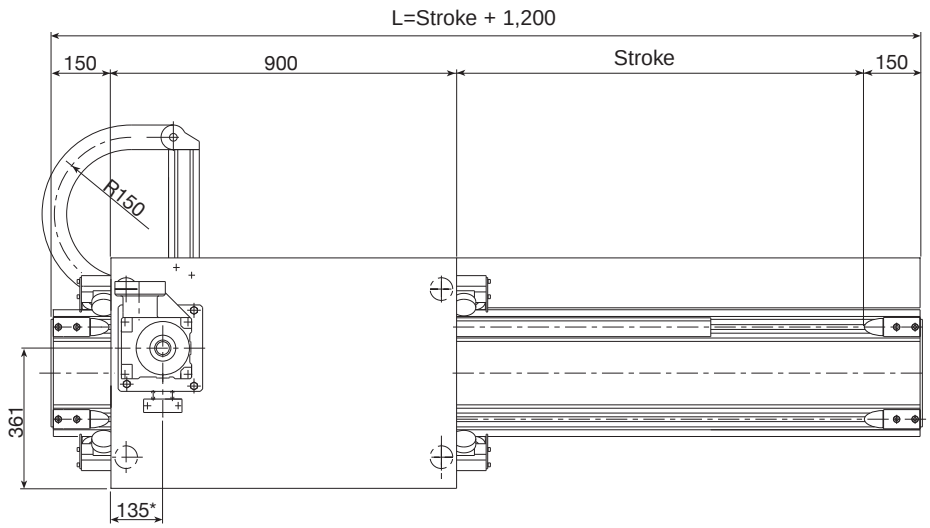
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ Stroke$_X$ [mm]

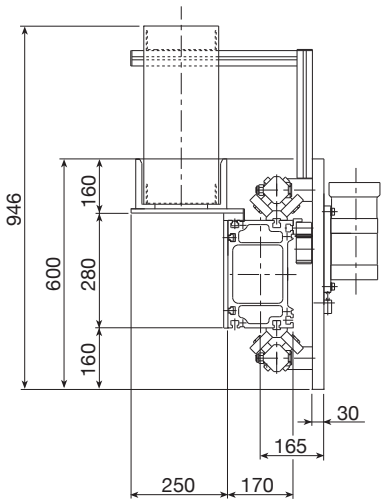
PAR 6

P / A / R / P / 280 / Stroke / Length / FRD / ...

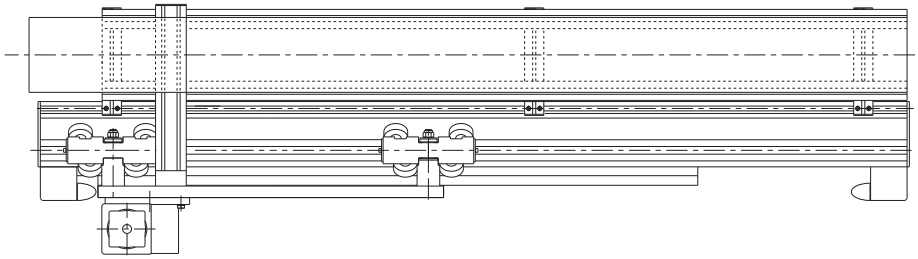
300 Kg PC **600 Kg**

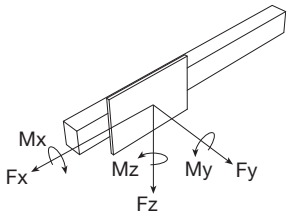
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	4	[m/s²]
Repeatability	± 0.2	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 6	3,700	8,770	8,770	10,990	29,900	29,900

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Assembly positions and load direction, see page TL-10

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm²]
Guide rail	55x25 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø62	
Room available for energy chain	175x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 164	[kg]
Slide (plates + carriages)	M_{slide} = 79	[kg]
Beam (incl. guide rails and rack)	q_X = 66	[kg/m]

Formula:

Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

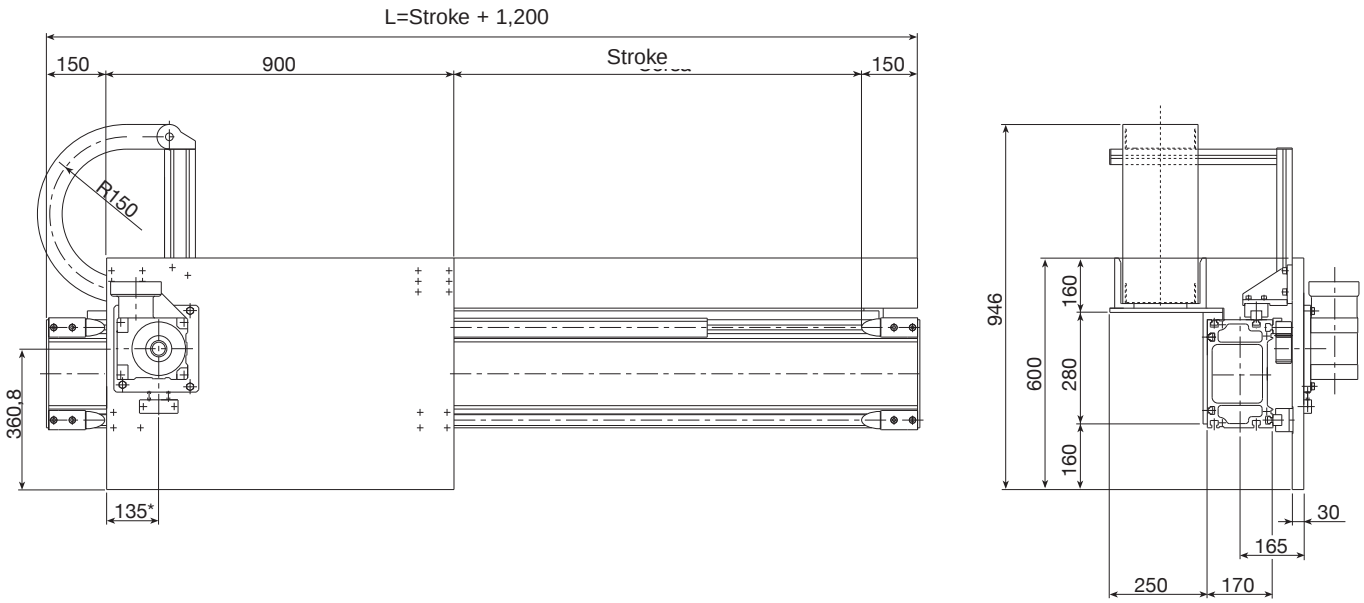
PASM 6

Tecline

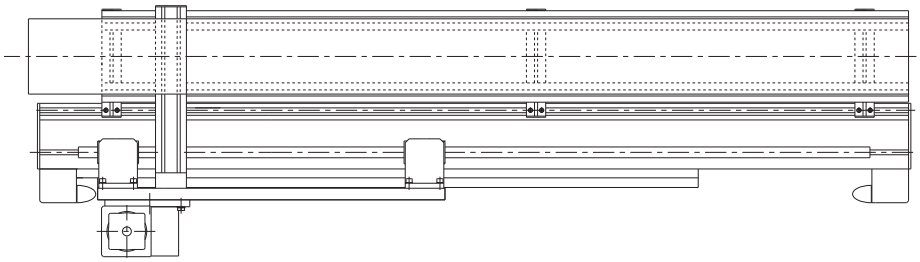
P / A / S / M / 280 / Stroke / Length / FRD / ...

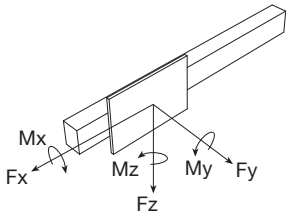
300 Kg PC **600 Kg**

High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	5	[m/s²]
Repeatability	± 0.05	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM 6	4,160	6,750	6,750	10,990	34,050	34,050

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 30	
Room available for energy chain	175x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 149 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 69 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 60 approx.	[kg/m]

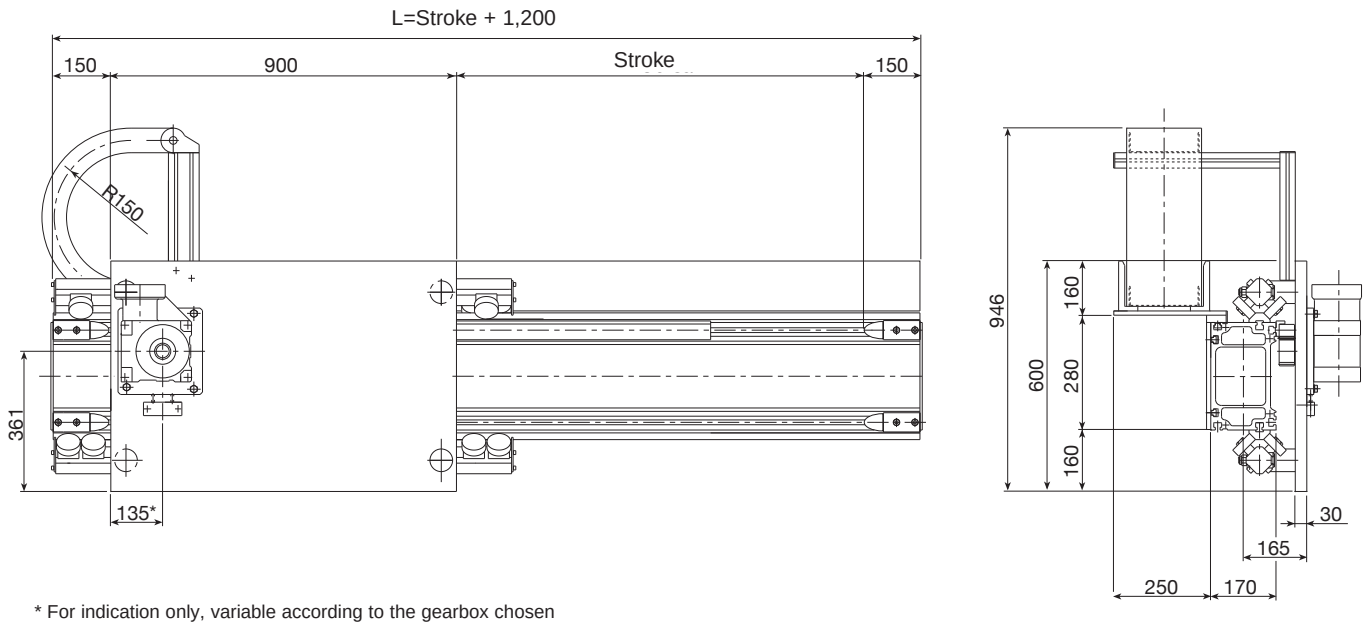
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

PAR 8

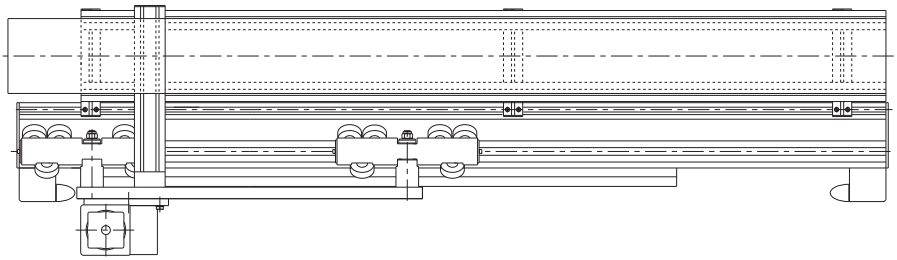
P / A / R / P / 280 / Stroke / Length / FRD / ...

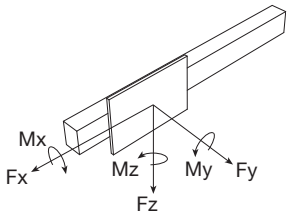
300 Kg PC **800 Kg**

High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	2.5	[m/s]
Max. acceleration	2	[m/s²]
Repeatability	± 0.25	[mm]
Beam max. length without joint	12000	[mm]

Assembly positions and load direction, see page TL-10

** With vertical positioning of the unit, a partial load capacity compensation is required

Recommended max working conditions						
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_y[N]**	**F_z[N]**
PAR 8	5,550	8,800	13,160	10,990	29,900	29,900

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The values shown can be achieved with roller slides with 6 rollers suitable for maximum performance (see page TL-63-TL-64).

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	
Rack (hardened, helical teeth: module KRD)	module 4	[mm²]
Guide rail	55x25 (hardened and polished)	
Translation	4 roller slides with 6 rollers Ø62	
Room available for energy chain	175x45	[mm²]
Ø Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 173 approx.	[kg]
Slide (plates + carriages)	M_{slide} = 88 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 66 approx.	[kg/m]

Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

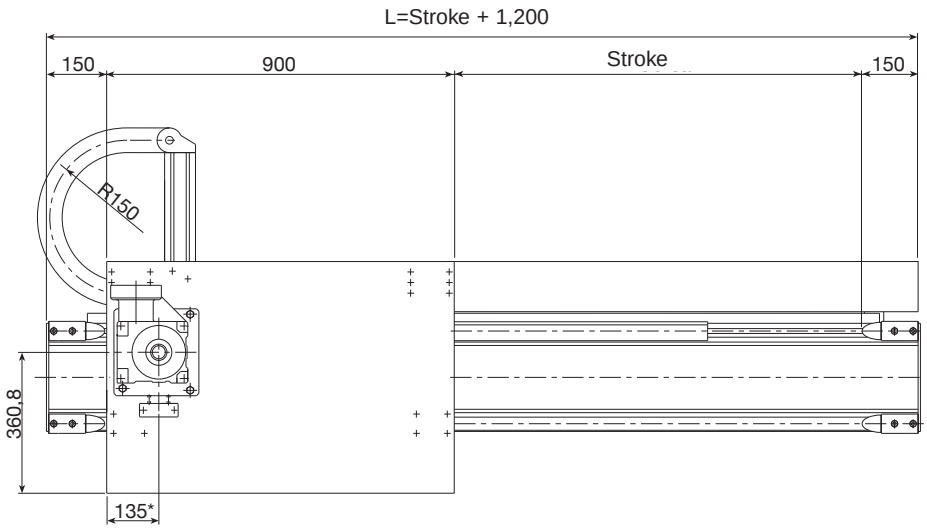
PASM 8

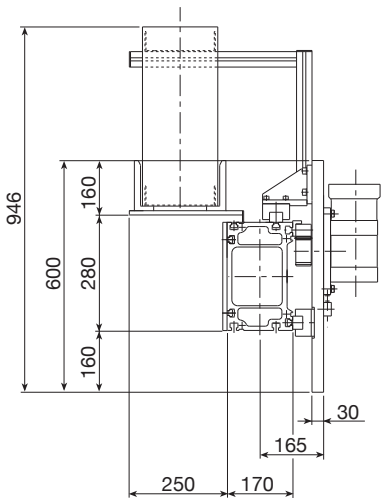
Tecline

P / A / S / M / 280 / Stroke / Length / FRD / ...

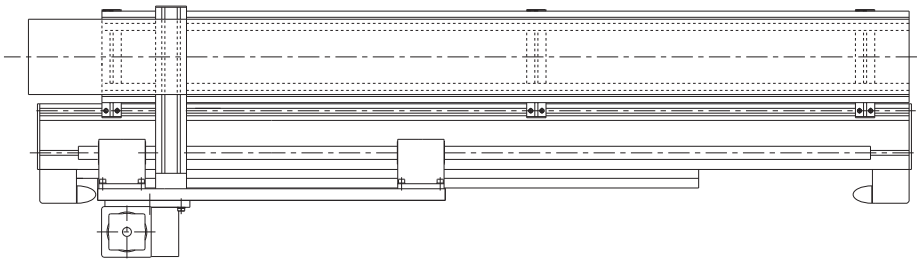
300 Kg PC **800 Kg**

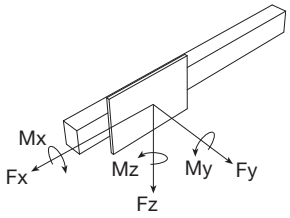
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	2.5	[m/s]
Max. acceleration	2	[m/s²]
Repeatability	± 0.1	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM 8	5,840	13,100	13,100	10,990	47,350	47,350

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page 15/17)	Pratyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 35	
Room available for energy chain	175x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	[mm]

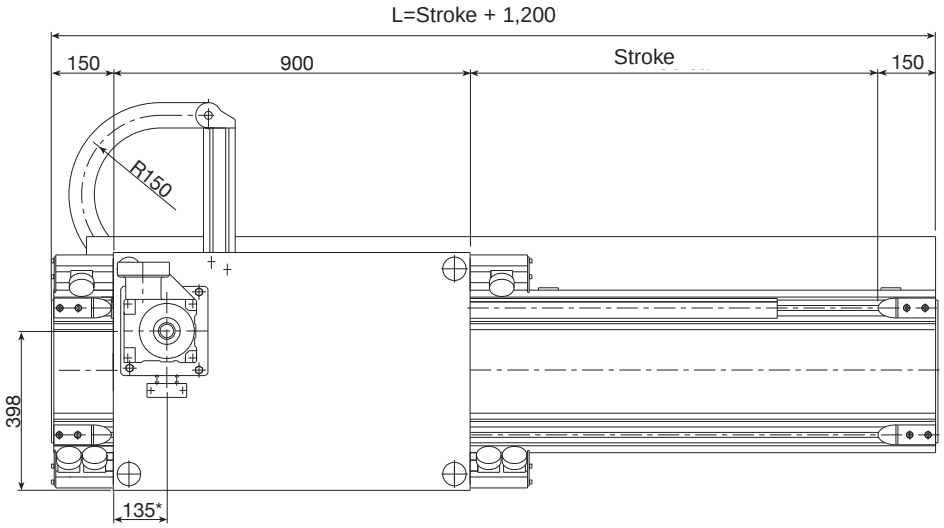
Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 159 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 76 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 64 approx.	[kg/m]

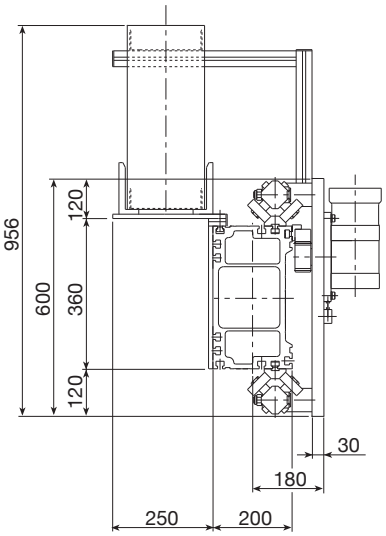
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ $Stroke_X$ [mm]

PAR 10

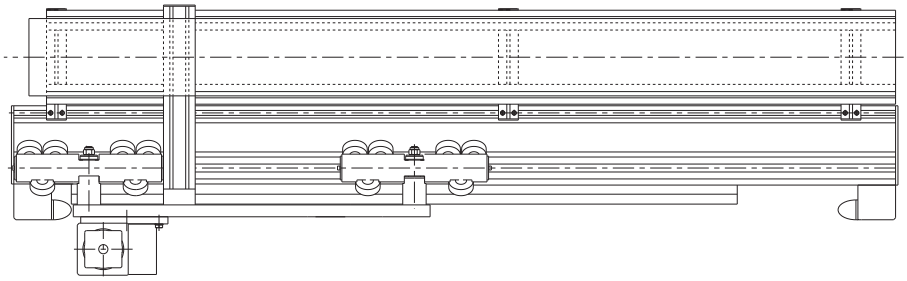
P / A / R / P / 360 / Stroke / Length / FRD / ...

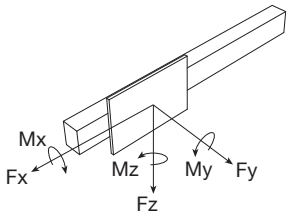
500 Kg PC **1000 Kg**
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performance	X-axis	
Max. load (Pc $_{max}$) with load on axis (L ≤ 1,600 mm)		
Max. speed	2.5	[m/s]
Max. acceleration	2	[m/s^2]
Repeatability	± 0.25	[mm]
Beam max. length without joint	12000	[mm]

Assembly positions and load direction, see page TL-10

** With vertical positioning of the unit, a partial load capacity compensation is required

Recommended max working conditions						
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PAR 10	6,900	8,800	13,160	10,990	29,900	29,900

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The values shown can be achieved with roller slides with 6 rollers suitable for maximum performance (see page TL-63-TL-64).

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Solyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm^2]
Guide rail	55x25 (hardened and polished)	
Translation	4 roller slides with 6 rollers Ø62	
Room available for energy chain	115x45	[mm^2]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	[mm]

Weights	X-axis	
"Base" model (stroke$_x$=0)	M_{base} = 196 approx.	[kg]
Slide (plates + carriages)	M_{slide} = 88 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 85 approx.	[kg/m]

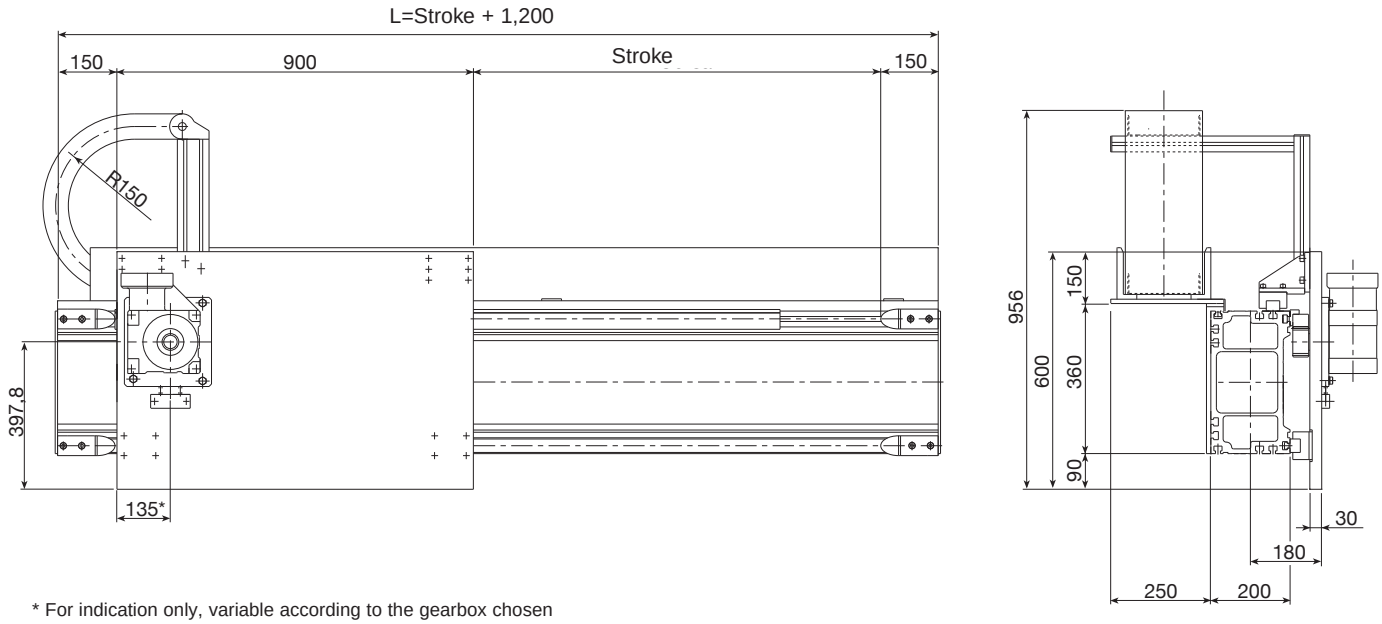
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1{,}000}$ Stroke$_X$ [mm]

PASM 10

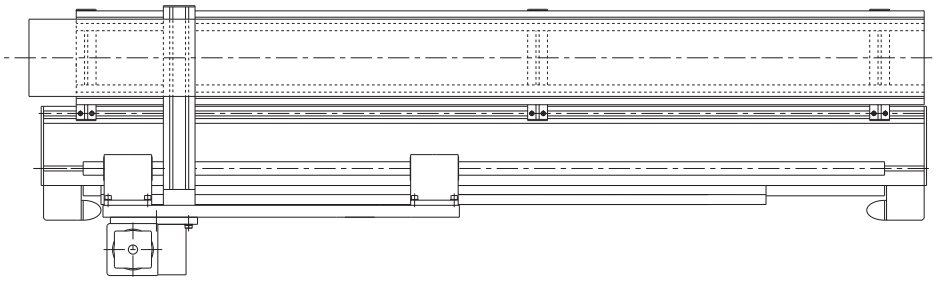
P / A / S / M / 360 / Stroke / Length / FRD / ...

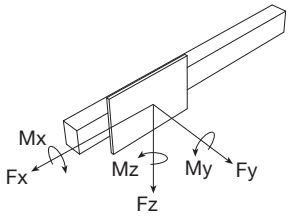
500 Kg PC **1000 Kg**

High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performances	X-axis	
Max. load (Pc_{max}) with load on axis (L ≤ 1,600 mm)		
Max. speed	2.5	[m/s]
Max. acceleration	3	[m/s²]
Repeatability	± 0.1	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
PASM10	7,240	13,100	13,100	10,990	47,350	47,350

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Construction data	X-axis	
Load-bearing beam (see page TL-12 to TL-15)	Solyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	Size 35	
Room available for energy chain	175x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76,39 (as an alternative 106.1)	[mm]

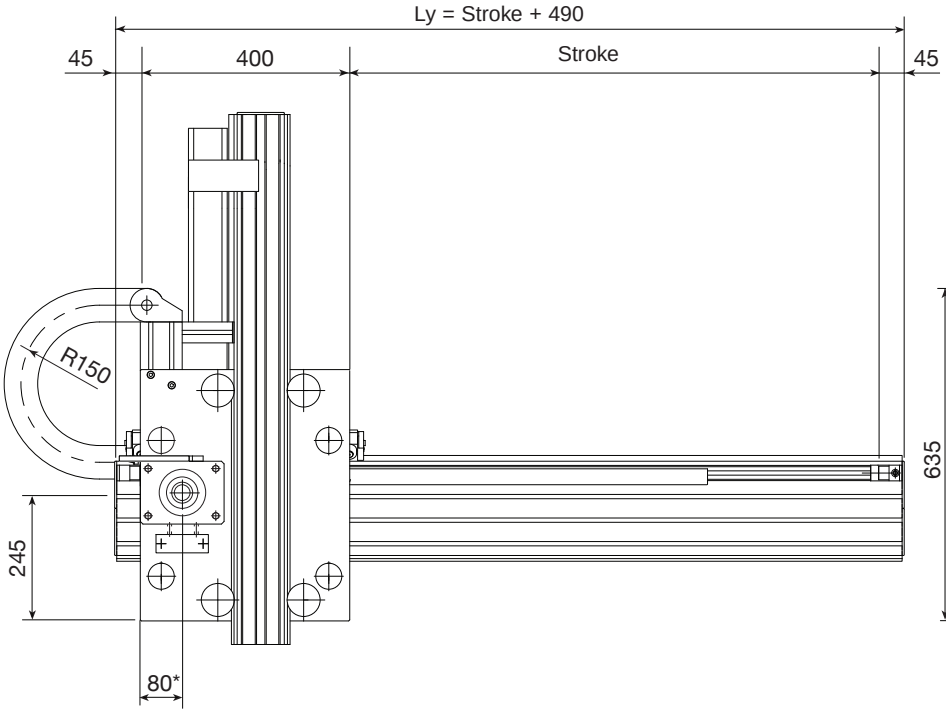
Weights	X-axis	
"Base" model ($stroke_x$=0)	M_{base} = 182 approx.	[kg]
Slide (plates + carriages)	M_{slitta} = 76 approx.	[kg]
Beam (incl. guide rails and rack)	q_X = 83 approx.	[kg/m]

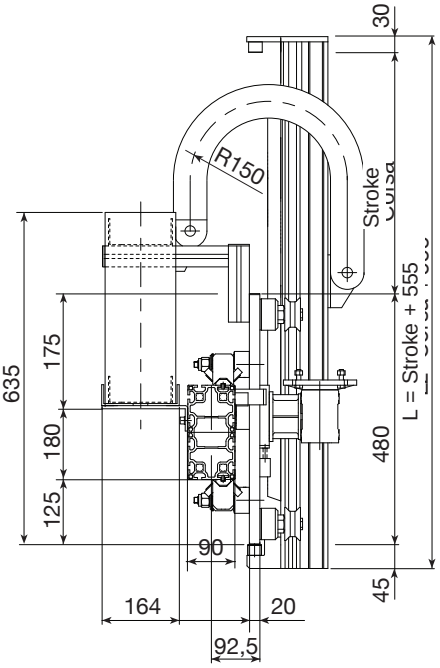
Formula:
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_x \bullet stroke_x)/1,000}$ $Stroke_X$ [mm]

PAR 1/05

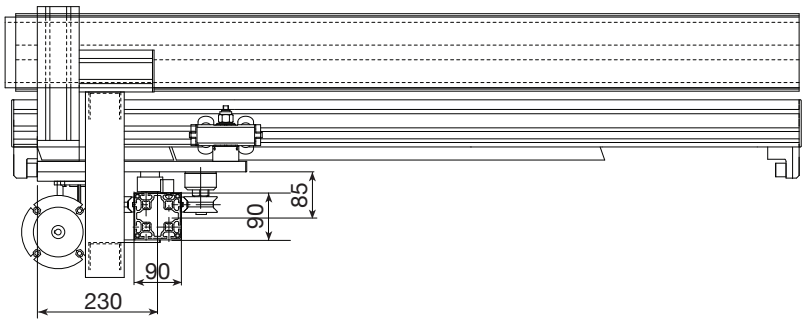
Y-Axis / P / A / R / Q / 180 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / Q / 90 / Stroke / Length / X / FRD / ...

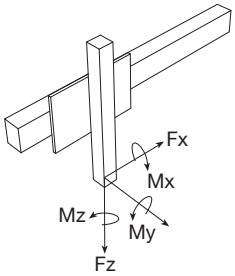
PC
5 Kg — 80 Kg
High Cycle Rate — Low Cycle Rate





* For indication only, variable according to the gearbox chosen





Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis	(Lz ≤ 1,600 mm)		
Max. speed	3.5	3.5	[m/s]
Max. acceleration	8	5	[m/s^2]
Repeatability	-	±0.2*	[mm]
Beam max. length without joint	8000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAR 1/05	490	1,170	1,170	1,600	1,620

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	E01-5	E01-4	
Rack (hardened, helical teeth, ground: module KSD)	module 2	module 2	[mm^2]
Guide rails	28x11 (hardened)	28x11 (hardened)	
Translation	4 roller slides with 4 rollers Ø30	4 V-shaped rollers Ø63	
Room available for energy chain	115x45	75x45	[mm^2]
Pinion pitch diameter type RD	44.56 (as an alternative 63.66)	44.56 (as an alternative 63.66)	[mm]

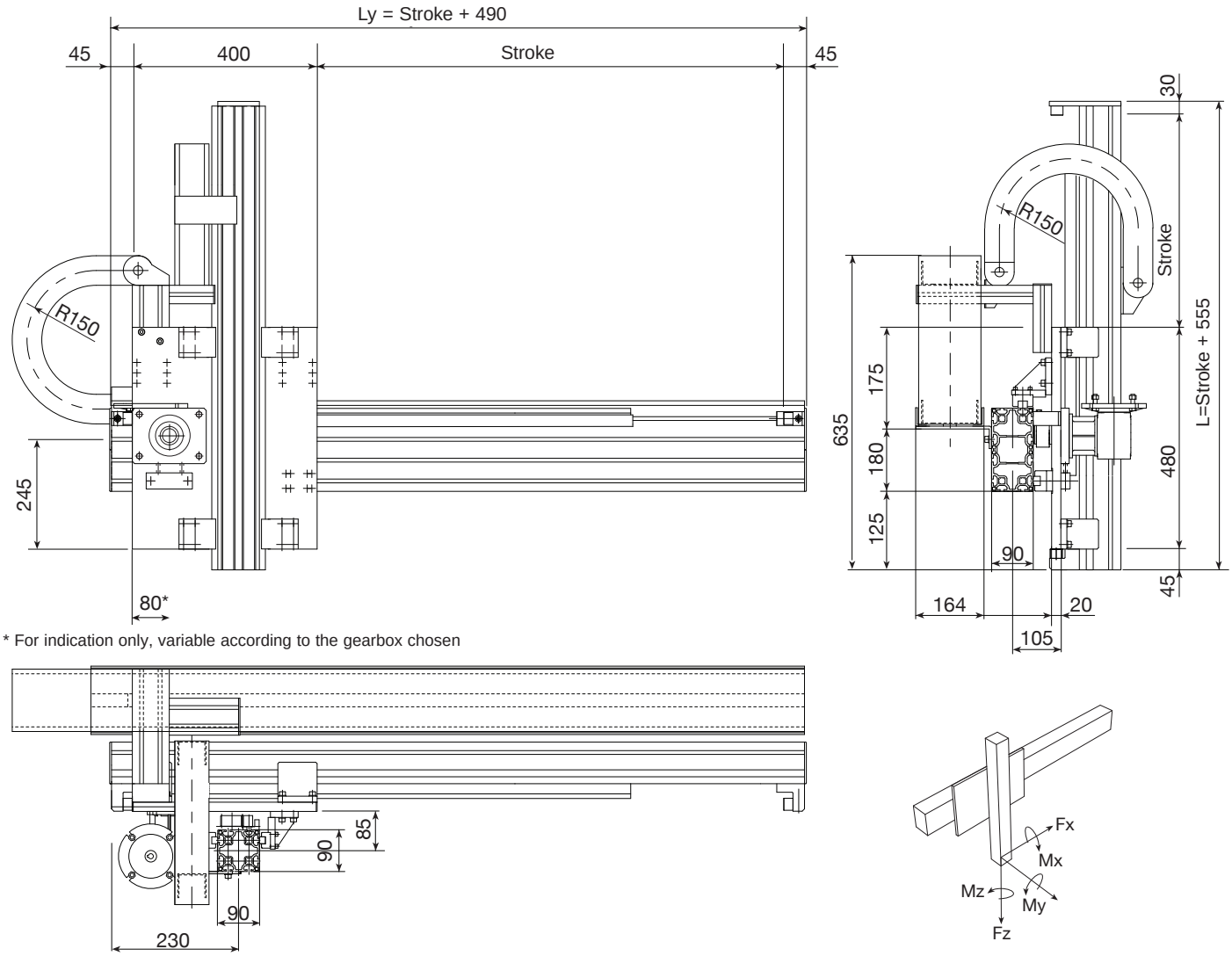
Weights	Y-axis	Z-axis	
"Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 59		[kg]
Slide (plates + carriages)	M_{slide} = 26		[kg]
Beam (incl. guide rails and rack)	q_y = 22	q_z = 15	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1{,}600)/1{,}000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1{,}000}$ Stroke$_X$ and stroke$_Z$ [mm]

PAS 1/05

Y-Axis / P / A / S / 180 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / 90 / Stroke / Length / X / FRD / ...

PC
25 Kg — 80 Kg
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3.5	3.5	[m/s]
Max. acceleration	8	5	[m/s^2]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	8000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAS 1/05	1,220	1,440	320	1,200	2,310

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	E01-5	E01-4	
Rack (hardened, helical teeth, ground: module KSD)	module 2	module 2	[mm^2]
Translation: 4 caged ball roller slides and guide rails	size 20	size 15	
Room available for energy chain	115x45	75x45	[mm^2]
Pinion pitch diameter (induction-hardened, ground - RD)	44.56 (as an alternative 63.66)	44.56 (as an alternative 63.66)	[mm]

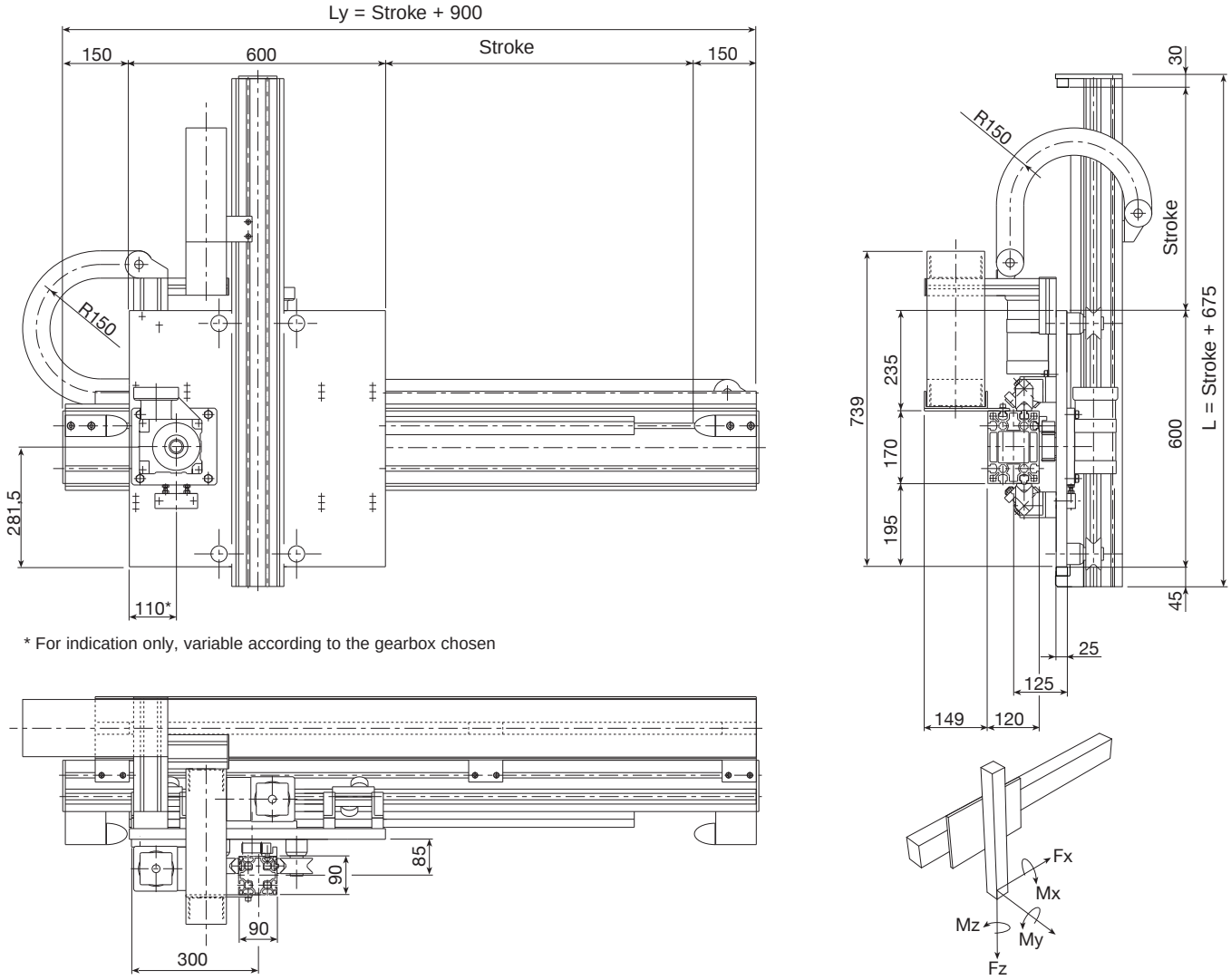
Weights	Y-axis	Z-axis	
Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 59		[kg]
Slide (plates + carriages)	M_{slide} = 26		[kg]
Beam (incl. guide rails and rack)	q_y = 24	q_z = 14	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

PAR 2/1

Y-Axis / P / A / R / Q / 170 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / P / 90 / Stroke / Length / X / FRD / ...

25 Kg PC **80 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3.5	3.5	[m/s]
Max. acceleration	10	7	[m/s^2]
Repeatability	-	±0.2*	[mm]
Beam max. length without joint	8000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAR 2/1	956	1,340	170	3,200	2,300

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Statyca	E01-4	
Rack (hardened, helical teeth, ground: module KSD)	module 3	module 2	[mm^2]
Guide rails	35x16 (hardened and polished)	28x11 (hardened and polished)	
Translation	4 roller slides with 2 rollers Ø40	4 V-shaped rollers Ø63	
Room available for energy chain	115x45	75x45	[mm^2]
Pinion pitch diameter type RD	63.66 (as an alternative 89.13)	44.56 (as an alternative 63.66)	[mm]

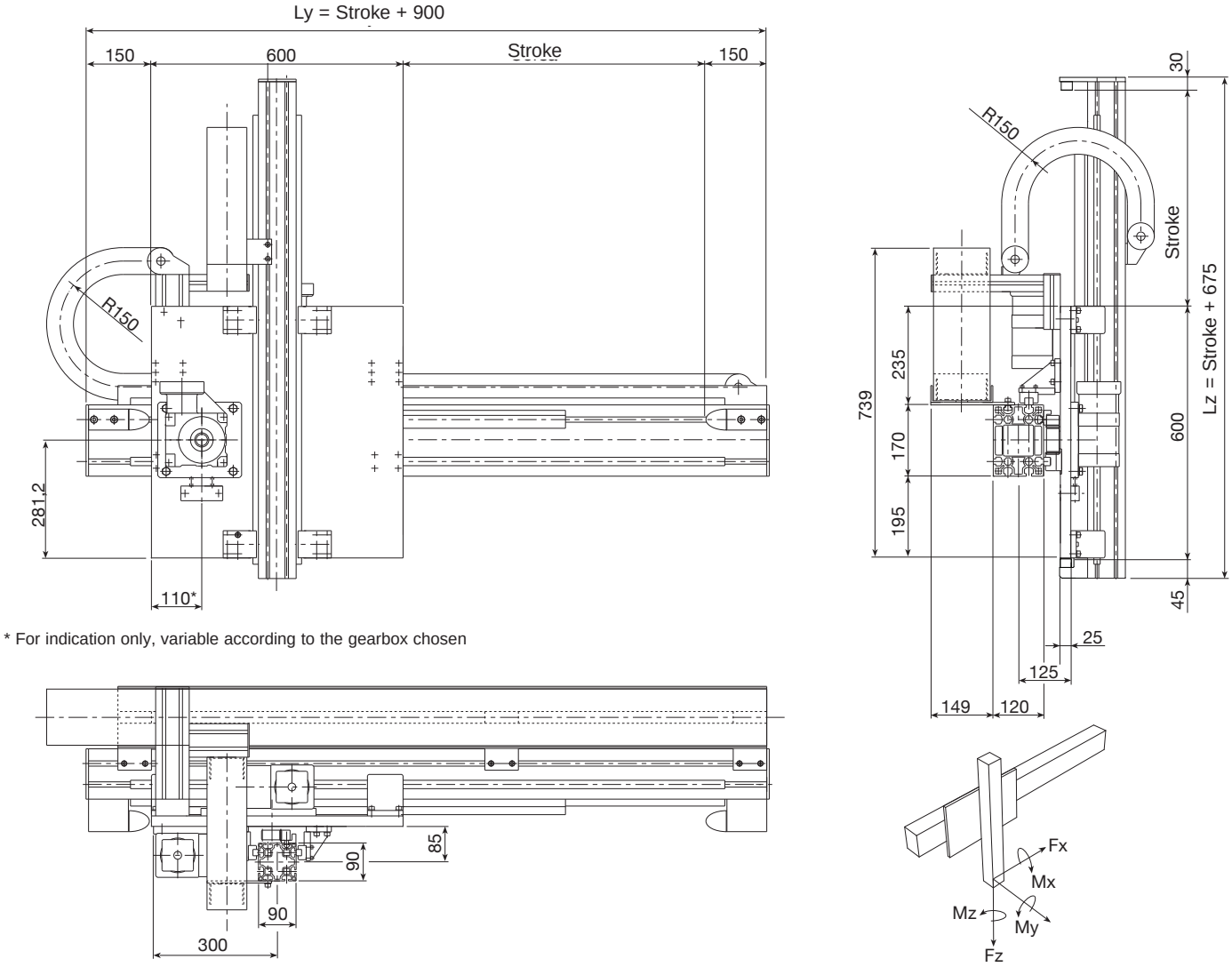
Weights	Y-axis	Z-axis	
"Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 88 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 44 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 31 approx.	q_z = 15 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

PASM 2/1

Y-Axis / P / A / S / M / 170 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 90 / Stroke / Length / X / FRD / ...

25 Kg PC **80 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3.5	3.5	[m/s]
Max. acceleration	10	7	[m/s²]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	6000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 2/1	1,170	1,440	320	3,200	2,300

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Statyca	E01-4	
Rack (hardened, helical teeth, ground: module KSD)	module 3	module 2	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 20	size 15	
Room available for energy chain	115x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	63.66 (as an alternative 89.13)	44.56 (as an alternative 63.66)	[mm]

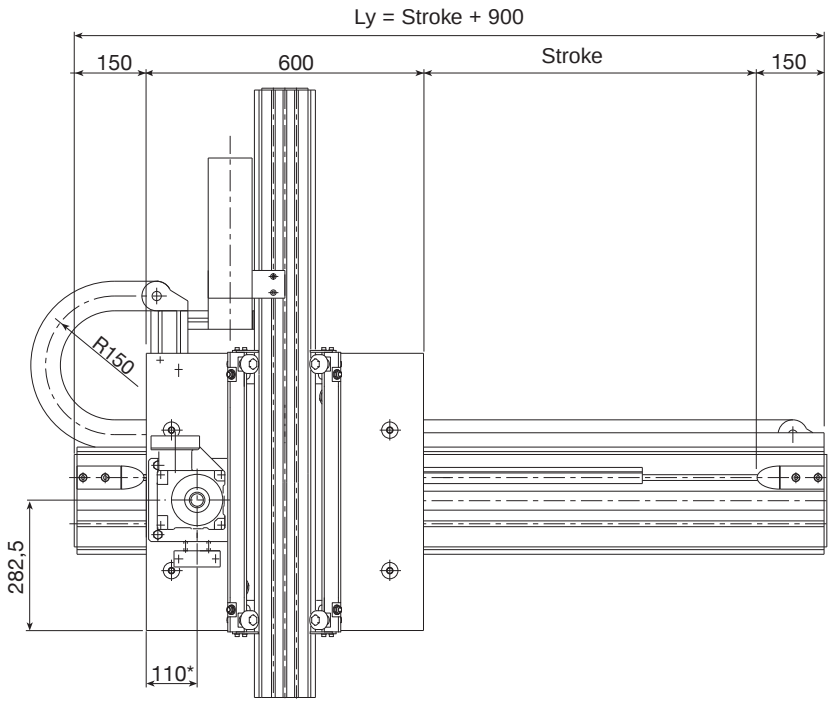
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 89 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 43 approx		[kg]
Beam (incl. guide rails and rack)	q_y = 29 approx.	q_z = 14 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y+q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

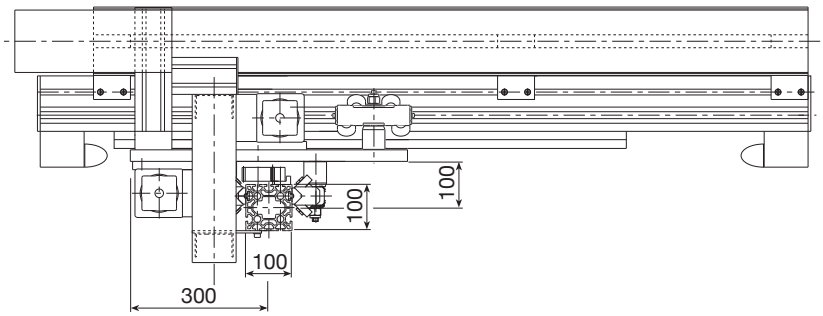
PAR 3/1

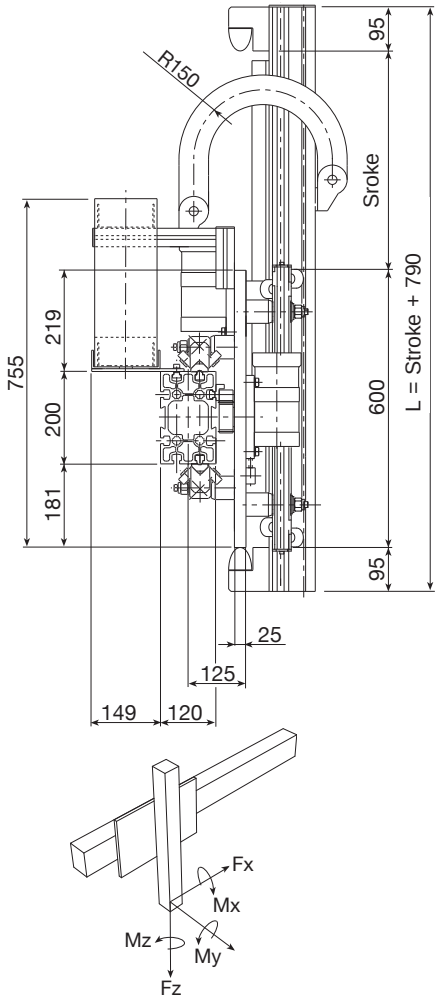
Y-Axis / P / A / R / Q / 200 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / Q / 100 / Stroke / Length / X / FRD / ...

PC
25 Kg — **100 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	7	7	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_z[N]**
PAR 3/1	1,115	1,520	352	3,200	2,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

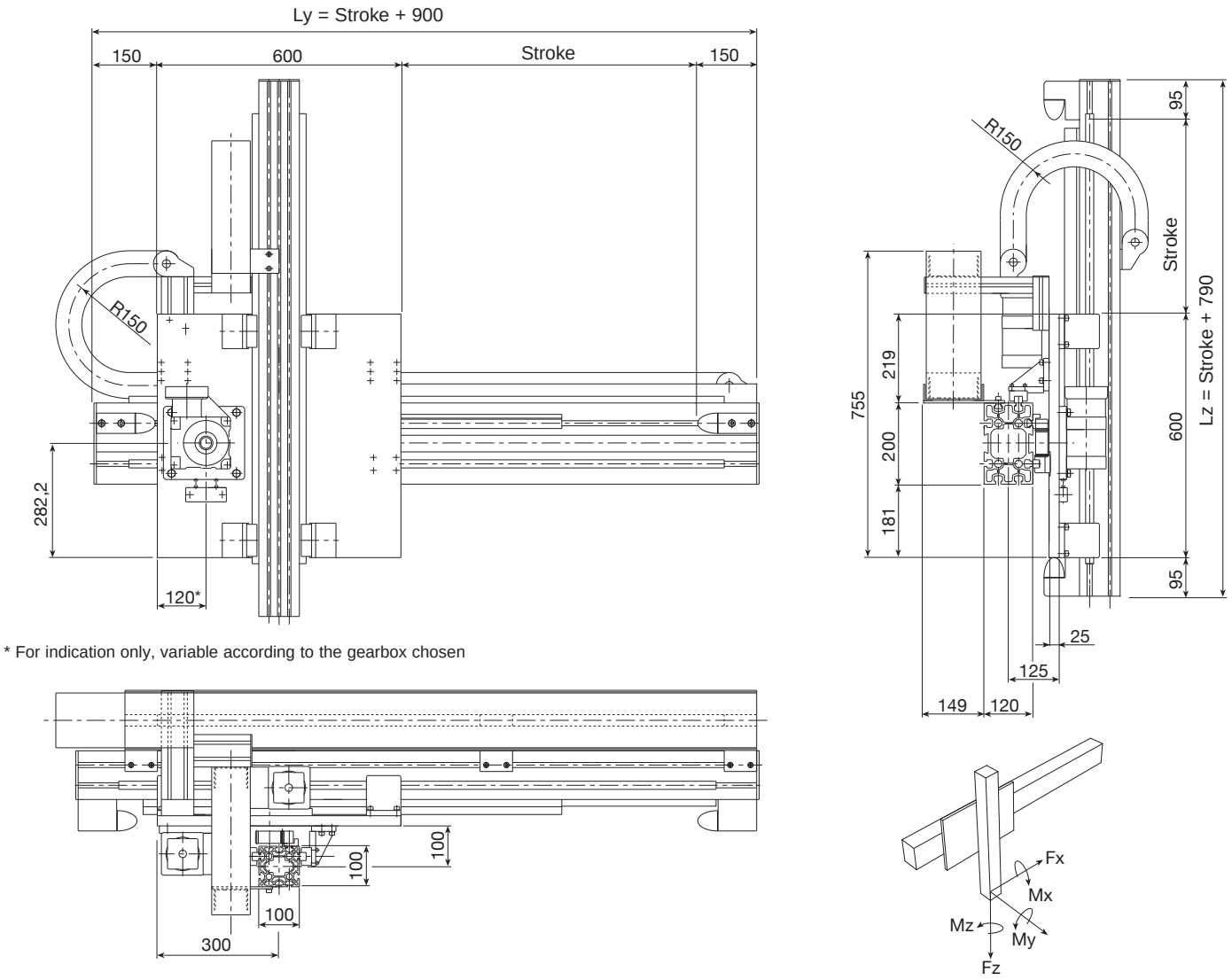
Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	MA1-5	
Rack (hardened, helical teeth, ground: module KSD)	module 3	module 3	[mm²]
Guide rails	35x16 (hardened and polished)	35x16 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø40	2 roller slides with 4 rollers Ø40	
Room available for energy chain	115x45	75x45	[mm²]
Pinion pitch diameter type RD	63.66 (as an alternative 89.13)	63.66 (as an alternative 89.13)	[mm]

Weights	Y-axis	Z-axis	
"Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 111 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 54 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 35 approx.	q_z = 24 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

Y-Axis / P / A / S / M / 200 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 100 / Stroke / Length / X / FRD / ...

PC
25 Kg — 100 Kg
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	7	7	[m/s^2]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	12000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 3/1	1,280	1,890	485	3,200	2,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	MA1-5	
Rack (hardened, helical teeth, ground: module KSD)	module 3	module 3	[mm^2]
Translation: 4 caged ball roller slides and guide rails	size 20	size 20	
Room available for energy chain	115x45	75x45	[mm^2]
Pinion pitch diameter (induction-hardened, ground - RD)	63.66 (as an alternative 89.13)	63.66 (as an alternative 89.13)	[mm]

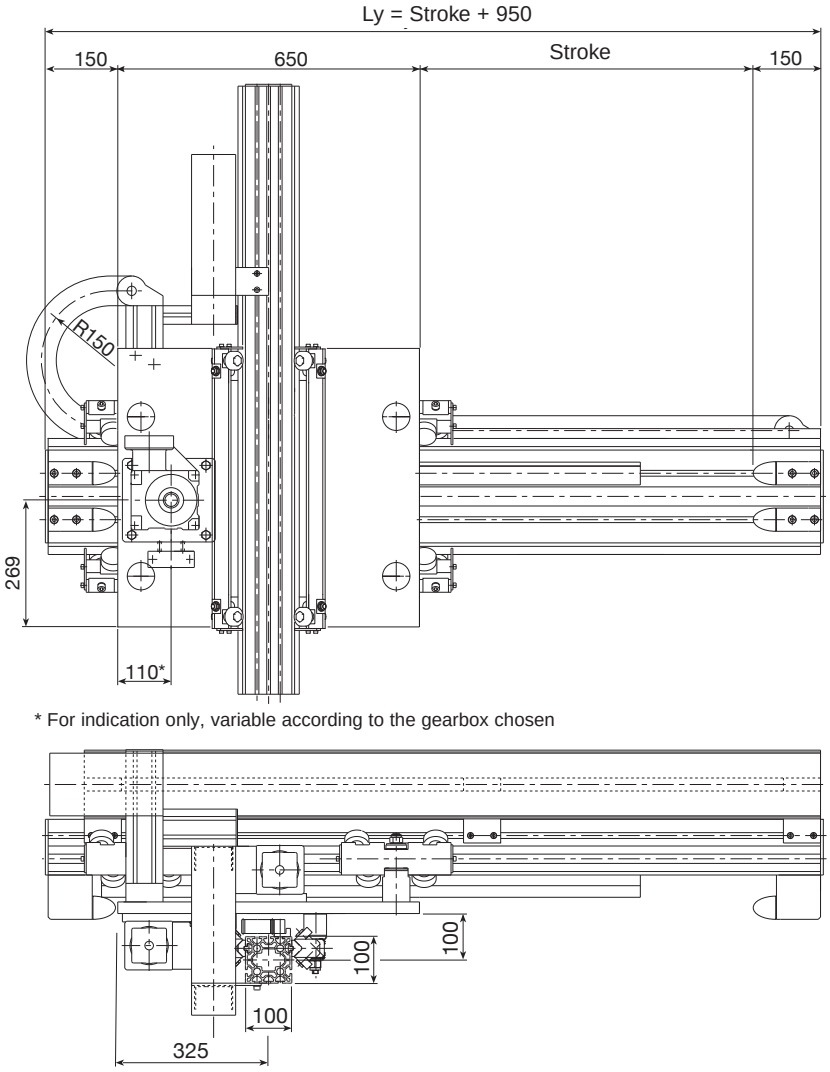
Weights	Y-axis	Z-axis	
Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 100 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 45 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 33 approx.	q_z = 21 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

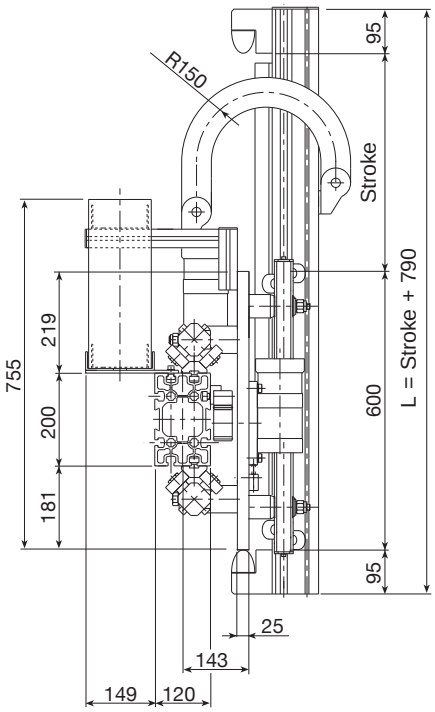
PAR 4/1

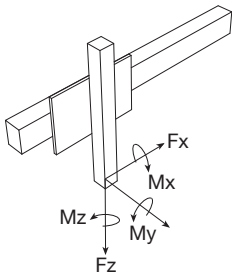
Y-Axis / P / A / R / P /200 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / Q / 100 / Stroke / Length / X / FRD / ...

PC
25 Kg — 100 Kg
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen





Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	7	7	[m/s^2]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAR 4/1	1520	1520	352	4250	2400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	MA1-5	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm^2]
Guide rails	55x25 (hardened and polished)	35x16 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø52	2 roller slides with 4 rollers Ø40	
Room available for energy chain	115x45	75x45	[mm^2]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

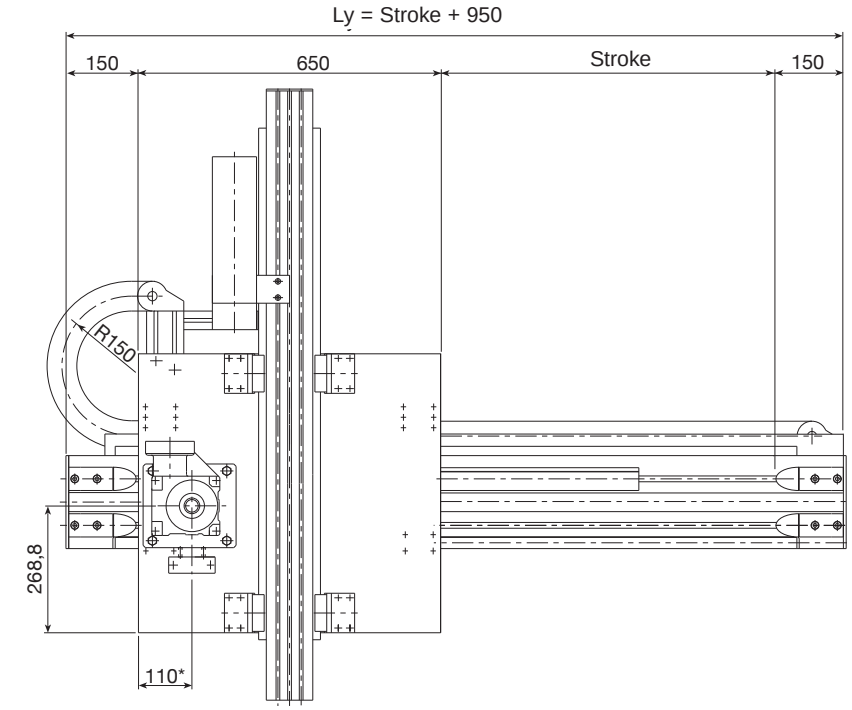
Weights	Y-axis	Z-axis	
"Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 140 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 69 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 48 approx.	q_z = 24 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

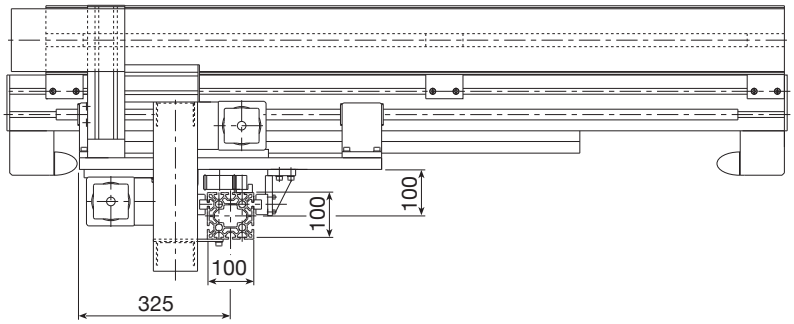
PASM 4/1

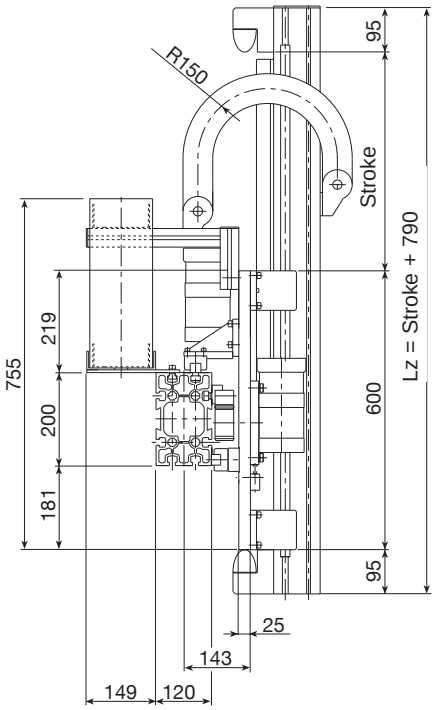
Y-Axis / P / A / S / M / 200 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 100 / Stroke / Length / X / FRD / ...

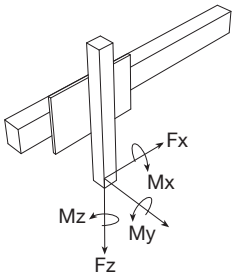
PC
25 Kg — **100 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen







Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	7	7	[m/s^2]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	12000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_z[N]**
PASM 4/1	1,700	1,890	485	4,250	2,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Valyda	MA1-5	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm^2]
Translation: 4 caged ball roller slides and guide rails	size 25	size 20	
Room available for energy chain	115x45	75x45	[mm^2]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

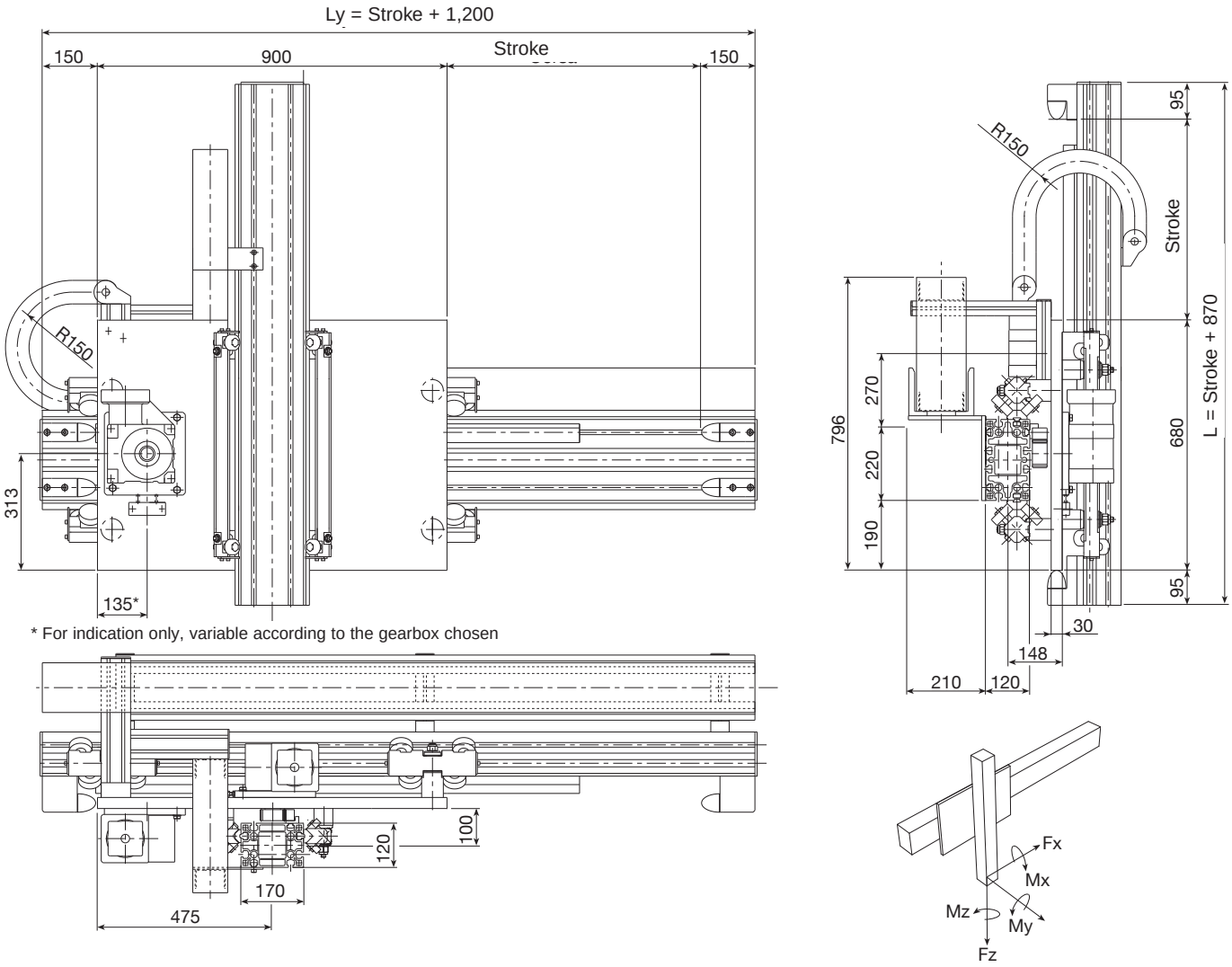
Weights	Y-axis	Z-axis	
Base" model (stroke$_x$ and stroke$_z$=0)	M_{base} = 121 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 59 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 40 approx.	q_z = 21 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

PAR 5/2

Y-Axis / P / A / R / P / 220 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / Q / 170 / Stroke / Length / X / FRD / ...

60 Kg PC **200 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	6	4	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_z[N]**
PAR 5/2	1,520	1,520	580	4,670	3,580

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Logyca	Statyca	
Rack (hardened, helical teeth: module KSD)	module 4	module 3	[mm²]
Guide rails	55x25 (hardened and polished)	35x16 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø62	4 roller slides with 2 rollers Ø40	
Room available for energy chain	115x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

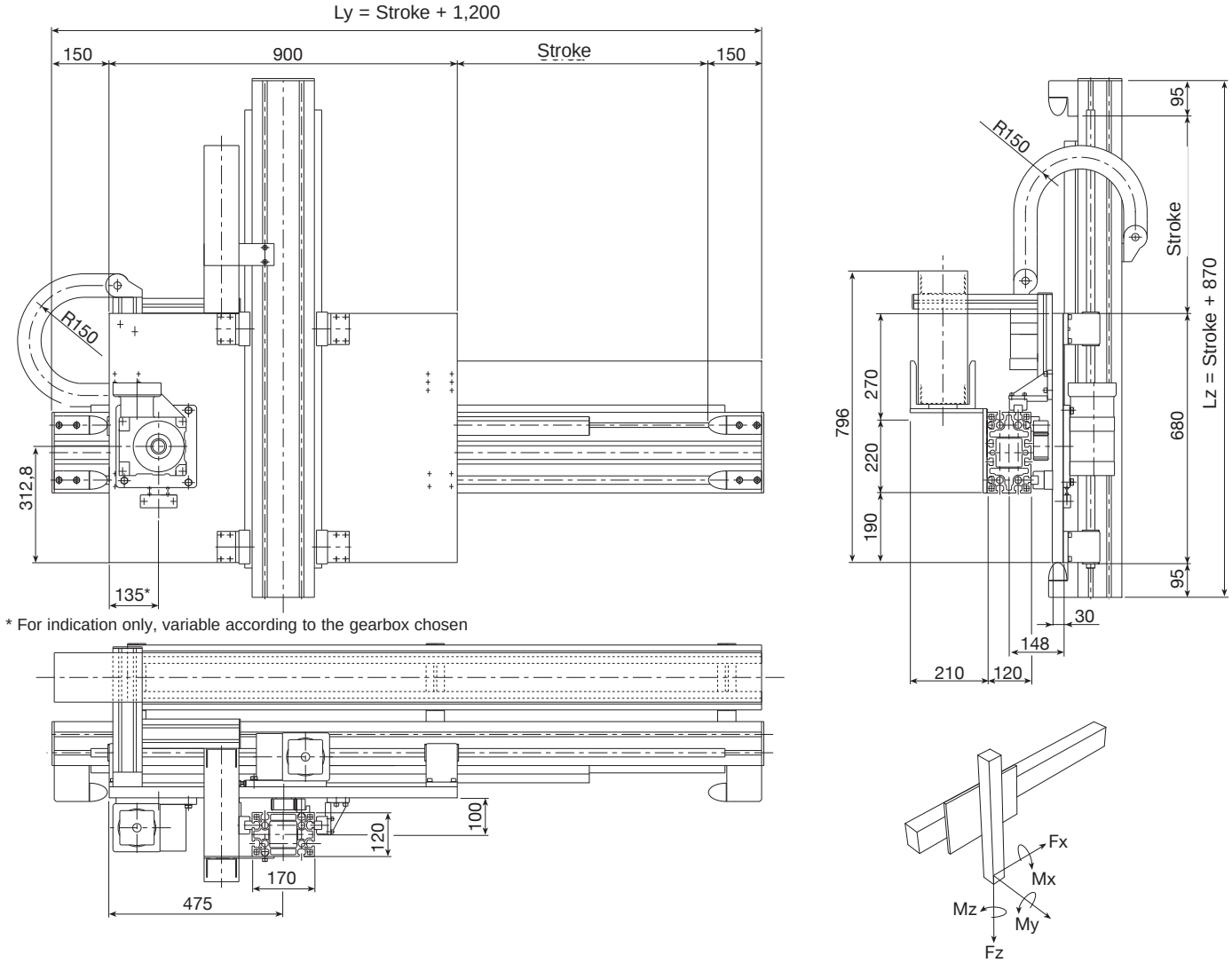
Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 195 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 98 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 52 approx.	q_z = 31 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 5/2

Y-Axis / P / A / S / M / 220 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 170 / Stroke / Length / X / FRD / ...

PC
60 Kg — **200 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	6	4	[m/s²]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	12000	6000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 5/2	2,060	3,320	1,210	4,670	3,580

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Logyca	Statyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 25	size 25	
Room available for energy chain	115x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

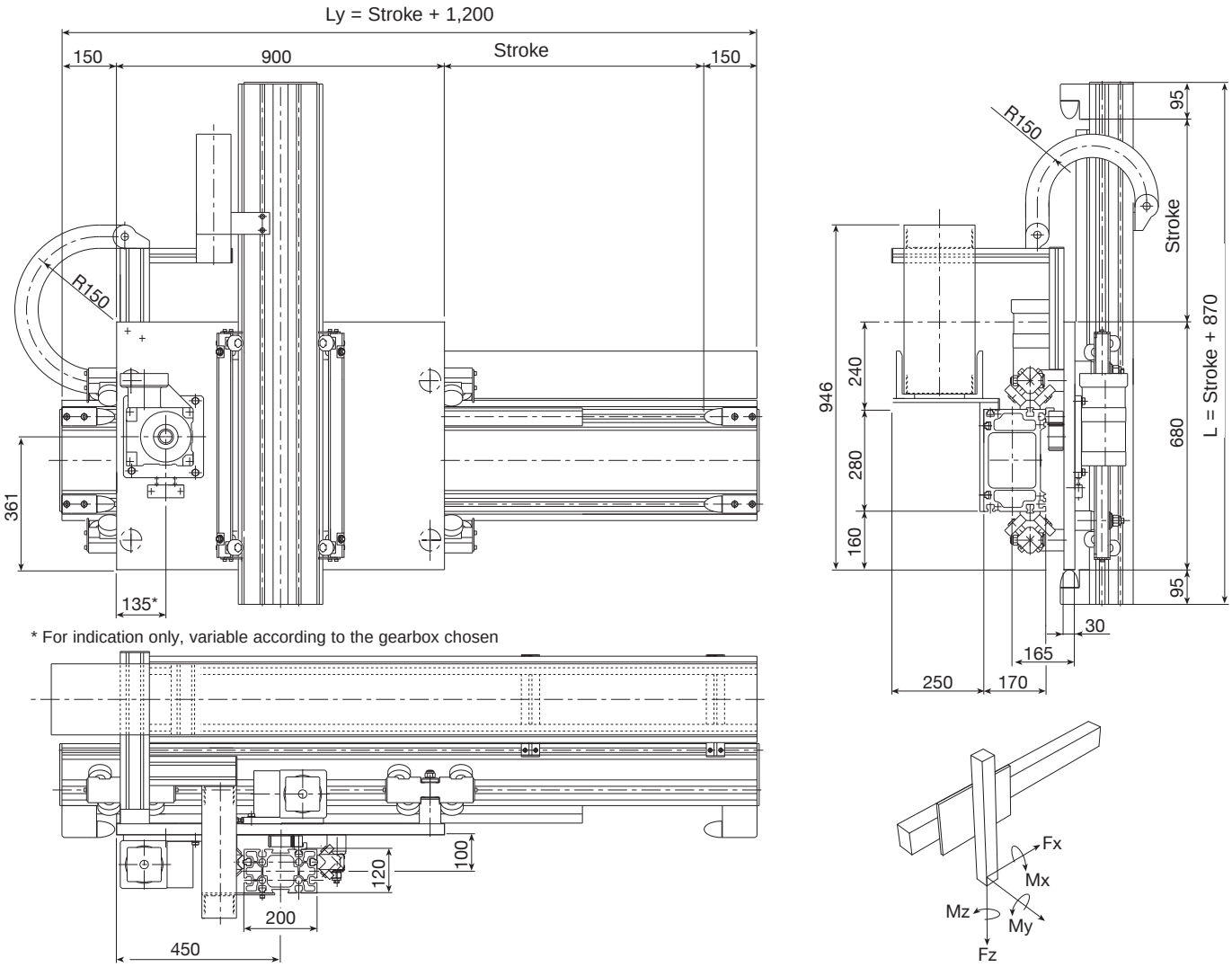
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 178 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 95 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 44 approx.	q_z = 29 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PAR 6/2

Y-Axis / P / A / R / P / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / Q / 200 / Stroke / Length / X / FRD / ...

100 Kg PC **200 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	4	4	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_z[N]**
PAR 6/2	1,520	1,520	670	3,585	3,665

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm²]
Guide rails	55x25 (hardened and polished)	35x16 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø62	2 roller slides with 4 rollers Ø40	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

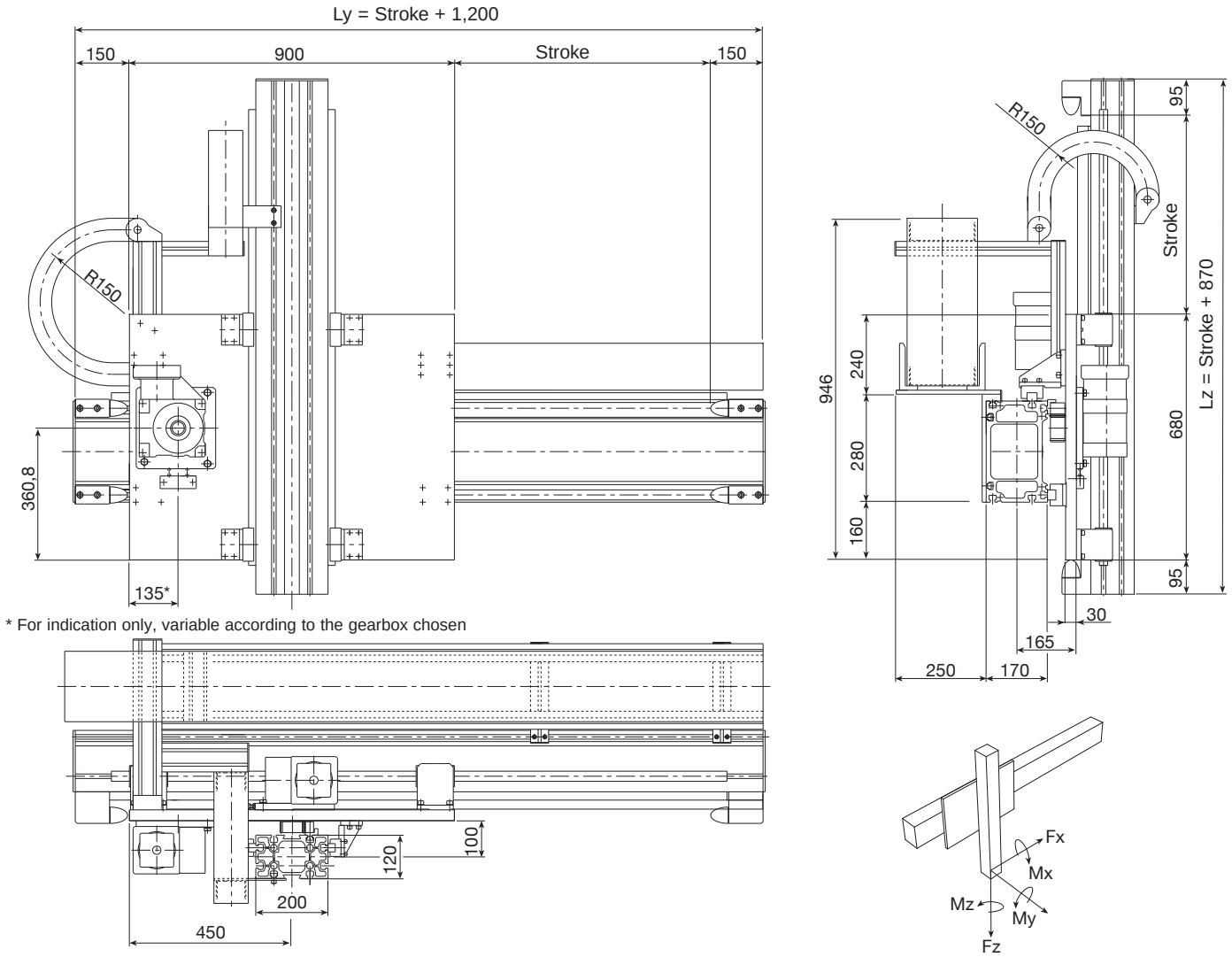
Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 220 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 99 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 66 approx.	q_z = 35 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 6/2

Y-Axis / P / A / S / M / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 200 / Stroke / Length / X / FRD / ...

100 Kg PC **200 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc $_{max}$) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	4	4	[m/s²]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 6/2	3,000	3,310	1,375	3,585	3,665

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 30	size 25	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

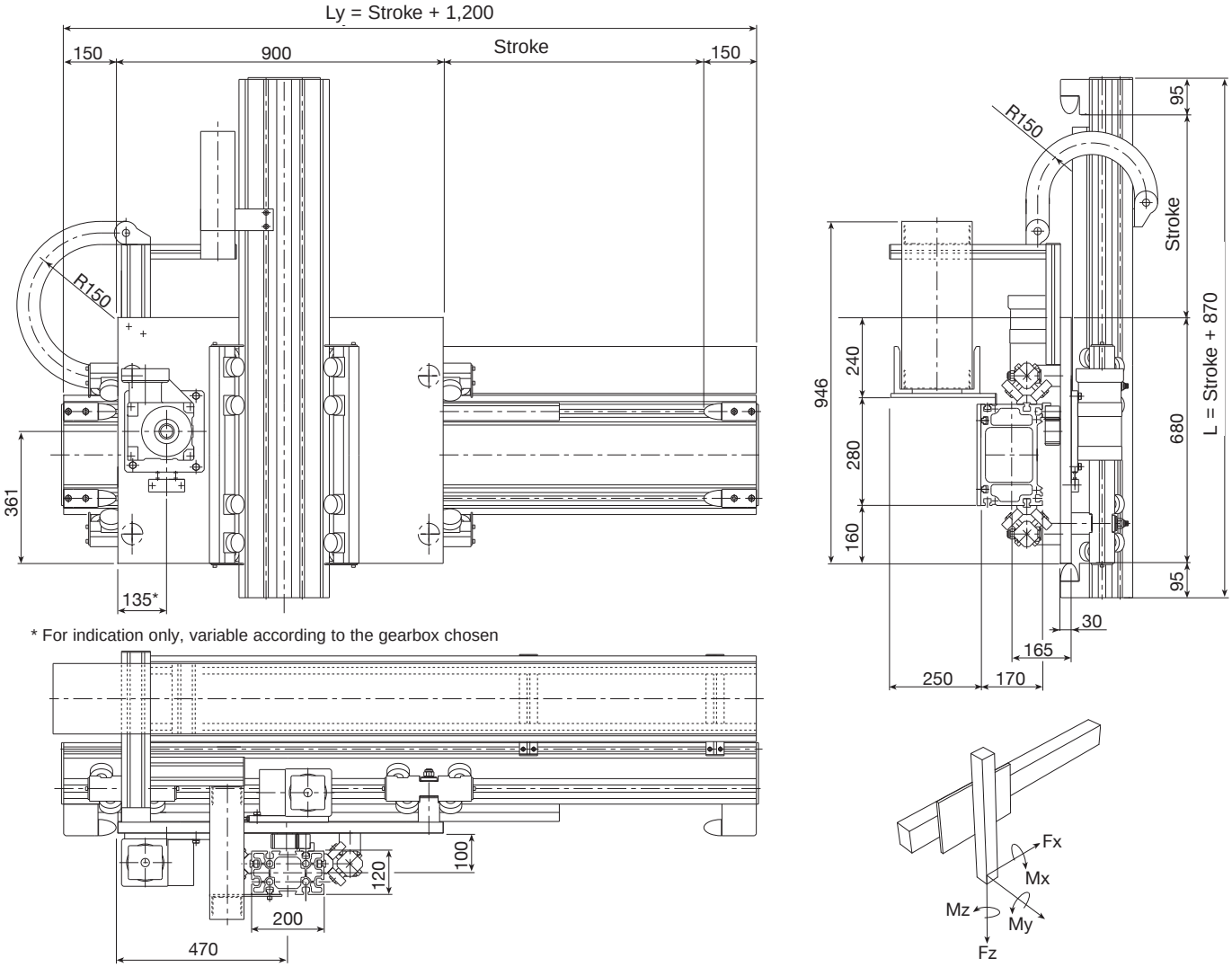
Weights	Y-axis	Z-axis	
Base" model (stroke$_x$ and stroke$_z$=0)		M_{base} = 202 approx.	[kg]
Slide (plates + carriages)		M_{slide} = 86 approx.	[kg]
Beam (incl. guide rails and rack)	q_y = 60 approx.	q_z = 34 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ Stroke$_X$ and stroke$_Z$ [mm]

PAR 6/4

Y-Axis / P / A / R / P / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / P / 200 / Stroke / Length / X / FRD / ...

100 Kg PC **400 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	2	[m/s]
Max. acceleration	4	3	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_z[N]**
PAR 6/4	2,435	2,435	1,200	3,585	6,350

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Guide rails	55x25 (hardened and polished)	55x25 (hardened and polished)	
Translation	4 roller slides with 4 rollers Ø62	4 roller slides with 4 rollers Ø52	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)	[mm]

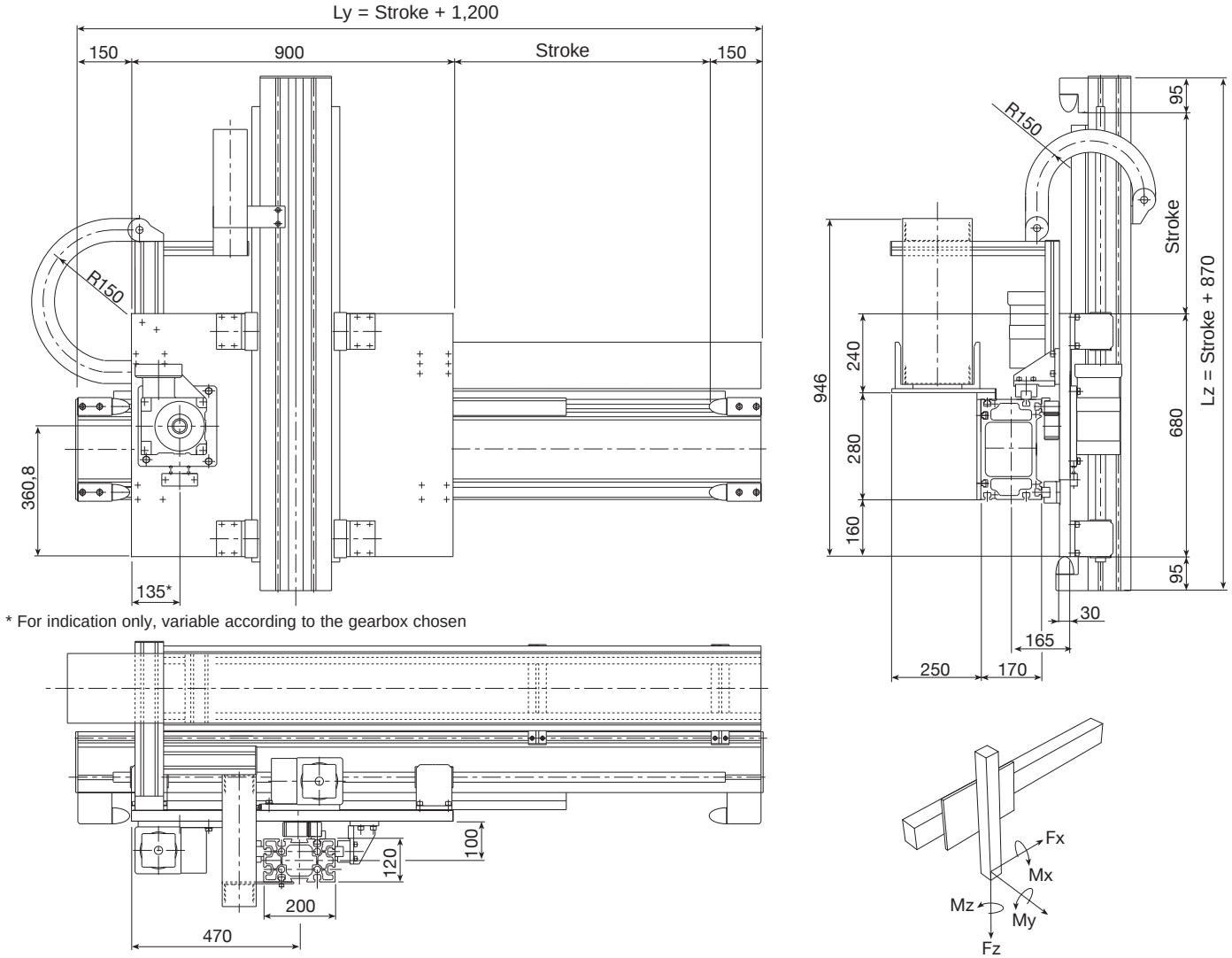
Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 244 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 112 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 66 approx.	q_z = 48 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 6/4

Y-Axis / P / A / S / M / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 200 / Stroke / Length / X / FRD / ...

100 Kg PC **400 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	2	[m/s]
Max. acceleration	4	3	[m/s²]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 6/4	3,000	3,310	1,375	3,585	6,350

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 30	size 25	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)	[mm]

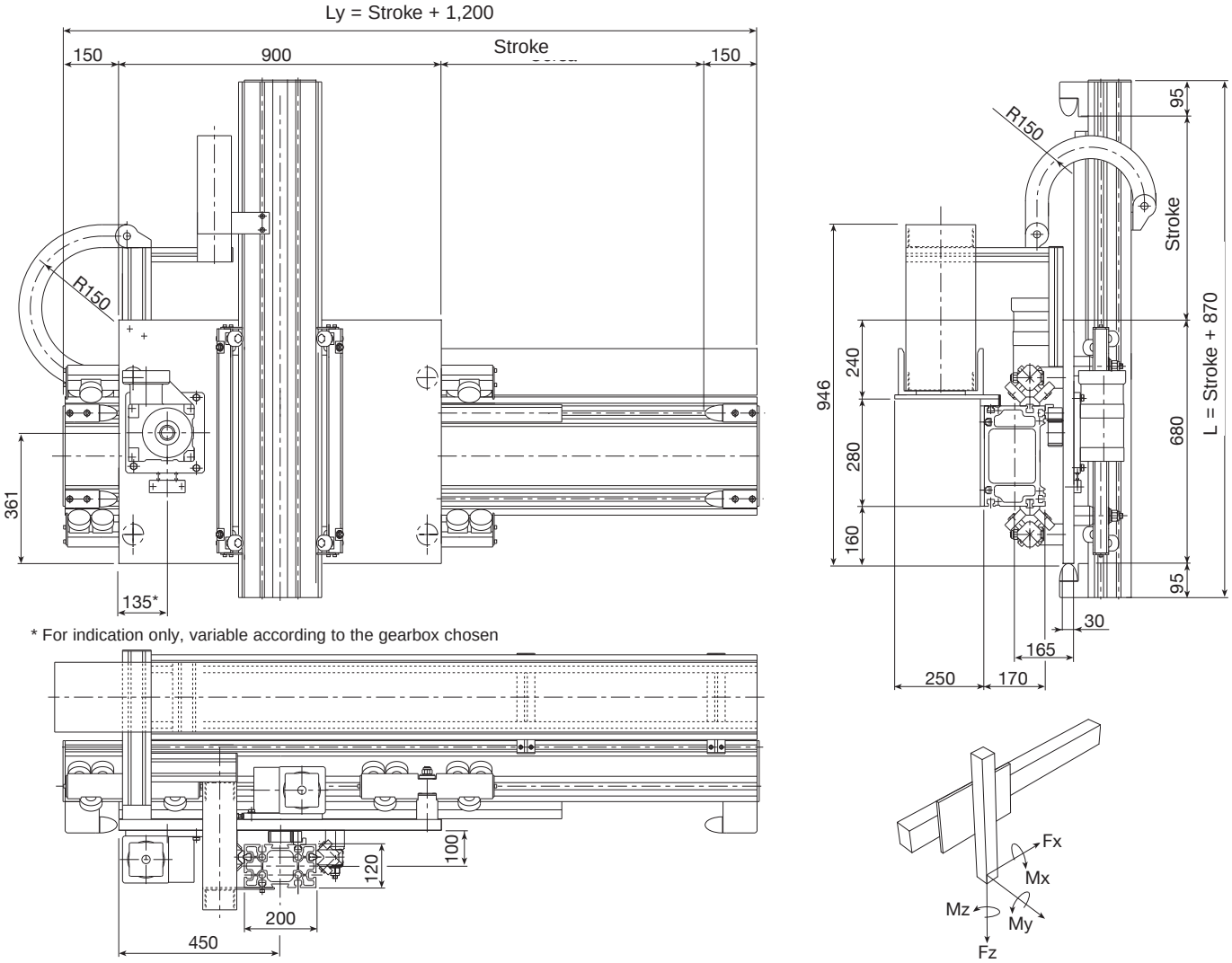
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)		M_{base} = 217 approx.	[kg]
Slide (plates + carriages)		M_{slide} = 105 approx.	[kg]
Beam (incl. guide rails and rack)	q_y = 60 approx.	q_z = 39 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PAR 8/3

Y-Axis / P / A / R / P / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / P / 200 / Stroke / Length / X / FRD / ...

100 Kg PC **300 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2.5	2	[m/s]
Max. acceleration	2.5	3	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAR 8/3	1520	1520	670	3100	4740

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The values shown can be achieved with roller slides with 6 rollers suitable for maximum performance (see page TL-63-TL-64).

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm²]
Guide rails	55x25 (hardened and polished)	35x16 (hardened and polished)	
Translation	4 roller slides with 6 rollers Ø62	2 roller slides with 4 rollers Ø40	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

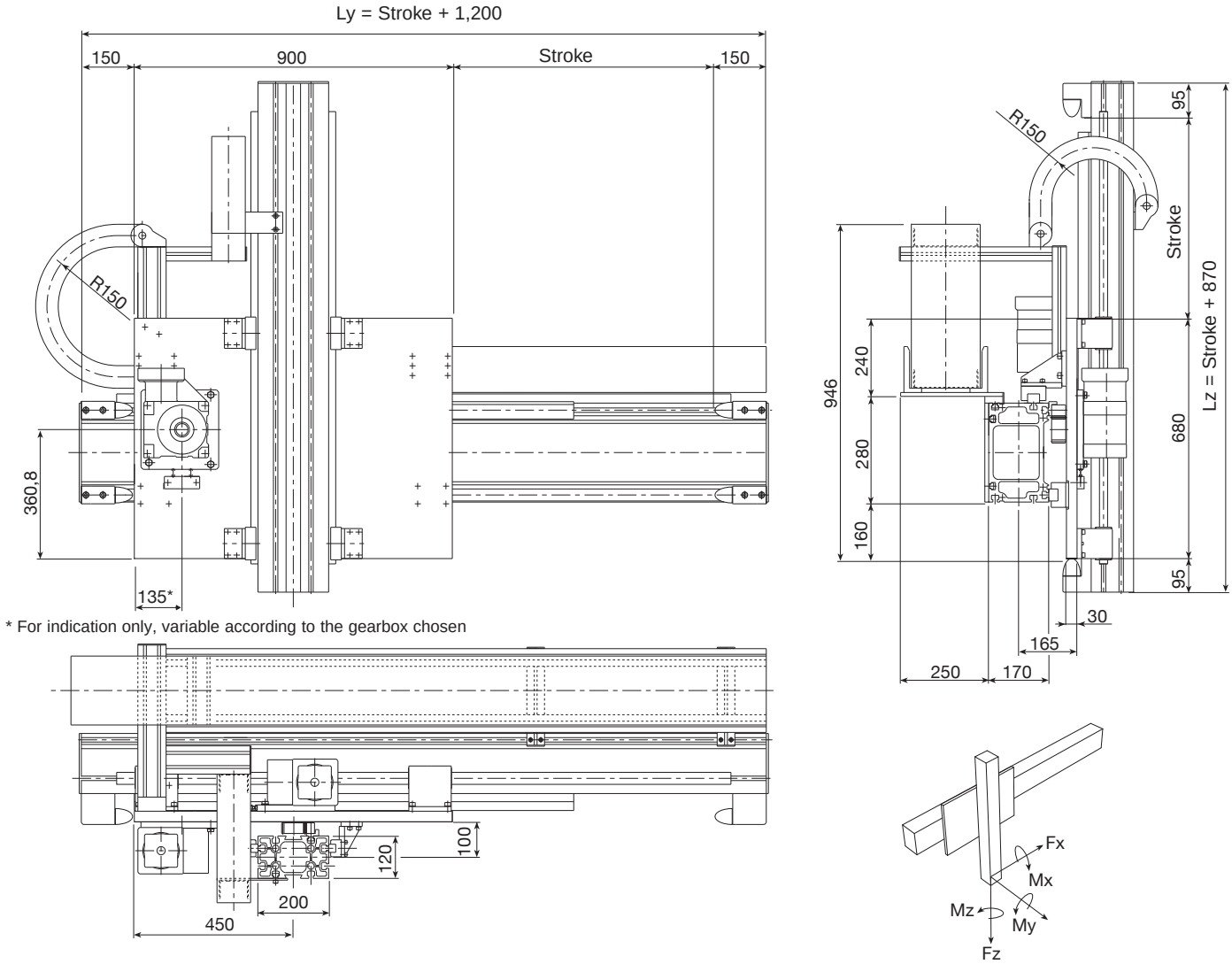
Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 232 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 111 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 66 approx.	q_z = 35 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 8/3

Y-Axis / P / A / S / M / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 200 / Stroke / Length / X / FRD / ...

PC
100 Kg — **300 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2.5	2	[m/s]
Max. acceleration	2.5	3	[m/s²]
Repeatability	-	±0.1*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 8/3	3,000	3,310	1,375	3,100	4,740

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Valyda	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 3	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 35	size 25	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13)	[mm]

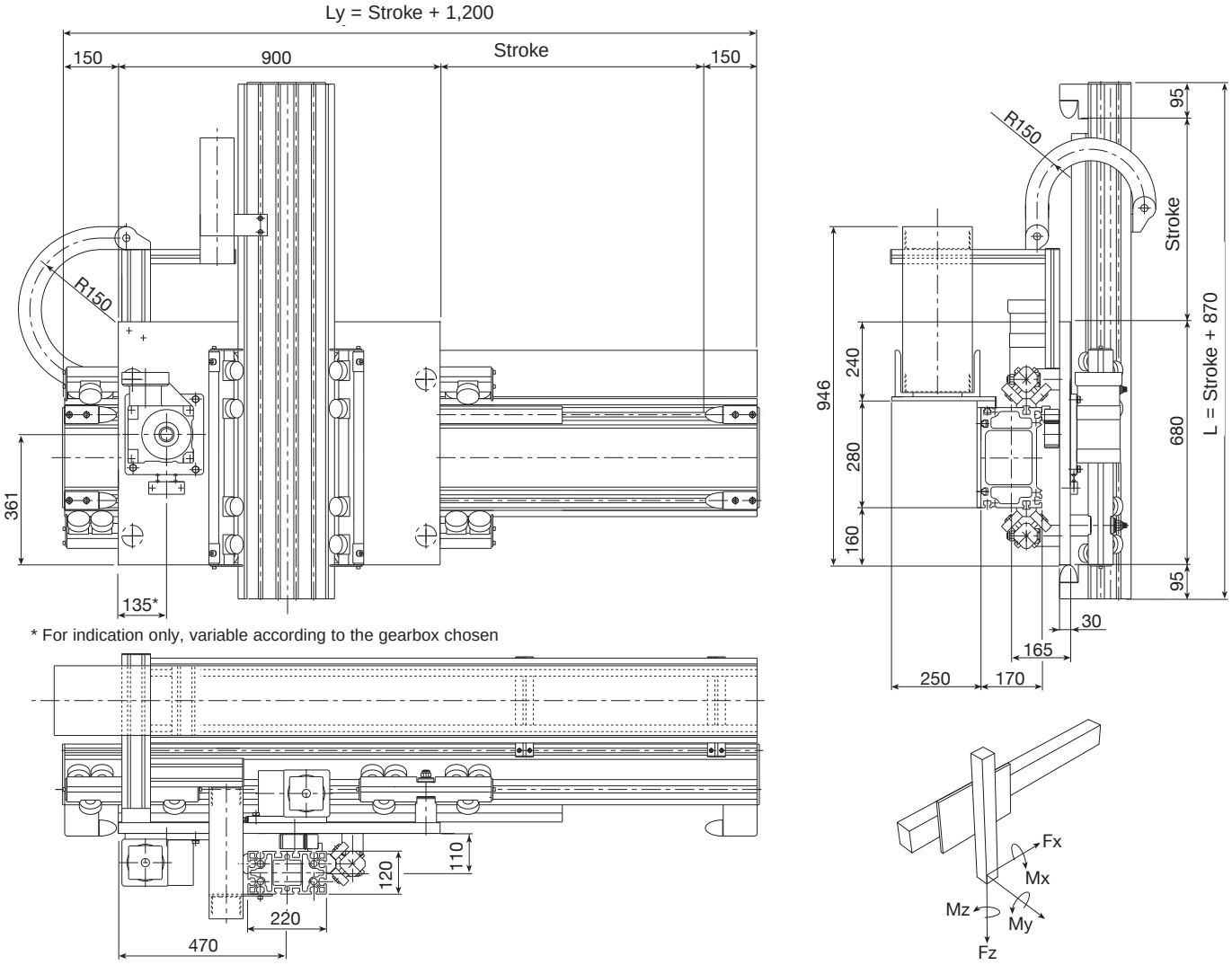
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 220 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 102 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 64 approx.	q_z = 34 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PAR 8/6

Y-Axis / P / A / R / P / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / P / 220 / Stroke / Length / X / FRD / ...

250 Kg PC **600 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_z[N]**
PAR 8/6	2,430	2,430	1,200	3,220	8,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The values shown can be achieved with roller slides with 6 rollers suitable for maximum performance (see page TL-63-TL-64).

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Logyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Guide rails	55x25 (hardened and polished)	55x25 (hardened and polished)	
Translation	4 roller slides with 6 rollers Ø62	2 roller slides with 6 rollers Ø52	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)	[mm]

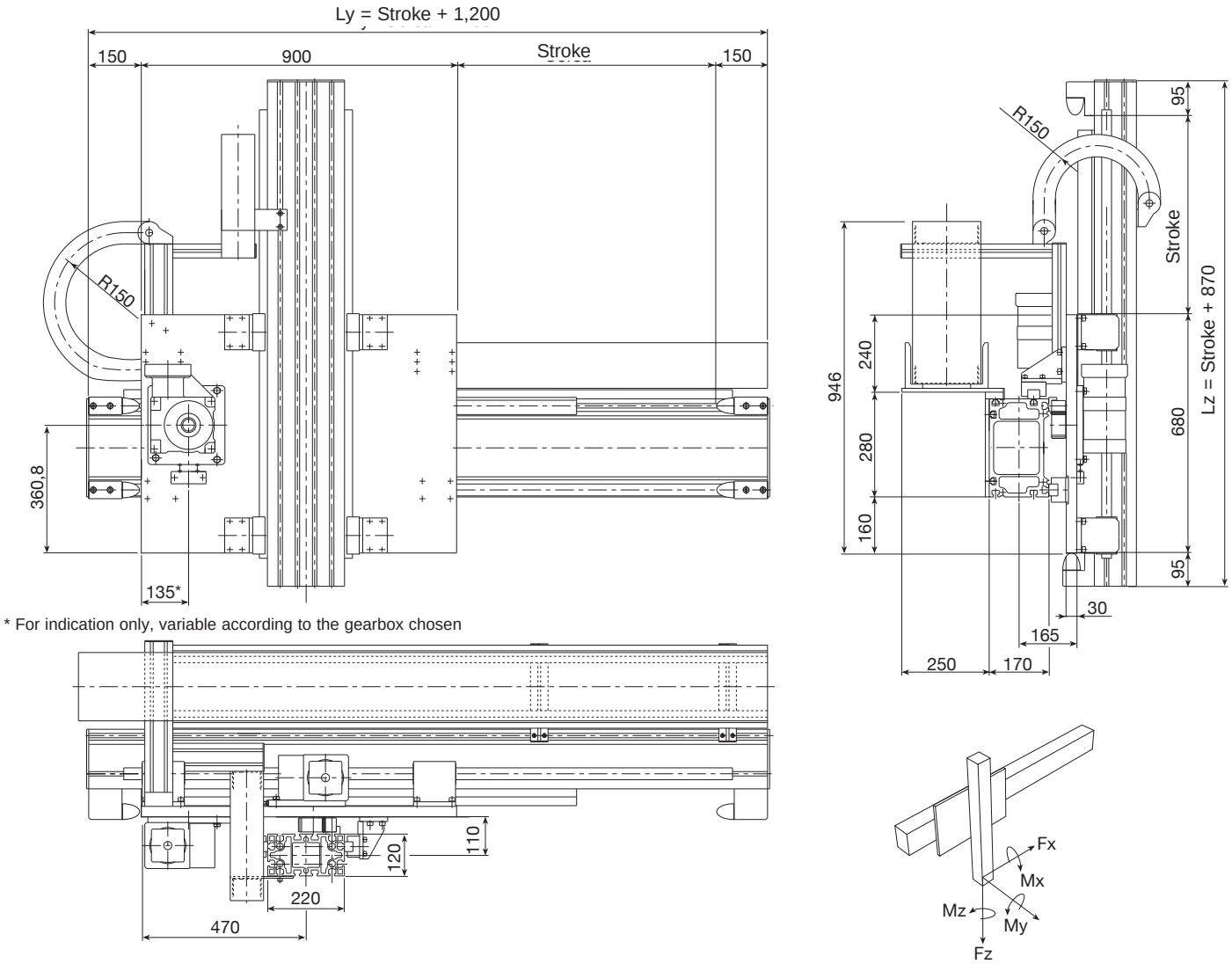
Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 260 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 122 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 66 approx.	q_z = 52 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y+q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 8/6

Y-Axis / P / A / S / M / 280 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 220 / Stroke / Length / X / FRD / ...

250 Kg PC **600 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s²]
Repeatability	-	±0.15*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 8/6	4,330	4,790	2,090	3,220	8,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Pratyca	Logyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 35	size 30	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	76.39 (as an alternative 89.13)	[mm]

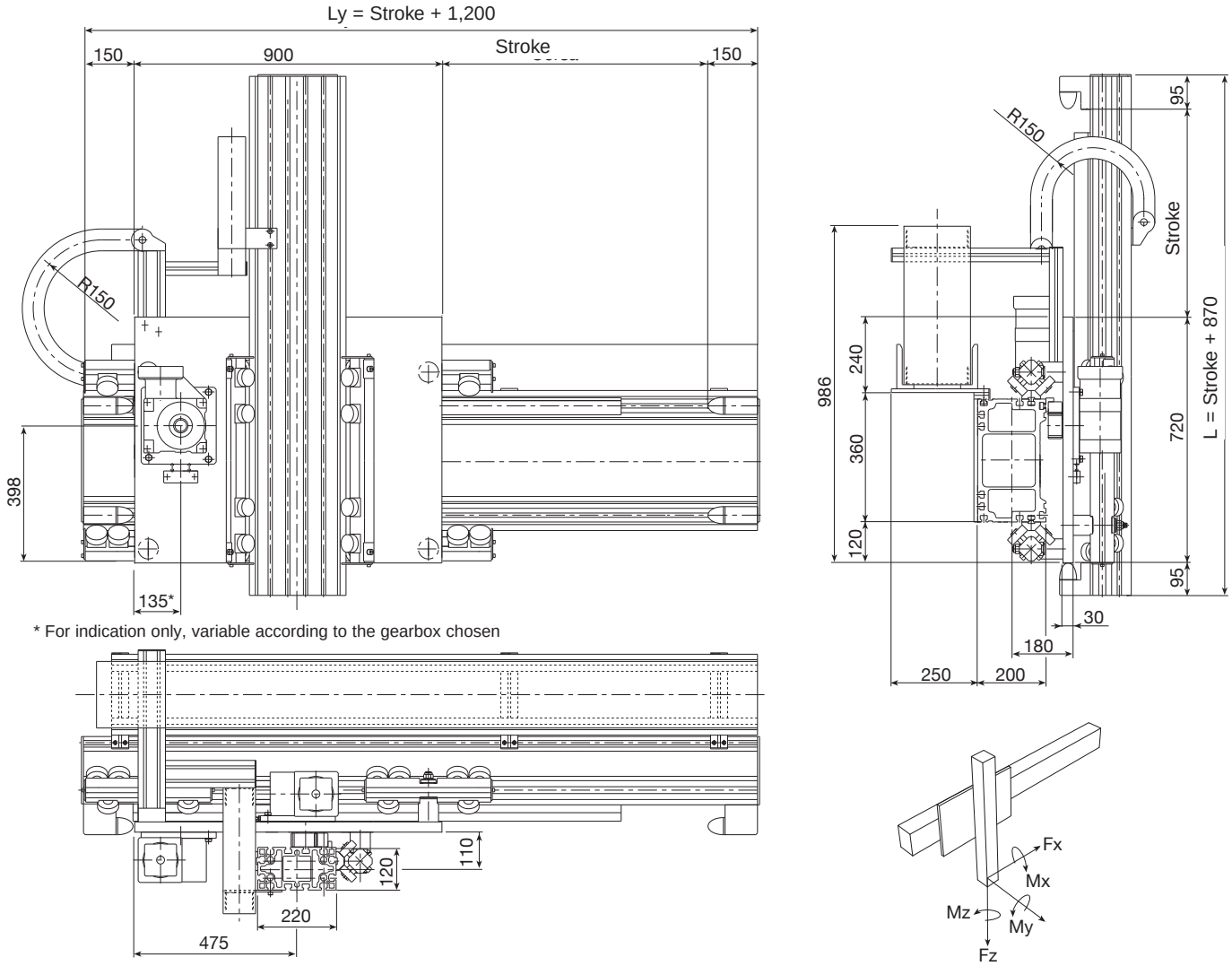
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 234 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 102 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 64 approx.	q_z = 46 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PAR 10/6

Y-Axis / P / A / R / P / 360 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / P / 220 / Stroke / Length / X / FRD / ...

300 Kg PC **600 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2.5	2	[m/s]
Max. acceleration	2	2	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAR 10/6	2,435	2,435	1,200	3,185	8,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The values shown can be achieved with roller slides with 6 rollers suitable for maximum performance (see page TL-63-TL-64).

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Solyda	Logyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Guide rails	55x25 (hardened and polished)	55x25 (hardened and polished)	
Translation	4 roller slides with 6 rollers Ø62	2 roller slides with 6 rollers Ø52	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)	[mm]

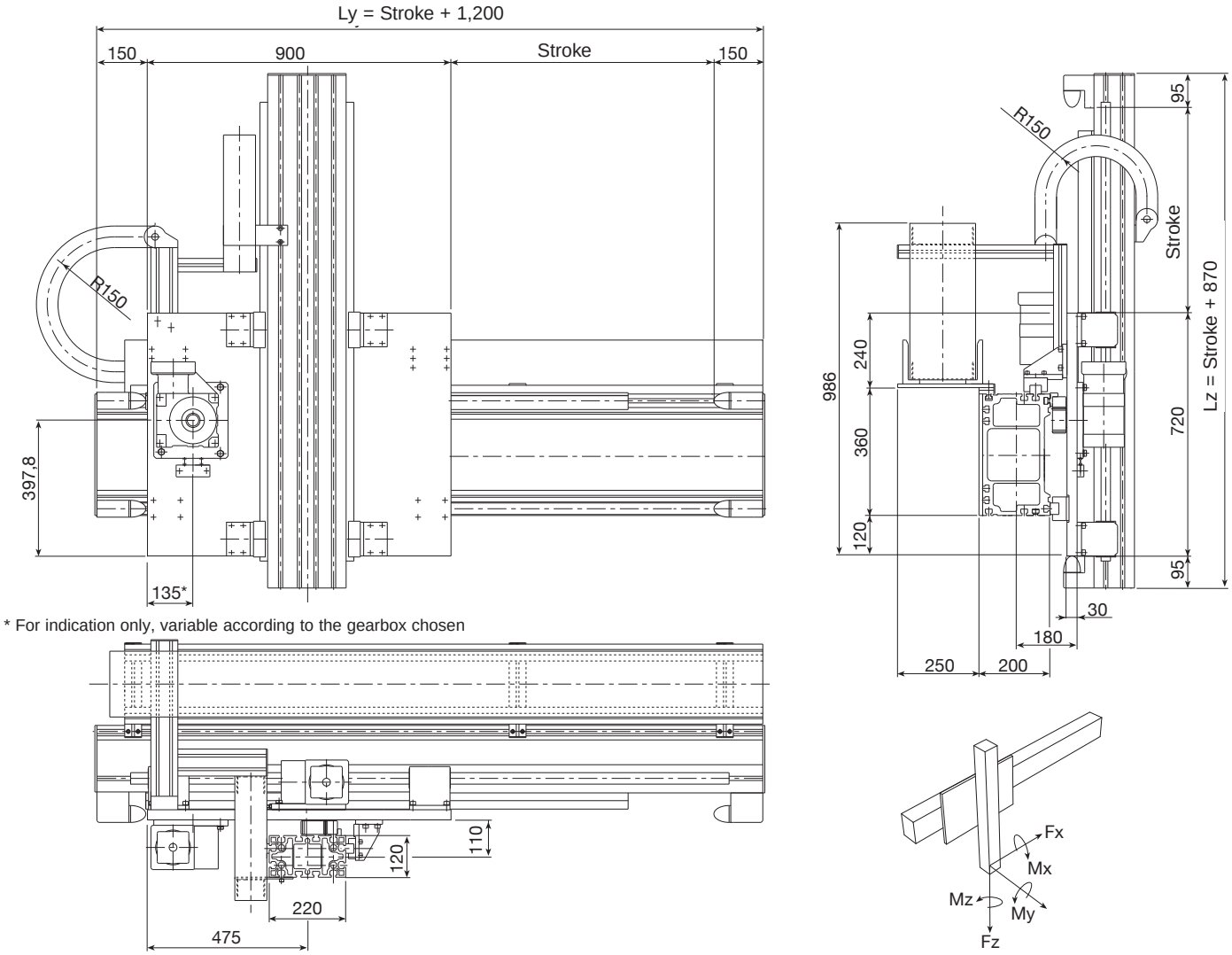
Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 283 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 122 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 85 approx.	q_z = 52 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y+q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 10/6

Y-Axis / P / A / S / M / 360 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 220 / Stroke / Length / X / FRD / ...

300 Kg PC **600 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2.5	2	[m/s]
Max. acceleration	2	2	[m/s²]
Repeatability	-	±0.15*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM10/6	4,560	5,050	2,090	3,185	8,400

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Solyda	Logyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 35	size 30	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	76.39 (as an alternative 89.13)	[mm]

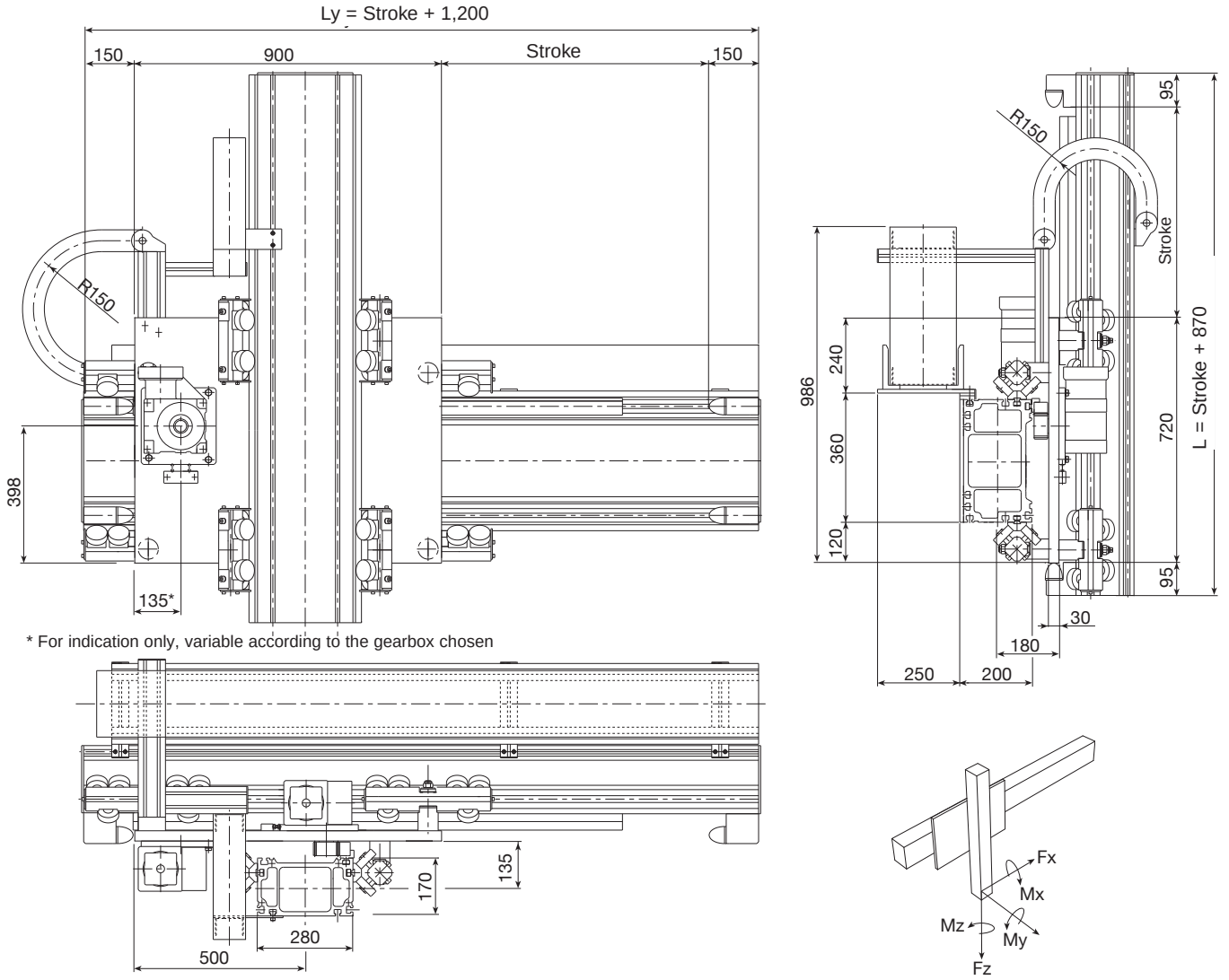
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 260 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 102 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 83 approx.	q_z = 46 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PAR 10/8

Y-Axis / P / A / R / P / 360 / Stroke / Length / FRD / ...
Z-Axis / P / A / R / P / 280 / Stroke / Length / X / FRD / ...

400 Kg PC **800 Kg**
High Cycle Rate — Low Cycle Rate



Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s²]
Repeatability	-	±0.25*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

** With vertical positioning of the unit, a partial load capacity compensation is required

Recommended max working conditions					
Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PAR 10/8	6,900	7,335	4,590	3,250	11,140

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The values shown can be achieved with roller slides with 6 rollers suitable for maximum performance (see page TL-63-TL-64).

Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Solyda	Pratyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Guide rails	55x25 (hardened and polished)	55x25 (hardened and polished)	
Translation	4 roller slides with 6 rollers Ø62	4 roller slides with 4 rollers Ø62	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter type RD	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)	[mm]

Weights	Y-axis	Z-axis	
"Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 300 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 122 approx		[kg]
Beam (incl. guide rails and rack)	q_y = 85 approx.	q_z = 66 approx.	[kg/m]

Formules:

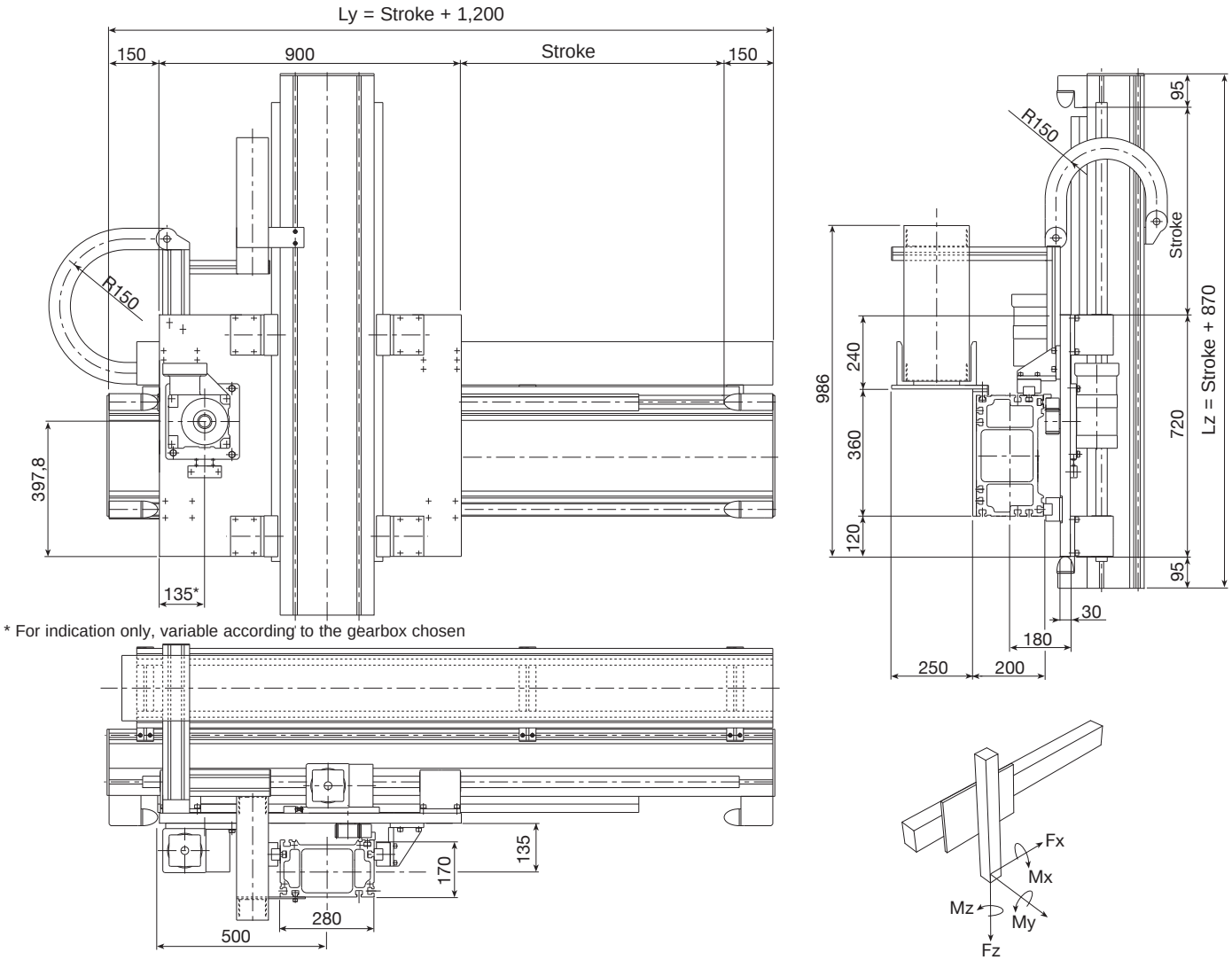
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**

Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

PASM 10/8

Y-Axis / P / A / S / M / 360 / Stroke / Length / FRD / ...
Z-Axis / P / A / S / M / 280 / Stroke / Length / X / FRD / ...

400 Kg PC **800 Kg**
High Cycle Rate — Low Cycle Rate



* For indication only, variable according to the gearbox chosen

Performances	Y-axis	Z-axis	
Max. load (Pc_{max}) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s²]
Repeatability	-	±0.15*	[mm]
Beam max. length without joint	12000	12000	[mm]

* Reference value considering a stroke of 1000 mm on Z axis.

Recommended max working conditions

Model	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_z[N]
PASM 10/8	5,940	6,580	3,625	3,250	11,140

The values shown above include a safety coefficient for automated machinery. They refer to maximum performance with each force acting individually. In case of peak forces acting together please consult our technical dept.
The repeatability shown in the table can be achieved with a ground rack and low-backlash gearboxes.

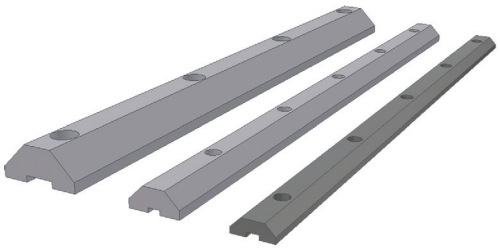
Constructive data	Y-axis	Z-axis	
Load-bearing beam (see page TL-12 to TL-15)	Solyda	Pratyca	
Rack (hardened, helical teeth, ground: module KSD)	module 4	module 4	[mm²]
Translation: 4 caged ball roller slides and guide rails	size 35	size 35	
Room available for energy chain	175x45	75x45	[mm²]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)	[mm]

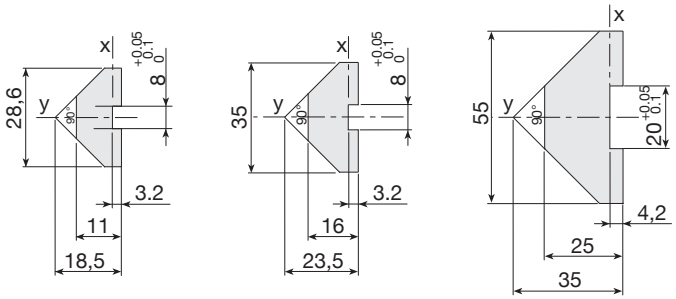
Weights	Y-axis	Z-axis	
Base" model ($stroke_x$ and $stroke_z$=0)	M_{base} = 275 approx.		[kg]
Slide (plates + carriages)	M_{slide} = 102 approx.		[kg]
Beam (incl. guide rails and rack)	q_y = 83 approx.	q_z = 64 approx.	[kg/m]

Formules:
Actual load: $\mathbf{P_{eff.} = P_{max}-(Lz - 1,600)/1,000 \bullet q_z}$ **< of Pc**
Module total weight: $\mathbf{M_{tot}=M_{base}+(q_y \bullet stroke_y + q_z \bullet stroke_z)/1,000}$ $Stroke_X$ and $stroke_Z$ [mm]

Steel V-shaped guide rails

Material: high-performance alloy steel: R > 900 MPa
Induction-hardened and polished. Track hardness > 58 HRC
Guide rail 28.6x11 has anti-oxidation coating.
Anti-oxidation coating is available for all versions upon request.



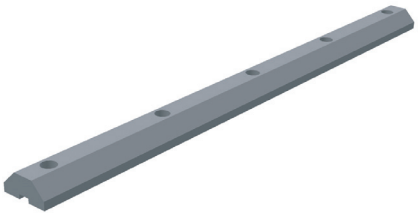


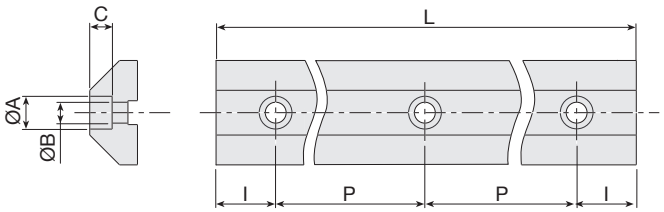
V-shaped guide rail 28.6x11 | V-shaped guide rail 35x16 | V-shaped guide rail 55x25

Features	28.6x11	35x16	55x25	
Moment of inertia Ix	2,148	7,932	41,906	mm⁴
Moment of inertia Iy	14,490	36,405	194,636	mm⁴
Weight	2	3.5	7.8	Kg/m

Machining: drilled guide rails with straight cut

Machining provided for guide rails with no joint. In addition to the code, please state the type of machining required by adding:
P_ _ -..... V-shaped guide rails, length L, **not drilled**
P_ _ -.....F V-shaped guide rails, length L, **drilled**

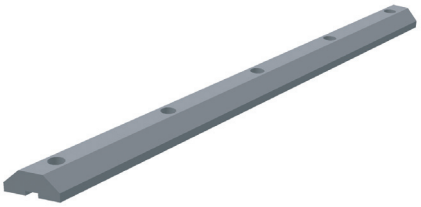


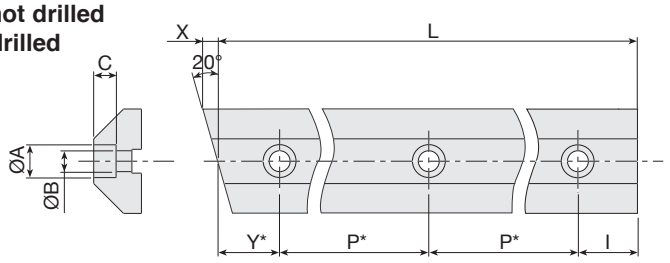


Size	Treatment	Max. Length	P	I	A	B	C	Code
28,6x11	hardened anti-oxidation	3980	150	40	11	7	5	**P28.....**
35x16	Induction-hardened	4100	100	50	11	7	7.5	**P35.....**
55x25	Induction-hardened	4100	150	25	18	11	11.5	**P55.....**

Machining: drilled guide rails with 1 bevel and 1 slanting cut

Machining provided for the crop down sizes of guide rail ends with joints. In addition to the code, please state the type of machining required by adding:
P_ _ -.....X V-shaped guide rails with 1 slanting cut, length L, **not drilled**
P_ _ -.....FX V-shaped guide rails with 1 slanting cut, length L, **drilled**





*: the first hole is drilled at a height of "Y", subsequent ones at a centre-distance of "P".

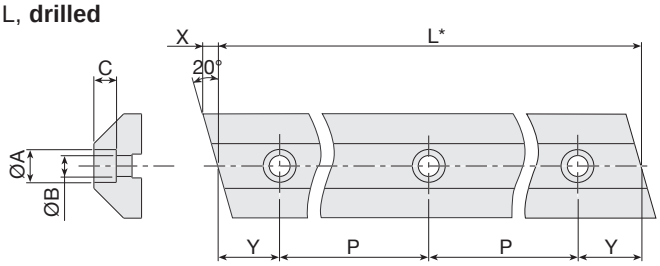
Size	Treatment	Max. Length	P	Y	I	A	B	C	Code
28.6x11	hardened anti-oxidation	3,850	150	50	50	11	7	5	**P28.....**
35x16	Induction-hardened	4000	100	50	50	11	7	7.5	**P35.....**
55x25	Induction-hardened	3950	150	25	25	18	11	11.5	**P55.....**

Machining: drilled guide rails with 2 slanting cuts

Machining provided for the intermediate crop down sizes of guide rail ends with multiple joints. In addition to the code, please state the type of machining required by adding:

P_ _ -.....XX V-shaped guide rails with 2 slanting cuts, length L, **not drilled**

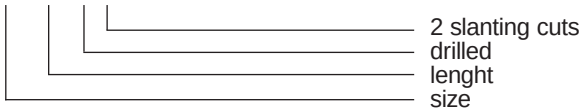
P_ _ -.....FXX V-shaped guide rails with 2 slanting cuts, length L, **drilled**



*: in order to maintain a constant hole pitch, arrange the guide rails so that the length "L" is equal to: n•P + 2•Y

Size	Treatment	Max. Length	P	Y	A	B	C	Code
28,6x11	indurita antioss.	3700	150	50	11	7	5	**P28.....**
35x16	Induction-hardened	4000	100	50	11	7	7.5	**P35.....**
55x25	Induction-hardened	3950	150	25	17	11	11.5	**P55.....**

EXAMPLE OF ORDER: n° 2 pieces P55-1000FXX

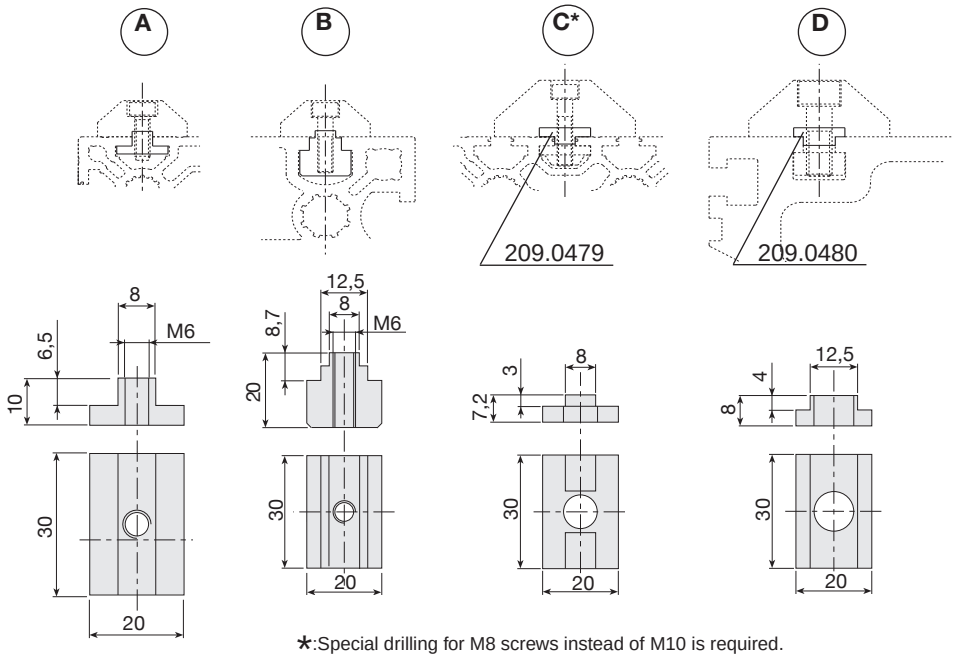


V-shaped guide rail assembly inserts

Material: C40 galvanized steel.

A and C: suitable for medium profiles (see pages TL-14 - TL-15)

B and D: suitable for load-bearing profiles (see pages TL-12 to TL-15)



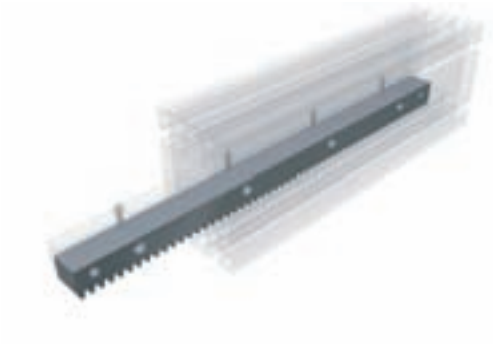
*:Special drilling for M8 screws instead of M10 is required.

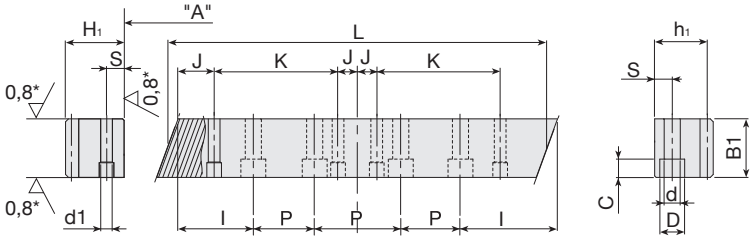
	Guide rails	Slot side	Screw	Code
A	35x16/28x11	8	M6x20	**209.0298**
B	35x16	12.5	M6x25	**209.1855**
C*	55x25	8	M8x30	**209.0479**
D	55x25	12.5	M10x30	**209.0480**

Racks

Helical teeth

Rack with helical teeth, right-hand 19° 31’ 42”, pressure angle 20°.





Type		Rs	Hardness tooth	Quality	Precision
KSD	CK45 norm. induction-hard., teeth and ground sides	> 650 N/mm^2	≥ HRC 56	Q6	0.025mm/300mm
KRD	AISI 9840 alloy steel induct.-hard., teeth and ground sides	> 900 N/mm^2	HRC 60 c.a.	Q6	0.025mm/300mm

Mod.	H_1	B_1	L	I	J	d	D	C	d1(H7)	S	h_1	P	K	kg	Code
2	24	24	500	62.5	35	7	11	7	6	8	22	125	430	2.2	**211.2429**
2	24	24	1,000	62.5	35	7	11	7	6	8	22	125	430	4.3	**211.2363**
3	29	29	500	62.5	35	10	15	9	8	9	26	125	430	3.0	**211.2367**
3	29	29	1,000	62.5	35	10	15	9	8	9	26	125	430	6.1	**211.2351**
4	39	39	500	62.5	35	10	15	9	8	12	35	125	430	5.5	**211.2366**
4	39	39	1,000	62.5	35	10	15	9	8	12	35	125	430	10.9	**211.2349**

H_1 h_1 for racks KRD, KSD

B_1 for racks KRD, KSD

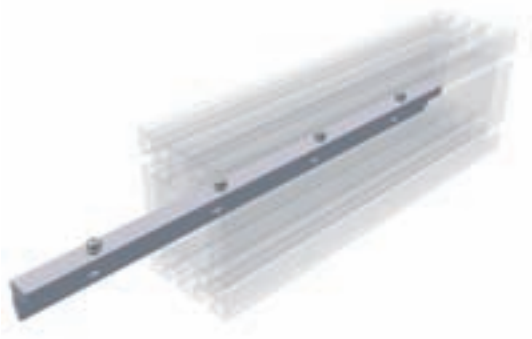
EXEMPLE OF ORDER:

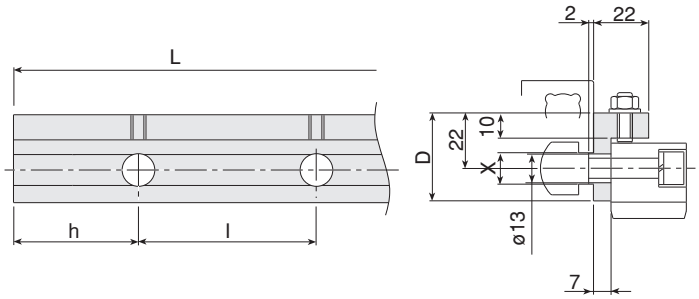
code 211.2367 / KSD

└ Tooth and treatment characteristics

Adjusting plates for racks

Material: 6082 clear anodized aluminium alloy





Module	D	L	l	h	N° holes	X	Weight [kg]	Code
2	35	243	126.1	56.35	2	8	0.3	**215.0025**
2	35	491	126.1	56.35	4	8	0.6	**215.0026**
2	35	243	126.1	56.35	2	12.5	0.3	**215.0027**
2	35	491	126.1	56.35	4	12.5	0.6	**215.0028**
3	35	243	126.1	56.35	2	8	0.3	**215.2368**
3	35	491	126.1	56.35	4	8	0.6	**215.2137**
3	35	243	126.1	56.35	2	12.5	0.3	**215.2369**
3	35	491	126.1	56.35	4	12.5	0.6	**215.2281**
4	39	243	125.3	57.55	2	12.5	0.3	**215.2243**
4	39	491	125.3	57.55	4	12.5	0.6	**215.2078**

Pinion Gears

Helical toothed pinions (19° 31' 42" left-hand). Pressure angle 20°.

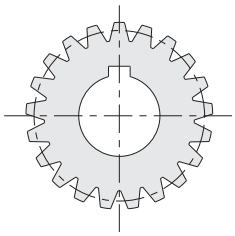
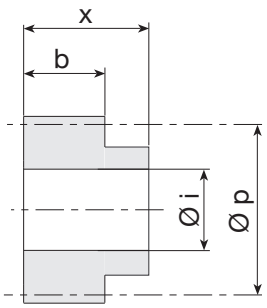


Fig. B



Type	Material	Surface treatment	RS	Quality	Tooth hardness
RD Pinion with ground helical teeth	42CrMo4	temp. induction-hardened	>900 N/mm^2	Q7	HRC 58±2

Helical tooth pinion

mod.	Weight	Z	Øp	Øi avail.	b	x	Code
2	0.2	21	44.56	22	28	56	**201.0005**
2	0.6	30	63.66	22,30,32	28	56	**201.0012**
3	0.8	20	63.66	22,25,30,32	28	65	**201.0007**
3	1.4	28	89.13	25,30,32	28	65	**201.0013**
4	1.5	18	76.39	32	40	75	**201.0009**
4	2.8	25	106.10	55	40	80	**201.0014**

EXEMPLE OF ORDER: **code 201.0007 /RD / 25**

- /25 — Inner diameter (Øi)
- /RD — Features and treatment

Programmable Automatic Rack Lubrication System

Grease is delivered by means of a programmable cartridge (average life: ca. 1 year) (a).
The grease is spread evenly on the racks through a felt pinion (1). You will need one kit per rack.

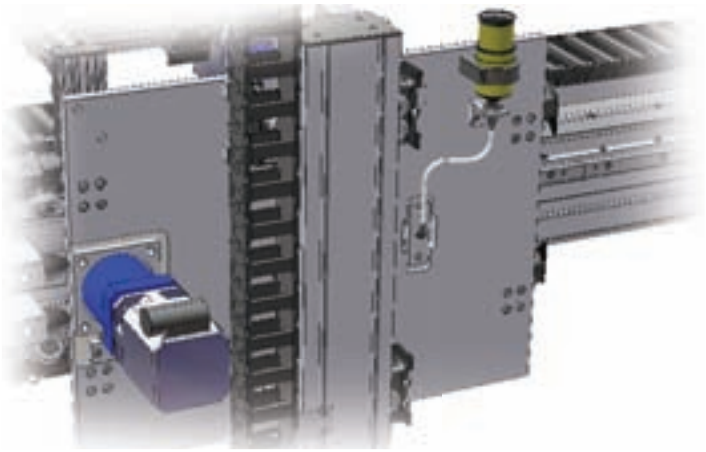
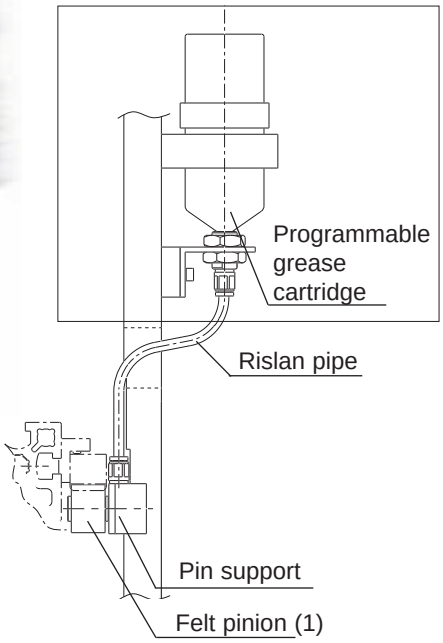


FIG. C



1- Spares

Specification		Code
Programmable grease cartridge (125 ml) [b]		**101.0744**
m2 - helical tooth felt pinion	[1]	**101.1079**
m3 - helical tooth felt pinion	[1]	**116.0050**
m4 - helical tooth felt pinion	[1]	**116.0051**

2 - Lubrification assembly kit

Specification (see figure C)	Code
Lubrification assembly kit (no felt pinion, no riscan pipe)	**736.0332**

Table for selecting maximum operating torque

Table 1 – With lubrication guaranteed under ideal load conditions, dynamics, (1 m/s) with rigid pinion support **[Nm].**

	Pinion / Racks - Helical tooth			
Module	**Z [n°]**	**Øp [mm]**	**KSD**	**KRD**
2	21	44.56	150	200
	30	63.66	205	265
3	20	63.66	400	500
	28	89.13	500	650
4	18	76.39	880	1000
	25	106.1	1150	1500

Example of simplified calculation
To obtain the working torque value, divide the maximum operating torque (Tab. 1) by the safety factor (Tab. 2). Intermediate values can be adjusted according to the application.

Motion (A) = High shock *1.75*
Speed (B) = Low *1*
Lubrication (C) = Constant *0.9*
Rack = module 3 KSD
Pinion = Øp 63.66 (400 Nm)
Safety factor = A x B x C = 1.575

Motion (A)	Speed (B)	Lubrcation (C)	Safety fac. (AxBxC)
Low shock *1.25*	Low *1*	Constant *0.9*	*1.13*
Medium shock *1.5*	Medium *1.25*	Daily *1.2*	*2.25*
High shock *1.75*	High *1.5*	Monthly *2.5*	*6.56*

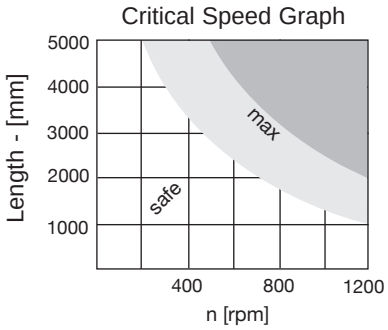
Tab.2

Maximum transmissible torque = Maximum torque 400 / Safety factor 1,575 ≤ 254 Nm

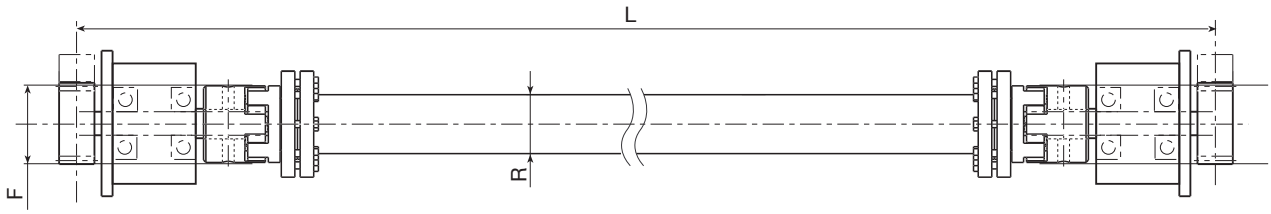
For heavy-duty applications, please ask our technical dept. to carry out the appropriate checks.

Connection shafts

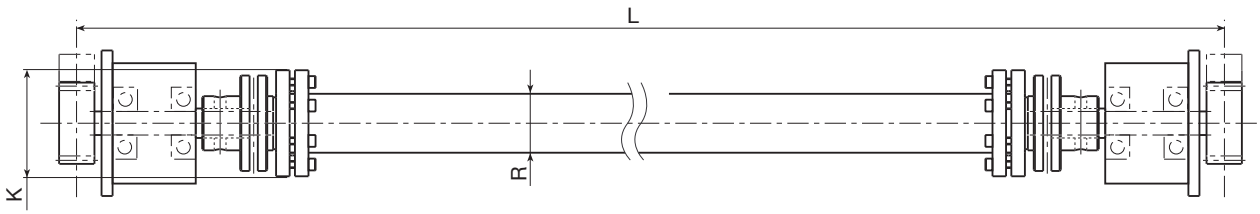
The Tecline range includes a series of hollow shafts for connecting the pinions on the systems. We can supply standard connections, according to your application requirements. The complete kit includes all the components needed to make the connection, with shrink-discs and crop down sizes of pins for insertion into the pinions.



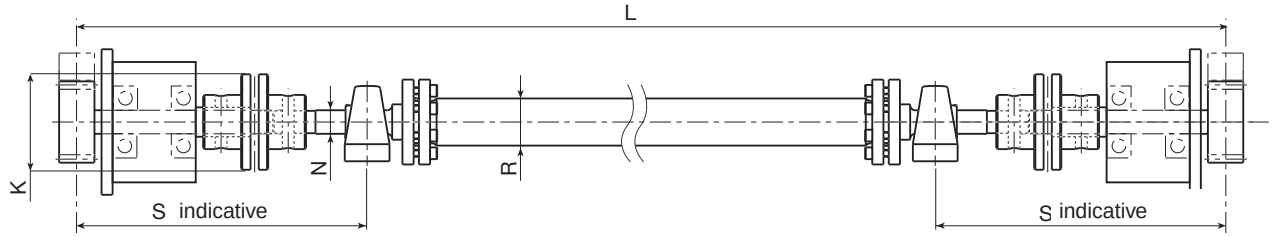
Type 1 - Elastic joint with connecting shaft, suitable for low speeds with center-distance and length of up to 2 m.



Type 2 - Stainless steel blade joint connecting shafts, for backlash-free transmissions



Type 3 - Stainless steel blade joint connecting shafts and support bearings, suitable for backlash-free transmissions

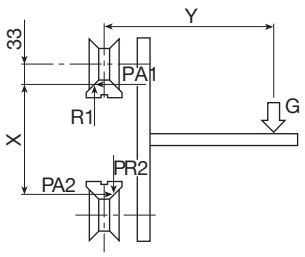


R(*)	K	F	N	S	Lmax	MTwork [Nm]	Mom. of inertia [kgm²]	Type 1: Code/L	Type 2: Code/L	Type 3: Code/L
40	67	55	20	200	6,200	20	0.0028 + 0.46 x L. x10^{-6}	**436.0948**	**436.0957**	**436.0965**
50	81	65	25	235	6,300	35	0.0092 + 0.66 x L. x10^{-6}	**436.0949**	**436.0958**	**436.0966**
50	93	80	25	235	6,300	70	0.0161 + 1.34 x L. x10^{-6}	**436.0951**	**436.0971**	**436.0974**
70	104	95	25	235	6,400	100	0.0293 + 2.93 x L. x10^{-6}	**436.0952**	**436.0960**	**436.0968**
80	126	120	25	250	6,400	190	0.0793 + 4.5 x L. x10^{-6}	**436.0955**	**436.0963**	**436.0984**
90	143	-	-	-	6,500	300	0.1456 + 6.53 x L. x10^{-6}	**-**	**436.0986**	**436.0987**
110	185	-	-	-	6,000	420	0.3499 + 12.3 x L. x10^{-6}	**436.0144**	**436.0145**	**436.0146**

(*) R: Shaft material and diameter are selected in accordance with required speed, centre-distance L, torque and accuracy.

Rollers and V-shaped guide rails 28.6x11 and 35x16

Material: Hardened and burnished C45 steel covering; burnished steel pins and bolts. Rollers with shaped plastic cover are available upon request. Rollers with longer centre-distance L can be supplied. The use of hardened guide rails is preferable.

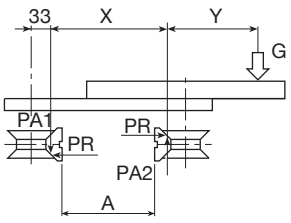


$P_{A1} = \frac{G \cdot Y}{X} = P_{A2}$

$P_{R1} = G + P_{A1}$

$P_{R2} = P_{A2}$

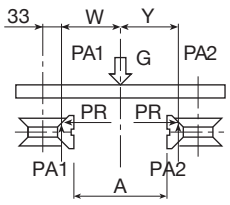
X = A + 20 mm



$P_{A1} = \frac{G \cdot Y}{X}$

$P_{A2} = P_{A1} + G$

X = A + 20 mm



$P_{A1} = \frac{G \cdot Y}{W + Y}$

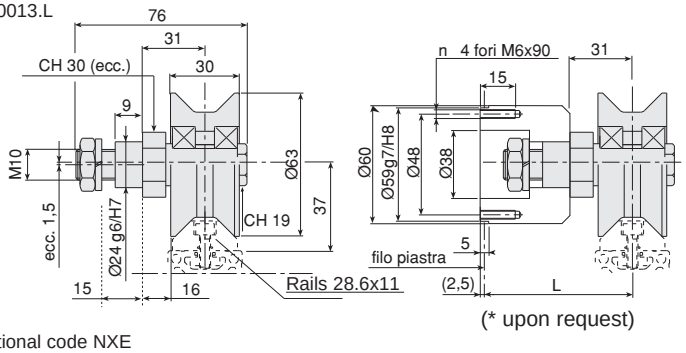
$P_{A2} = G - P_{A1}$

X = A + 20 mm

V-shaped rollers (Guide Rails 28.6 x 11) anti-oxidized version

Shaped rollers with radial or angular contact bearings (medium version). Also available in the light anti-oxidation version:
with radial bearings: code stainless steel

* IMPORTANT: upon request, spacers can be supplied to increase the centre-distance between the guide rail and the roller supporting surface. In addition to the roller code, please indicate the required centre-distance (L). e.g. 205.0013.L



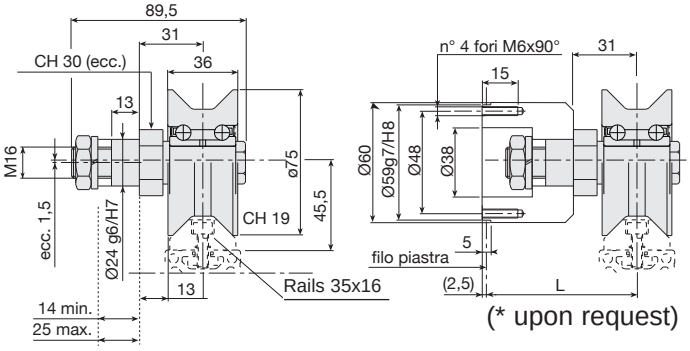
(* upon request)

Roller code anti-oxidation treatment and stainless steel bearings: additional code NXE

Version	Type	Bearing	C(1bear.)	Cw (2bear.)	C0w (2bear.)	PR[N]	PA[N]	Speed [mm/s]	Weight [kg]	Code
Medium	Conc.	angular contact	7,800	9,600	4,800	1,400	600	2,500	0.8	**205.0013**
Medium	Exc.	angular contact	7,800	9,600	4,800	1,400	600	2,500	0.8	**205.0014**

V-shaped rollers [rails 35 x 16] integrale

Shaped rollers with two rows of angular contact ball bearings. With bilateral sliding sealing rings. Accuracy class P6.
They support loads along the axis of the pin provided Pa eff < 0.4 Pr eff.
* IMPORTANT: upon request, spacers can be supplied to increase the centre-distance between the guide rail and the roller supporting surface. In addition to the roller code, please indicate the required centre-distance (L). e.g. 205.0011.L

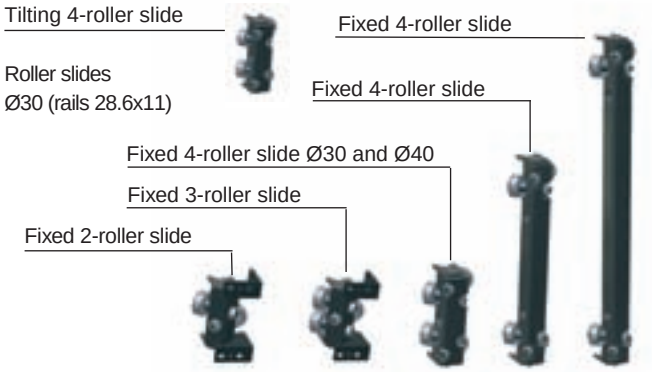


(* upon request)

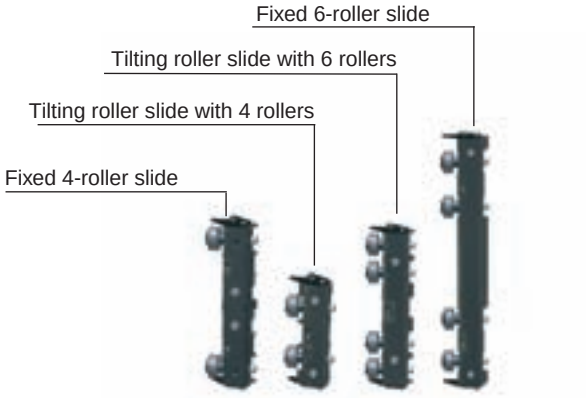
Type	Bearing	C	C0 (2bear.)	PR[N]	PA[N]	Speed [mm/s]	Weight [kg]	Code
Conc.	angular contact	21,000	13,900	4,500	1,800	2,500	1	**205.0011**
Exc.	angular contact	21,000	13,900	4,500	1,800	2,500	1	**205.0012**

Roller slides

Ø40 roller slides with 2 or 3 rollers, aluminium alloy castings (Rs=280 N/mm2). Ø30, Ø40, Ø52 and Ø62 roller slides with 4 or 6 rollers, extruded aluminium alloy (Rs=310 N/mm2). Alloy steel pins (Rs=800 N/mm2) Rollers with double rows of angular contact ball bearings, long-life.



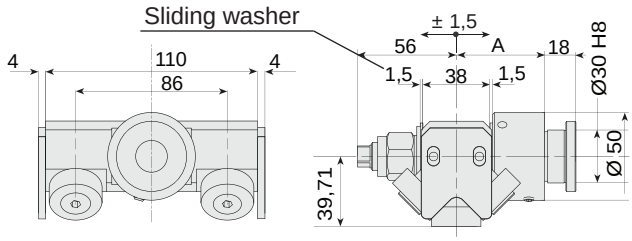
Roller slides Ø40 (V-shaped 35x16) - Ø30 (guide rail 28.6x11)



Roller slides Ø52 and Ø62 (V-shaped 55x25)

Tilting roller slides with 4 rollers Ø30 for V-shaped guide rails 28.6x11

Use the roller slide eccentric pin to adjust the backlash along the plane between the guide rails.



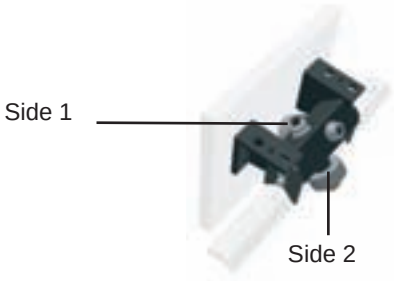
Important: remove the space washers to enable self-alignment of the roller slide

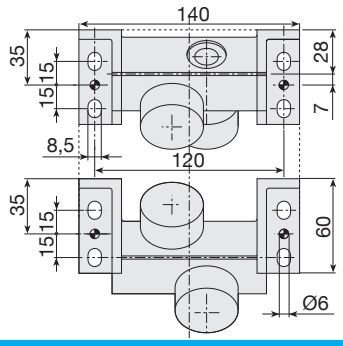
	A	Weight [kg]	Code
Roller slide with concentric pin	75	1.8	**204.0052**
Roller slide with excentric pin (±1 mm)	75	1.8	**204.0053**
Roller slide with concentric pin	50	1.4	**204.0054**
Roller slide with excentric pin (±1 mm)	50	1.4	**204.0055**

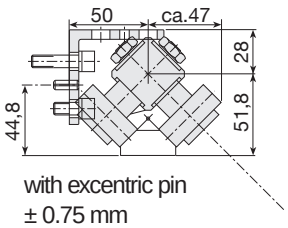
Spare parts	A	Code
Complete body with rollers		**204.0050**
Concentric pin	75	**236.0010**
Excentric pin (±1 mm)	75	**236.0011**
Concentric pin	50	**236.0014**
Excentric pin (±1 mm)	50	**236.0015**

2 Roller slides Ø40 for V-shaped guide rails 35x16

Please follow the diagrams below to ensure correct assembly. To make up for the tolerances in the profile shapes, use pins to lock carriages with eccentric rollers after placing them in the appropriate position. (With the eccentric pins in the neutral position).



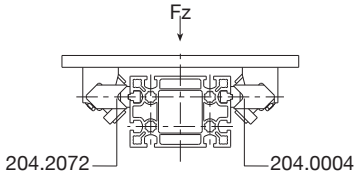


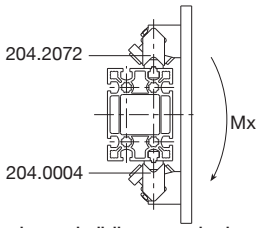


with excentric pin
± 0.75 mm

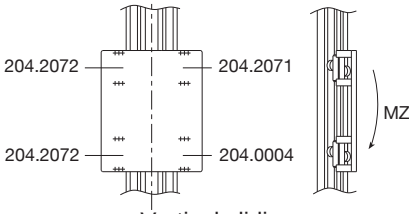
Roller side 1	Roller side 2	Specification	Weight [Kg]	Code
Concentric	Concentric	2-rollers carriage Ø40 - concentric	1	**204.2072**
Excentric	Concentric	2-rollers carriage Ø40 - 1 exc. side 1	1	**204.2071**
Concentric	Excentric	2-rollers carriage Ø40 - 1 exc. side 2	1	**204.0004**
Excentric	Excentric	2-rollers carriage Ø40 - excentric	1	**204.0019**

Application diagram common to 2-roller slides





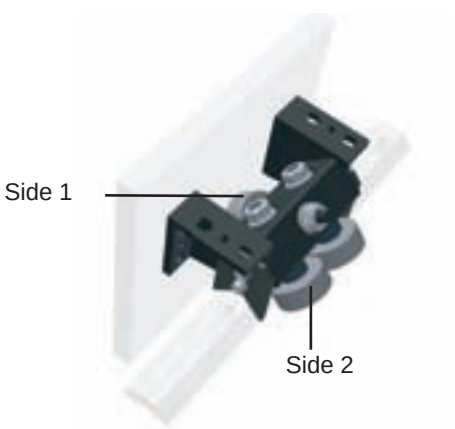
Horizontal sliding - vertical carriage

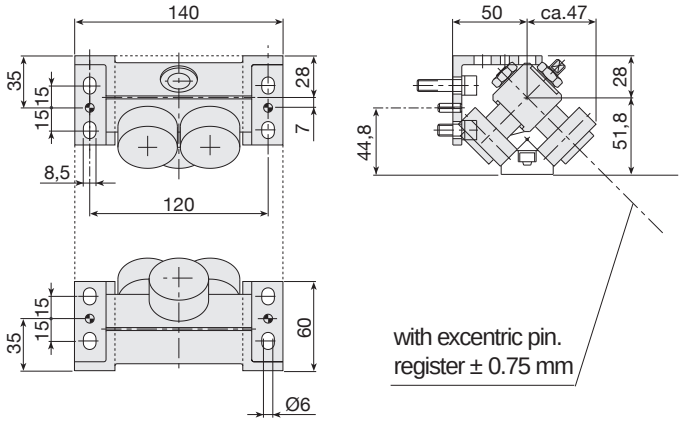


Vertical sliding

3-Roller slides Ø 40 for V-shaped guide rails 35x16

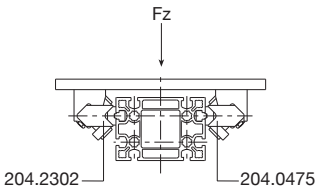
Please follow the diagrams below to ensure correct assembly. To make up for tolerances in the profile shapes, use pins to lock carriages with eccentric rollers after placing them in the appropriate position. (With the eccentric pins in the neutral position).



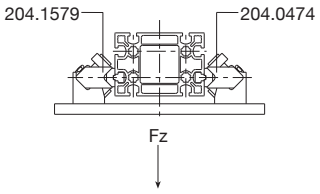


Rollers side 1	Rollers side 2	Specification	Weight [kg]	Code
1 concentric	2 concentric	3-rollers carriage Ø40 - concentric	1.3	**204.1579**
1 eccentric	2 concentric	3-rollers carriage Ø40 - 1 exc. side 1	1.3	**204.0474**
2 concentric	1 concentric	3-rollers carriage Ø40 - concentric	1.3	**204.2302**
2 concentric	1eccentric	3-rollers carriage Ø40 - 1 exc. side 2	1.3	**204.0475**

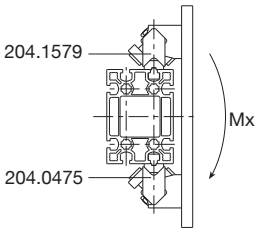
Application diagram common to 3-roller slides



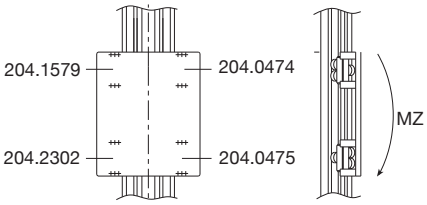
Horizontal sliding
Symmetric load



Horizontal sliding
Inverted load



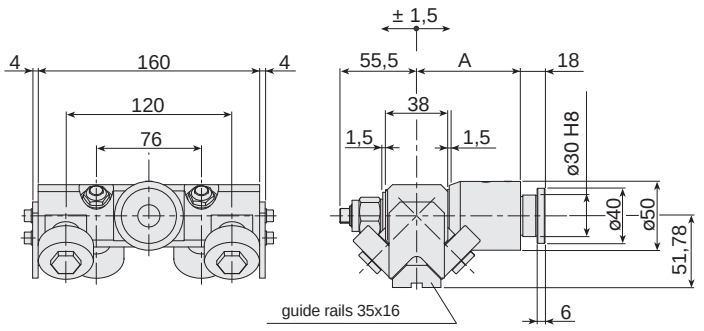
Horizontal sliding
Vertical carriage or asymmetric load

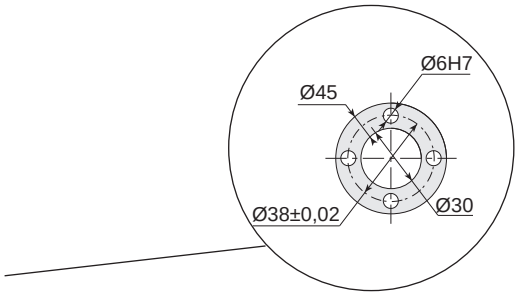


Vertical sliding

Tilting roller slides with 4 rollers Ø40 for V-shaped guide rails 35x16

Use the roller slide eccentric pin to adjust the backlash along the plane between the guide rails.tino.





Detail of plate
machining

Important: remove the spacer washers to enable self-alignment of the roller slide

	A	Weight [kg]	Code
Slide with eccentric stud (±1 mm)	75	2.2	**204.0016**
Slide with eccentric stud (±1 mm)	50	1.8	**204.0033**

All pins are eccentric, but are made concentric by inserting the pin in the specific hole on the plate, in order to determine the required preload.

Spare parts	A	Code
Complete body with rollers		**204.0013**
Eccentric stud (±1 mm)	75	**236.0011**
Eccentric stud (±1 mm)	50	**236.0015**

Fixed 4-roller slide Ø40 for V-shaped guide rails V 35x16

Use the roller slide eccentric stud to adjust the backlash along the plane between the guide rails.
Important: machine the pin clamping plate as shown in Fig. A
Important: remove the space washers to enable self-alignment of the roller slide Sliding washers

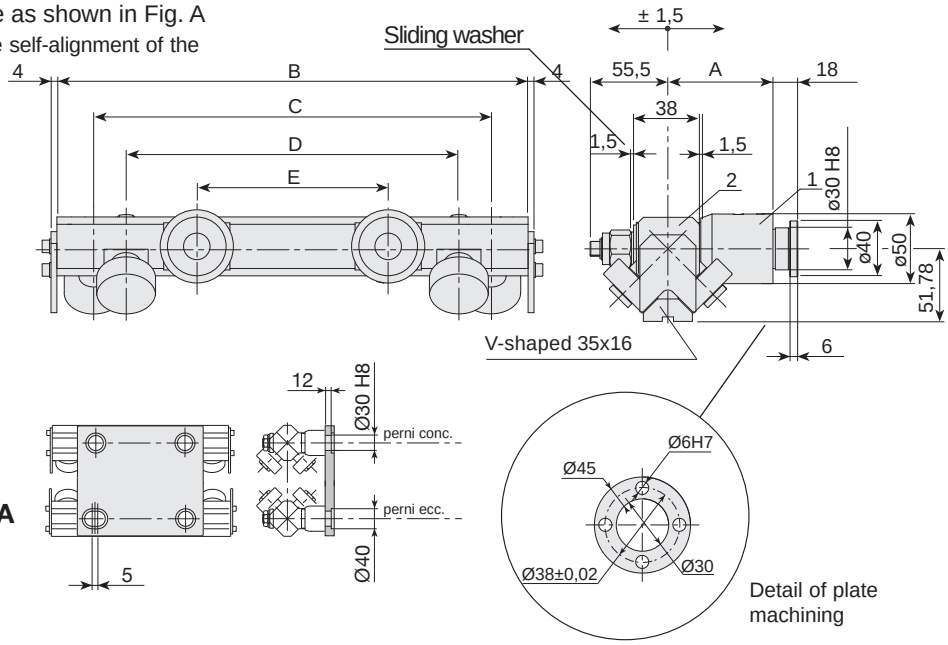


Fig. A

Detail of plate machining

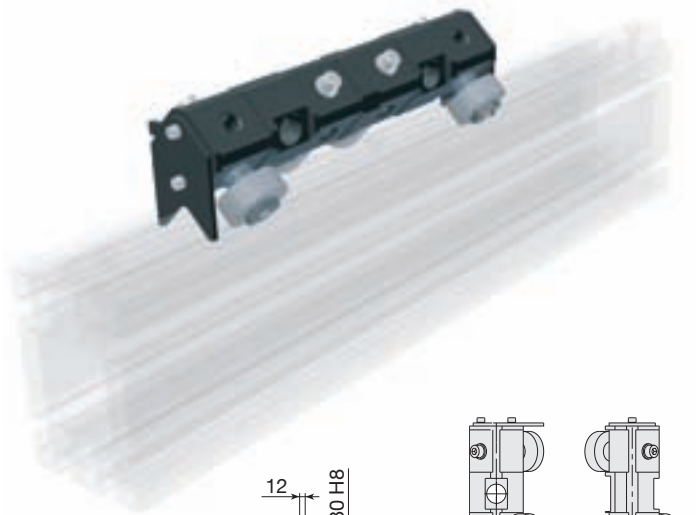
	A	Code
R. slide L=370 complete with exc. pin (± 1 mm)	75	**204.0018**
R. slide L=600 complete with exc. pin (± 1 mm)	75	**204.0028**
R. slide L=370 complete with exc. pin (± 1 mm)	50	**204.0031**
R. slide L=600 complete with exc. pin (± 1 mm)	50	**204.0035**

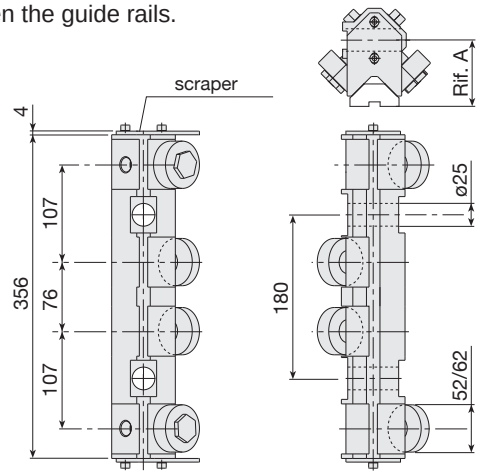
R. slide spare parts (2)	B	C	D	E	Code
Roller slide L=370	370	320	276	180	**204.0005**
Roller slide L=600	600	550	506	410	**204.0026**

Pin spare parts (1)	A	Weight [kg]	Code
Eccentric stud (± 1 mm)	75	4.1	**236.0011**
Eccentric stud (± 1 mm)	50	3.5	**236.0015**

E type roller slides (roller Ø52) and F type (roller Ø62) for V-shaped guide rails 55x25

4-Stiff Rollers slide. Suitable for mounting stud: **Type 7-8**
Use the roller slide eccentric stud to adjust the backlash along the plane between the guide rails.
Important: machine the pin clamping plate as shown in Fig. A





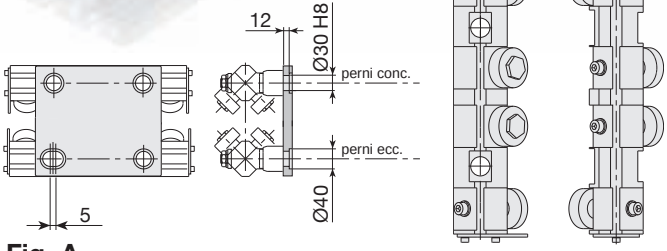


Fig. A

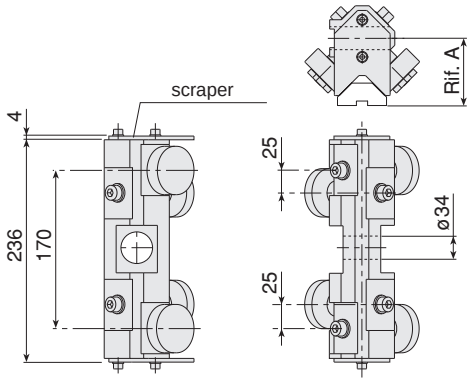
Ø Rollers	Rif. A
Rollers Ø52	71.75
Rollers Ø62	78.85

Technical caracteristics	Ø52	Ø62
N° rollers	4	4
Weight [kg.]	4.6	5.2
Spare parts code	**204.1518**	**204.1519**

K version
inverted roller position see page TL-63

Type G roller slides (roller Ø52) and H type (roller Ø62) for V-shaped guide rails 55x25

Tilting 4-roller slides Suitable for assembly pins: **Type 9**
Use the roller slide eccentric pin to adjust the backlash along the plane between the guide rails.

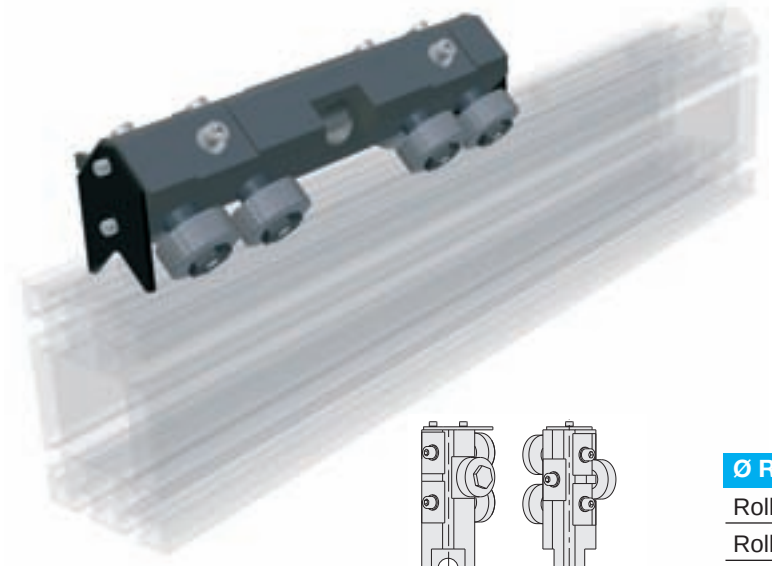


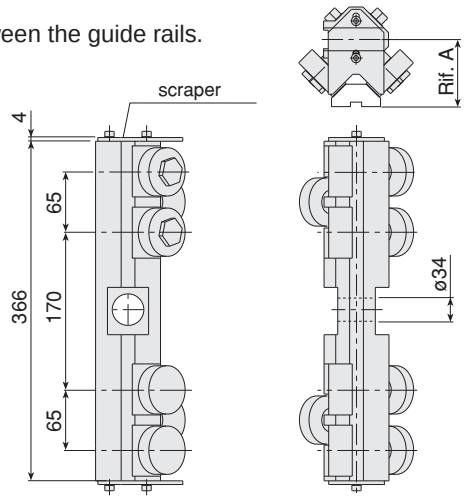
Ø Rollers	Rif. A
Roller Ø52	71.75
Roller Ø62	78.85

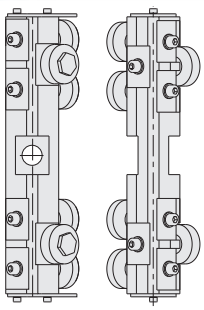
Technical caracteristics	Ø52	Ø62
N° roller	4	4
Weight [kg.]	3,2	3.8
Spare parts code	**204.1520**	**204.1521**

I-type roller slides (roller Ø52) and L-type (roller Ø62) for V-shaped guide rails V 55x25

Tilting 4-roller slides Suitable for assembly pins: **Type 9**
Use the roller slide eccentric pin to adjust the backlash along the plane between the guide rails.







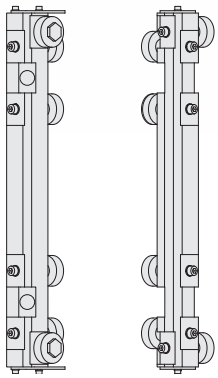
K version
inverted roller position see page TL-63

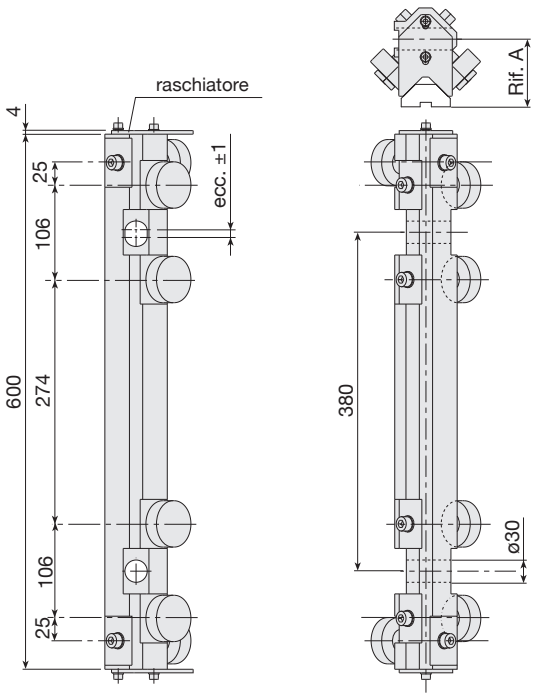
Ø Roller	Rif. A
Roller Ø52	71.75
Roller Ø62	78.85

Technical caracteristics	Ø52	Ø62
N° rollers	6	6
Weight [kg.]	4.9	5.9
Spare parts code	**204.1522**	**204.1523**

P-type roller slides (rollers Ø52) and Q-type (rollers Ø62) for V-shaped guide rails 55x25

Fixed 4-roller slides Suitable for assembly pins: **Type 10-11-12**
Use the roller slide eccentric pin to adjust the backlash along the plane between the guide rails.





K Version
inverted roller position see page TL-63

Technical caracteristics	Ø52	Ø62
N° rollers	6	6
Weight [kg.]	4.9	5.9
Spare parts code	**204.2086**	**204.2283**

Spare roller with stud

Make sure that all the components are locked in place with the appropriate screws. The recommended tightening torque for pin locking screws and nuts is 50 Nm.

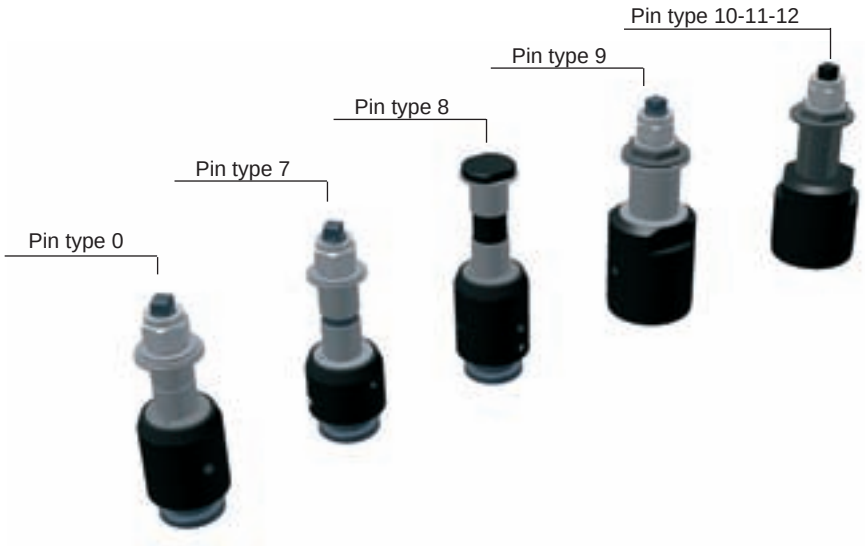
Max. load factors for induction-hardened guides

Roller	Cw [N]	C0w[N]	Fr amm.[N]	Max. S.
Ø30	5,100	3,100	1,350	7 m/s
Ø40	10,000	6,300	2,500	7 m/s
Ø52	16,700	10,700	4,250	6 m/s
Ø62	21,500	14,800	5,300	5 m/s

Spare roller with pin	Weight [kg]	Code
Ø30 Concentric	0.02	**406.0056**
Ø40 Concentric	0.22	**205.0464**
Ø40 Excentric (± 0.75 mm)	0.25	**205.0463**
Ø52 Concentric	0.4	**205.0163**
Ø62 Concentric	0.55	**205.0165**

Assembly Studs

Material: burnished steel (Rs=800 N/mm2). Special variants upon request. AISI 303 stainless steel versions are available upon request. Types 0-7-8-9 are complete with self-lubricating bushings to make roller slide self-adjustments easier.



Type 0 assembly pins suitable for roller slide Ø30 and Ø40

Important: machine the pin clamping plate as shown in Fig. A

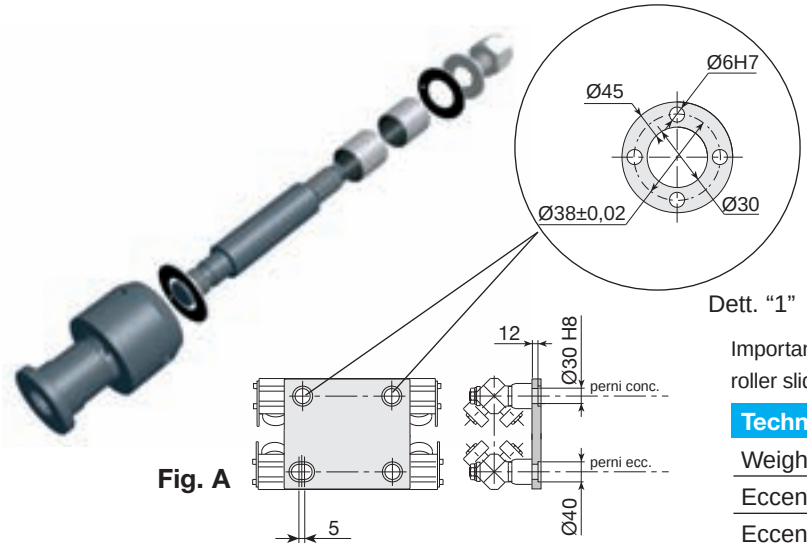
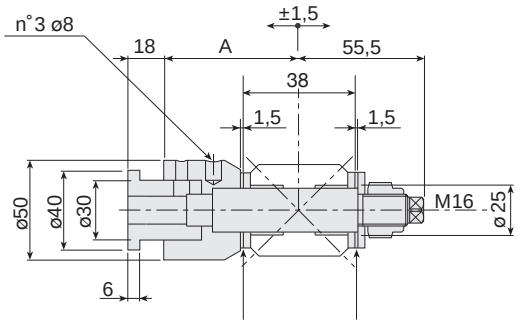


Fig. A



Important: remove the spacer washers to enable self-alignment of the roller slide

Technical caracteristics	A	
Weight [kg.]		1.1 approx.
Eccentric code (± 0,75 mm)	75	**236.0011**
Eccentric code (± 0,75 mm)	50	**236.0015**

Type 7 assembly pins suitable for roller slide E-F

Important: machine the pin clamping plate as shown in Fig. A

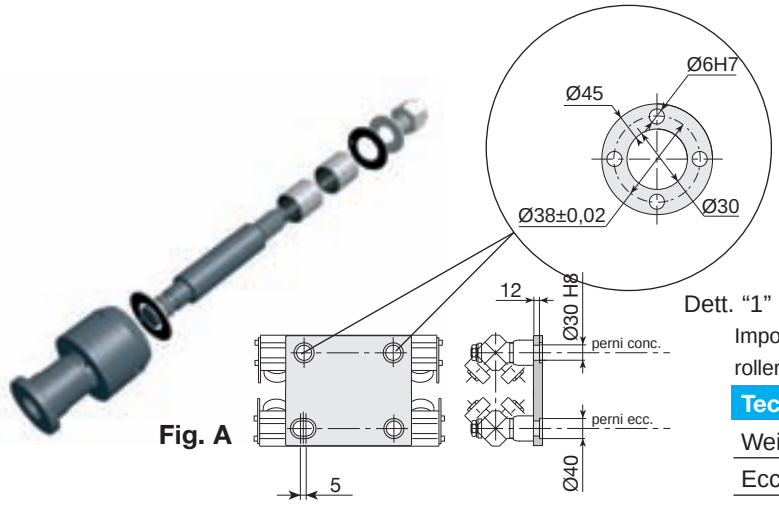
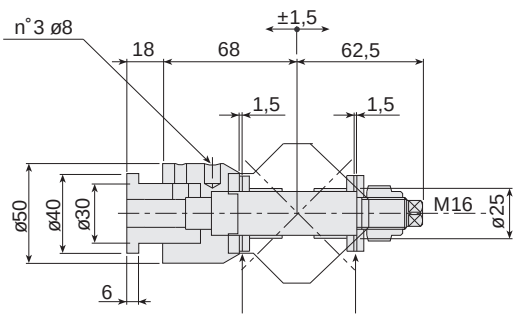


Fig. A



Important: remove the spacer washers to enable self-alignment of the roller slide

Technical caracteristics	
Weight [kg.]	1.1 approx.
Eccentric code (± 1 mm)	**236.1689**

Assembly pins type 8 suitable for carriage E-F

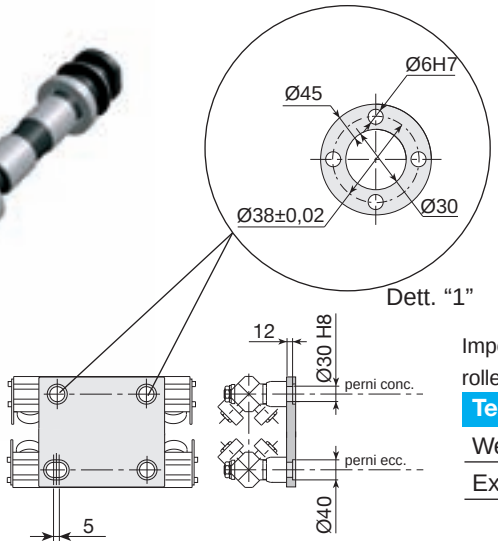
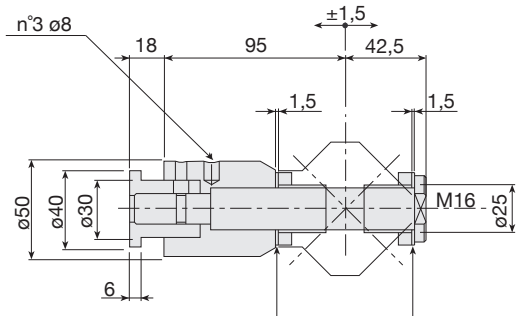


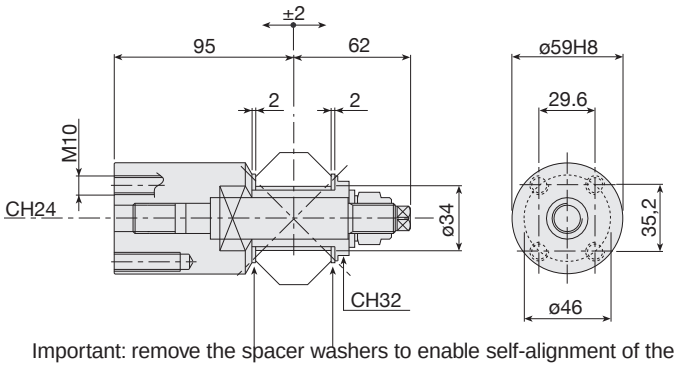
Fig. A



Important: remove the spacer washers to enable self-alignment of the roller slide

Technical caracteristics	
Weight [kg.]	1.8 approx.
Excentric code (± 1 mm)	**236.1691**

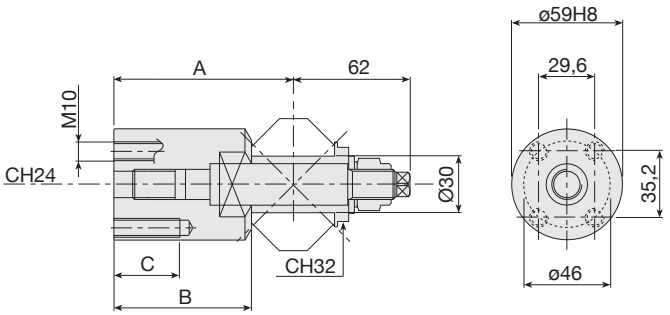
Type 9 assembly pins suitable for tilting roller slides G-H / I-L



Important: remove the spacer washers to enable self-alignment of the roller slide

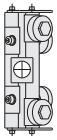
Technical caracteristics	
Weight [kg.]	2 approx.
Concentric code	**236.2076**
Excentric code (± 1,5 mm)	**236.2079**

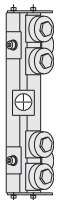
Type 10-11-12 assembly pins suitable for tilting roller slides P-Q

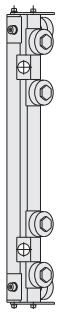


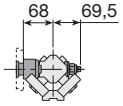
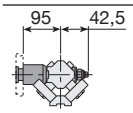
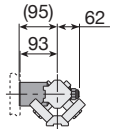
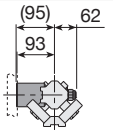
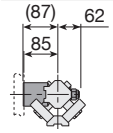
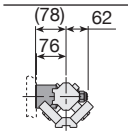
Type	A	B	C	Weight [kg]	Conc.code	Exc. code (± 1.5 mm)
10	95	73	35	2		**236.2083**
11	87	65	27	1.8	**236.2088**	**236.2089**

Order code table for roller slides and pins





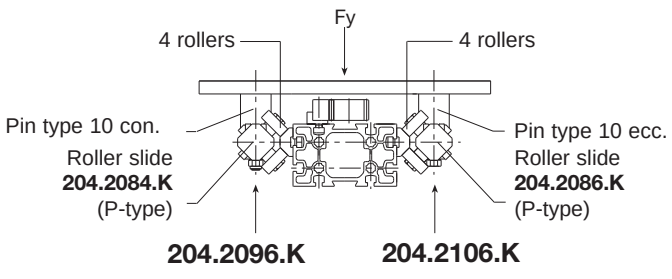


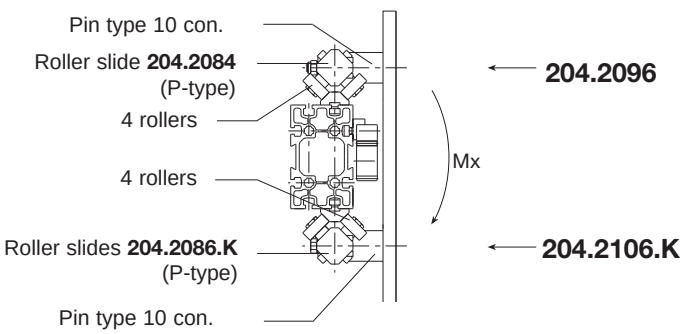
	Pin	Roller sl.	E	F	G	H	I	L	P	Q
		Ø roller	52	62	52	62	52	62	52	62
	7	con.	-	-	-	-	-	-	-	-
		exc.	204.1344	204.1348	-	-	-	-	-	-
	8	con.	-	-	-	-	-	-	-	-
		exc.	204.1345	204.1349	-	-	-	-	-	-
	9	con.	-	-	204.2092	204.2093	204.2094	204.2095	-	-
		exc.	-	-	204.2102	204.2103	204.2104	204.2105	-	-
	10	con.	-	-	-	-	-	-	204.2096	204.2097
		exc.	-	-	-	-	-	-	204.2106	204.2107
	11	con.	-	-	-	-	-	-	204.2098	204.2099
		exc.	-	-	-	-	-	-	204.2108	204.2109
	12	con.	-	-	-	-	-	-	204.2100	204.2101
		exc.	-	-	-	-	-	-	204.2110	204.2111

Assembly of standard carriages / K version carriages

IMPORTANT: for applications with high projecting loads, the rollers of the slides must be adjusted so that the load is supported by the maximum possible number of rollers. If this means arranging the rollers symmetrically with respect to the standard roller slide version, please add the letter K at the end of the code when filling in the order form. However, the roller assembly can also be inverted at a later date, by disassembling the pins and rollers and then **reassembling them in the opposite way.**

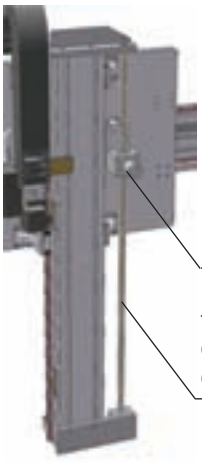
Example:





Anti-drop device with pneumatic brake system

Ant-droop devices, available in a range of sizes, are supplied according to the type of application. For instance, they can act as a mechanical stop to block the free-falling load at any stroke point, or as a lock in static conditions at any position.
Two-way blocking occurs following an unexpected pressure drop.
A mechanical release system is available on request (patented). Catalogue available upon request.
The kit includes: braking device and rod with relative supports, micro-switch. Solenoid valve available upon request.
Operating pressure 3-6 Bar.
With no pressure = locked.

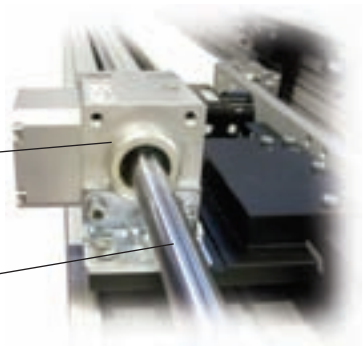


Type A
Static

Type B
Dynamic for free-falling load

Pneumatic brake system

tempered and chrome-plated cylindrical rod



1- Static rod blocking device

Type	Codice	Rod Blocking force [N]	Stroke [mm]
A	236.0018	/ 1,200	/ ...
A	236.0018	/ 1,900	/ ...
A	236.0018	/ 3,000	/ ...
A	236.0018	/ 5,400	/ ...
A	236.0018	/ 7,500	/ ...
A	236.0018	/ 12,000	/ ...

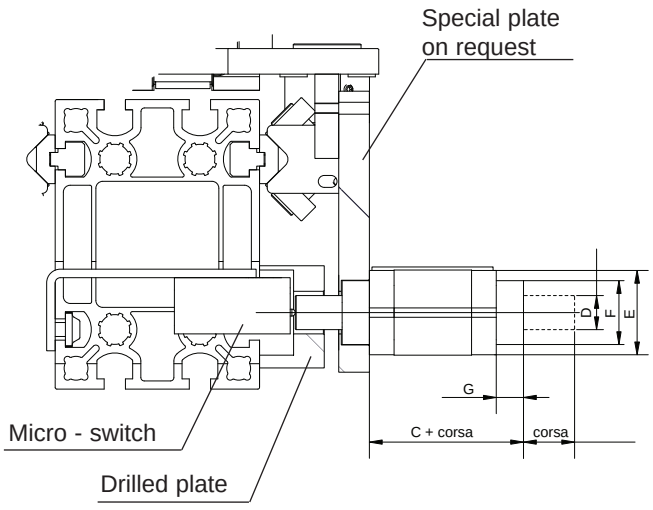
Emergency brake for free-falling load

1- Dynamic rod blocking device

Type	Code	Rod Blocking force [N]	Stroke [mm]
B	236.0019	/ 3,000	/ ...
B	236.0019	/ 5.400	/ ...
B	236.0019	/ 7,500	/ ...
B	236.0019	/ 12,000	/ ...

Lock-pin (stopper cylinder)

Lock-pins are available in two sizes to block the vertical axes in position to allow horizontal movements during maintenance. The lock-pins comprise the use of the through rod. Select the size according to the load. The kit includes: drilled plate for rod, stopper cylinder, micro-switch and 2 magnetic gearboxes.
Max. operating pressure: 10 bar.



1- Lock-pin

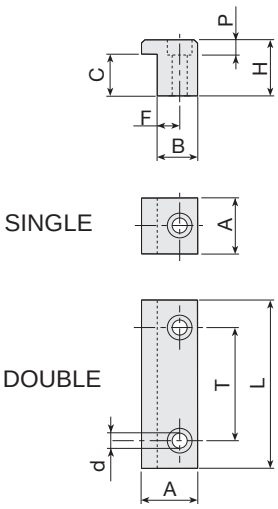
ØD Rod	Stroke	C	E	F	G	Kit Code
20	20	60.5	50	38	16	236.0021
32	30	-	-	-	-	236.0022

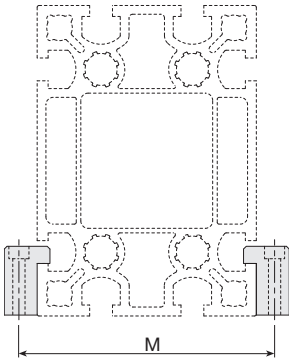
2- Accessory: drilled plate for rod

ØD Rod	Base	Width	Thickness
20	60	100	39
32	60	100	39

Profile anchor brackets

Material: alluminium alloy (Rs=310 N/mm^2).





Profile	A	L	T	d	H	P	C	F	B	M	single code	double code
E01-4 ; E01-5	30	50	25	9	25	9.5	18	12	22	69/114	**415.0772**	**415.0773**
MA1-5	25	50	25	6.7	27	6.8	20.6	10	18	120	**415.0769**	**415.0764**
STATYCA	30	90	50	11	40	11	28.3	14	25	198	**415.0767**	**415.0762**
VALYDA horizontal	30	90	50	11	40	11	28.3	14	25	228	**415.0767**	**415.0762**
VALYDA vertical	30	90	50	11	50	11	43.1	14	25	148	**215.0042**	**215.0041**
LOGYCA	30	90	50	11	40	11	28.3	14	25	248	**415.0767**	**415.0762**
PRATYCA horizontal	30	90	50	11	20	11	11.3	14	25	308	**415.0768**	**415.0763**
PRATYCA vertical	30	90	50	11	25	11	13.5	14	25	198	-	**915.1174**
SOLYDA horizontal	30	90	50	11	20	11	11.3	14	25	308	**415.0768**	**415.0763**
SOLYDA vertical	30	90	50	11	25	11	13.5	14	25	198	-	**915.1174**

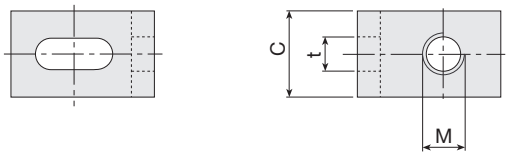
Threaded hole bracket

Threaded hole bracket for mounting additional equipment.
Material: 6060 clear anodized aluminium alloy.

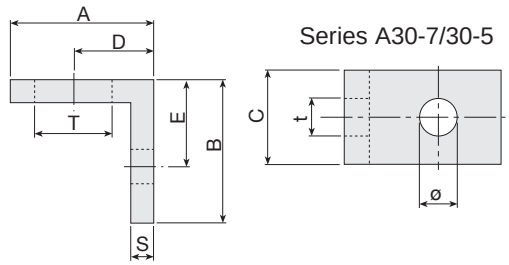
Series A30-8/30-6

Series A30-7/30-5

Series A30-8/30-6



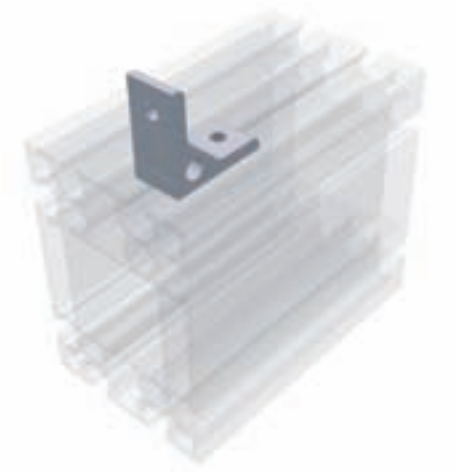
Series A30-7/30-5

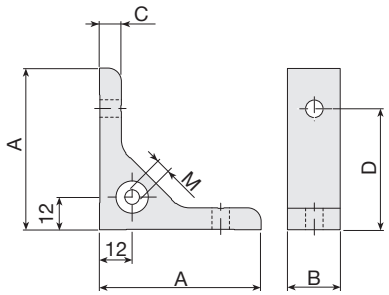


A	B	C	D	E	S	T x t	M	Code	Ø	Code
45	45	20	25	25	5	15 x 6.5	M6	**A30-86**	6	**A30-76**
35	25	20	19	15	5	20 x 6.5	M4	**A30-64**	4	**A30-54**
35	25	20	19	15	5	20 x 6.5	M5	**A30-65**	5	**A30-55**
35	25	20	19	15	5	20 x 6.5	M6	**A30-66**	6	**A30-56**
25	25	15	14	15	4	13.5 x 5.5	M3	**B30-63**	3	**B30-53**
25	25	15	14	15	4	13.5 x 5.5	M4	**B30-64**	4	**B30-54**
25	25	15	14	15	4	13.5 x 5.5	M5	**B30-65**	5	**B30-55**
25	25	15	14	15	4	13.5 x 5.5	M6	**B30-66**	6	**B30-56**

Bracket for mounting additional equipment

L-shaped bracket for mounting additional equipment and improving the rigidity of frames made with profiles.
Material: 6060 clear anodized aluminium alloy.

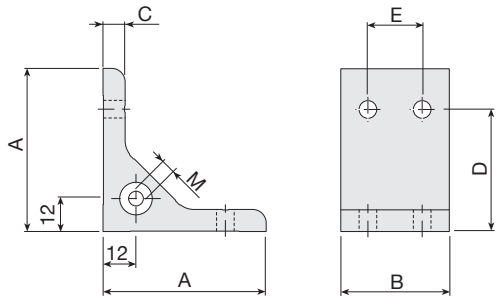




A	B	C	D	E	Ø	M	Code
60	20	8	45	-	6,5	-	**B30-10**
60	20	8	45	-	6.5	M6	**B30-20**
60	30	8	45	-	9	-	**A30-10**
60	30	8	45	-	9	M6	**A30-20**
38	30	8	25	-	9	-	**A30-00**
31	20	6	20	-	6.5	-	**C30-00**

Bracket for mounting additional profiles

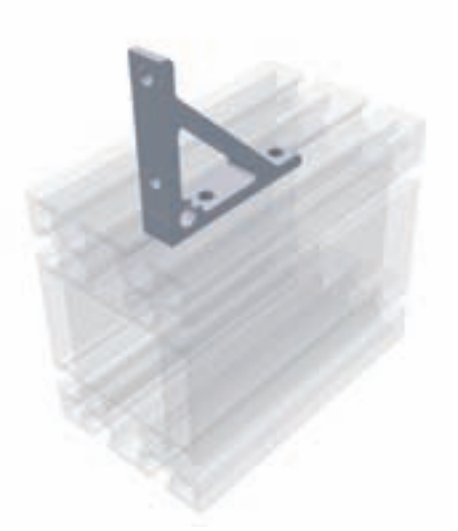
Material: 6060 clear anodized aluminium alloy.

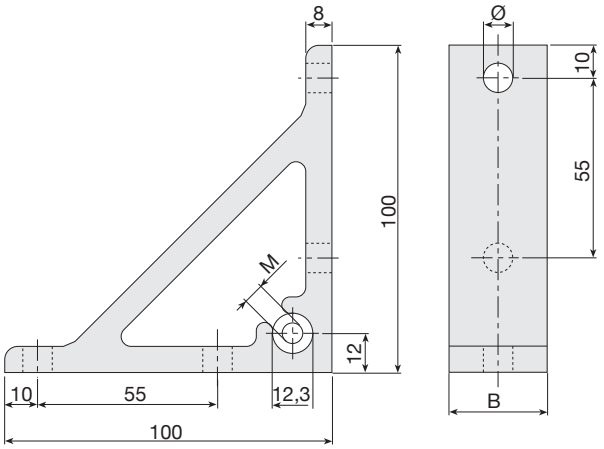


A	B	C	D	E	Ø	M	Code
38	80	8	25	50	9	-	**A30-02**
31	60	6	20	40	6.5	-	**C30-02**

Bracket for mounting additional profiles

Material: 6060 clear anodized aluminium alloy.

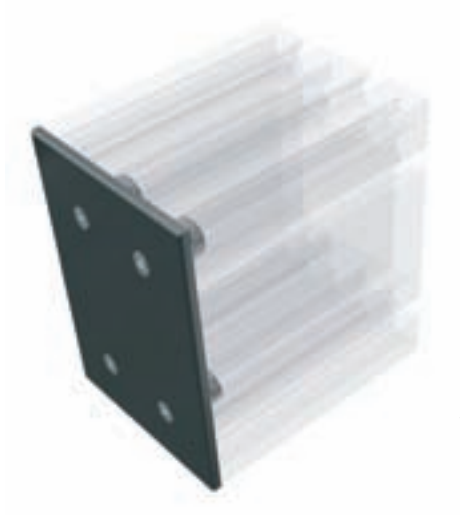




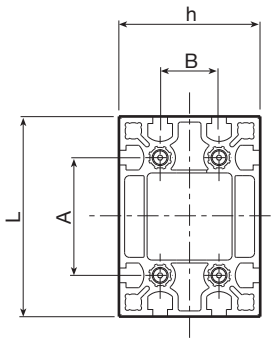
	B	M	Ø	Code
Without bushing	30	-	9	**A30-30**
Without bushing	20	-	6.5	**B30-30**
With bushing	30	M6	9	**A30-40**
With bushing	20	M6	6.5	**B30-40**

End caps for profiles

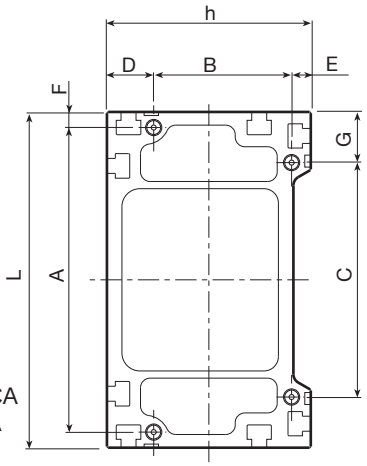
The end caps for STATYCA, VALYDA, and LOGYCA (supplied with 4 bushings 207.1892 thr. M20/6) are fixed to the profiles using the 4 holes provided in the centre that must be M20 threaded. PRATYCA and SOLYDA profiles must instead be M6 drilled and threaded as in the areas indicted in the drawing (in this case the end caps are supplied without any bushings). Please specify whether profiles will require end caps.
Material: black polyethylene, 6 mm thick. End caps in 6 mm-thick aluminium alloy are available upon request.



STATYCA
VALYDA
LOGYCA

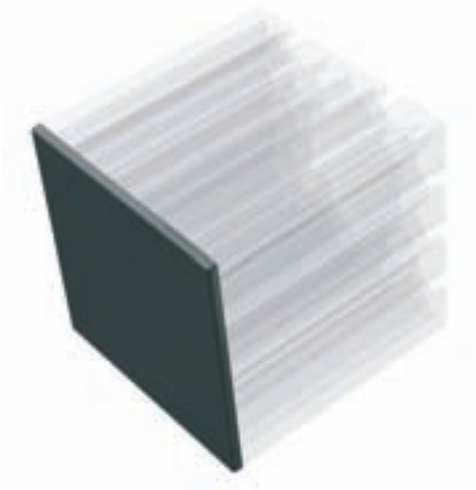


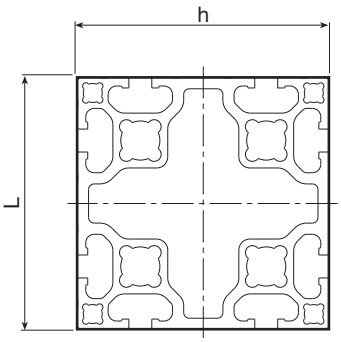
PRATYCA
SOLYDA



Bearing profile	L	h	A	B	C	D	Code
202.1753 - STATYCA	170	120	100	50	-	-	**212.1774**
202.1146 - VALYDA	200	120	100	50	-	-	**212.1704**
202.2184 - LOGYCA	220	120	150	50	-	-	**212.2279**
202.1147 - PRATYCA	280	170	254	115	195.5	39	**212.1705**
202.0342 - SOLYDA	360	200	328	141	265	40	**212.1706**

The end caps for small and medium profiles (E40.60 type excluded wich instad has screws) have no screws or bushes and are fitted simply by exerting moderate pressure on the end of the profile.
Material: black polyethylene, approx. 5 mm thick.



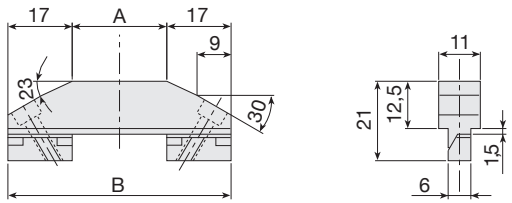


Profile	L	h	Code
E01-4	90	90	**E40-40**
E01-5	180	90	**E40-60**
MA1-5	100	100	**A40-50**

Cams and cam-holders for micro-switches

Long cams (type B)

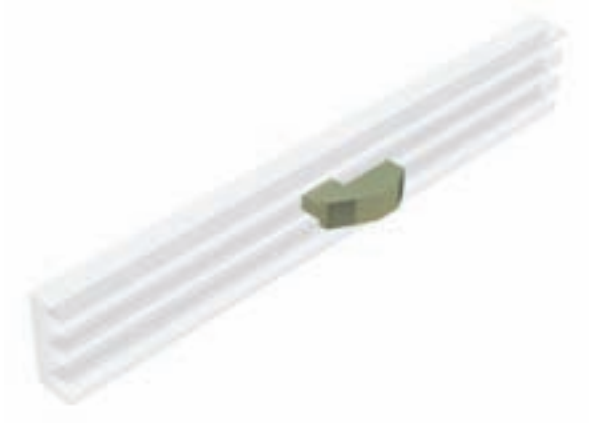
Cams in accordance with DIN 69639 except when marked “#”.
Material: steel with hardened and ground surface.

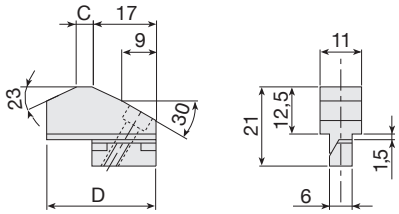


A	B	Code
25	59	**211.2132**
40	74	**211.2133**
63	97	**211.2134**
80 #	114	**211.2135**
100	134	**211.2136**

Short cams (type A)

Cams in accordance with DIN 69639
Material: steel with hardened and ground surface.

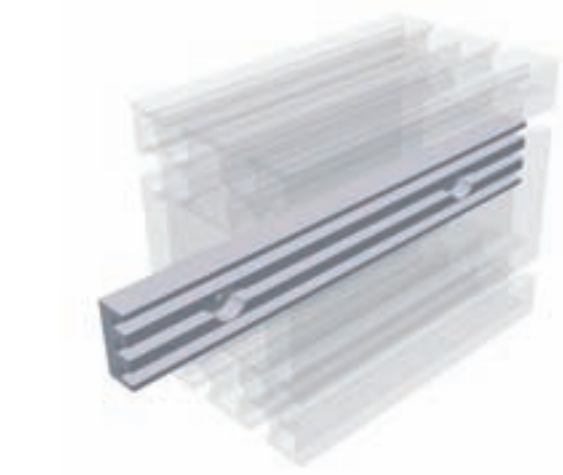


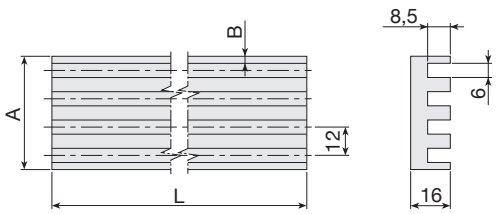


C	D	Code
0	25	**211.2128**
4	29	**211.2129**
10	35	**211.2130**
16	41	**211.2131**

Cam-holder guide rails

Cams in accordance with DIN 69638
Material: 6060 clear anodized aluminium alloy.

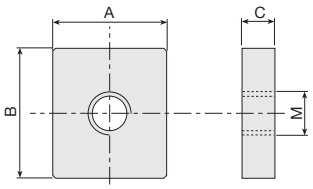




n°	B	A	L	Code
3	3	36	3,000	**202.2138**
4	5.5	53	3,000	**202.2139**
6	5.5	77	3,000	**202.2140**
8	5.5	101	3,000	**202.2141**

Inserts for base profiles 30/45/50/60

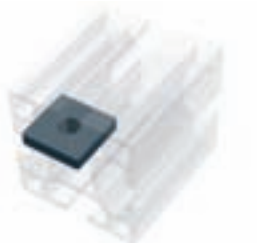
Material: galvanised steel.
Important: inserts must be inserted into the T-slots before assembling.

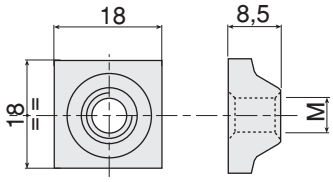


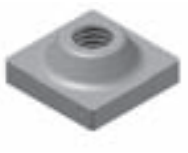
Thread	A-B-C Code	Thread	A-B-C Code
M3	**B32-30**	M4	**A32-40**
M4	**B32-40**	M5	**A32-50**
M5	**B32-50**	M6	**A32-60**
M6	**B32-60**	M8	**A32-80**
Spring	**211.1077**	Spring	**211.1061**

Square nuts

Also suitable for profiles **STATYCA, VALYDA, LOGYCA, PRATYCA and SOLYDA.**
Material: galvanised steel.
Important: inserts must be inserted into the longitudinal slots before assembling.

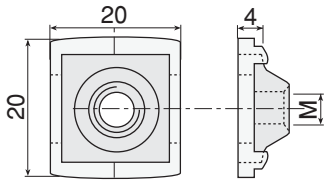






Thread	Code 18x18	Code 20x20
M4	**209.0031**	**209.0023**
M5	**209.0032**	**209.0019**
M6	**209.0033**	**209.1202**
M8	**209.0034**	**209.0467**

Plastic compound spring for vertical positioning of insert.

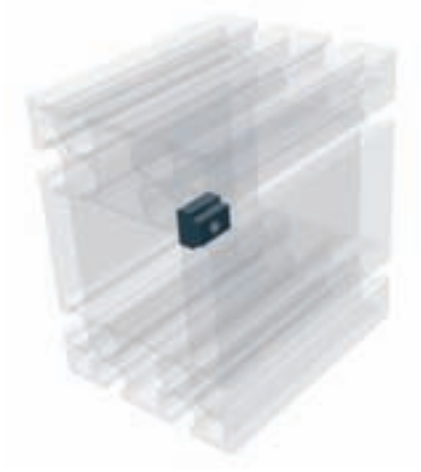


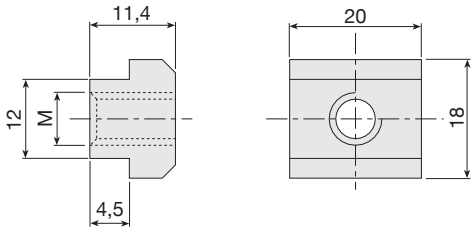
Spring	Code
Suitable for all inserts 18x18	**101.0732**

Threaded inserts for load-bearing profiles

Frontally insertable alignment plates

Material: galvanised steel.
Important: inserts must be inserted into the T-slots before assembling.

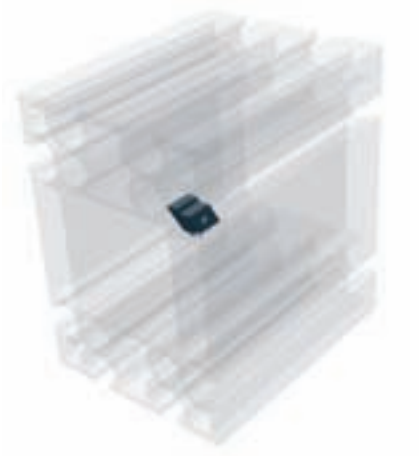


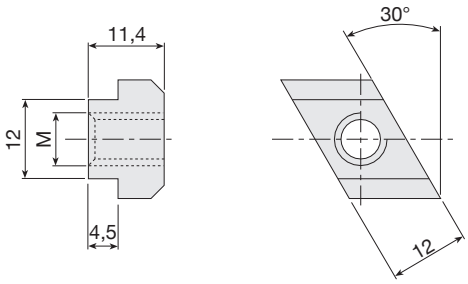


Thread	Code
M5	**215.1768**
M6	**215.1769**
M8	**215.1770**
M10	**215.2124**

Frontally insertable alignment plates

Material: galvanised steel.

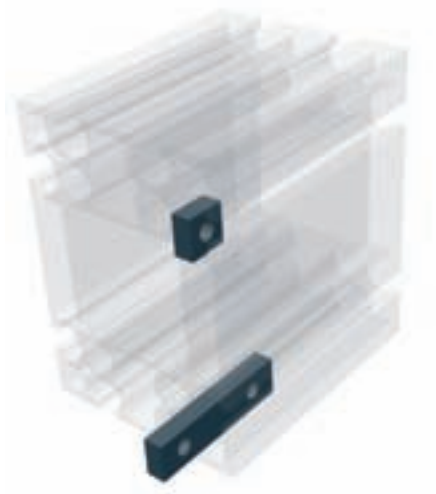


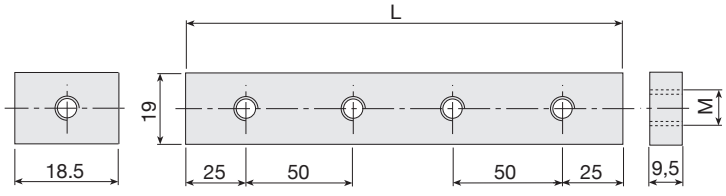


Thread	Code
M5	**215.1771**
M6	**215.1772**
M8	**215.1773**
M10	**215.2125**

Threaded inserts

Also suitable for base-50 profiles, except A32-91 insert.
Material: galvanised steel.





Thread	N. holes	L	Code
M10	1	40	**215.0477**
M12	1	40	**209.1281**
M10	1	20	**209.1277**
M10	2	80	**209.1776**
M10	3	150	**209.1777**
M10	4	200	**209.1778**
M10	5	250	**209.1779**
M10	6	300	**209.1780**
M10	7	350	**209.1781**

Dovetail inserts for VALYDA profile

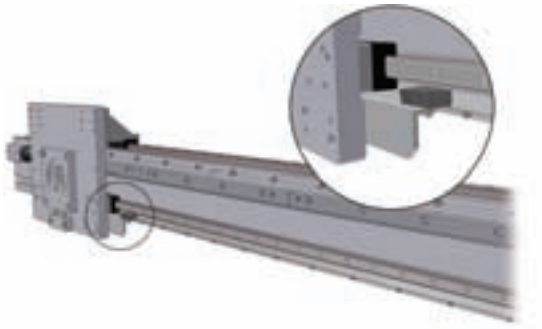
Material: burnished C40.
Important: inserts must be inserted into the longitudinal slots before assembling.
Special sizes are available upon request.

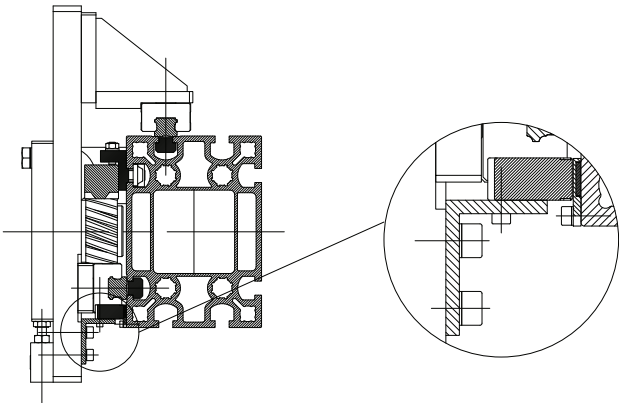
F	G	L	N° holes	M8	M10
25	-	50	1	**214.0388**	**214.0394**
25	50	100	2	**214.0389**	**214.0395**
25	50	200	4	**214.0391**	**214.0398**
25	50	300	6	**214.0393**	**214.0400**

F	G	L	N° holes	M10
25	-	50	1	**214.0430**
25	50	100	2	**214.0431**
25	50	200	4	**214.0433**
25	50	300	6	**214.0435**

Reader system with magnetic scale and sensor

The magnetic scale is applied to the body of the module using a supporting and protective profile.
Precision from ± 0.015 to ± 0,05 mm
Max. speed = 4 - 10 m/s (according to type)



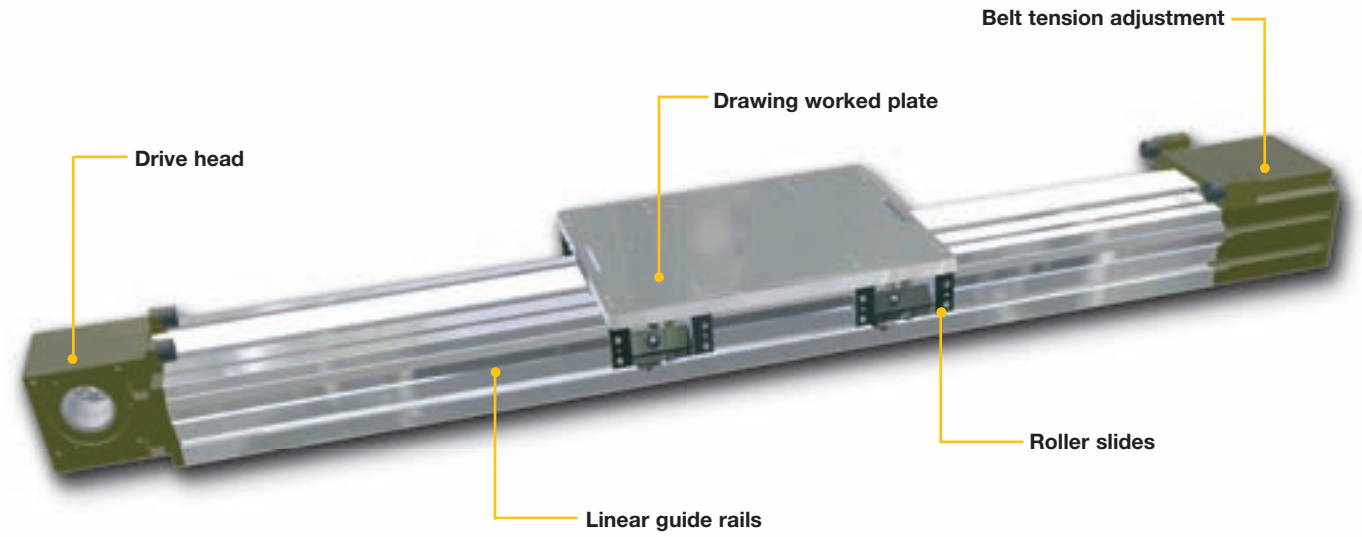


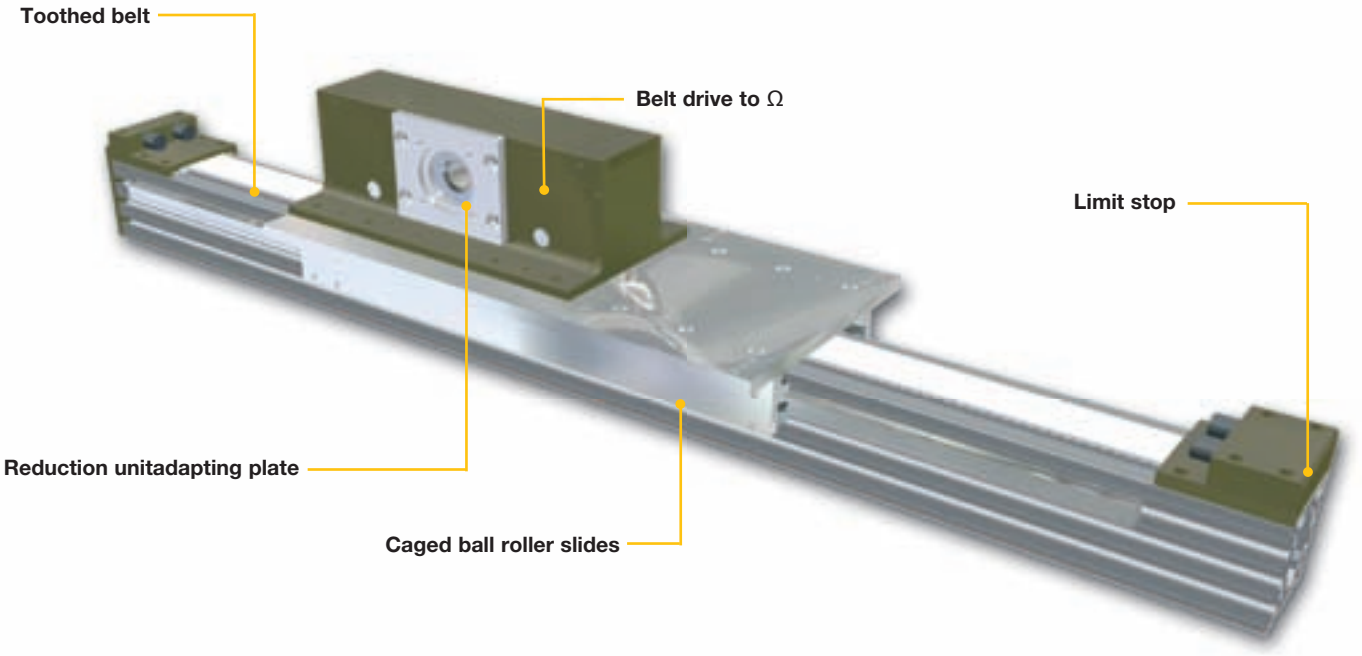
Index

ROLLON®

Linear Evolution

Modline





Modline linear modules are ready-to-use linear guide systems with high accuracy, speeds and load performances.

Our experience in the fields of the automotive plants, painting, plate working, manufacturing machines and palletization systems has allowed us to widen our product range with the most advanced technical solutions.

Our products stand out for their:

- high quality and **competitive performances** (profiles up to12m)
- **without play transmissions** achieved by high torque couplings
- **beams** with transversal stiffening ribs and preset for threads on profile ends
- **accurate scaling** and consequent reduced maintenance
- **fast** and accurate **belt** or without play screw drives
- the most **complete range** of accessories

The Modline linear module strong points are:

- Acomplete series of linear units to build up 3 or more axis cartesian robots
- Linear modules with linear guides suitable for parallel assembling
- Choice between strong steel linear guides with rollers or accurate caged ball roller slides and guides
- Choice between mobile carriage or fixed carriage and mobile profile
- Wide and complete solutions for control systems; programmable cards on request
- On request: assembling of E-chain cable carriers, reduction units, stiffening angle bars
- Drawing worked carriage plates
- Accessories and compatibility for pinion/rack drive unit integrated assembling

Contents

INTRODUCTION

M MODULES WITH BELT DRIVE

MODULES WITH SCREW DRIVE

T MODULES WITH BELT DRIVE

Z MODULES WITH OMEGA BELT DRIVE

Edition 03-2016

K MODULES WITH BELT DRIVE

ACCESSORIES AND APPLICATIONS

Construction Features

Beams
Obtained from Rollon extruded and anodised aluminium alloy profiles. Material features: Al Mg Si 0.5 hardened and tempered, F25 quality, Rm 245 N/mm2, tolerance as per EN 755-9 and EN 12020-2. Profiles have been specially designed to achieve high stiffness and long lengths (up to 12 m), in order to obtain solid, lightweight structures, suitable for the construction of linear transfer machines.

Plates
Obtained from aluminium alloy rolled sections, tensile strength Rm 290 N/mm2, HB 77, high performance. On request we perform machining work on all standard plates (D code) and according to detailed customer drawings.

V-shaped guide rails
In hardened and ground high carbon steel (min. hardness 58 HRC). (Anti-oxidation coating upon request).

Guide rails for caged ball roller slides
S version: high performance, with cage, primary producers. L version: high dynamics, medium loads.
H version: standard performance and limited dynamics.

Roller slides
Body in aluminium alloy G AL SI 5 hardened and tempered according to UNI 3600 or Alloy 6082, rollers with double rows of angular contact ball bearings, backlash-free, long life lubrication: Ø 30, Ø 40, Ø 52, Ø 62 mm rollers. Adjustable tolerance between rollers and guide rails. Complete with new felt scrapers.

Toothed drive and driven pulleys
In C40 steel with coupling toothing on the polyurethane belt, backlash-free, with anti-oxidation treatment. Equipped with large, watertight bearings, capable of withstanding high work performance, due to the use of the multicarriage with durable, alternating backlash-free movements.

Toothed belts
In durable polyurethane, fitted with high-resistance reinforced with high tensile strength steel cords, which prevent the belt from lengthening over time. They are grease, oil and gasoline-proof and can work at temperatures from - 30° up to +80°. The belt is fastened to the plate by means of a hooked support. The belt can be serviced without disassembling the equipment on the plate (standard versions).

Shrink-discs, shafts and pulleys
All models shown in the catalogue work with the standard conical shrink-disc drive system to lock the driving shaft and the driven shaft if present. Gearbox or shaft adapting plates are supplied upon request, as per drawing.

Bumper Stops
Important: the rubber stop pads provided with standard linear models are suitable and regarded as static limit switches. For special needs, such as stops if the drive breaks, please specify loads, dynamics, details and discuss the use of specific parts, accessories and devices (reinforced plates and attachments - shock absorbers, anti-drop devices, etc.) with our technical dept.

Anodizing
We supply all linear modules equipped with: natural, anodised aluminium alloy profiles (min. 11µ), driving heads, driven heads, carriages (MC series), counter plates, in dark bronze anodizing (min. 11µ).

Anti-oxidation parts and coatings
Modules are also available with anti-oxidation coating. Materials and coatings are selected according to the environment of use (food industry, marine environment, etc.).

Assembly specifications

Main features of the roller translation system
The translation system consists of a plate to which two roller slides with concentric pins and two with eccentric pins are fixed. The eccentric pins are suitable for adjusting backlash between the roller slide and the sliding track. Check that the angular position of the rollers is such that they can support the max. working load (page ML-10).

Guide rails and roller slides are particularly suitable for use in dusty and aggressive environments.

Important: during adjustment, overloading is easily achieved: this may result in premature wear.

NB: always keep friction low. If friction is high, loosen and repeat the adjustment.

Main features of the caged ball roller slides translation system
The sliding system guarantees high performance in terms of precision and load resistance, reduced maintenance and stiffness thanks to the connecting slots of the profile.

All guide rails are directly fixed onto the profile surface, appropriately machined to guarantee geometric and dimensional tolerances, paying attention to the parallelism between them. In large modules, any profile flatness or parallelism errors are corrected by means of the appropriate machining procedures. Please inform our technical dept. of any specific application requirements.

When mounting the linear axes in parallel, it is necessary to not only verify the parallelism between the linear units themselves, but also the coplanarity of the surfaces of the heads so that the maximum error does not exceed 0.3 mm per meter between the parallel modules and within ± 0.03 mm compared to the parallelism.

Lubrication

Roller slides and caged ball roller slides
Roller slides are provided with a permanent lubrication system which, if properly used, eliminates the need for any further maintenance, also considering the average life of any handling device. As for screw modules, the caged ball or V screw requires periodical lubrication.

For applications on plants with a high number of daily cycles, or with a significant build-up of impurities, please check the need for lubrication, seals and additional tanks with our technical dept. Do not use solvents to clean rollers or roller slides, as you could unintentionally remove the grease lubricating coat applied to the rolling elements during assembly.
Use lithium soap based mineral grease according to DIN 51825 - K3N. Read the instruction manual

Complete central lubrication system. Grease cartridge upon request.

Guide rails
If properly assembled, guide rails do not require any lubrication, which would attract impurities and have negative consequences. Should there be any surface defects on the guide rails and/or on the rolling parts, such as pitting or erosion, this might be due to an excessive load. In this case, all worn parts must be replaced and the load geometry and alignment checked.

Introduction - operation and control unit

These units can be equipped with gearboxes, servomotors, mechanical limit switches, proximity switches and various accessories, such as energy chains, interface plates, fixing supports.

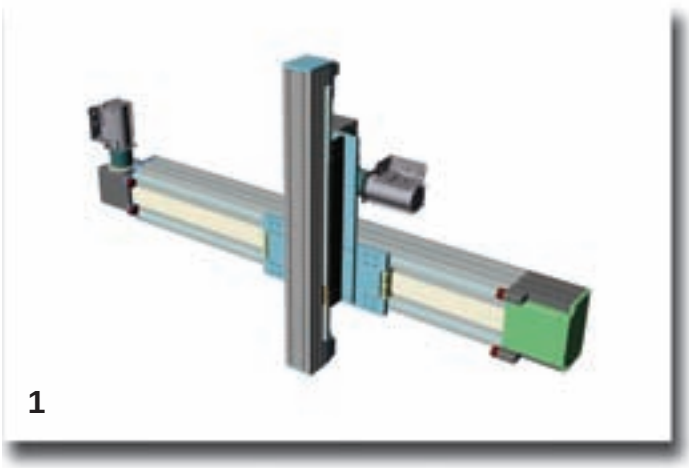
Our technical dept. is at your complete disposal for any scaling requirements and the choice of linear actuator suitable to achieve the required performance levels. We can draw on our experience to help our customers in their choice of linear unit and the following parts:
gearboxes: worm screw, planetary, bevel;
motors: stepper, brushless, DC, asynchronous.

Application examples:

glue dispensing units
paint or resin distribution units
load/unload of manufacturing machines
pick and place systems
control and sensing instrument handling
drilling PCB boards
cartesian robots with 2, 3 or more axes

Tightening specifications

During set-up, make sure all parts are locked with the appropriate screws and with the right tightening torques.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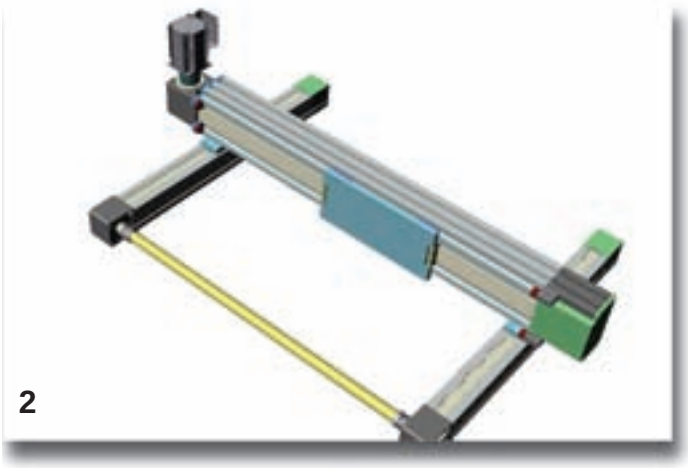
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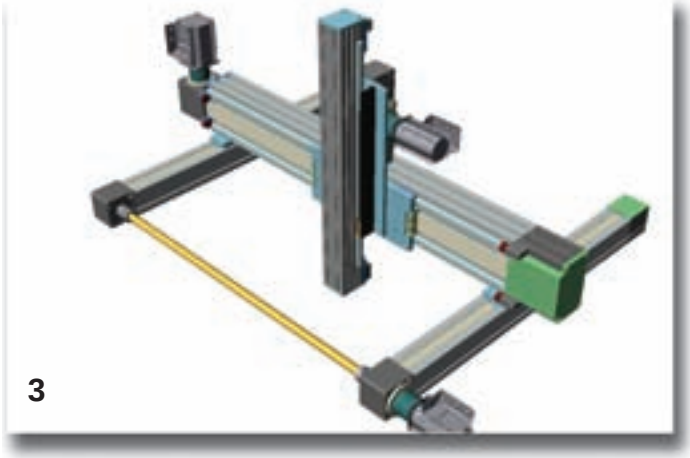
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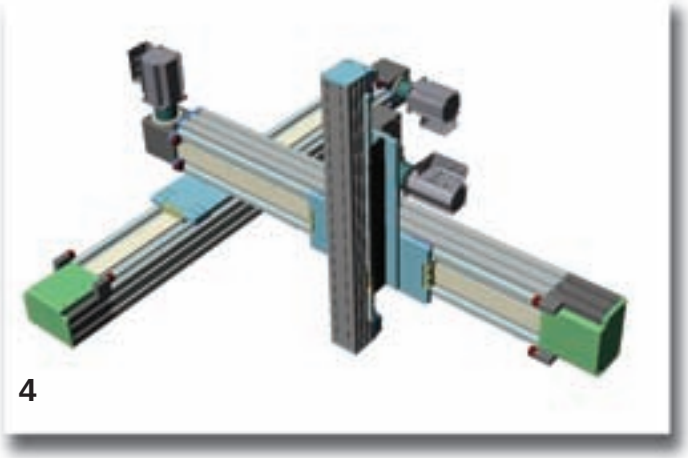
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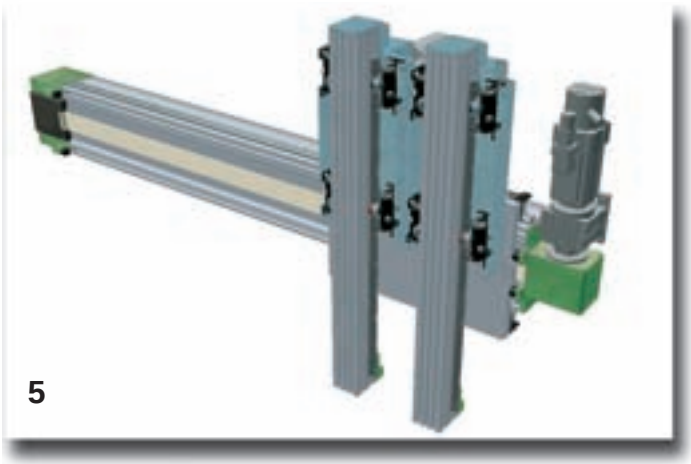
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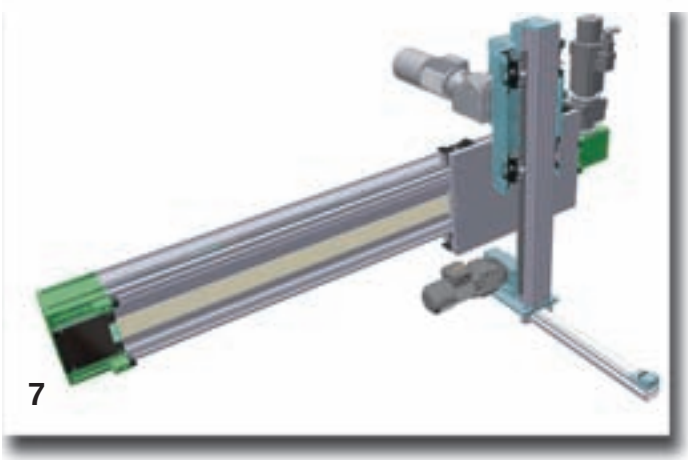
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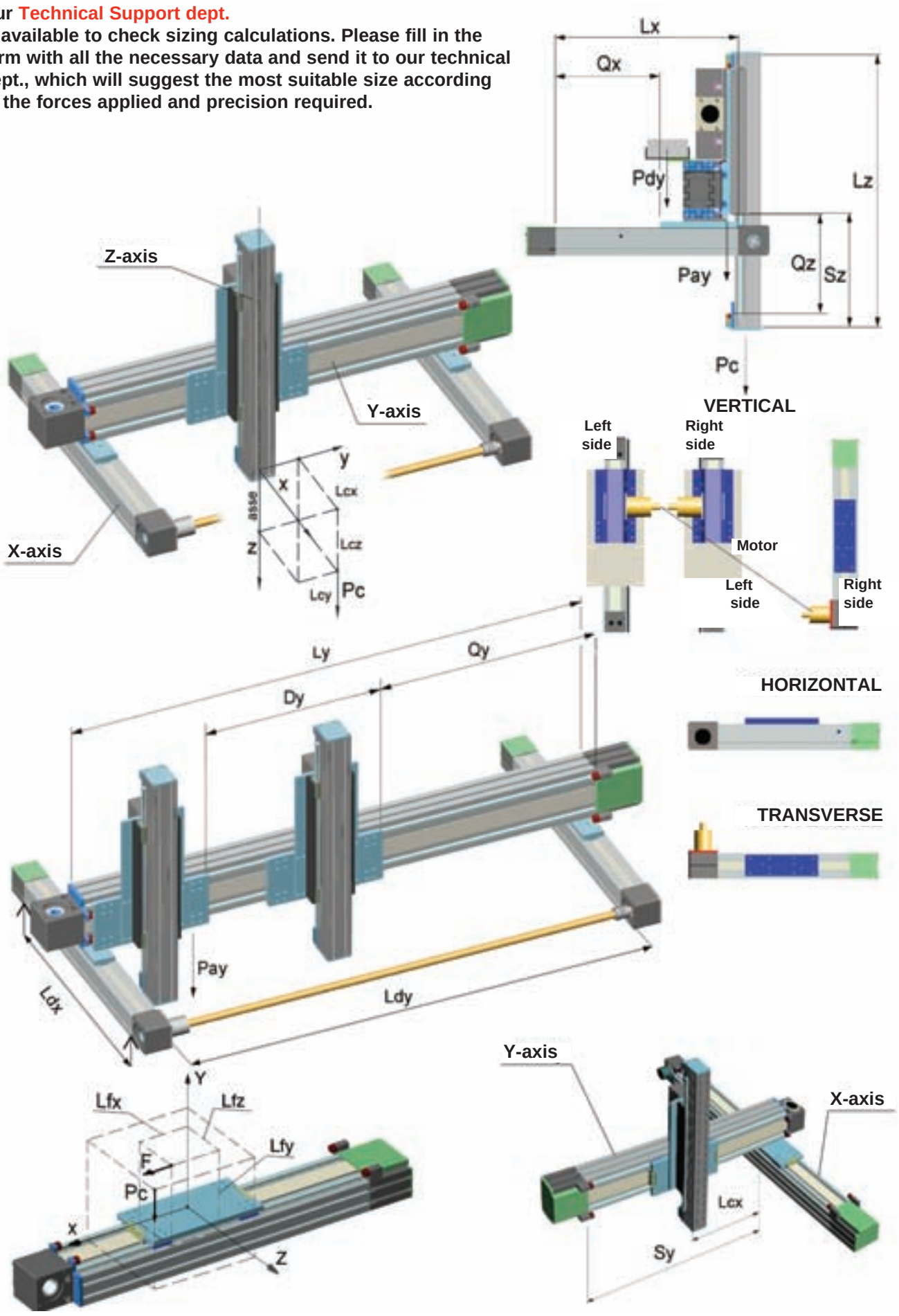
8

Sizing template

Our Technical Support dept.
is available to check sizing calculations. Please fill in the form with all the necessary data and send it to our technical dept., which will suggest the most suitable size according to the forces applied and precision required.



Sizing request form

For a proper definition of the linear units, fill in the scaling request form and send it to the Technical Support Department.

Date: .....Request n°.....

Filled in by.....

Company.....

Address.....

Phone .....Fax.....

E-mail .....

Sizing template

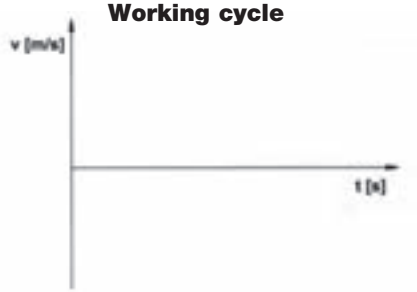
required data | optional data

MODLINE linear modules

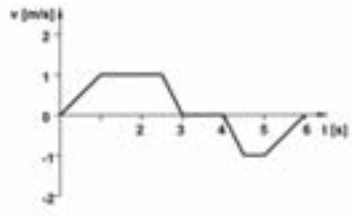
ASSEMBLY SOLUTIONS (see page ML-5) no.

	Z-axis		Y-axis		X-axis	
Total length	Lz		Ly		Lx	[mm]
Total working load including EOAT (add Z axis for Y and X axes)	Pc		Py		Px	[kg]
Equipment weight on carriage (gearbox, cylinder, OPTIONAL)	Paz		Pay		Pax	[kg]
Weight distributed on the beam (energy chain)	Pdz		Pdy		Pdx	[kg/m]
Profile supports			n°		n°	
Max. projection (any cantilever, the largest)	Sz		Sy		Sx	[mm]
Max. span			Ldy		Ldx	[mm]
Offset load's centre of gravity (X-axis)	Lcx					[mm]
Offset load's centre of gravity (Y-axis)	Lcy					[mm]
Offset load's centre of gravity (Z-axis)	Lcz					[mm]
Any additional force	F		F		F	[N] +/-
Offset additional force (X-axis)	Lfx					[mm]
Offset additional force (Y-axis)	Lfy					[mm]
Offset additional force (Z-axis)	Lfz					[mm]
Possible distance between the carriages	Dz		Dy		Dx	[mm]
Transmission performance	η					
Assembly: vertical= 90° - slope = 30°, 45°, 60° - horizontal	α=					
Stroke	Qz		Qy		Qx	
Speed	Vz		Vy		Vx	[m/s]
Acceleration	Az		Ay		Ax	[m/s^2]
Cycle time	Tz		Ty		Tx	[s]
Positioning accuracy	+/-					[mm]
Repeatability	+/-					[mm]
Work environment (temperature and cleanliness)						
Daily working cycles	n°					
Minimum service life requested						[Km]

Working cycle



Example working cycle



Notes:.....

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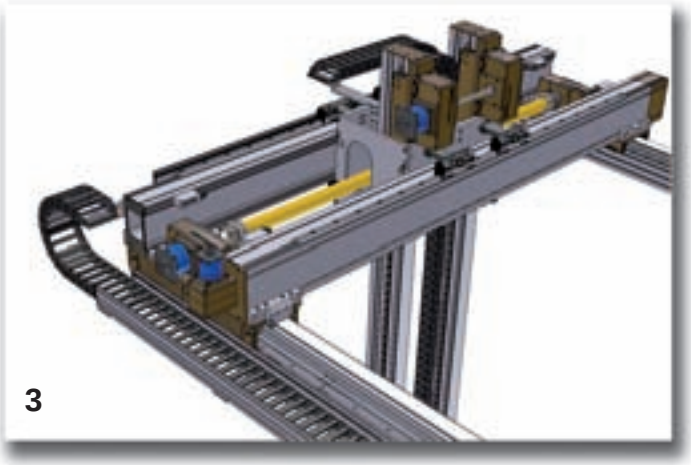
Special applications with standard modules


1


2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6


7

1 Multi-gripper handling system with belt drive

2 Panel handling system, construction industry

3 Tool handling system in the iron and steel industry

4 Pick and place system for storage battery production plant

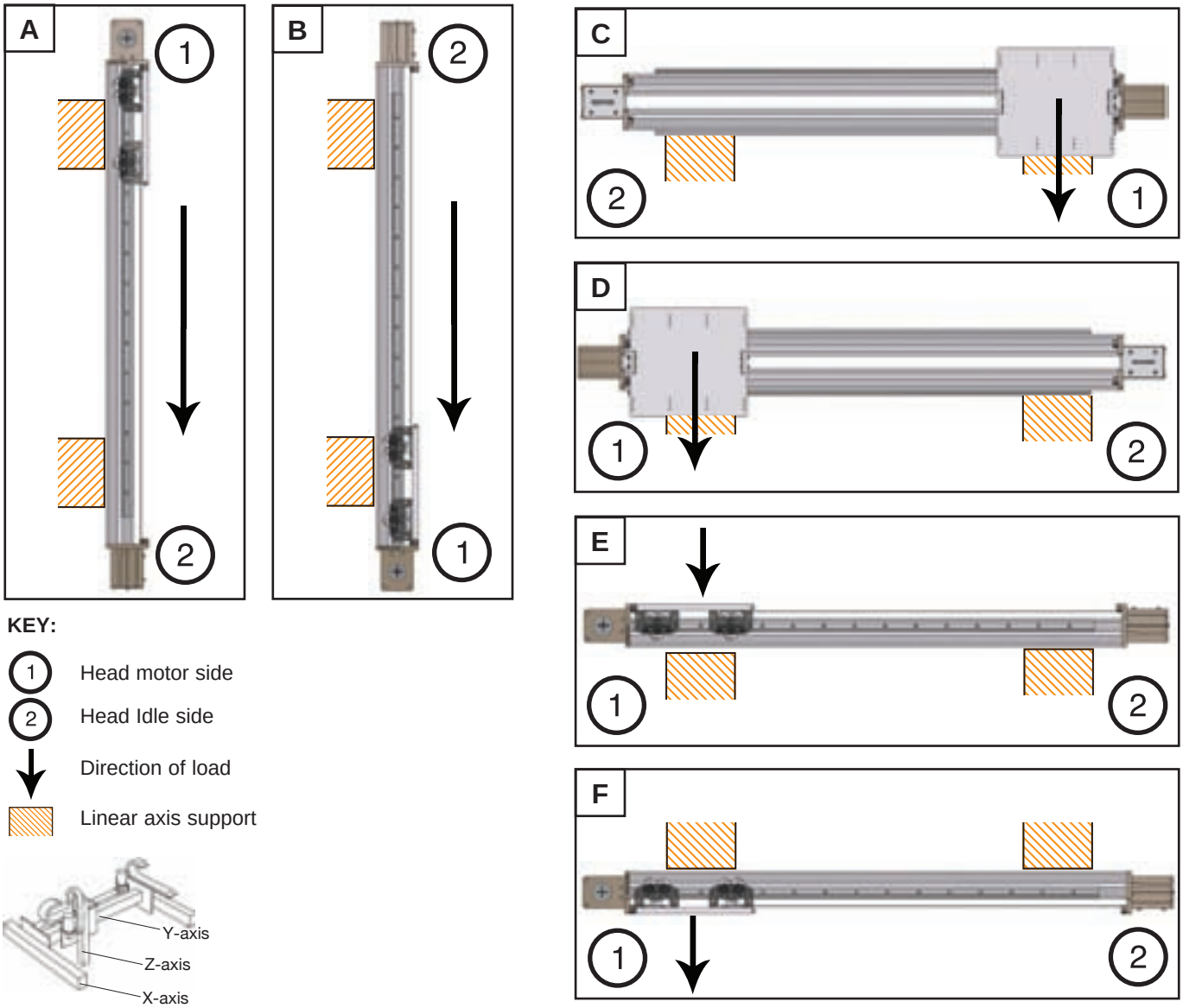
5 Pick and place system for packaging plant

6 Pick and place system for breadboards

7 Pick and place system for production plant

Assembly positions and load direction

For rollers profiles.



KEY:

1 Head motor side

2 Head Idle side

Direction of load

Linear axis support

Simplified code setting of the module

EXAMPLE		T	C	S	M	280	mm/mm/	...
SERIES	K= light M= compact closed section T= heavy Z= vertical omega belt							
HANDLING	C= belt CE= large belt V= ball screw T= trapezoidal screw N= idle							
SLIDE	RR / RQ /RP = guide rails for roller sl. Ø30 / Ø40 / Ø52 o Ø62 S= guide rails for caged balls roller slides H= guide rails for caged ball roller slides G= guide rails for cylindrical shaped rollers Y= guide rails for polyamide shaped rollers							
MACHINING PROFILE	M= profile with machined guide plane and rack plane							
PROFILE SIZE								
STROKE / Length	"mm" = X-axis / Y-axis / Z-axis							
ACCESSORY CODES	Various accessory codes							

Order Code

Required | **Complete for special versions** | Accessories

Order code																												
Example	Y	C	T	C	S	M	280	100	ATL	-	6000	8600	D	2	-	1200	FD 32	FX	K75	-	-	R	-	-	-	-	-	-	12, 40

Axis direction **Y**
X **Y** **Z**

See page ML-10 for assembly positions. Example C **C**

Unit type **T**
K **M** **T** **Z**

Drive **C**
Belt **C**
Extra large belt **CE**
Ball screw **V**
Trapezoidal screw **T**
Not included **N**

Guide rails and roller slides **S**
Guide rails 28x11 **RR**
Guide rails 35x16 **RQ**
Guide rails 55x25 **RP**
Guide rails with caged ball runner blocks **S**
Guide rails and compact caged ball roller slides **L**
Guide rails and ball roller slides without cage **H**
Round bar guide rails **G**
SYS guide rails **Y**

Profile machining **M**
Profile machined **M**
Profile not machined **-**

Profile size **280**
50 **60** **65** **90** **100H/50** **100** **180** **170** **200** **220** **280** **360**

Belt width or screw diameter **-**
Belt **10 ÷ 150** Ø Screw **16** **20** **25** **32** **40**

Types of belt
Light belt **T**
Light belt normal series **AT**
Light belt: reinforced wobbler **ATL**

Type of screw: pitch / accuracy **-**
Pitch **5 ÷ 10** **20 ÷ 25** **50**
Accuracy class **T7** **T5**

Roller characteristic measurement **-**
Ø 63 **Ø 75** **Ø 30** **Ø 40** **Ø 52** **Ø 62**

Caged ball roller slides size **15 ÷ 35**

Stroke **6000**

Total length **8600**

Standard carriage **-**
Drawing **D**
Short **C**
Long **L**
No plate (coupled unit) **X**
Not included **N**

Number of carriages **-**

Special carriage dimensions **-**

Carriage centre distance [mm] **-**

1° Flange gearbox entry side **FD32**
Right Ø **FDØ**
Left Ø **FSØ**
Drilled **FE**
Blind **FX**
Flange gearbox entry side **FSC - FDCØ**

FX 2° Opposite flange
FSØ Left Ø
FDØ Right Ø
FE Drilled
FX Blind

K50 - K75 - K100 - K150 - K200 **-** Energy chain width

M Micro-switch present **-**

P Cam-holder + cams **-**

R Gearbox assembly **-**

C Cylinder assembly **-**
C Ø32 ÷ Ø100

A/B Anti-drop brake device **-**
A Ø63 ÷ Ø125
B Ø63 ÷ Ø125

S Lock-pin **-**
S Ø20
S Ø32

Connecting shaft **-**
A1/Centre distance length
A2/Centre distance length
A3/Centre distance length

Shaft torsional moment [Nm] **-**
20
35
70
100
190
300
420

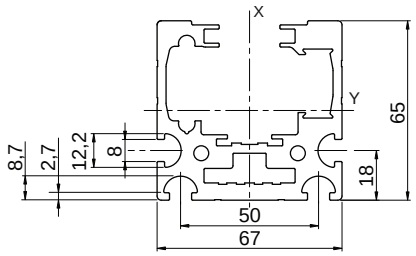
Protection **-**
SF Bellows
LI Stainless steel band for MC series

Additional accessories **-**

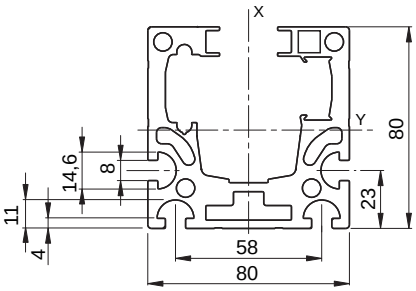
Additional accessories

Available upon request

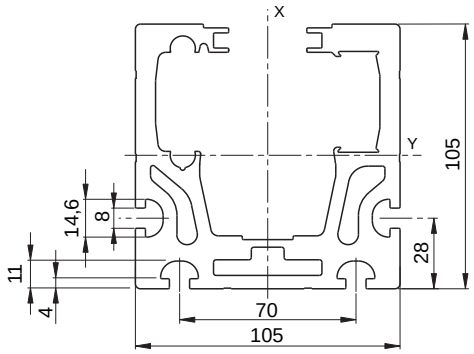
- Supply and assembly of cams and cam-holders for micro-switches, energy chains, etc.
- Assembly of optional accessories SUPPLIED BY THE CUSTOMER.
- Machining to specifications (drilling, milling) on the free surfaces of the plates or profile
- Customised applications (optional: structural inspections for special loads, Cartesian robots with three or more axes, linear units with several plates, etc.)
- Our technical dept. is at your complete disposal to examine the most suitable applications for your requirements.



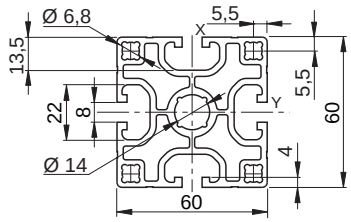
Profile	M 65x67	
Weight per metre	4.5	[kg/m]
Max. length	9	[m]
Moment of inertia Iy	683,900	[mm4]
Moment of inertia Ix	796,750	[mm4]
Module	MCR/L/H 65	



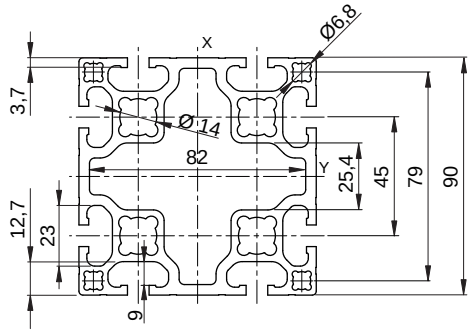
Profile	M 80x80	
Weight per metre	6.3	[kg/m]
Max. length	8	[m]
Moment of inertia Iy	1,430,000	[mm4]
Moment of inertia Ix	1,780,000	[mm4]
Module	MCR/S/H 80 - MVR/S/T 80	



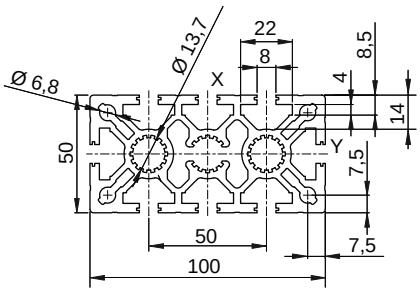
Profile	M 105x105	
Weight per metre	11	[kg/m]
Max. length	7,6	[m]
Moment of inertia Iy	4,466,000	[mm4]
Moment of inertia Ix	5,660,000	[mm4]
Module	MCR/S/H - MVR/S/T 105	

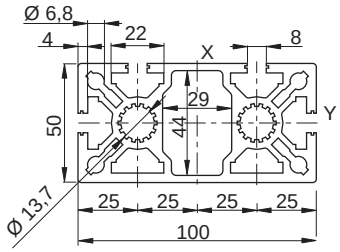


Profile (60x60)	F01-1	
Weight per metre	3.6	[kg/m]
Max. length	6	[m]
Moment of inertia Iy	466,600	[mm4]
Moment of inertia Ix	466,600	[mm4]
Module	ZCG/L 60	

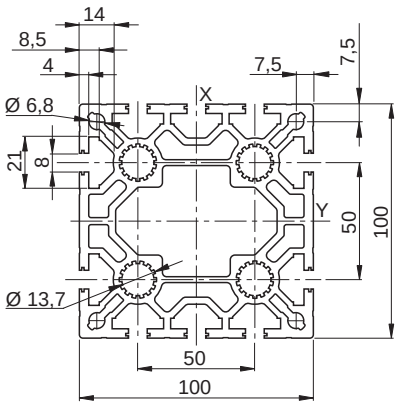


Profile (90x90)	E01-4	
Weight per metre	6	[kg/m]
Max. length	6	[m]
Moment of inertia Iy	2,027,000	[mm4]
Moment of inertia Ix	2,027,000	[mm4]
Module	ZCG - ZCL - ZCRR 90	

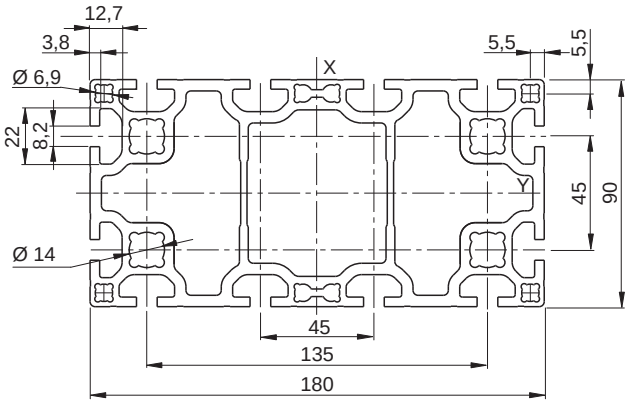




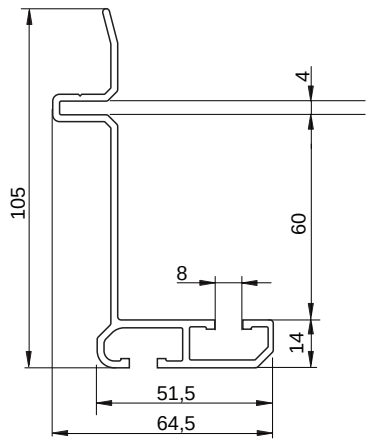
Profile (50x100)	MA 1-2	MA 1-4	
Weight per metre	5.3	5.2	[kg/m]
Max. length	6	6	[m]
Moment of inertia Iy	502,800	543,100	[mm^4]
Moment of inertia Ix	1,986,600	2,036,700	[mm^4]
Module	ZCR/L 100H	TCG/TCS/H 100	

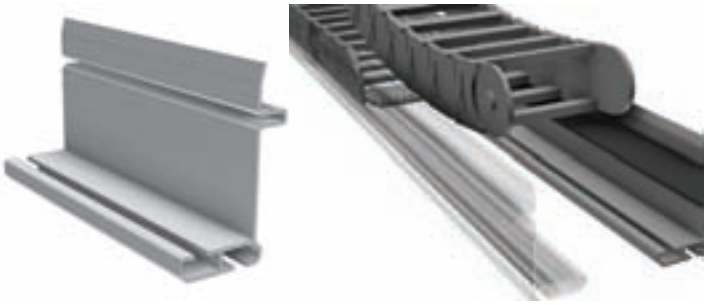


Profile (100x100)	MA 1-5	
Weight per metre	9.5	[kg/m]
Max. length	6	[m]
Moment of inertia Iy	3,650,000	[mm^4]
Moment of inertia Ix	3,800,000	[mm^4]
Module	ZCR/L 100	

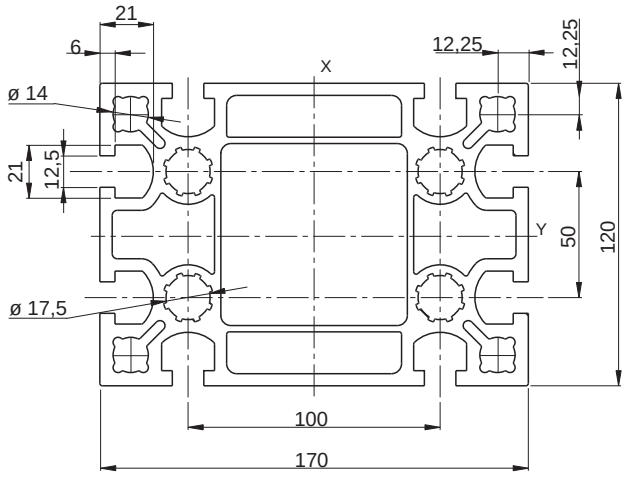


Profile (90x180)	E01-5	
Weight per metre	12.4	[kg/m]
Max. length	8	[m]
Moment of inertia Iy	4,420,000	[mm^4]
Moment of inertia Ix	15,180,000	[mm^4]
Module	TCR/G/S/H/ 180	

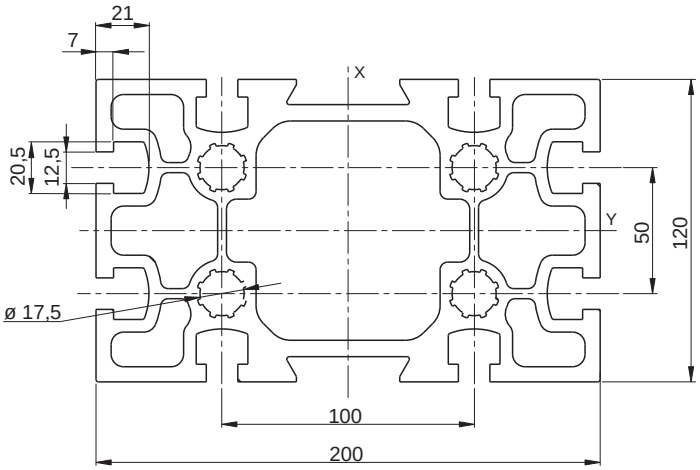




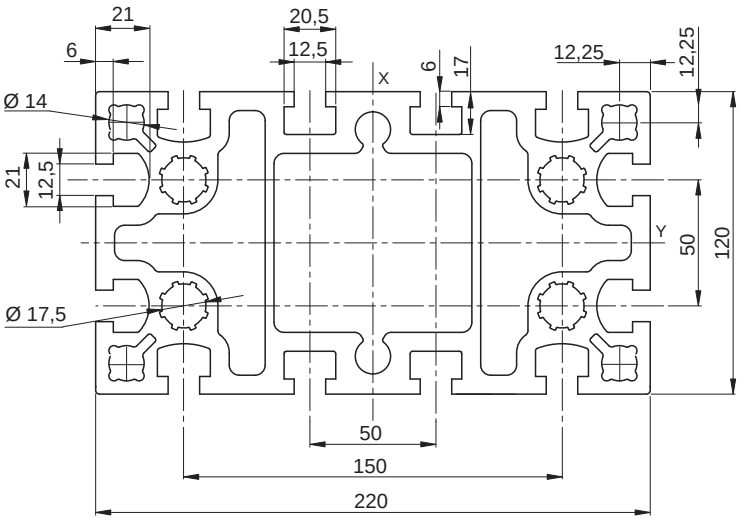
7400568 energy chain support profile		
Weight	1.5	kg/m
Available length	6	m



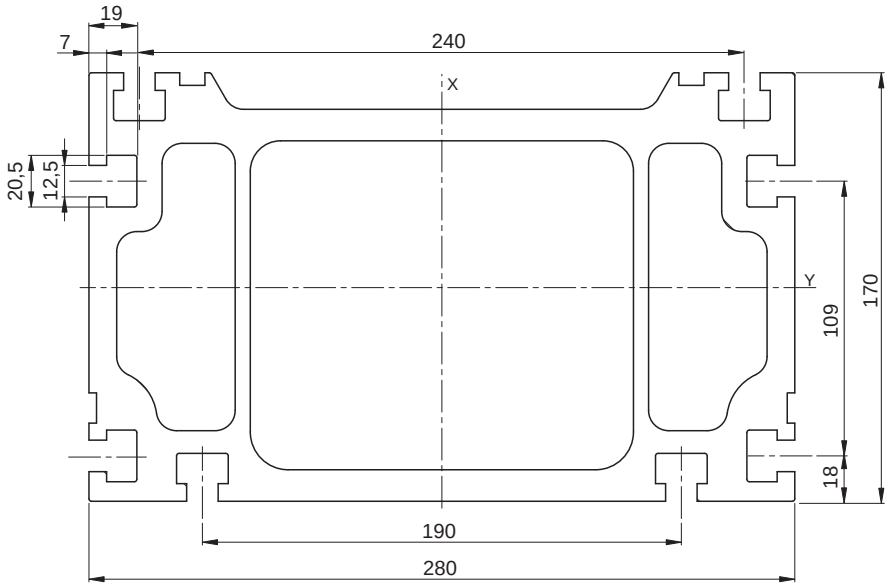
Statyca (120x170)		
Weight per metre	17	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	10,200,000	[mm^4]
Moment of inertia Ix	20,360,000	[mm^4]
Module	TCR/S/H 170 - ZCR/L 170	



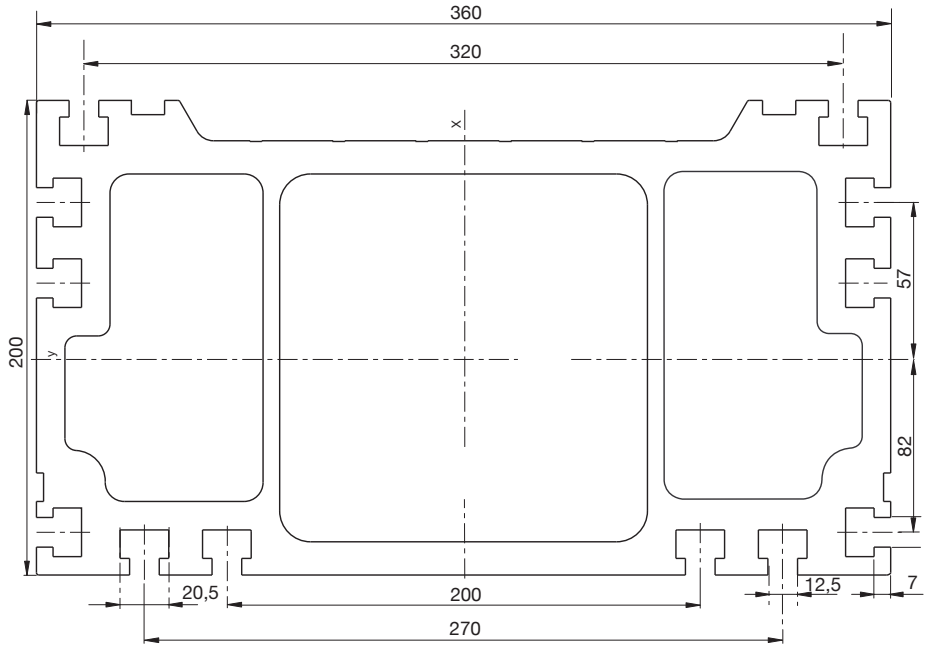
Valyda (120x200)		
Weight per metre	21	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	12,980,000	[mm^4]
Moment of inertia Ix	32,980,000	[mm^4]
Module	TCR/S/H 200	
Anodised up to	9	[m]



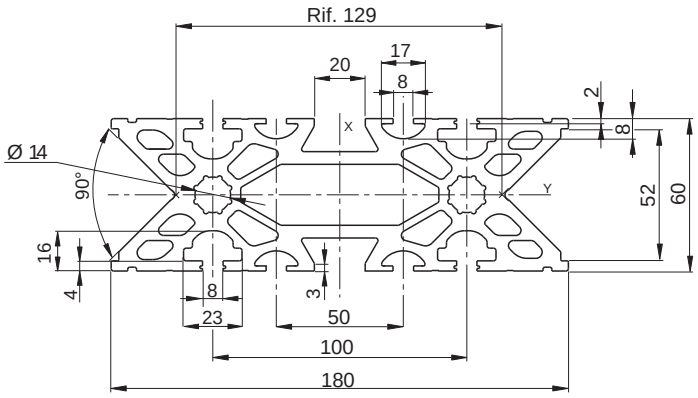
Logyca (120x220)		
Weight per metre	25	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	15,650,000	[mm^4]
Moment of inertia Ix	46,550,000	[mm^4]
Module	TCR/S/H 220-ZCR/L/ 220	
Anodised up to	9	[m]



Pratyca (170x280)		
Weight per metre	40	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	50,288,000	[mm⁴]
Moment of inertia Ix	134,103,000	[mm⁴]
Module	TCR/RP/S/H 280	
Usually not anodised		



Solyda (200x360)		
Weight per metre	60	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	105,533,000	[mm⁴]
Moment of inertia Ix	318,687,000	[mm⁴]
Module	TCRP/S/H 360	
Usually not anodised		



SYS 1-G		
Weight per metre	12	[kg/m]
Max. length	7.5	[m]
Moment of inertia Iy	1,600,000	[mm⁴]
Moment of inertia Ix	12,350,000	[mm⁴]
Module	ZCY180	
*Holes for M16 thread and for PVS connecting elements		

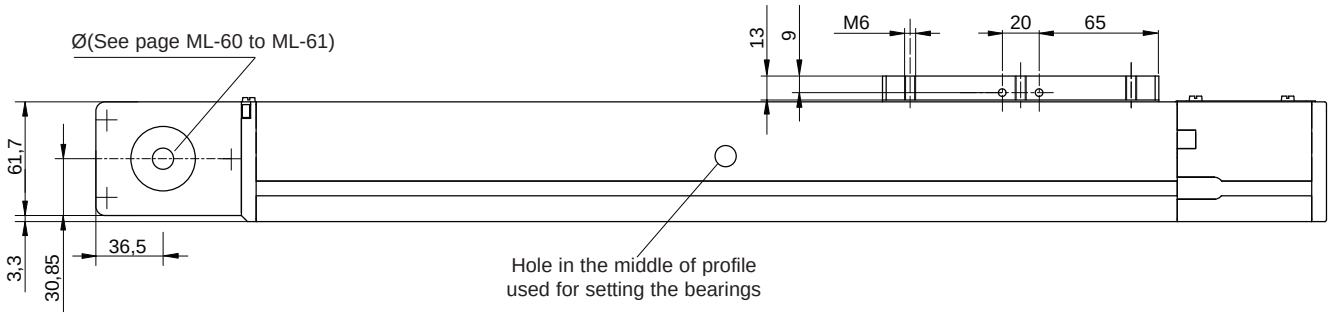
MCR 65

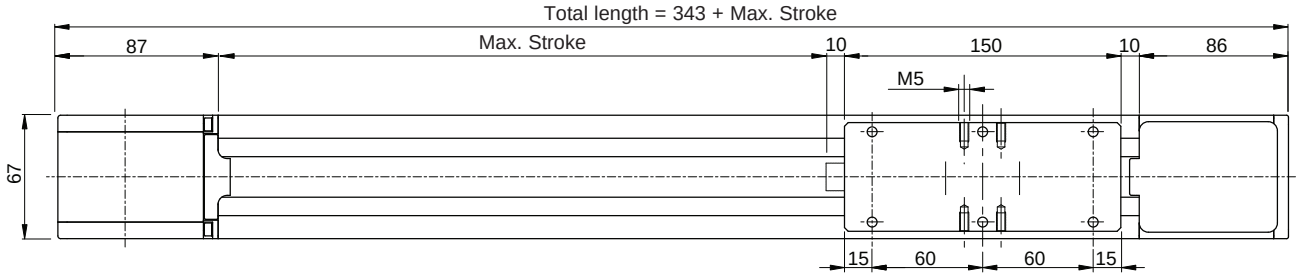
HARDENED GUIDE RAILS AND PROFILED ROLLERS

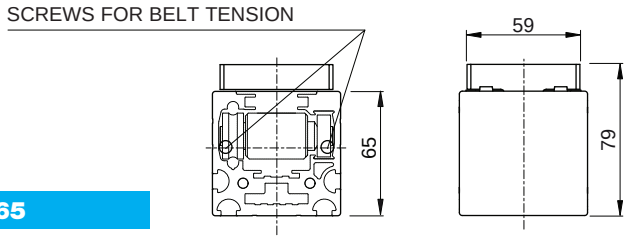
Registered model

Option: lighter version with pulley seats integrated within the profile

Accessories: see page ML-10





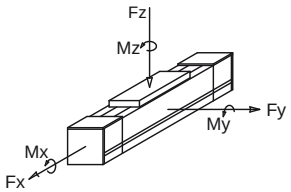


Performances	MCR 65	
Max. stroke	5,830	[mm]
Max. speed	4	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0,1	[mm]
No load torque	-	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCR 65	45	94	34	1,180	670	1,000

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

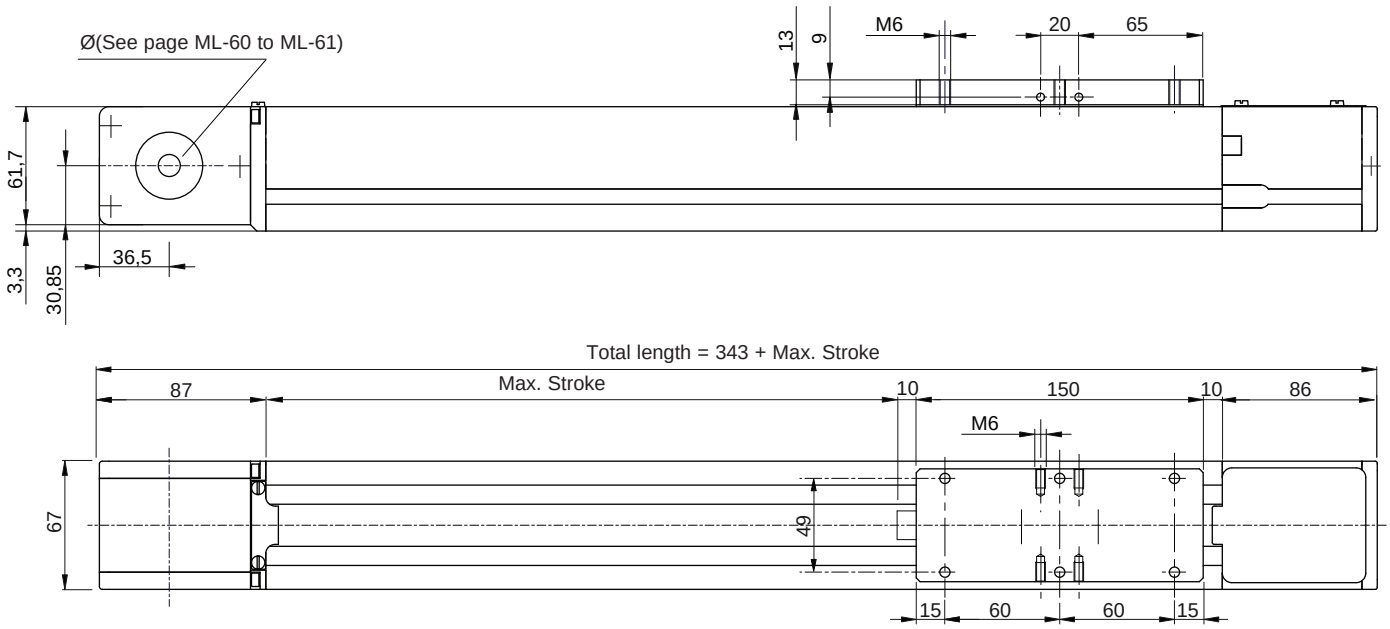
Data		
Belt	32AT05	
Slide	Rollers: 4 Ø 24 - 4 Ø 22 [mm]	
Load bearing profile	65x67	(see page ML-11)
Pulley Ø	50.93	[mm]
Lead	160	[mm/rev]

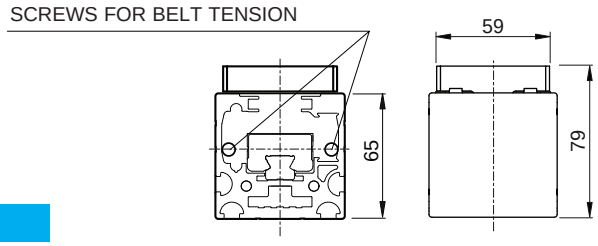
Weights		
Inertia of the pulley	-	[kgm^2]
Belt weight	0.22	[kg/m]
Carriage weight	1	[kg]
Base module (stroke=0)	M_{base}=4.4	[kg]
1,000 mm profile	q=5.4	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Option: lighter version with pulley seats integrated within the profile
Accessories: see page ML-10





Performances	MCH 65	
Max. stroke	7,830	[mm]
Max. speed	3	[m/s]
Max. acceleration	30	[m/s^2]
Repeatability	± 0.1	[mm]
No load torque	-	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]	F_{zB}[N]
MCH 65	19	120	120	1,180	1,960	1,960	1,960

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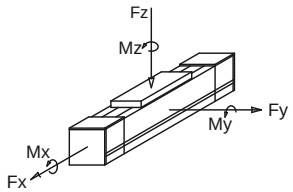


Fx= Max belt strength

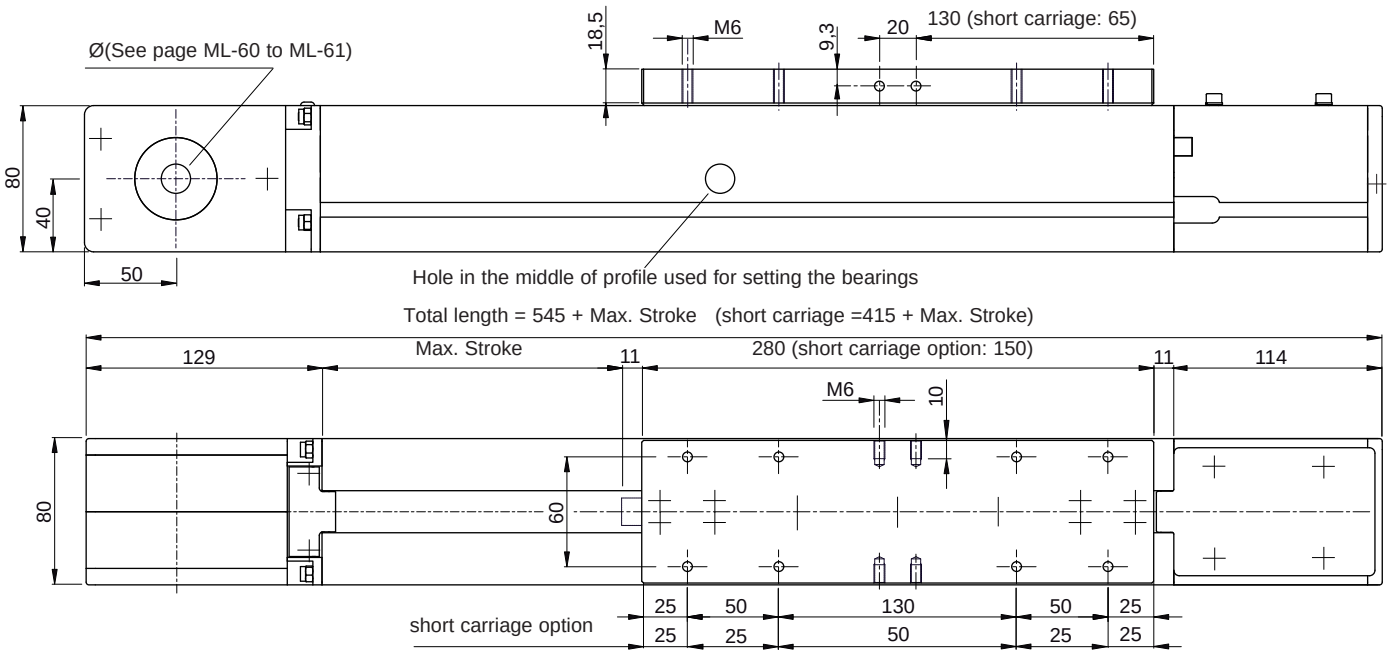
Data		
Belt	32AT05	
Slide	2 caged balls roller slides15[mm]	
Load bearing profile	65x67	(see page ML-11)
Pulley Ø	50.93	[mm]
Lead	160	[mm/rev]

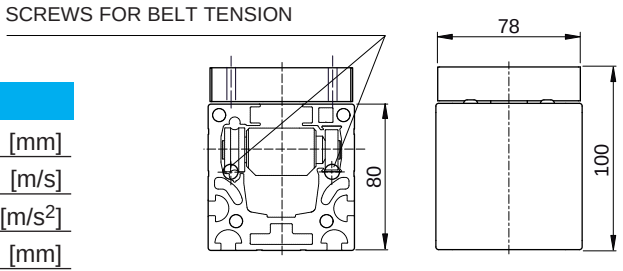
Weights		
Inertia of the pulley	-	[kgm^2]
Belt weight	0.22	[kg/m]
Carriage weight	1,1	[kg]
Base module (stroke=0)	M_{base}=4.2	[kg]
1,000 mm profile	q=6.2	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Option: version with additional belt protection (see page ML-70)
Option: short carriage version - code C
Accessories: see page ML-10





Performances	MCR 80	
Max. stroke	5,700	[mm]
Max. speed	5	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1	[mm]
No load torque	0.7	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCR 80	51	200	80	2,150	850	1,400

Suggested working load conditions short carriage option

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCR 80...C	51	100	40	2,150	850	1,400

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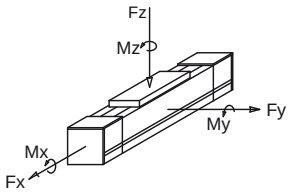
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

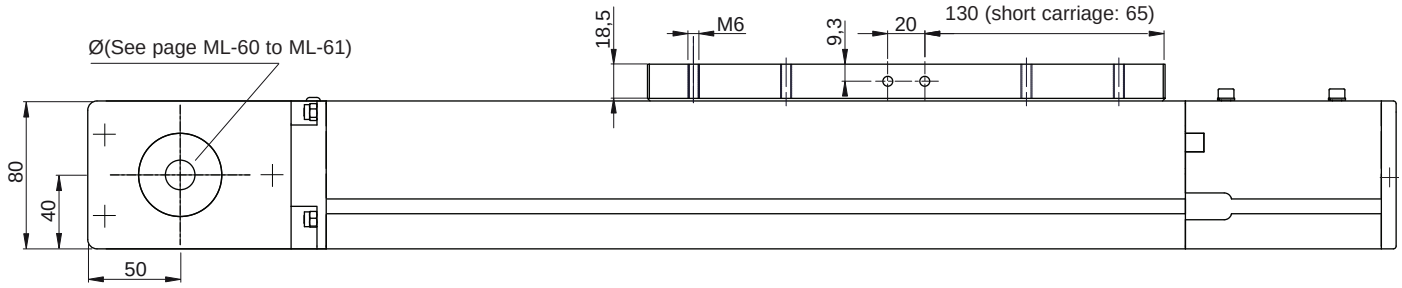
Data		
Belt	32AT10	
Slide	Rollers: 4 Ø 24 - 4 Ø 22 [mm]	
Load bearing profile	80x80	(see page ML-11)
Pulley Ø	70.03	[mm]
Lead	220	[mm/rev]

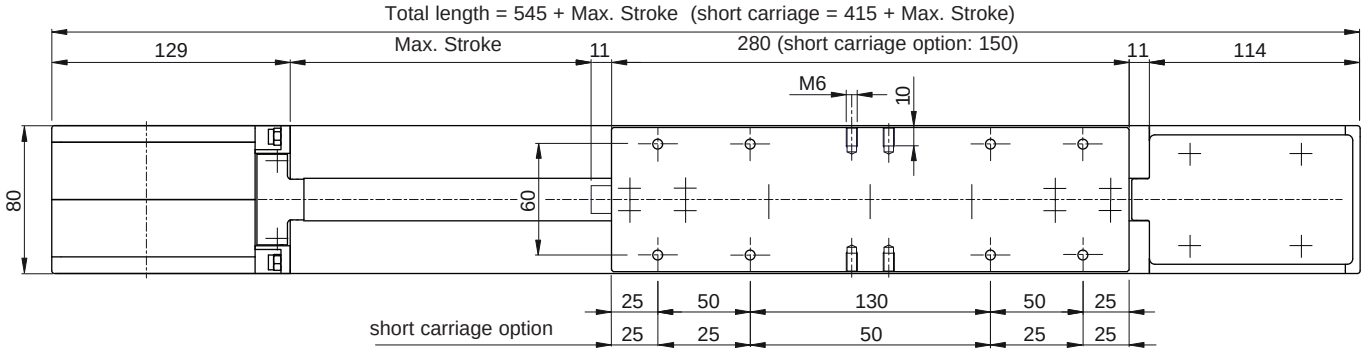
Weights		
Inertia of the pulley	0.0010	[kgm^2]
Belt weight	0.38	[kg/m]
Carriage weight	2	[kg]
Base module (stroke=0)	M_{base}=8	[kg]
1,000 mm profile	q=7	[kg]

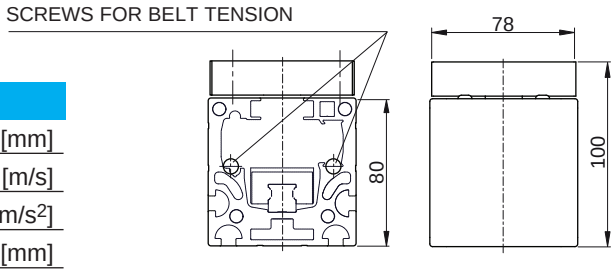
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Option: version with additional belt protection (see page ML-70)
Option: short carriage version - code C
Accessories: see page ML-10







Performances	MCH 80	
Max. stroke	5,700	[mm]
Max. speed	5	[m/s]
Max. acceleration	40	[m/s^2]
Repeatability	± 0,1	[mm]
No load torque	0.9	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCH 80	30	290	290	2,150	2,900	2,900

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCH 80...C	14	15	12	2,150	1,450	1,450

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They include a safety coefficient for automated machinery.
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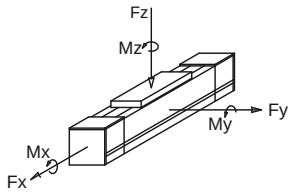


Fx= Max belt strength

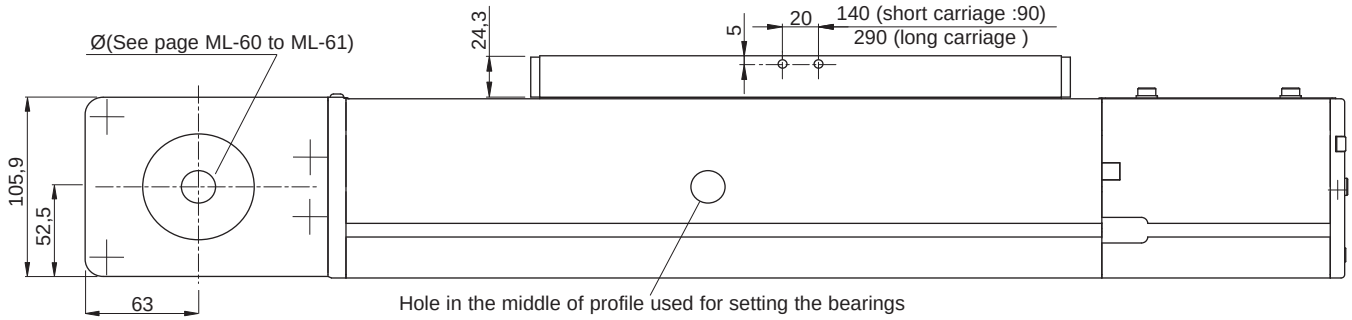
Data	MCS80 - MCH80	
Belt	32AT10	
Slide	2 caged ball roller slides size 15*	
Load bearing profile	80x80 (see page ML- 11)	
Pulley Ø	70.03	[mm]
Lead	220	[mm/rev]
* Short carriage option	1 pad	

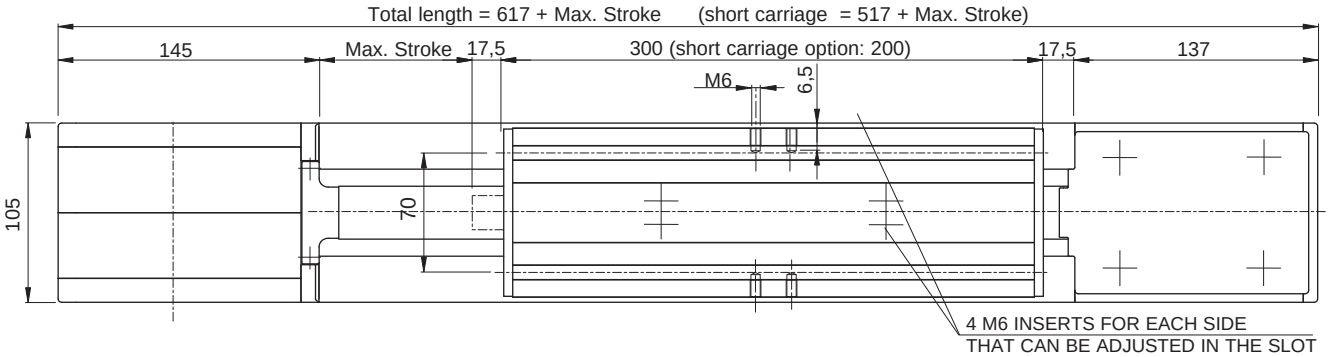
Weights	MCS80 - MCH80	
Inertia of the pulley	0.0010	[kgm^2]
Belt weight	0.38	[kg/m]
Carriage weight	2.6	[kg]
Base module (stroke=0)	M_{base}=9	[kg]
1,000 mm profile	q=8.2	[kg]

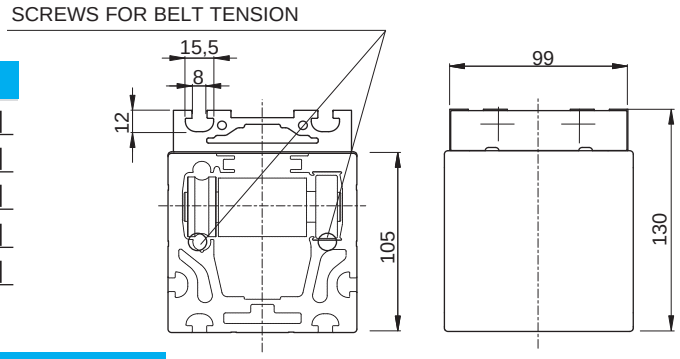
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Option: version with additional belt protection (see page ML-70)
*Option: short carriage version - (code C) or long carriage (code L)
Accessories: see page ML-10







Performances	MCR 105	
Max. stroke	10,100	[mm]
Max. speed	5	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1	[mm]
No load torque	1.2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCR 105	185	580	220	3,300	1,500	2,950

Suggested working load conditions short carriage option

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCR 105...C	185	330	130	3,300	1,450	2,950

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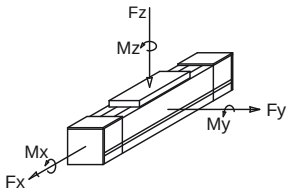
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

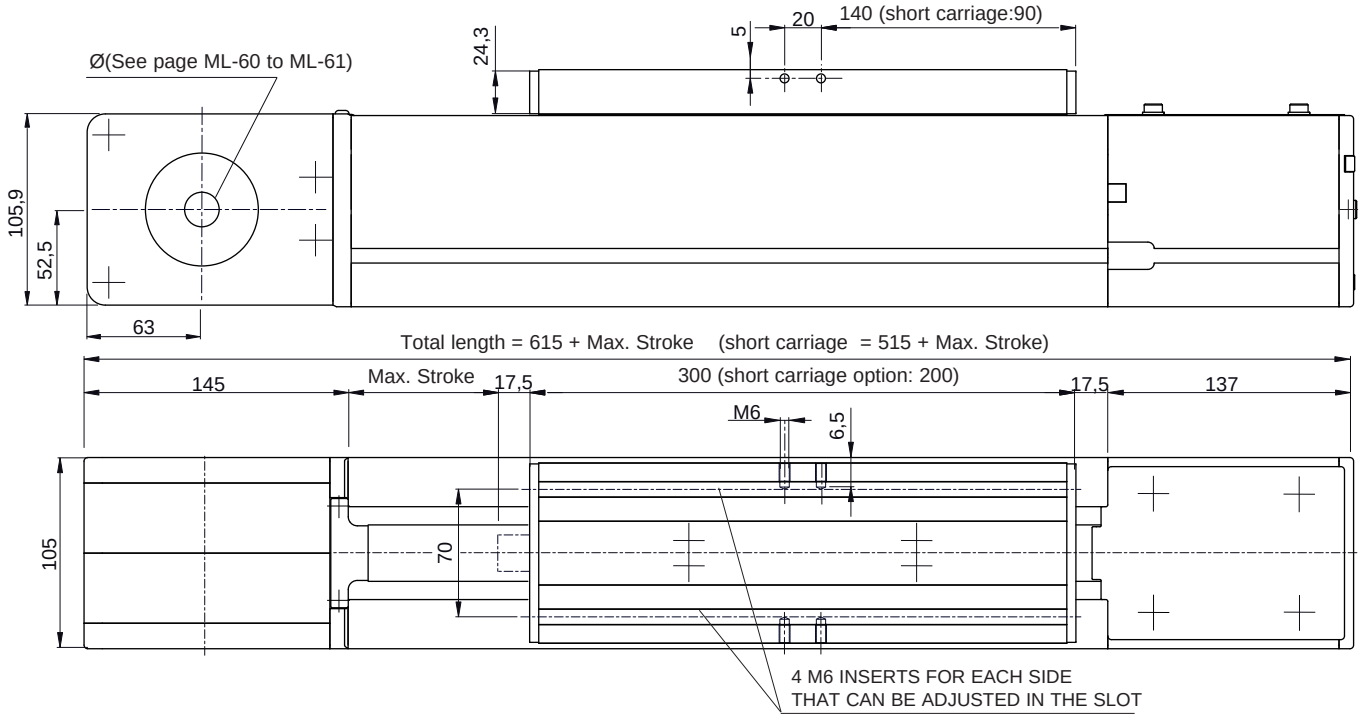
Data		
Belt	40AT10	
Slide	Rollers: 4 Ø 37 - 4 Ø 35 [mm]	
Load bearing profile	105x105	(see page ML-11)
Pulley Ø	92.31	[mm]
Lead	290	[mm/rev]

Weights		
Inertia of the pulley	0.0037	[kgm^2]
Belt weight	0.47	[kg/m]
Carriage weight	3.5	[kg]
Base module (stroke=0)	M_{base}=16.5	[kg]
1,000 mm profile	q=13	[kg]

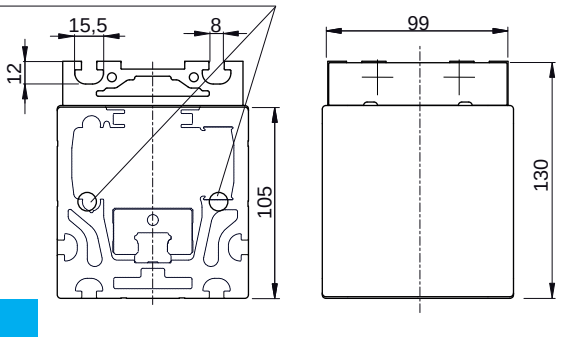
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Option: version with additional belt protection (see page ML-70)
*Option: short carriage version - (code C)
Accessories: see page ML-10



SCREWS FOR BELT TENSION



Performances	MCH 105	
Max. stroke	10,100	[mm]
Max. speed	5	[m/s]
Max. acceleration	50	[m/s^2]
Repeatability	± 0.1	[mm]
No load torque	1.5	[Nm]

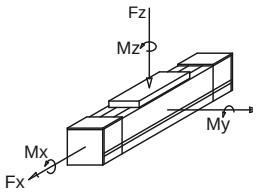
Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCH 105	116	600	600	3,300	6,030	6,030

Suggested working load conditions short carriage option

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCH 105...C	36	30	30	3,300	3,018	3,018

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

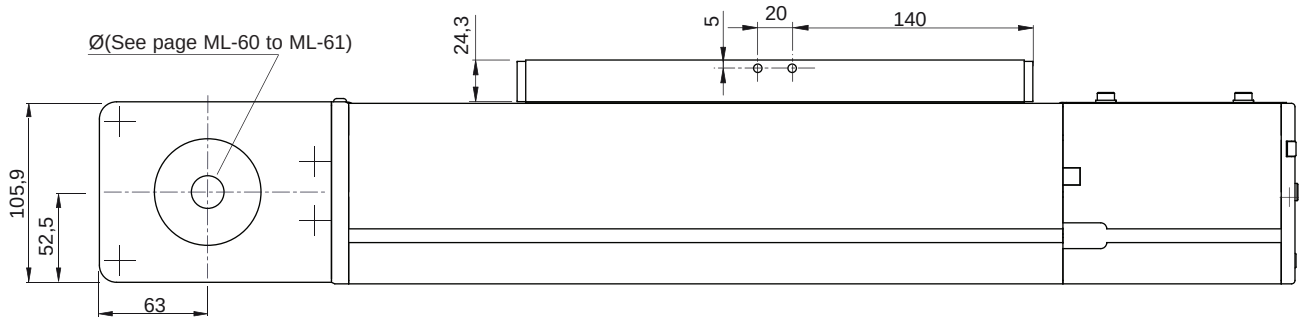
Constuctive data		
Belt	40AT10	
Slide	2 caged ball roller slides size 20*	
Load bearing profile	105x105 (see page ML- 11)	
Pulley Ø	92.31	[mm]
Lead	290	[mm/rev]
* Short carriage option	1 pad	

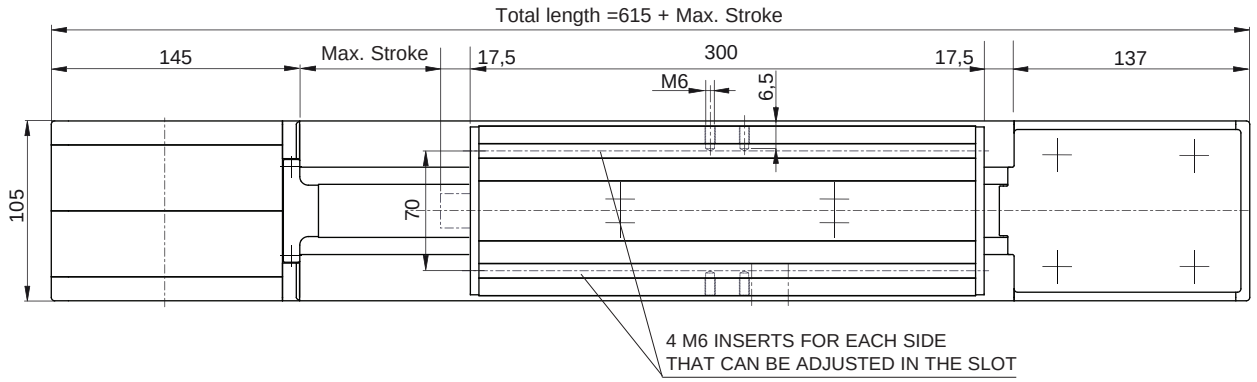
Weights		
Inertia of the pulley	0.0037	[kgm^2]
Belt weight	0.47	[kg/m]
Carriage weight	4.5	[kg]
Base module (stroke=0)	M_{base}=18	[kg]
1,000 mm profile	q=14.3	[kg]

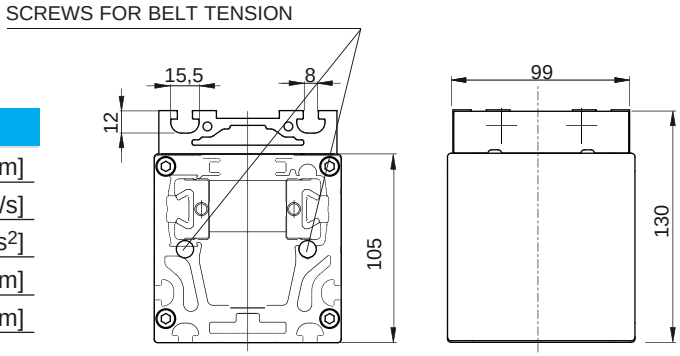
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Accessories: see page ML-10



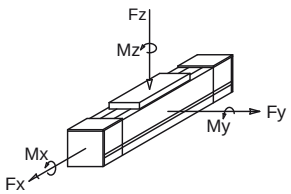




Performances	MCHH 105	
Max. stroke	7,400	[mm]
Max. speed	5	[m/s]
Max. acceleration	50	[m/s^2]
Repeatability	± 0.1	[mm]
No load torque	2.2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MCHH 105	210	1.033	700	3,300	7,200	6,210



The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

Fx= Max belt strength

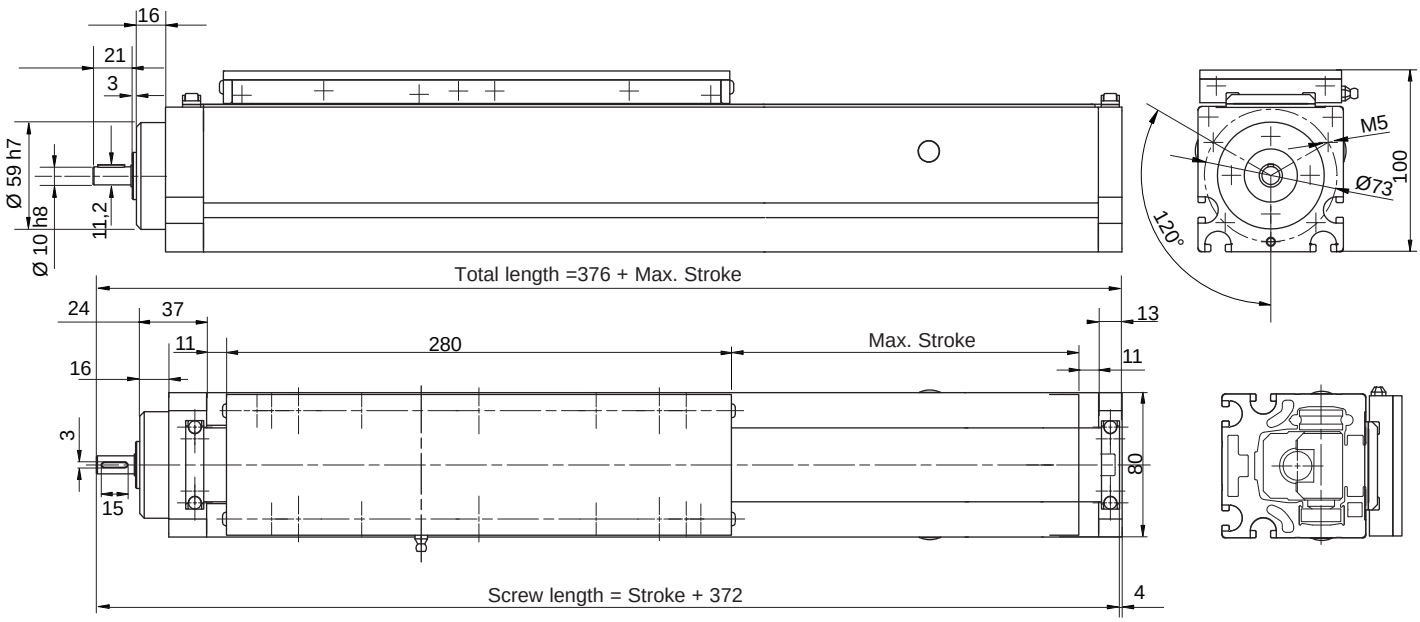
Data		
Belt	40ATL10	
Slide	4 caged ball roller slides size 15	
Load bearing profile	105x105 (see page ML- 11)	
Pulley Ø	92.31	[mm]
Lead	290	[mm/rev]

Weights		
Inertia of the pulley	0.0037	[kgm^2]
Belt weight	0.47	[kg/m]
Carriage weight	4.5	[kg]
Base module (stroke=0)	M_{base}=18	[kg]
1,000 mm di profile	q=14	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

MVR 80

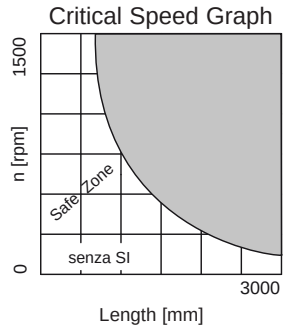
HARDENED GUIDES
WITH CYLINDRICAL ROLLERS - TRAPEZOIDAL BALL SCREW



Code

M	V	R					

V = Ball screw
R = Rollers
Max. Stroke [mm]
Module total length [mm]
Type of carriage N/D
Screw pitch 5-10
Pedestal bearings SI



Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.

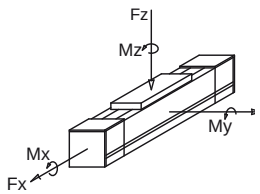
Performances	MVR 80	
Max. stroke	2,500	[mm]
Max. speed Pitch 5	0.15	[m/s]
Max. speed Pitch 10	0.30	[m/s]
Max. speed Pitch 16	0.50	[m/s]
Max. acceleration	5	[m/s²]
Repeatability	± 0,05	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MVR 80	51	200	80	*1,600	850	1,400

The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(*) With a pitch of 5 mm



Fx= Max belt strength

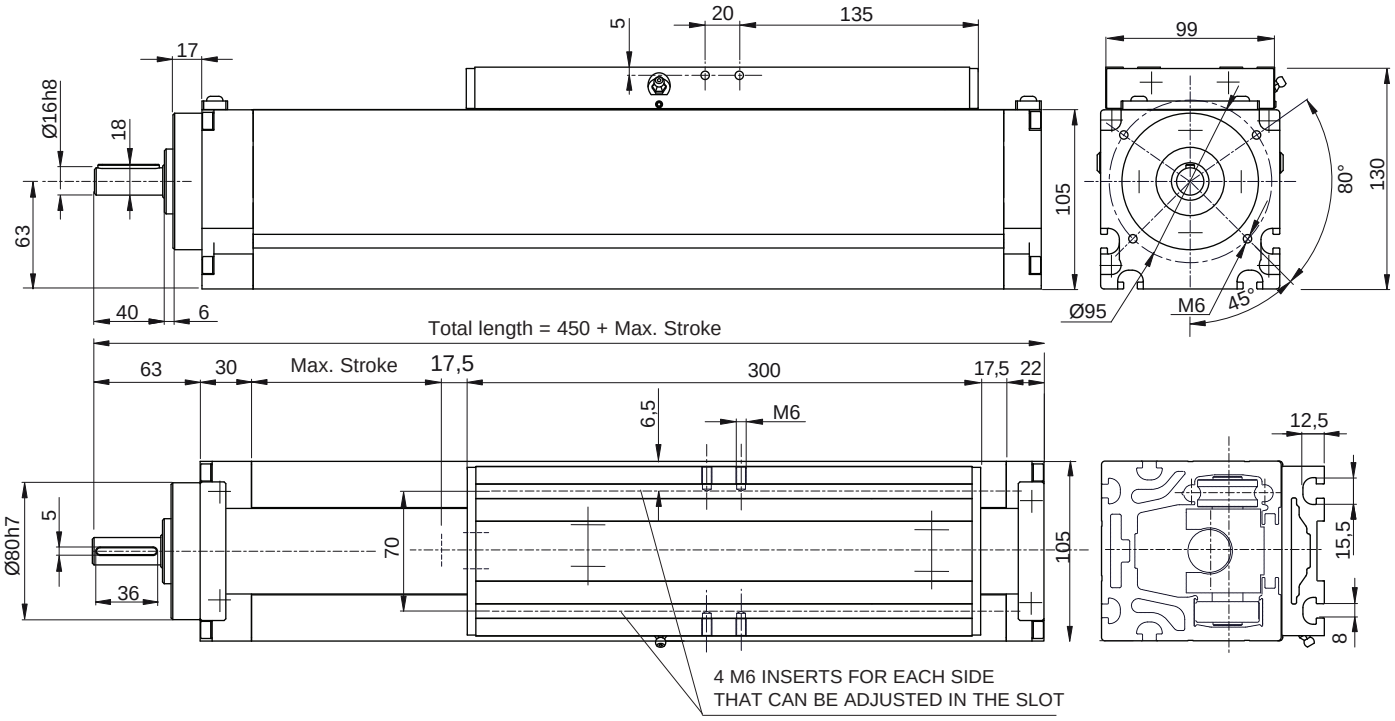
Data		
Slide	Rollers: 4 Ø24 - 4 Ø22	[mm]
Beam	80x80 (see page ML-11)	
Ø screw	16	[mm]
Length of the screw	367+$_{max}$stroke	[mm]

Weights		
Inertia of the worm	0.0003 • L. screw(m)	[kgm²]
Carriage weight	2.5 c.a.	[kg]
Base module (stroke=0)	M_{base}= 5.5 approx.	[kg]
1,000 mm profile	q=8 approx.	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

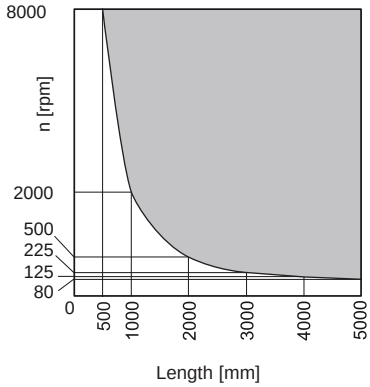
MVR 105

Registered model



Code	M	V	R					
V = Ball screw								
R = Rollers								
Max. stroke				[mm]				
Module total length					[mm]			
Type of carriage						N/D		
Screw pitch							5-10-25-50	
Pedestal bearings								SI

Critical Speed Graph



Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.

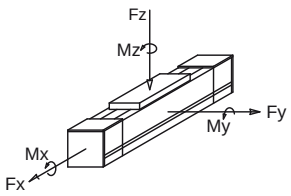
Performances	MVR 105		
Max. stroke	Pitch 5 -10 = 4550	Pitch 25 = 5,150	[mm]
Max. speed	Pitch 5 [mm]	0.15	[m/s]
	Pitch 10 [mm]	0.30	[m/s]
	Pitch 25 [mm]	0.75	[m/s]
Max. acceleration		5	[m/s^2]
Repeatability		± 0.05	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MVR 105	185	580	220	*2,000	1,500	2,950

The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(*) With a pitch of 5 mm

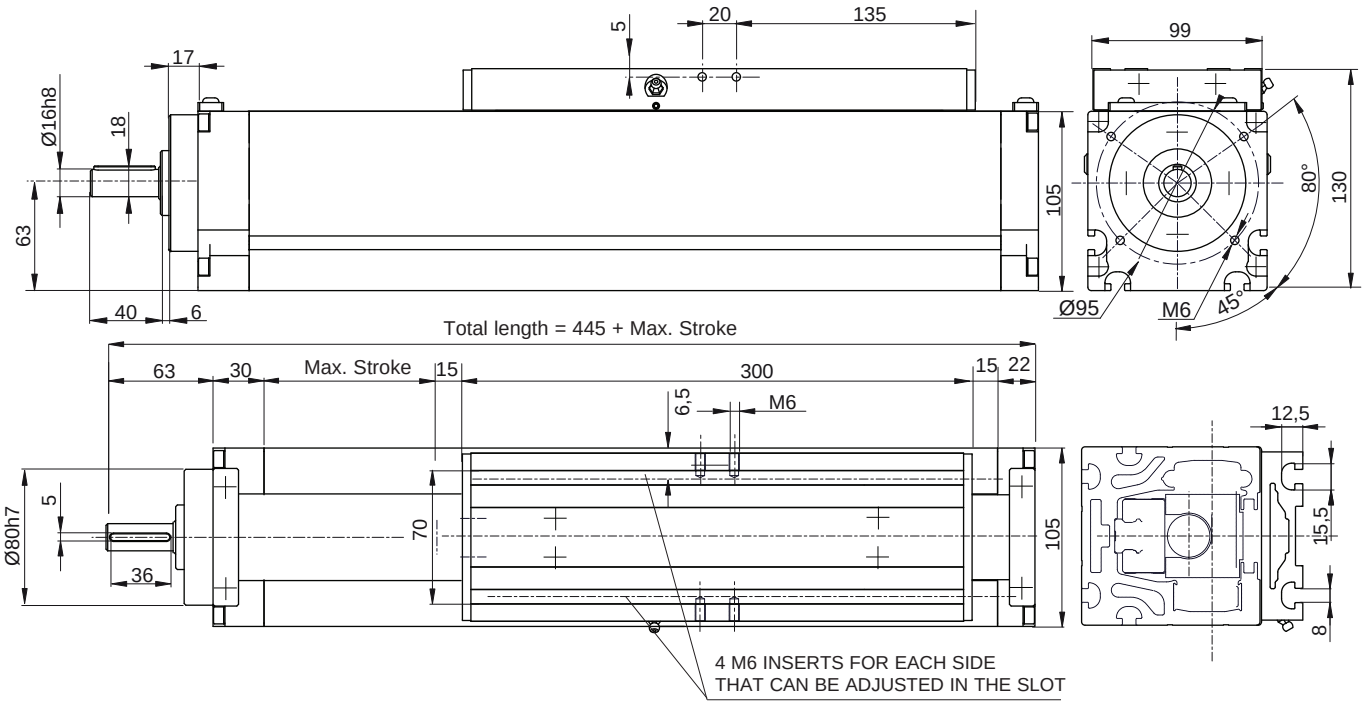


Fx= Max belt strength

Data		
Slide	Rollers: 4 Ø 37 - 4 Ø 35	[mm]
Beam	105x105 (see page ML-11)	
Ø screw	25	[mm]
Length of the screw	440+$_{max}$stroke	[mm]

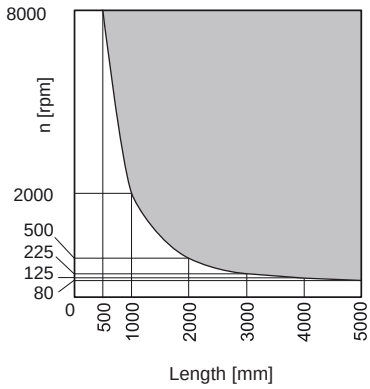
Weights		
Inertia of the worm	0.0003 • L. screw(m)	[kgm^2]
Carriage weight	4 approx.	[kg]
Base module (stroke=0)	M_{base}=11	[kg]
1,000 mm profile	q=17.2 approx.	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]



Code	M	V	L					
V = Ball screw								
S = Caged ball roller slides								
H = Ball roller slides								
Max. stroke				[mm]				
Module total length					[mm]			
Type of carriage						N/D		
Screw pitch							5-10-25	
Pedestal bearings								SI

Critical Speed Graph



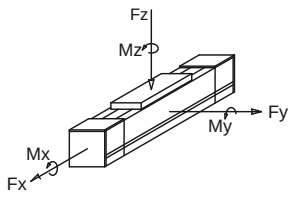
Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.

Performances		MVS 105	MVH 105	
Max. stroke	Pitch 5 -10 = 4,550	Pitch 25 = 5,150		[mm]
Max. speed	Pitch 5 [mm]	0.15	0.15	[m/s]
	Pitch 10 [mm]	0.30	0.30	[m/s]
	Pitch 25 [mm]	0.75	0.75	[m/s]
Max. acceleration		5	5	[m/s^2]
Repeatability		± 0.05	± 0.05	[mm]

Suggested working load conditions						
Module	**M_x[Nm]**	**M_y[Nm]**	**M_z[Nm]**	**F_x[N]**	**F_y[N]**	**F_z[N]**
MVS 105	156	800	800	3,000(*)	9,550	9,550
MVH 105	116	600	600	3,000(*)	6,030	6,030

The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(*) With a pitch of 5 mm



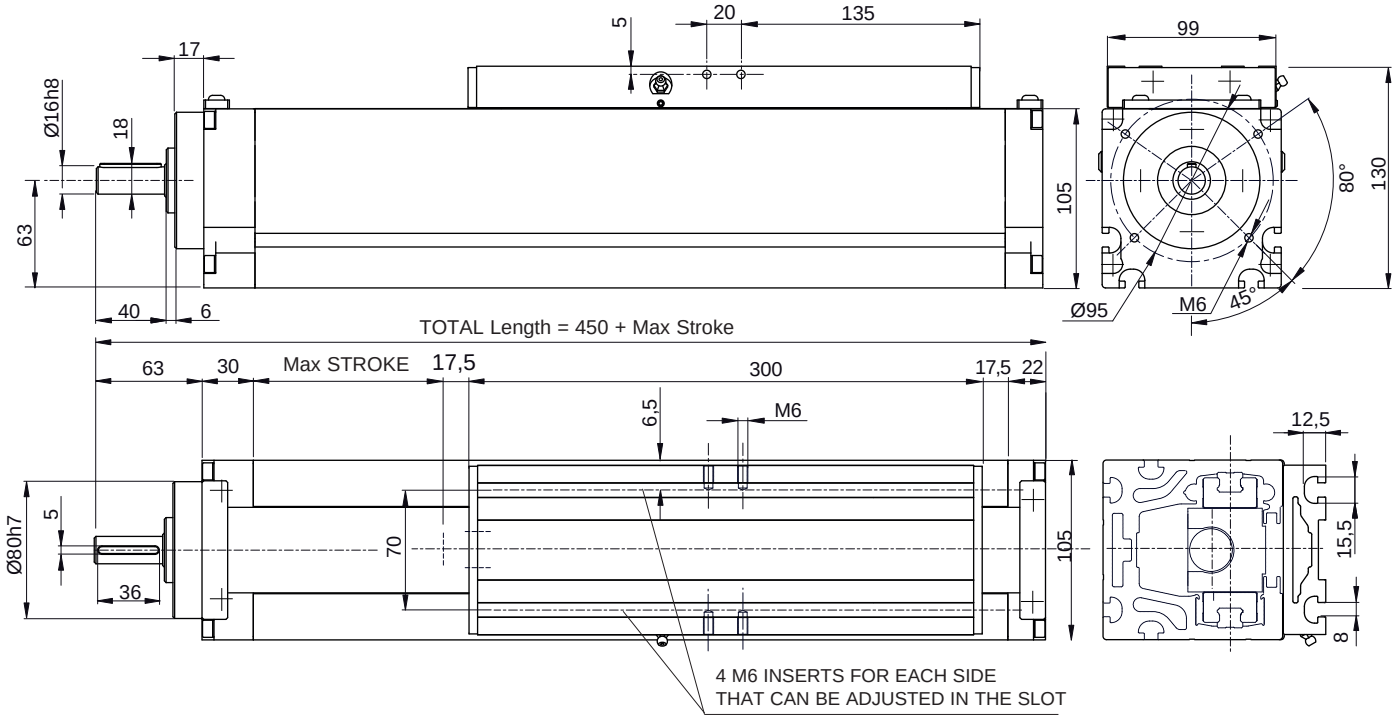
Fx= Max belt strength

Data		
Slide	2 caged ball roller slides size 20	
Beam	105x105 (see page ML- 11)	
Ø screw	25	[mm]
Length of the screw	440+$_{max}$stroke	[mm]

Weights		
Inertia of the worm	0.0003 • L. screw(m)	[kgm^2]
Carriage weight	4 approx.	[kg]
Base module (stroke=0)	M_{base}=12	[kg]
1,000 mm profile	q=17.2 approx.	[kg]

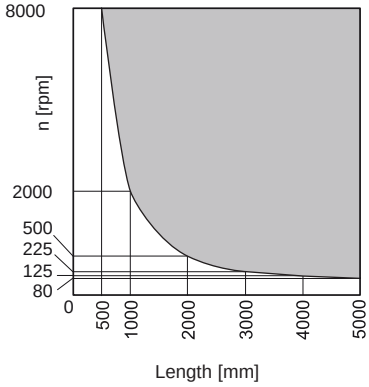
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model



Code	M	V	HH					
V=ball screw								
H=ball roller slides								
Max Stroke				[mm]				
Module total length					[mm]			
Type of carriage						N/D		
Screw pitch							5-10-25	
Pedestal bearings								SI

Critical Speed Graph



Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.

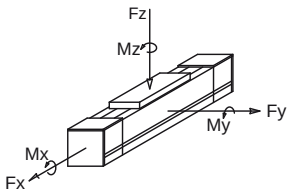
Performances	MVHH 105	
Max Stroke	Pitch 5 -10 = 4550 Pitch 25 = 5150	[mm]
Max Speed	Pitch 5 [mm]	0,15 [m/s]
	Pitch 10 [mm]	0,30 [m/s]
	Pitch 25 [mm]	0,75 [m/s]
Max acceleration	5	[m/s^2]
Repeatability	± 0,05	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
MVHH 105	185	500	500	*3.000	6.000	6.000

The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(*) With a pitch of 5 mm

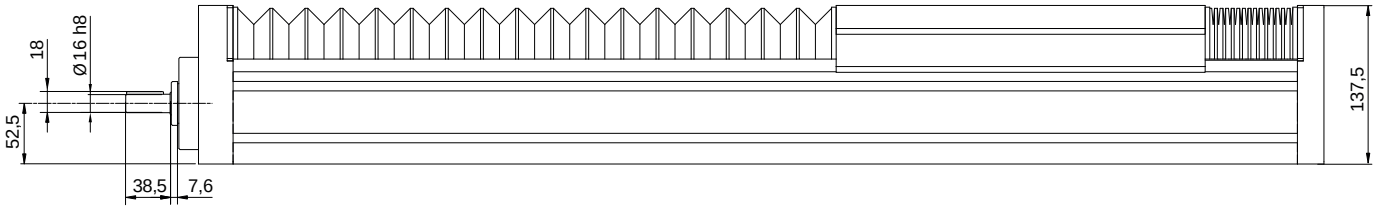


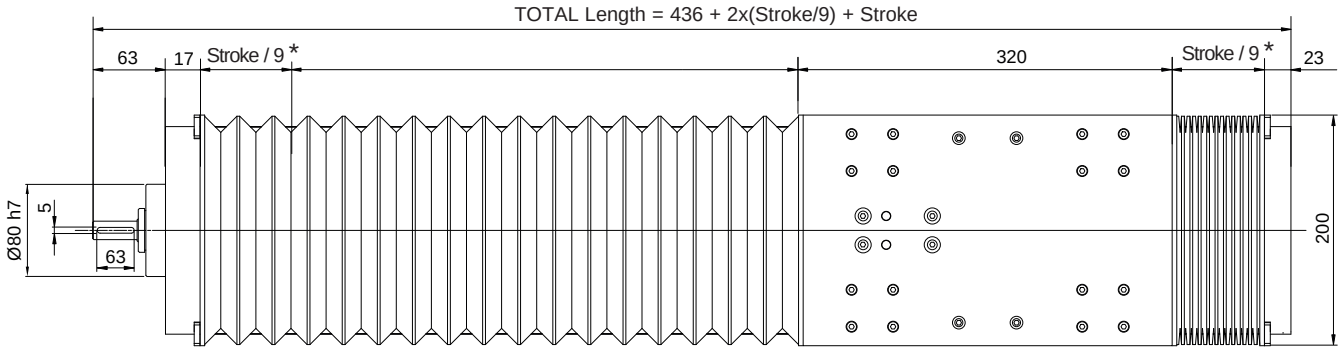
Fx= Max belt strength

Data		
Slide	4 caged ball roller slides size 15	
Beam	105x105 (see page ML- 11)	
Ø screw	25	[mm]
Length of the screw	440+stroke$_{max}$	[mm]

Weights		
Inertia of the worm	0,0003 • L. screw(m)	[kgm^2]
Carriage weight	4 c.a.	[kg]
Base module (stroke=0)	M_{base}=13	[kg]
1,000 mm profile	q=17,5 approx.	[kg]

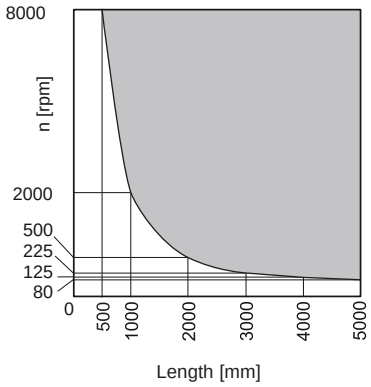
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** Stroke$_{max}$ [mm]



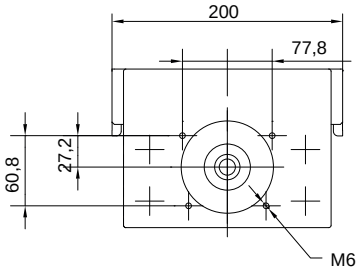


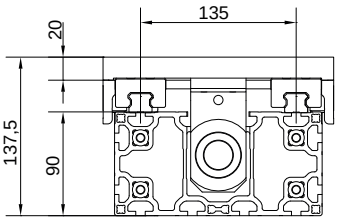
*valore indicativo

Critical Speed Graph



Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.





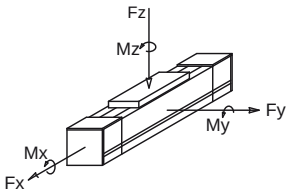
Performances			TVH 180	
Max Stroke	Pitch 5 -10 = 4550	Pitch 25 = 5150		[mm]
Max Speed	Pitch 5 [mm]		0,15	[m/s]
	Pitch 10 [mm]		0,30	[m/s]
	Pitch 25 [mm]		0,75	[m/s]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TVH 180	600	850	850	*3.000	9.200	9.200

The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(*) With a pitch of 5 mm

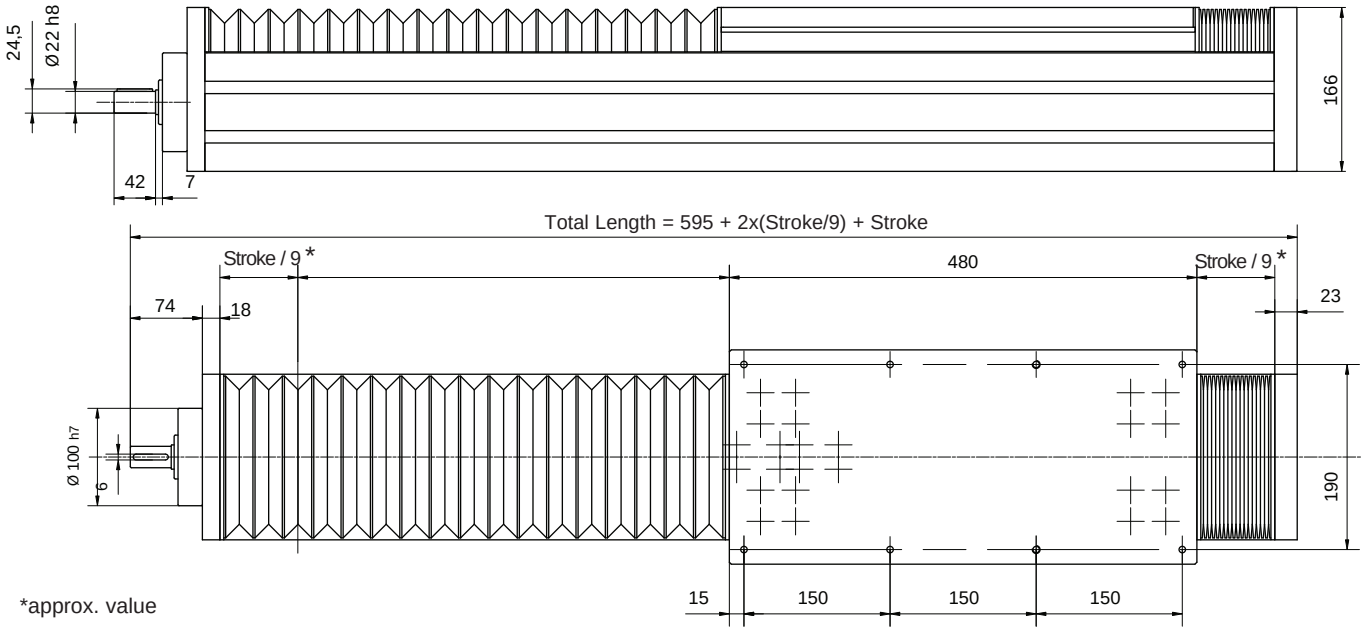


Fx= Max belt strength

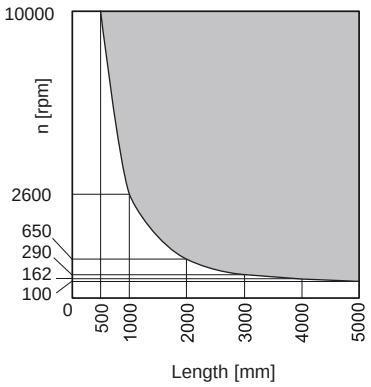
Data	
Slide	4 caged ball roller slides size 20
Beam	E01-5 (see page ML-12)
Ø screw	25 [mm]
Bellow	heat-sealed, plastic

Weights		
Inertia of the worm	0,0003 • L. screw(m)	[kgm^2]
Carriage weight	7	[kg]
Base module (stroke=0)	M_{base}= 20	[kg]
1,000 mm profile	q= 20	[kg]

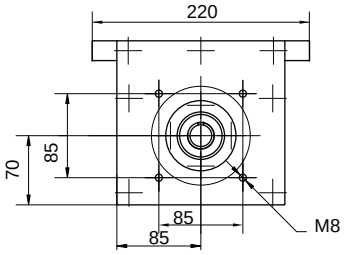
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

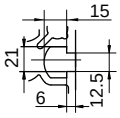


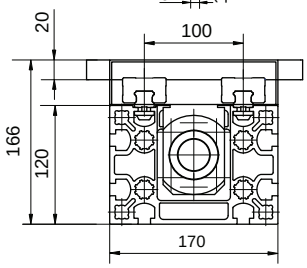
*approx. value



Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.





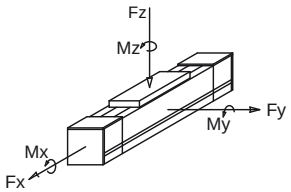


Performances			TVS 170	
Max. stroke			4,000	[mm]
Max. speed	Pitch 5	[mm]	0.15	[m/s]
	Pitch 10	[mm]	0.30	[m/s]
	Pitch 20	[mm]	0.75	[m/s]
	Pitch 32	[mm]	1.00	[m/s]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TVS 170	720	2,050	2,050	*6,000	11,950	11,950

The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept.
(*) With a pitch of 10 mm

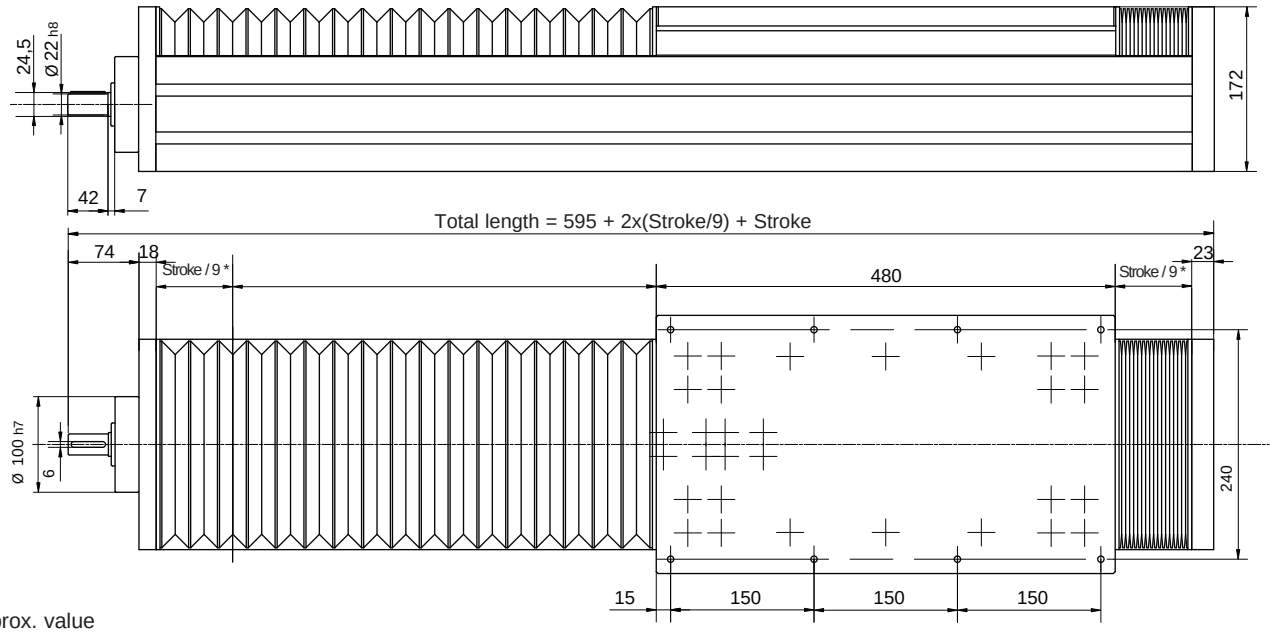


Fx= Max belt strength

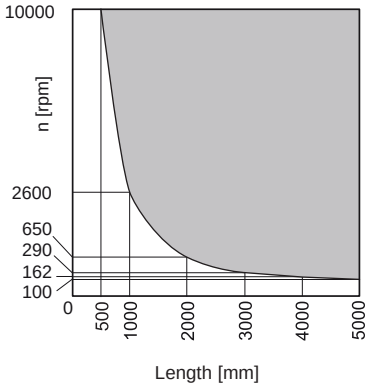
Data		
Slide	4 caged ball roller slides size 20	
Beam	Statyca	(see page ML-13)
Ø screw	32	[mm]
Bellow	heat-sealed, plastic	

Weights		
Inertia of the worm	0,0006 • L. screw(m)	[kgm^2]
Carriage weight	11	[kg]
Base module (stroke=0)	M_{base}= 36	[kg]
1,000 mm profile	q= 28	[kg]

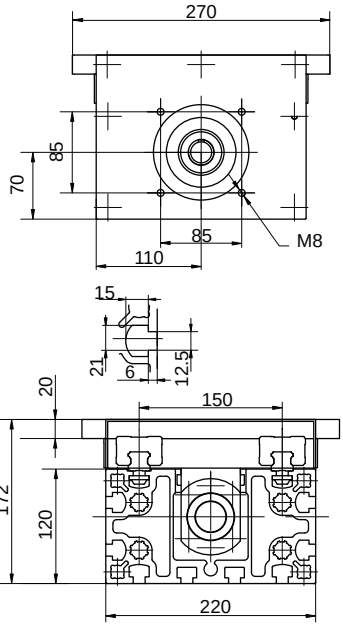
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]



*approx. value



Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.



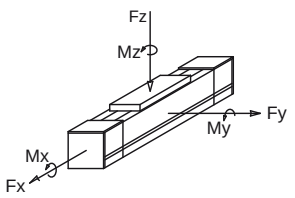
Performances			TVS 220	
Max. stroke			4,000	[mm]
Max. speed	Pitch 5	[mm]	0.15	[m/s]
	Pitch 10	[mm]	0.30	[m/s]
	Pitch 20	[mm]	0.75	[m/s]
	Pitch 32	[mm]	1.00	[m/s]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TVS 220	1,300	3,200	3,200	*6,000	18,300	18,300

The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept.

(*) With a pitch of 10 mm



Fx= Max belt strength

Data		
Slide	4 caged ball roller slides size 25	
Beam	Logyca (see page ML-13)	
Ø screw	32	[mm]
Bellow	heat-sealed, plastic	

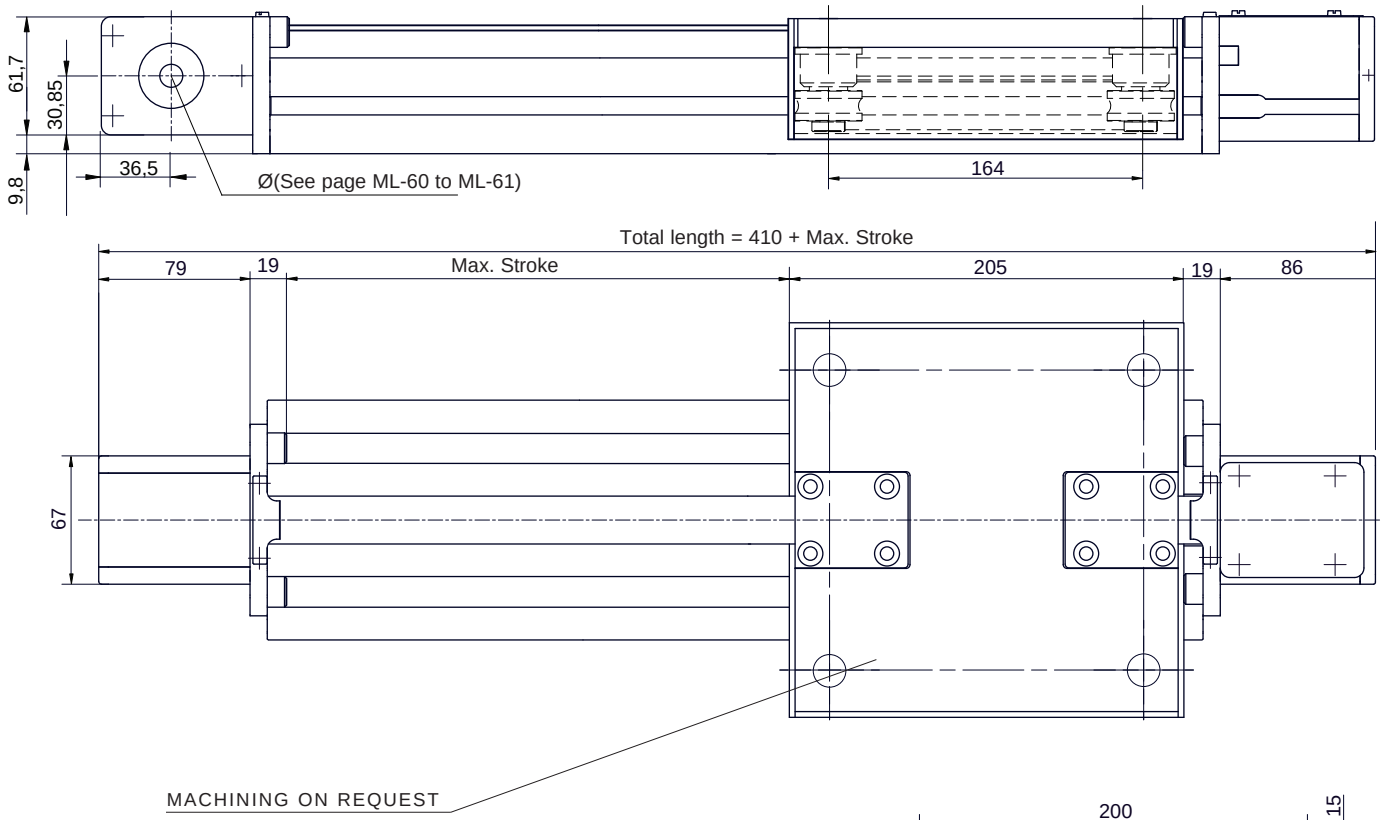
Weights		
Inertia of the worm	0.0006 • L. screw(m)	[kgm^2]
Carriage weight	13	[kg]
Base module (stroke=0)	M_{base}= 44	[kg]
1,000 mm profile	q= 37	[kg]

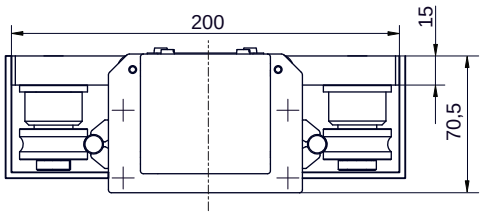
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

TCG 100

HARDENED GUIDE RAILS AND CYLINDRICAL SHAPED ROLLERS

Registered model





Performances	TCG 100	
Max. stroke	5,490	[mm]
Max. speed	5	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1*	[mm]
Loadless torque	2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCG 100	40	120	200	1,100	1,700	1,200

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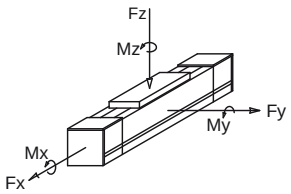


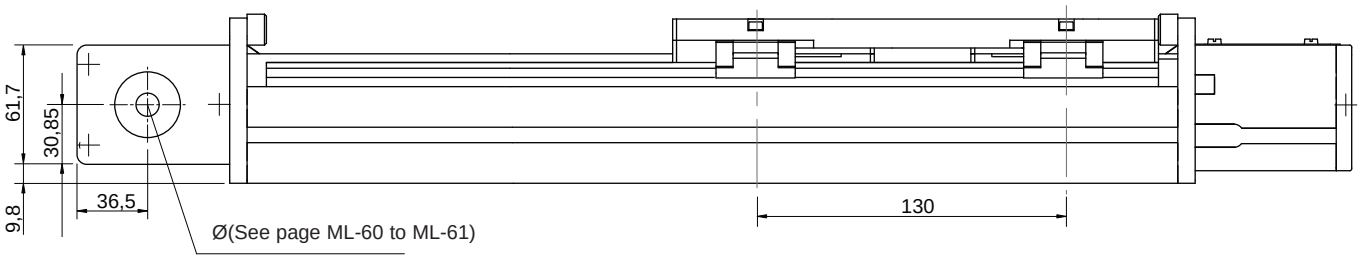
Fx= Max belt strength

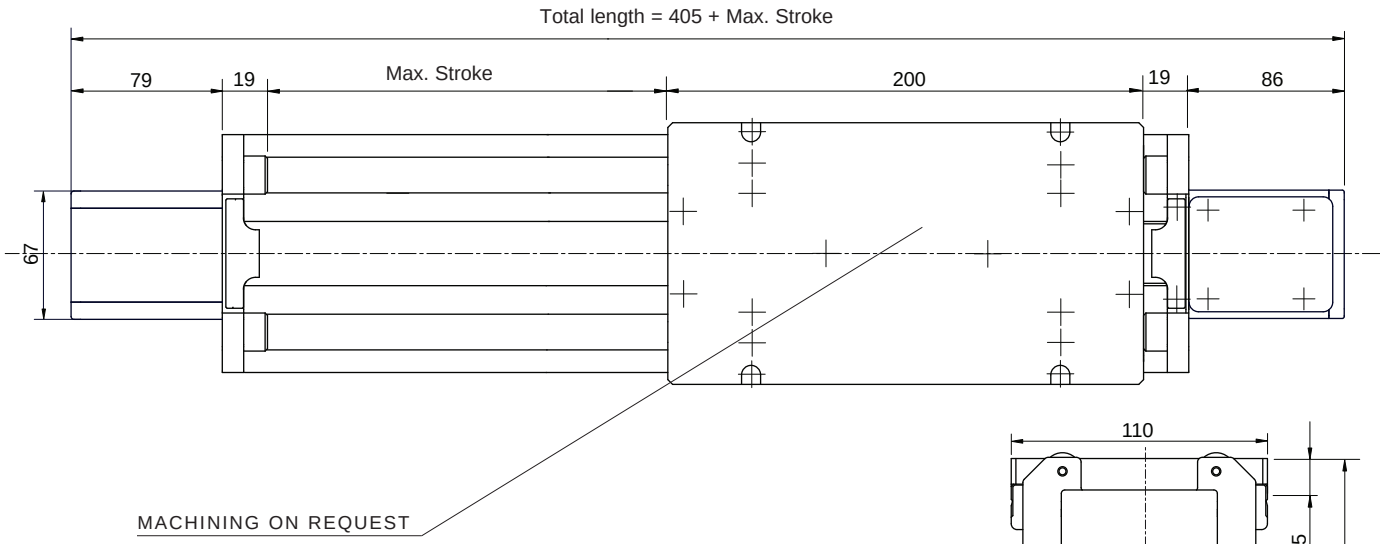
Assembly positions and load direction, see page ML-10

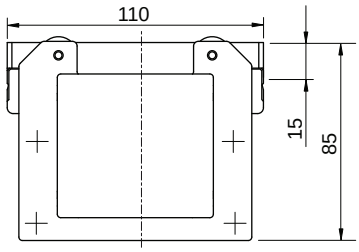
Data		
Belt	25AT5	
Slide	4 shaped rollers Ø35	[mm]
Load bearing profile	MA 1-4 (see page ML-12)	
Pulley Ø	50.93	[mm]
Linear displacement per revolution	160	[mm]

Weights		
Inertia of the pulley	-	[kgm^2]
Belt weight	0.21	[kg/m]
Carriage weight	2.5	[kg]
Base module (stroke=0)	M_{base}=6.4	[kg]
1,000 mm profile	q=8.3	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]







Performances	TCH 100	TCS 100	
Max. stroke	5,400	5,400	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	-	-	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 100	138	324	324	1,180	4,100	4,100
TCS 100	150	324	324	1,180	4,100	4,100

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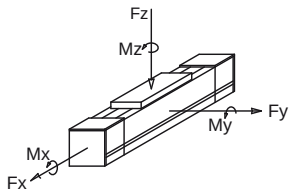
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

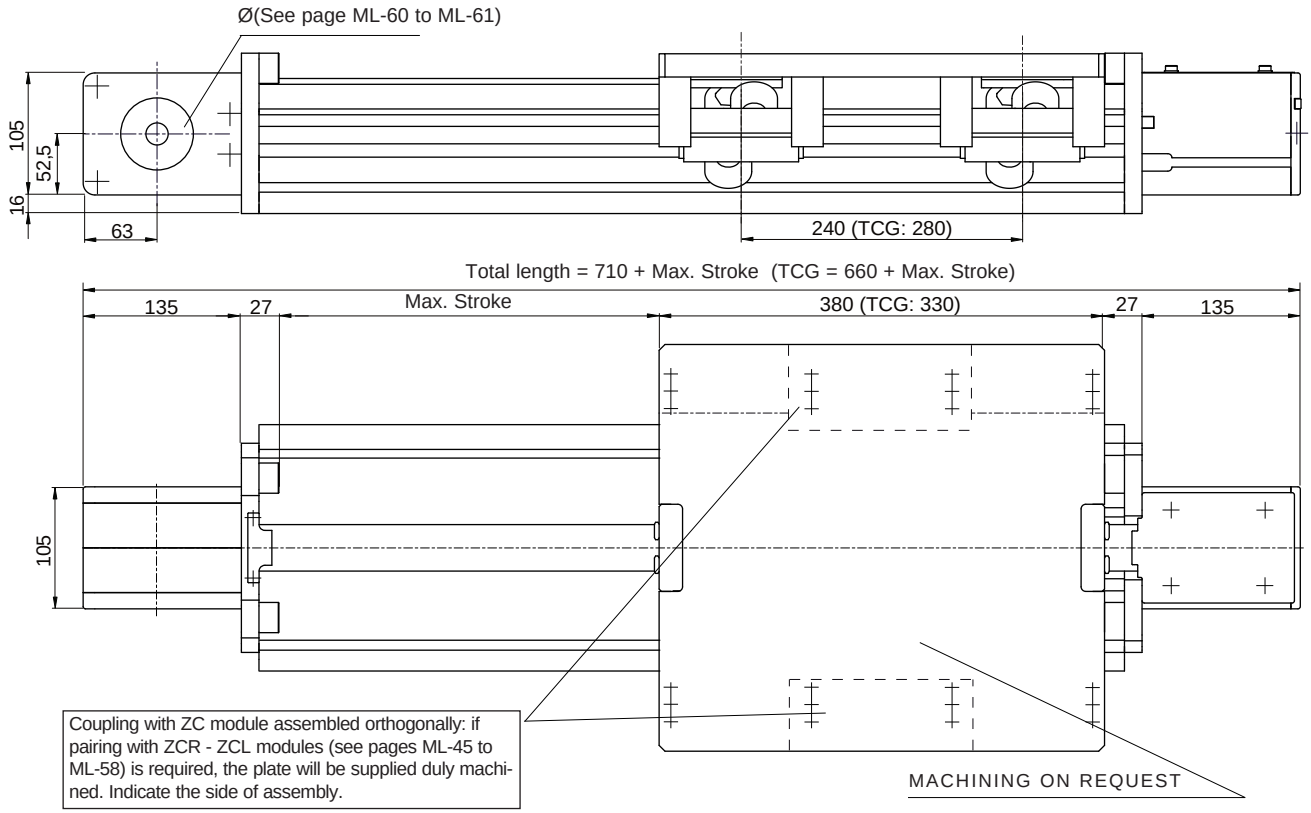
Data		
Belt	25AT5	
Sliding	4 caged ball roller slides size15	
Load bearing profile	MA 1-4	(see page ML- 12)
Pulley Ø	50.93	[mm]
Linear displacement per revolution	160	[mm]

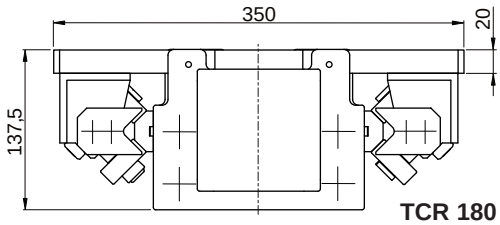
Weights		
Inertia of the pulley	-	[kgm^2]
Belt weight	0.21	[kg/m]
Carriage weight	2.6	[kg]
Base module (stroke=0)	M_{base}=6.5	[kg]
1,000 mm profile	q=9.2	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

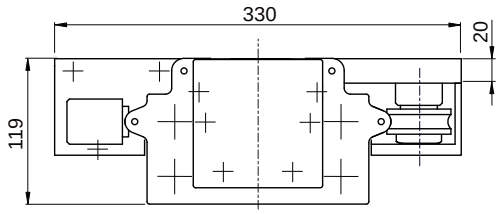
Registered model

Accessories: see page ML-10





TCR 180



TCG 180

Performances	TCRQ 180	TCG 180	
Max. stroke	7,480	7,540	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	20	20	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	4.2	1.2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCRQ 180	630	800	800	3,300	7,320	7,320
TCG 180	220	270	540	3,300	3,400	1,800

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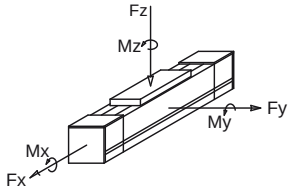


Fx= Max belt strength

Assembly positions and load direction, see page ML-10

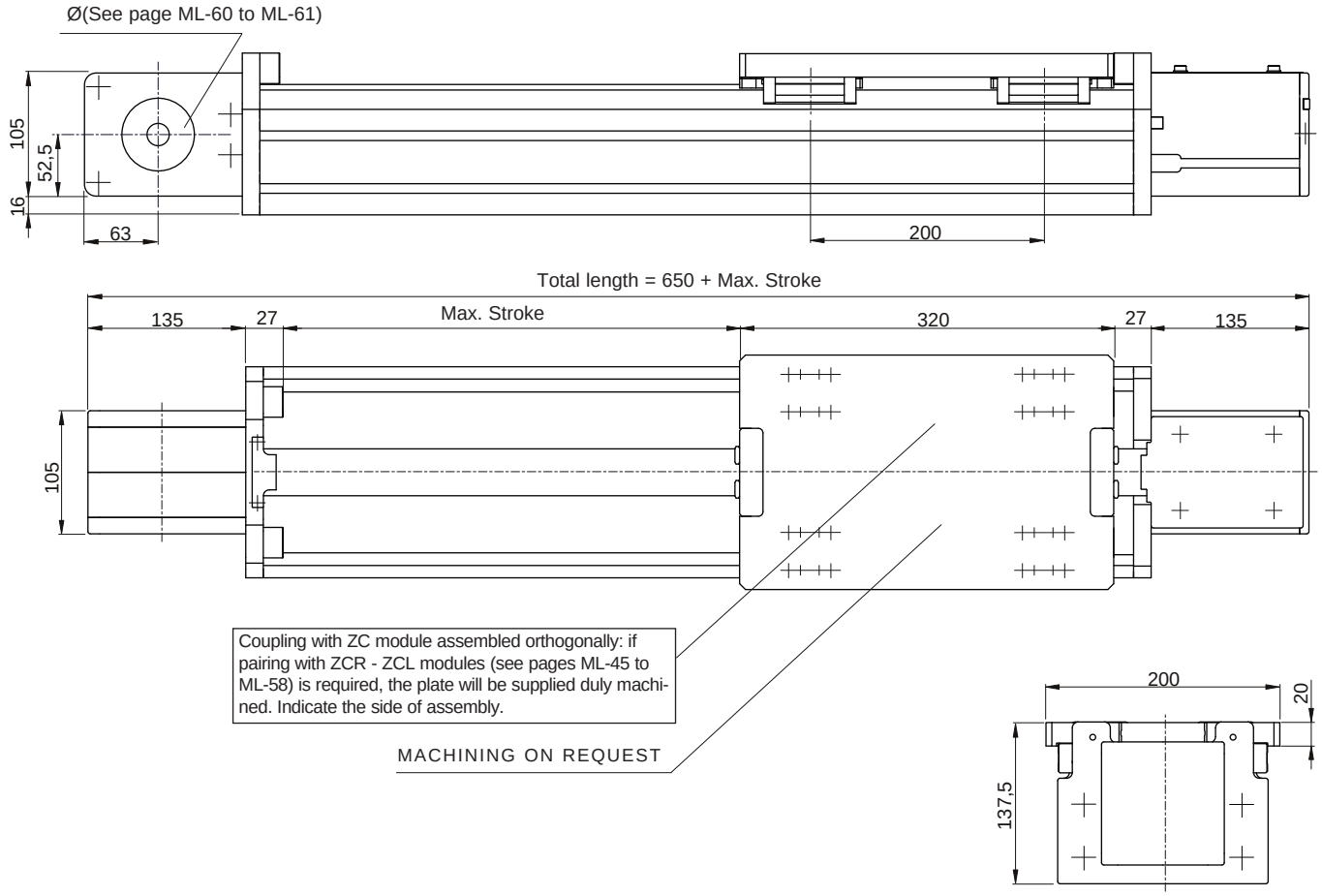
Data	TCRQ 180	TCG 180	
Belt	40ATL10		
Slide	4 roller slides with 2 rollers 4 rollers Ø 52, guide Ø16		
Load bearing profile	E01-5 (see page ML-12)		
Pulley Ø	92.31		[mm]
Linear displacement per rev.	290		[mm]

Weights	TCRQ 180	TCG 180	
Inertia of the pulley	0.0037		[kgm^2]
Belt weight	0.55		[kg/m]
Carriage weight	12.4	10.6	[kg]
Base module (stroke=0)	M_{base}=32	27.6	[kg]
1,000 mm profile	q=21	q=16.8	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered Model

Accessories: see page ML-10



Performances	TCH 180	TCS 180	
Max. stroke	7,340	7,340	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	3.2	3.2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 180	600	850	850	3,300	9,200	9,200
TCS 180	960	1,350	1,350	3,300	10,950	10,950

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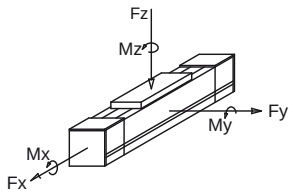


Fx= Max belt strength

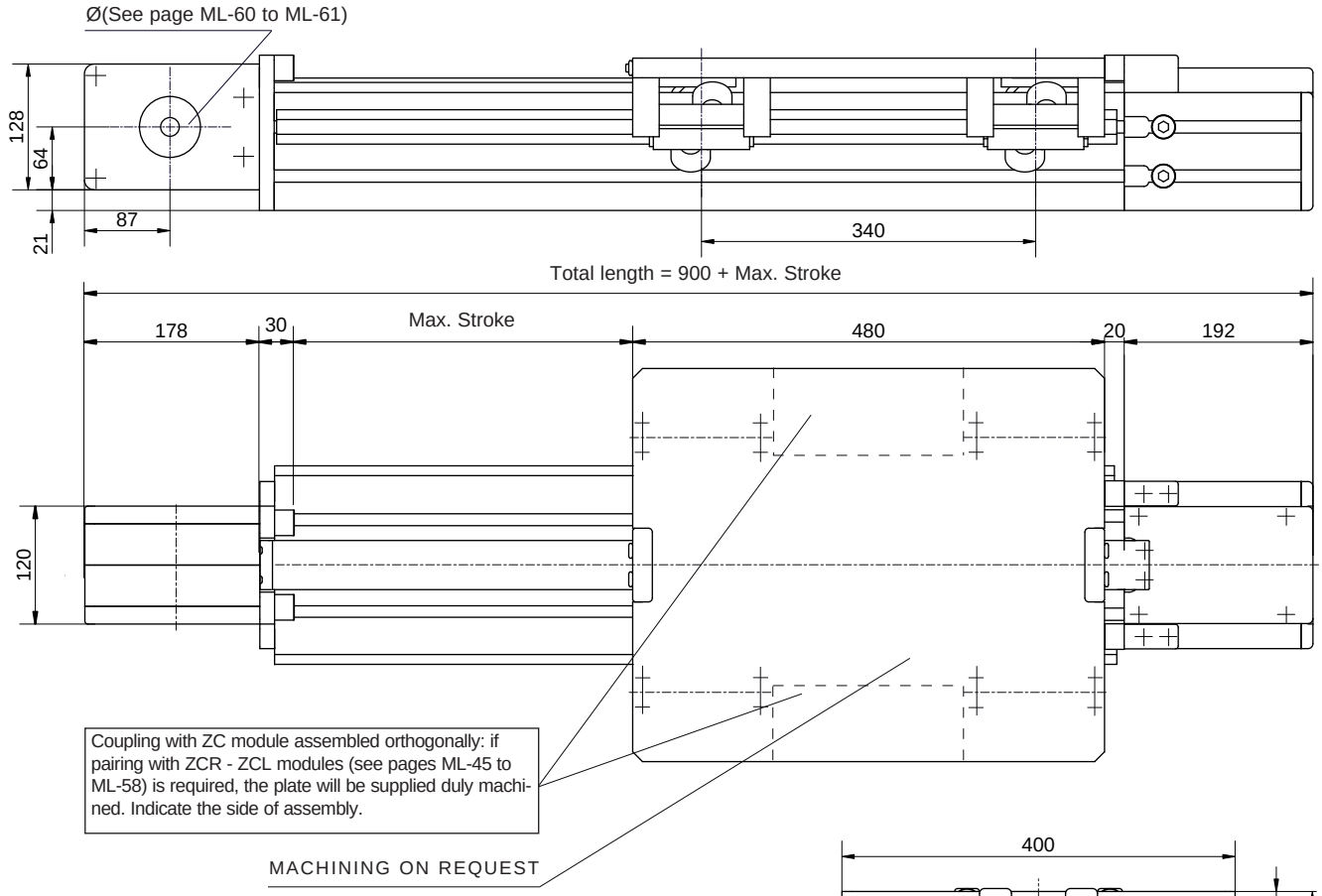
Data	TCH 180 - TCS 180	
Belt	40ATL10	
Slide	4 caged ball slides size 20	
Load bearing profile	E01-5 (see page ML-12)	
Pulley Ø	92.31	[mm]
Linear displacement per rev.	290	[mm]

Weights	TCH 180 - TCS 180	
Inertia of the pulley	0.0037	[kgm^2]
Belt weight	0.55	[kg/m]
Carriage weight	6	[kg]
Base module (stroke=0)	M_{base}=23.6	[kg]
1,000 mm profile	q=19	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Accessories: see page ML-10



Performances	TCRQ 170	
Max. stroke	5,480	[mm]
Max. speed	7	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1	[mm]
Loadless torque	4.2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCRQ 170	590	1,202	1,202	4,000	7,070	7,070

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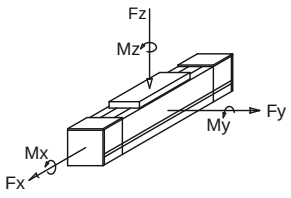


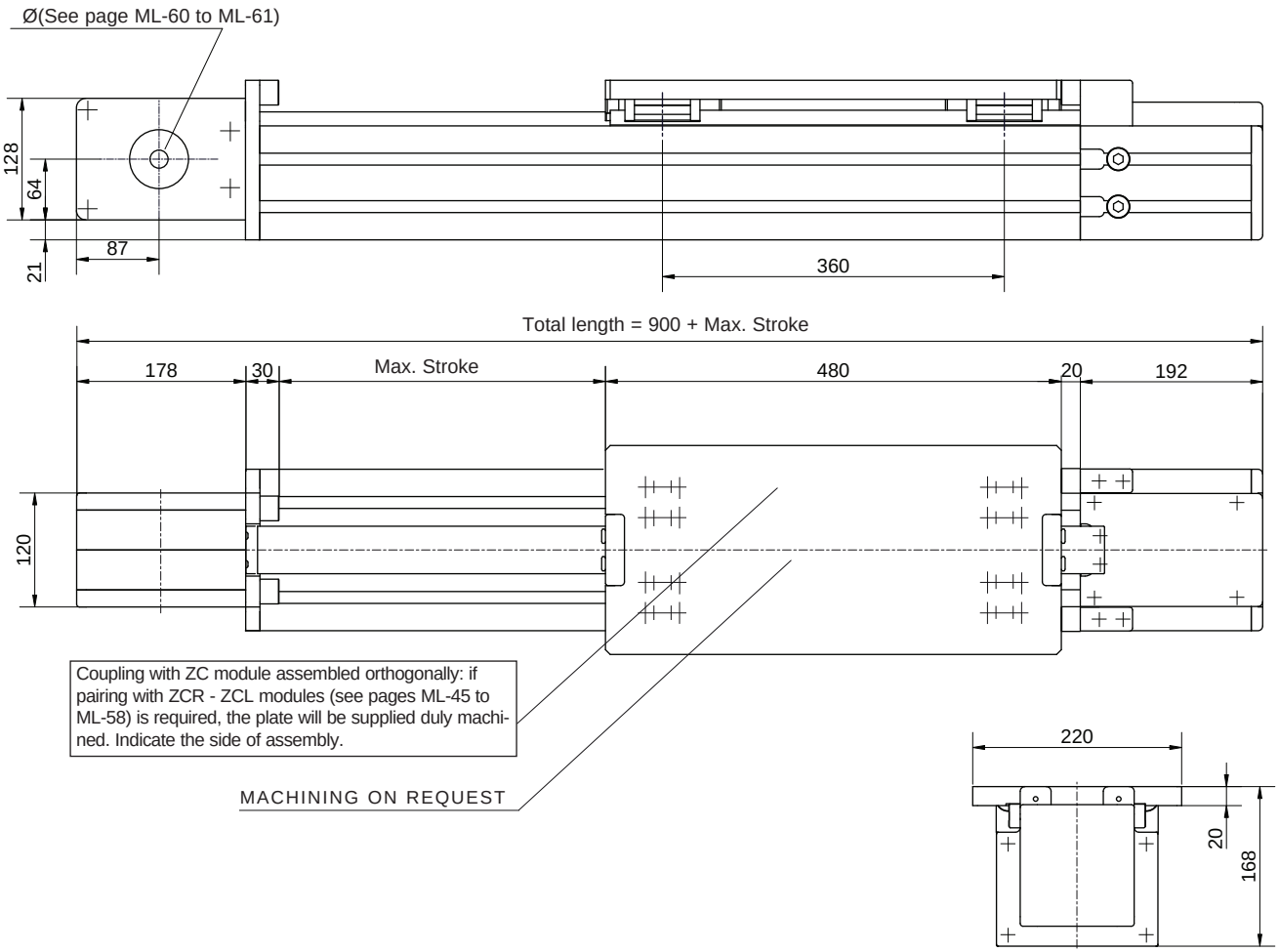
Fx= Max belt strength

Assembly positions and load direction, see page ML-10

Data		
Belt	50ATL10	
Slides	4 slides 2 rollers Ø40[mm]	
Load bearing profile	Statyca (see page ML-13)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights		
Inertia of the pulley	0.0053	[kgm^2]
Belt weight	0.68	[kg/m]
Carriage weight	14.6	[kg]
Base module (stroke=0)	M_{base}=44.6	[kg]
1,000 mm profile	q=25	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]



Performances	TCH 170	TCS 170	
Max. stroke	5,480	5,480	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	4.8	4.8	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 170	450	1,430	1,430	4,000	9,400	9,400
TCS 170	720	2,050	2,050	4,000	11,950	11,950

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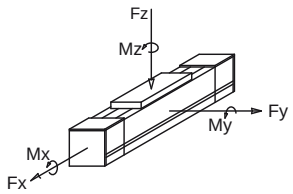


Fx= Max belt strength

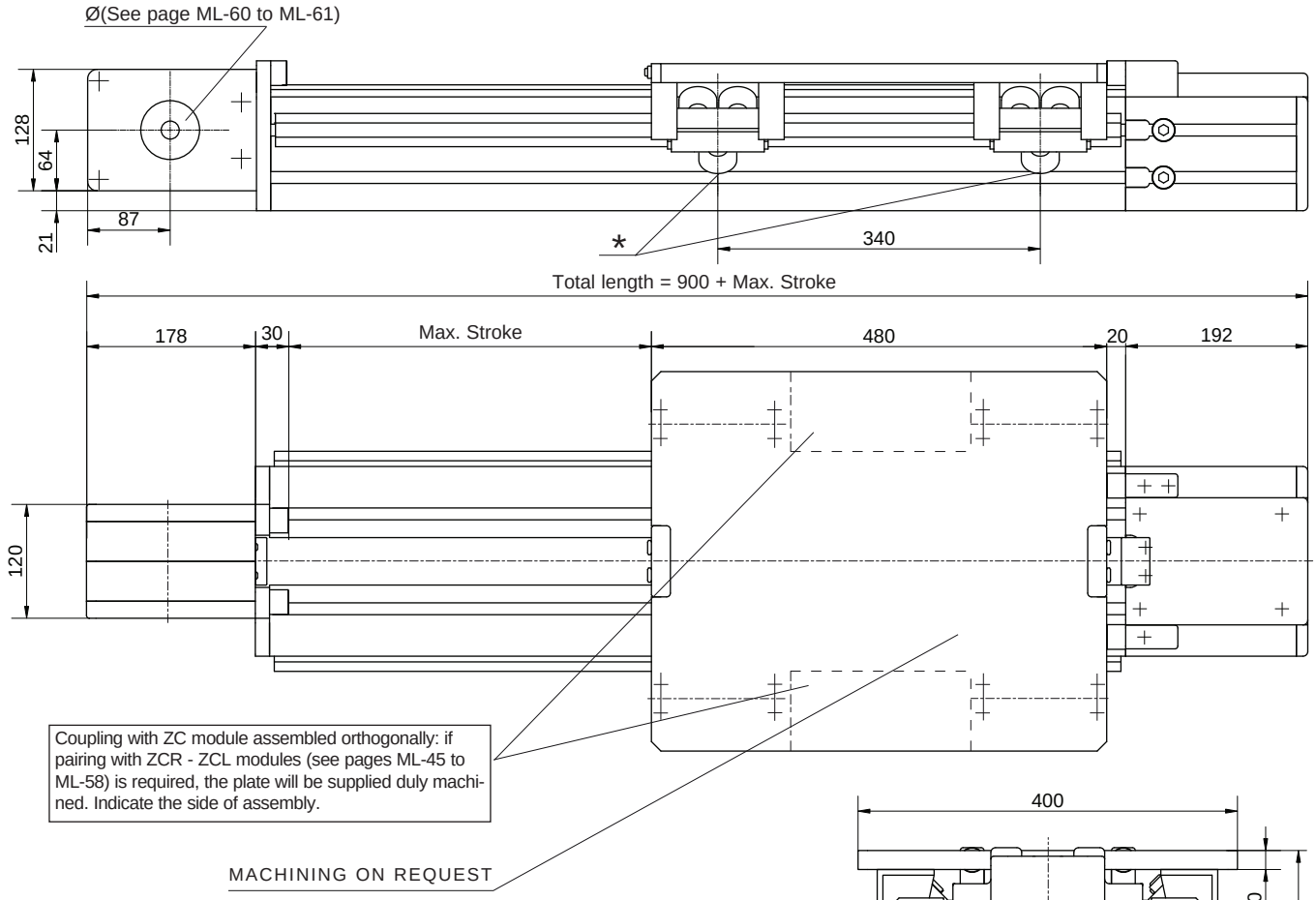
Data	TCH 170 - TCS 170	
Belt	50ATL10	
Slide	4 caged ball slides size 20	
Load bearing profile	Statyca (see page ML-13)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights	TCH 170 - TCS 170	
Inertia of the pulley	0.0053	[kgm^2]
Belt weight	0.68	[kg/m]
Carriage weight	8.6	[kg]
Base module (stroke=0)	M_{base}=38	[kg]
1,000 mm profile	q=23	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Accessories: see page ML-10



*: Please specify the roller orientation according to the barycentre of the applied load. Values corresponding to the most favourable load position.

Performances	TCRQ 200	
Max. stroke	8,480	[mm]
Max. speed	5	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1	[mm]
Loadless torque	4.2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCRQ 200	1,300(*)	1,600(*)	1,300	4,000	7,620	12,500 (*)

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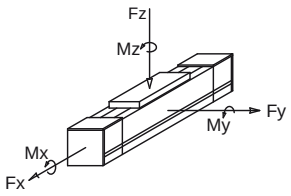


Fx= Max belt strength

Assembly positions and load direction, see page ML-10

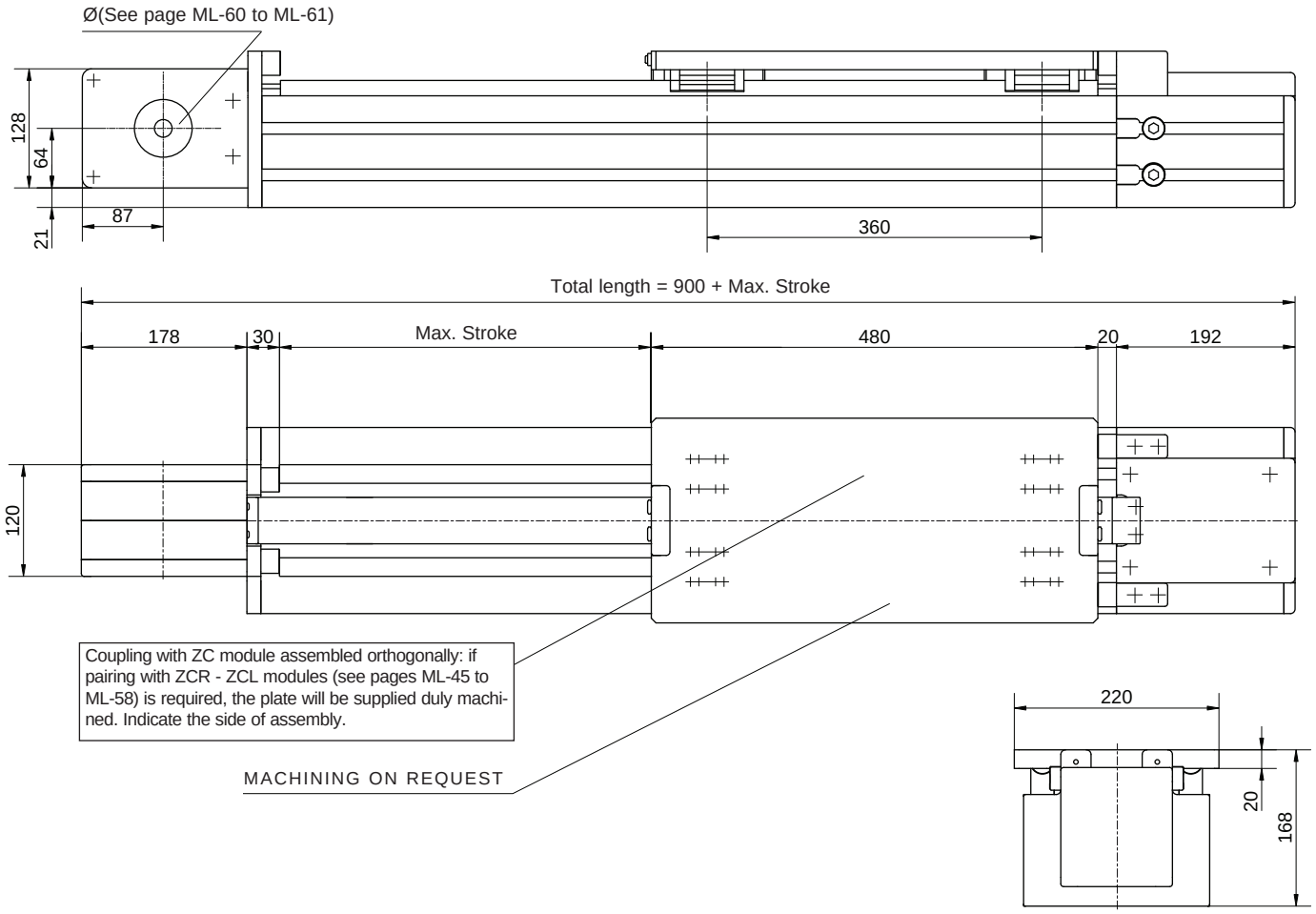
Data		
Belt	50ATL10	
Slide	4 slides 3 roll. Ø40	[mm]
Load bearing profile	Valyda	(see page 13)
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights		
Inertia of the pulley	0.0053	[kgm^2]
Belt weight	0.68	[kg/m]
Carriage weight	15	[kg]
Base module (stroke=0)	M_{base}=52	[kg]
1,000 mm profile	q=30	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Accessories: see page ML-10



Performances	TCH 200	TCS 200	
Max. stroke	8,480	8,480	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	4.8	4.8	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 200	500	1,430	1,430	4,000	9,400	9,400
TCS 200	810	2,050	2,050	4,000	13,950	13,950

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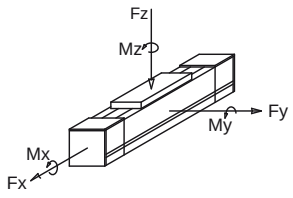


Fx= Max belt strength

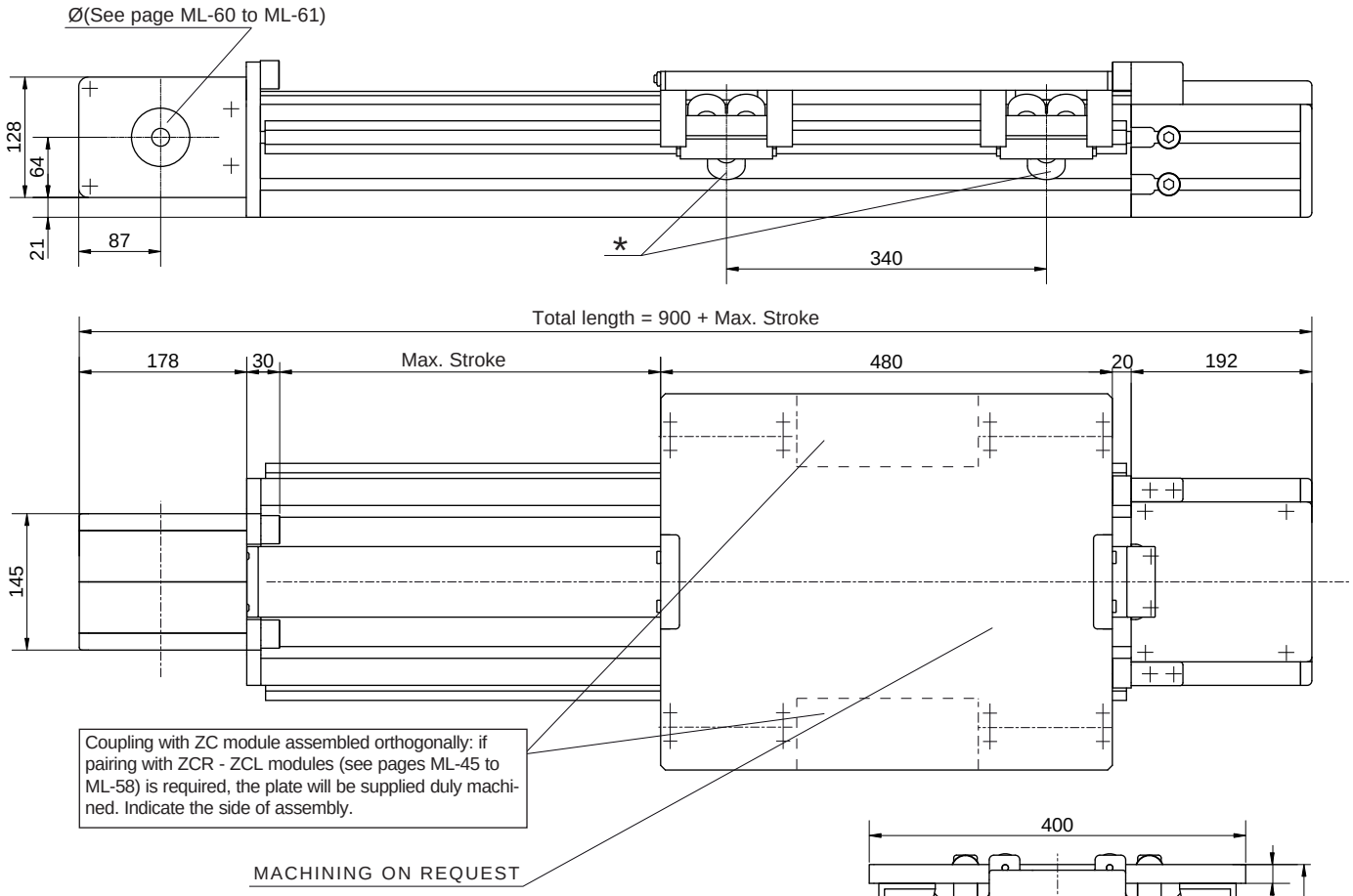
Data	TCH 200 - TCS 200	
Belt	50ATL10	
Slide	4 caged ball slides size 20	
Load bearing profile	Valyda (see page ML-13)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights	TCH 200 - TCS 200	
Inertia of the pulley	0.0053	[kgm^2]
Belt weight	0.68	[kg/m]
Carriage weight	8,8	[kg]
Base module (stroke=0)	M_{base}=42	[kg]
1,000 mm profile	q=27.5	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Accessories: see page ML-10



* : Please specify the roller orientation according to the barycentre of the applied load. Values corresponding to the most favourable load position.

Performances	TCRQ 220	
Max. stroke	11,480	[mm]
Max. speed	5	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1	[mm]
Loadless torque	5.8	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCRQ220	1,400(*)	1,600(*)	1,300	6,000	7,620	12,500(*)

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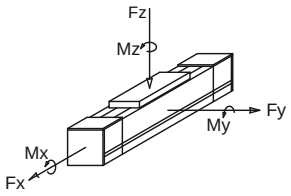


Fx= Max belt strength

Assembly positions and load direction, see page ML-10

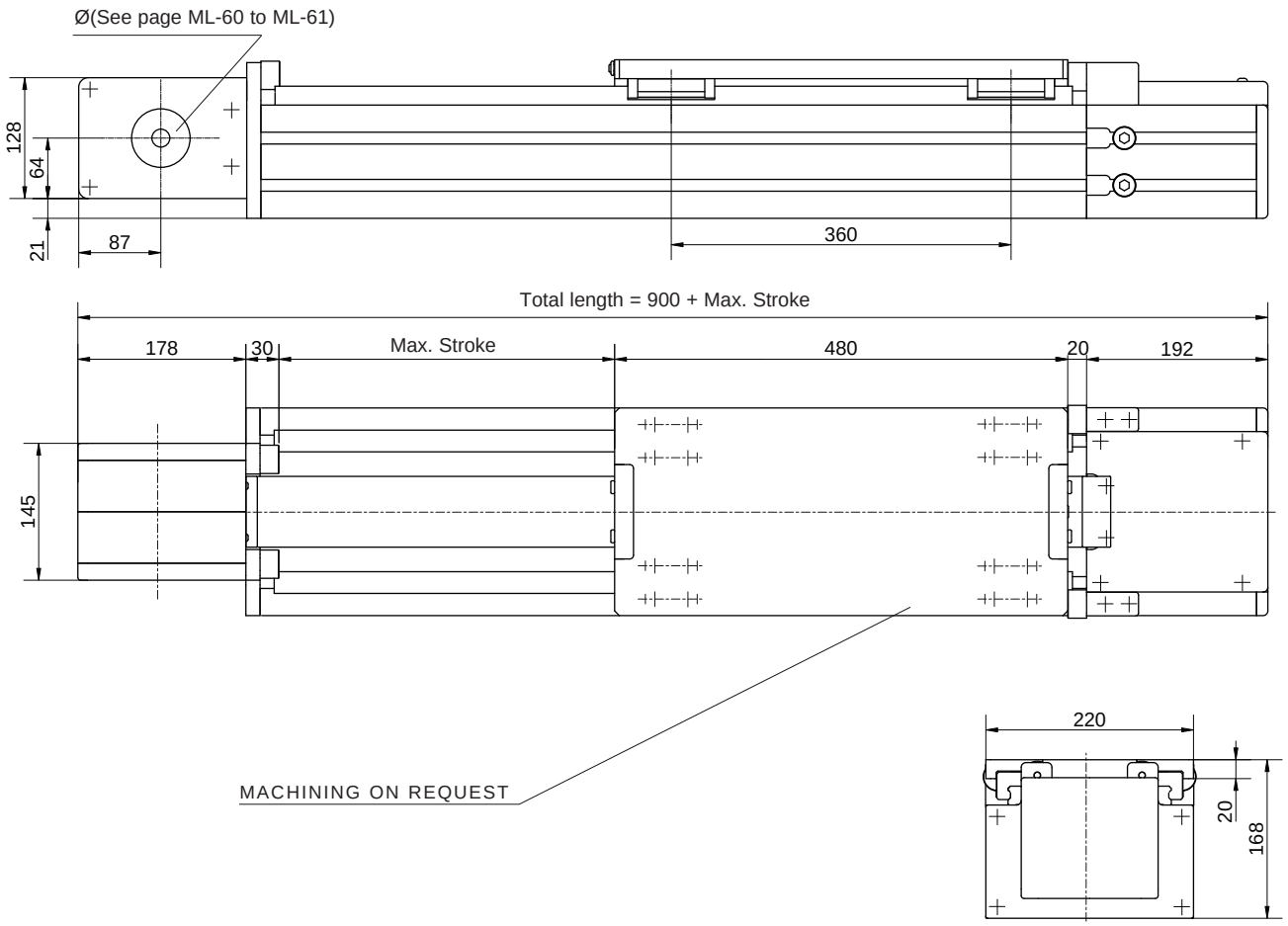
Data		
Belt	75ATL10	
Slide	4 slides 3 roll. Ø 40	[mm]
Load bearing profile	Logyca (see page ML-13)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights		
Inertia of the pulley	0,0082	[kgm^2]
Belt weight	1,02	[kg/m]
Carriage weight	16	[kg]
Base module (stroke=0)	M_{base}=54.6	[kg]
1,000 mm profile	q= 33.7	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

Accessories: see page ML-10

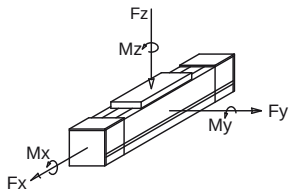


Performances	TCH 220	TCS 220	
Max. stroke	11,480	11,480	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	6.9	6.9	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 220	950	2,200	2,200	6,000	13,000	13,000
TCS 220	1,300	3,200	3,200	6,000	18,300	18,300

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

Data	TCH 220 - TCS 220	
Belt	75ATL10	
Slide	4 caged ball slides size 25	
Load bearing profile	Logyca (see page ML-13)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights	TCH 220 - TCS 220	
Inertia of the pulley	0.0082	[kgm^2]
Belt weight	1.02	[kg/m]
Carriage weight	9.5	[kg]
Base module (stroke=0)	M_{base}=47.4	[kg]
1,000 mm profile	q=33	[kg]

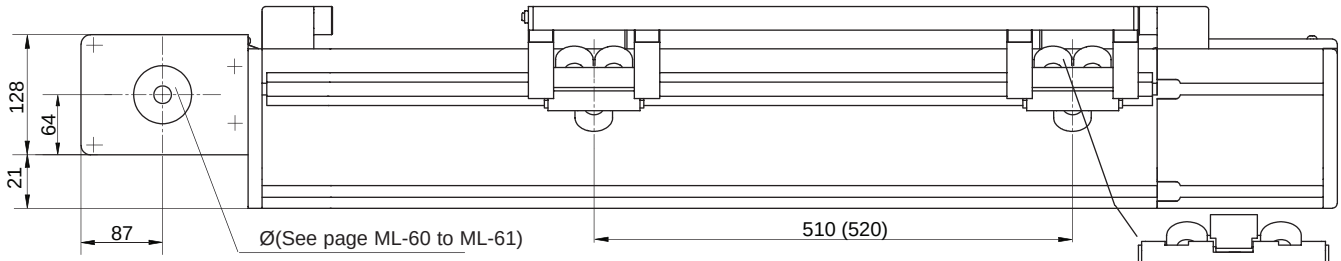
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

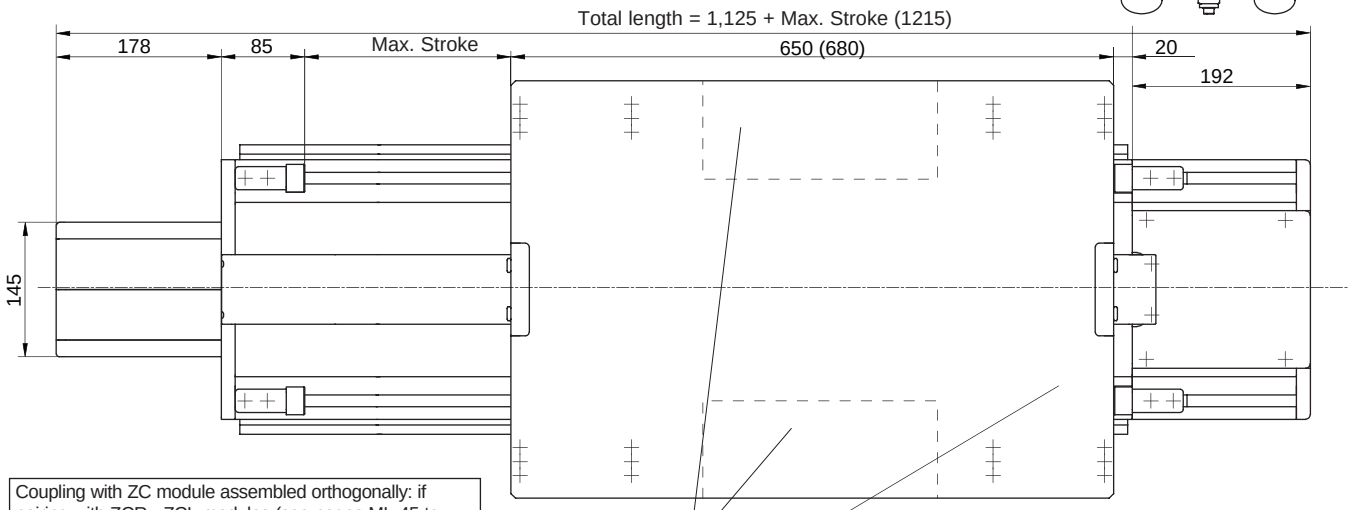
TCRQ 280 (TCRP 280)

Registered model*

RP= Heavy guide rails and roller slides - Ø52

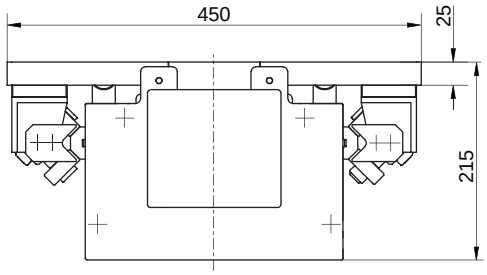
Accessories: see page ML-10





Coupling with ZC module assembled orthogonally: if pairing with ZCR - ZCL modules (see pages ML-45 to ML-58) is required, the plate will be supplied duly machined. Indicate the side of assembly.

MACHINING ON REQUEST

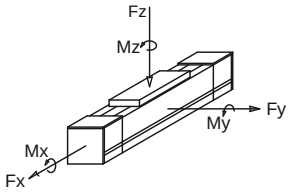


*: Please specify the roller orientation according to the barycentre of the applied load. Values corresponding to the most favourable load position.

Performances	TCRQ 280	(TCRP280)	
Max. stroke	11,315	11,175	[mm]
Max. speed	7	5	[m/s]
Max. acceleration	20	10	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	7.6	8.5	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCRQ 280	1,950(*)	3,100(*)	1,950	6,000	7,620	13,500(*)
TCRP 280	3,100	4,150	4,150	6,000	20,100	20,100



Fx= Max belt strength

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept
Versions with a 100 mm belt are also available. (TCRE/TCREP)

Assembly positions and load direction, see page ML-10

Data	TCRQ 280	(TCRP 280)	
Belt	75 ATL 10		
Slide	4 slides 3 rollers Ø40	4 slides 4 rollers Ø52	[mm]
Load bearing profile	Pratyca	(see page ML-14)	
Pulley Ø	95.49		[mm]
Linear displacement per rev. [mm]	300		

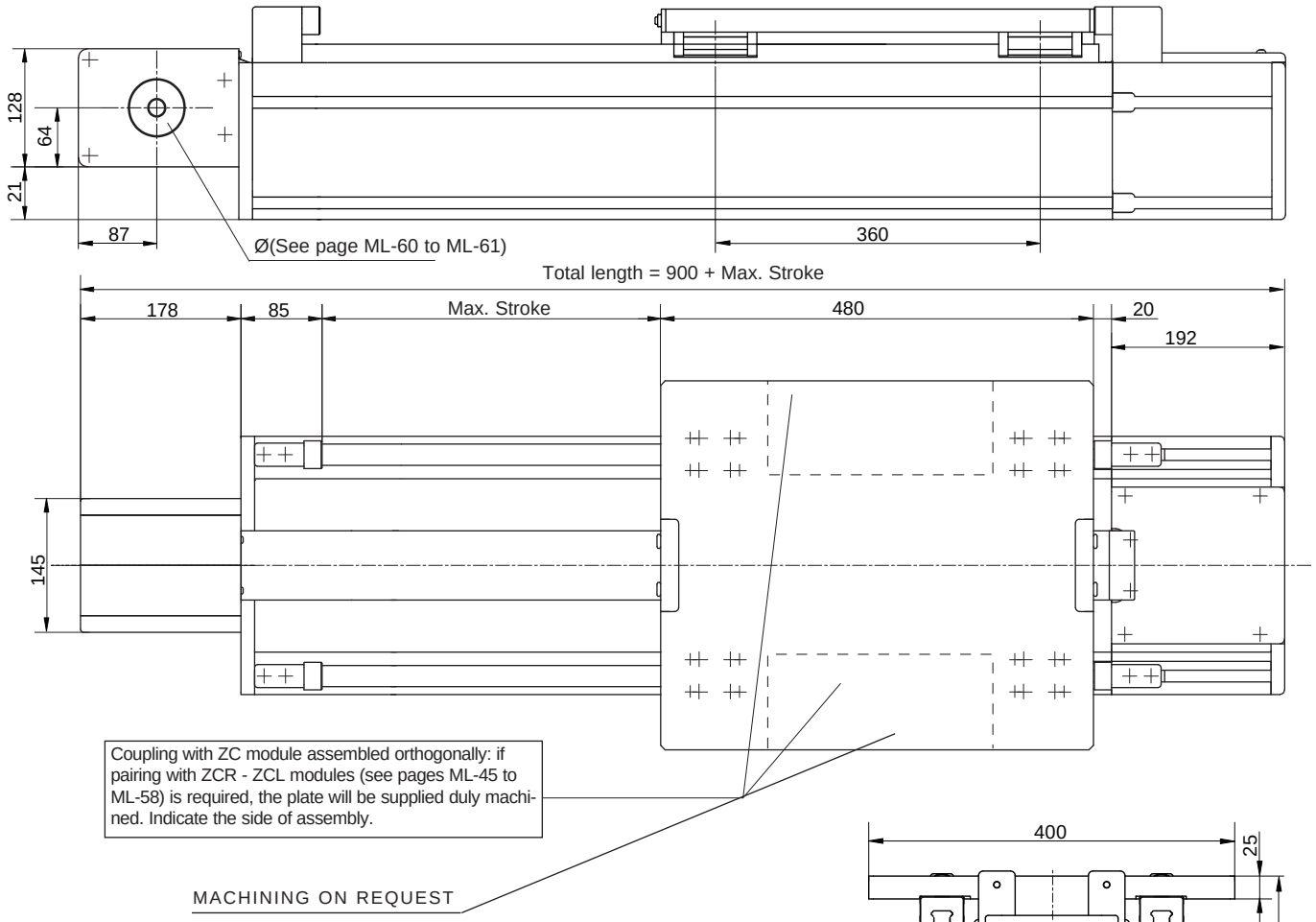
Weights	TCRQ 280	(TCRP 280)	
Inertia of the pulley	0.0082		[kgm^2]
Belt weight	1.02		[kg/m]
Carriage weight	27	55	[kg]
Base module	M_{base}=87	M_{base}=122	[kg]
1,000 mm profile	q=48	q=56	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

TCH 280 - TCS 280

Registered model

Accessories: see page ML-10



* Versions with a 100 mm belt are also available. (TCSE 280)

Performances	TCH 280	TCS 280	
Max. stroke	11,480	11,485	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	8.3	8.3	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 280	1,450	2,200	2,200	6,000	13,500	13,500
TCS 280	1,950	3,200	3,200	6,000	20,300	20,300

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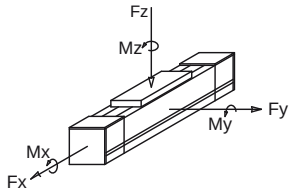
In case of peak forces acting together please ask the technical dept



Fx= Max belt strength

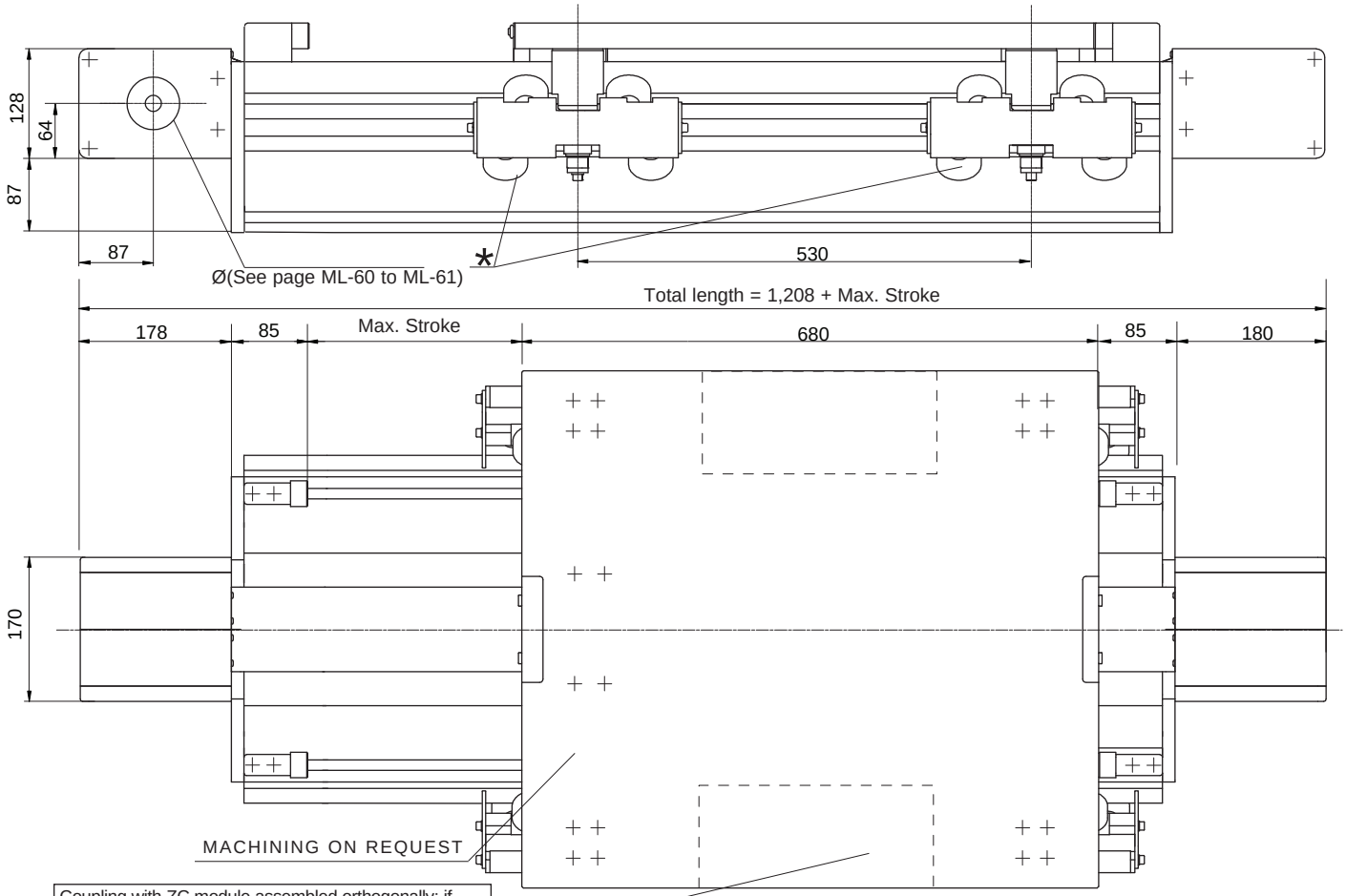
Data	TCH 280 - TCS 280	
Belt	75 ATL 10	
Slide	4 caged ball slides size 25	
Load bearing profile	Pratyca (see page ML-14)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights	TCH 280 - TCS 280	
Inertia of the pulley	0.0082	[kgm^2]
Belt weight	1.02	[kg/m]
Carriage weight	18	[kg]
Base module (stroke=0)	M_{base}=69	[kg]
1,000 mm profile	q= 47	[kg]

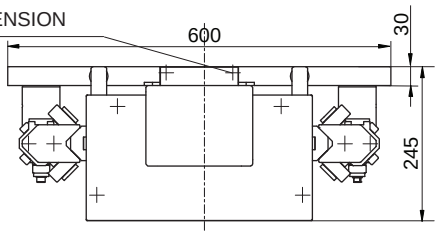
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Registered model

RP= Heavy guide rails and roller slides - Ø52
Accessories: see page ML-10



SCREWS FOR BELT TENSION

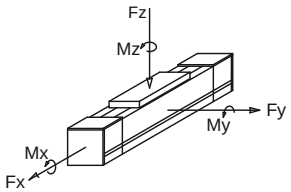


* Versions with a 150 mm belt are also available. (TCRPE360)

Performances	TCRP 360	
Max. stroke	11,175	[mm]
Max. speed	5	[m/s]
Max. acceleration	10	[m/s^2]
Repeatability	± 0.1	[mm]
Loadless torque	8.5	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCRP 360	4,900	5,300	5,300	8,000	25,400	25,400



Fx= Max belt strength

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page ML-10

Data		
Belt	100 ATL 10	
Slide	4 slides 4 rollers Ø52	[mm]
Load bearing profile	Solyda	(see page ML-14)
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

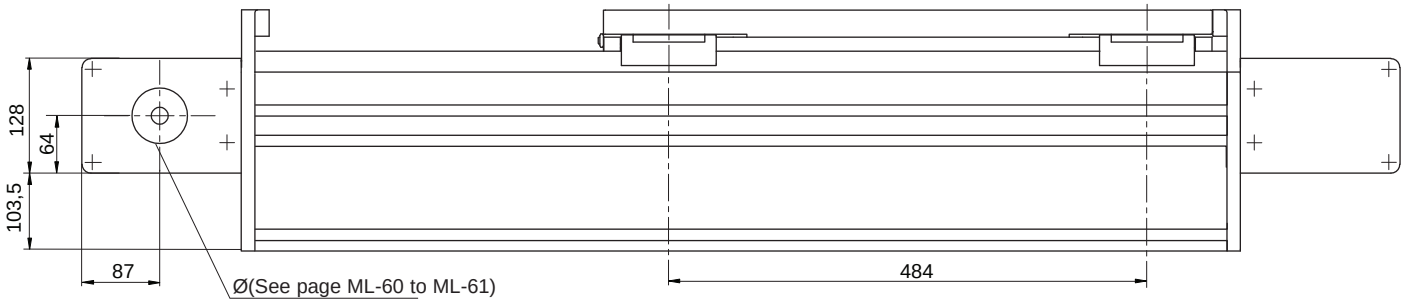
Weights		
Inertia of the pulley	0.0082	[kgm^2]
Belt weight	1.02	[kg/m]
Carriage weight	55	[kg]
Base module (stroke=0)	M_{base}=137	[kg]
1,000 mm profile	q=75	[kg]

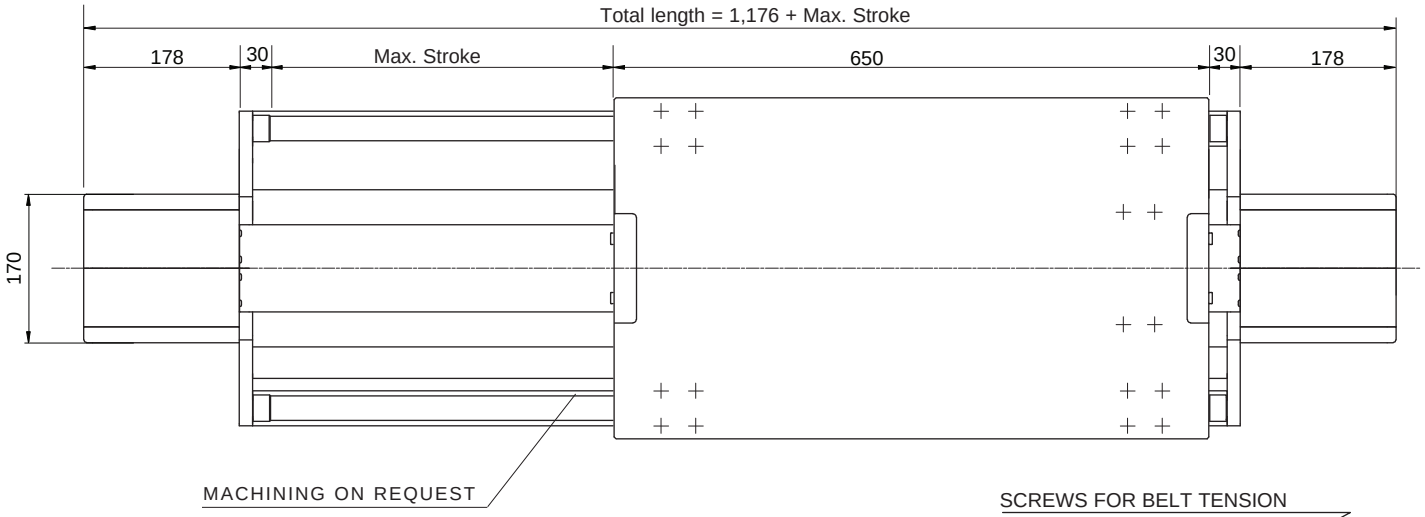
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

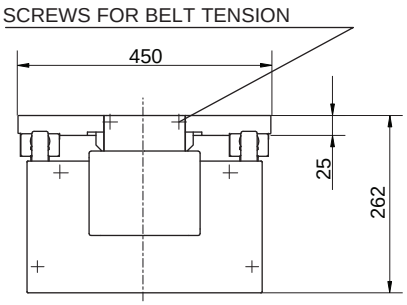
TCH 360 - TCS 360

Registered model

Accessories: see page ML-10







* Versions with a 150 mm belt are also available. (TCSE360)

Performances	TCH 360	TCS 360	
Max. stroke	11,480	11,485	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s^2]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	8.3	8.3	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TCH 360	2,600	3,710	3,710	8,000	19,050	19,050
TCS 360	4,000	5,500	5,500	8,000	28,600	28,600

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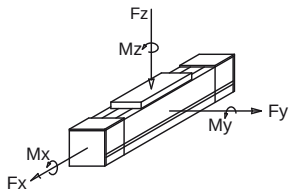
In case of peak forces acting together please ask the technical dept

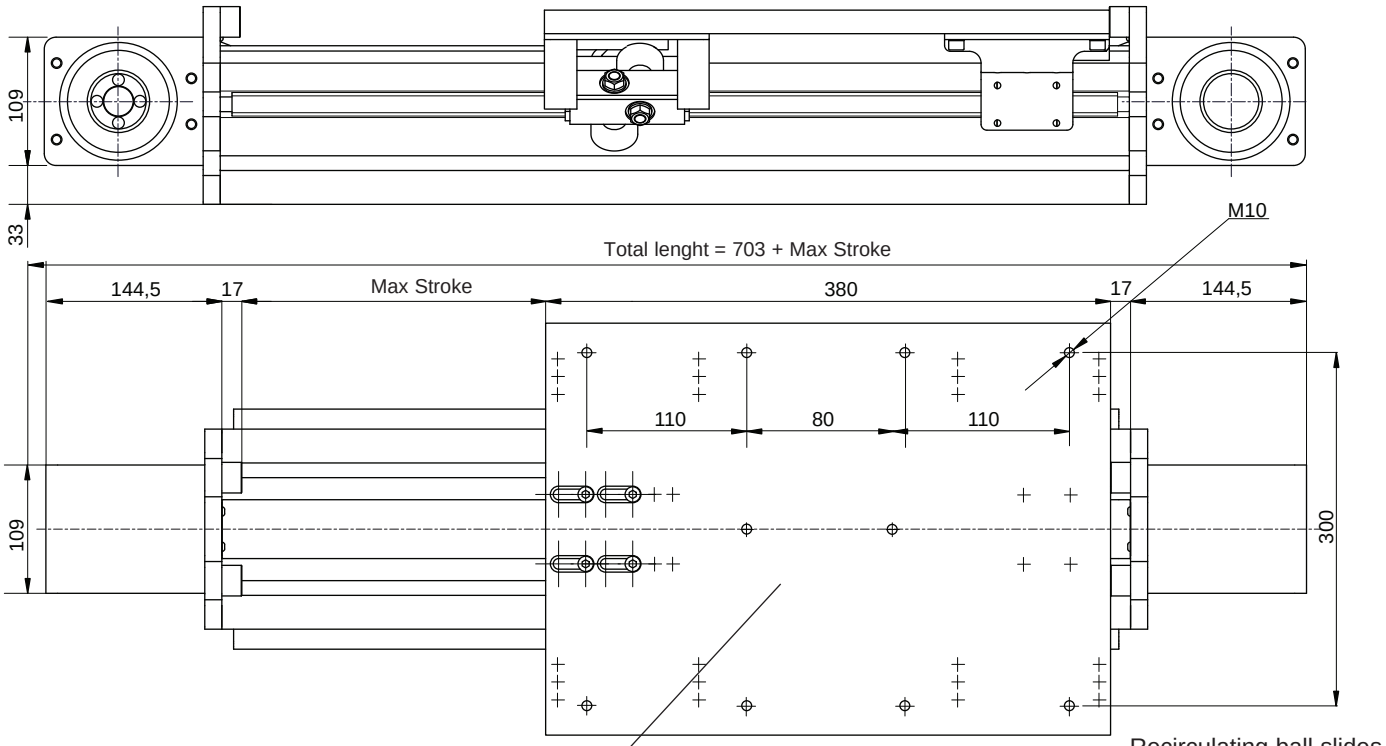


Fx= Max belt strength

Data	TCH 360 - TCS 360	
Belt	100 ATL 10	
Slide	4 caged ball roller slides 30	
Load bearing profile	Solyda (see page ML-14)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

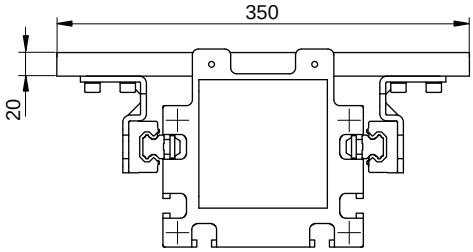
Weights	TCH 360 - TCS 360	
Inertia of the pulley	0.0082	[kgm^2]
Belt weight	1.02	[kg/m]
Carriage weight	28	[kg]
Base module (stroke=0)	M_{base}=105	[kg]
1,000 mm profile	q= 70	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

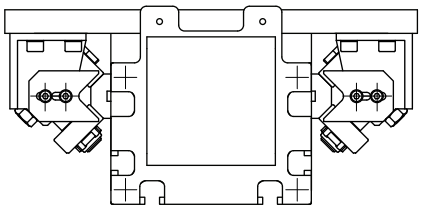


Recirculating ball slides

Coupling with ZC type module assembled at right angles: in the case of ZCR-ZCL unit assembly (see from pg. ML-45 to ML-58 of the Modline manual) the plate will be provided with notches and holes. Indicate the assembly side.



Roller slides

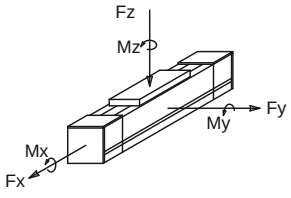


Performances	TECR 170	TECH 170	
Max stroke	5.560	5.560	[mm]
Max speed	5	4	[m/s]
Max acceleration	15	20	[m/s^2]
Repositioning accuracy	± 0.1	± 0.1	[mm]
Loadless torque	4.2	4.8	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TECR 170	590	848	848	4.000	7.070	7.070
TECH 170	580	900	1.050	4.000	7.620	7.620

The dynamic values indicated do not correspond to maximum theoretical load capacities. They already take safety factors into account which are suitable for machinery in the automation sector. In the event of combined stress consult the technical support service.



Fx= Max belt strenght

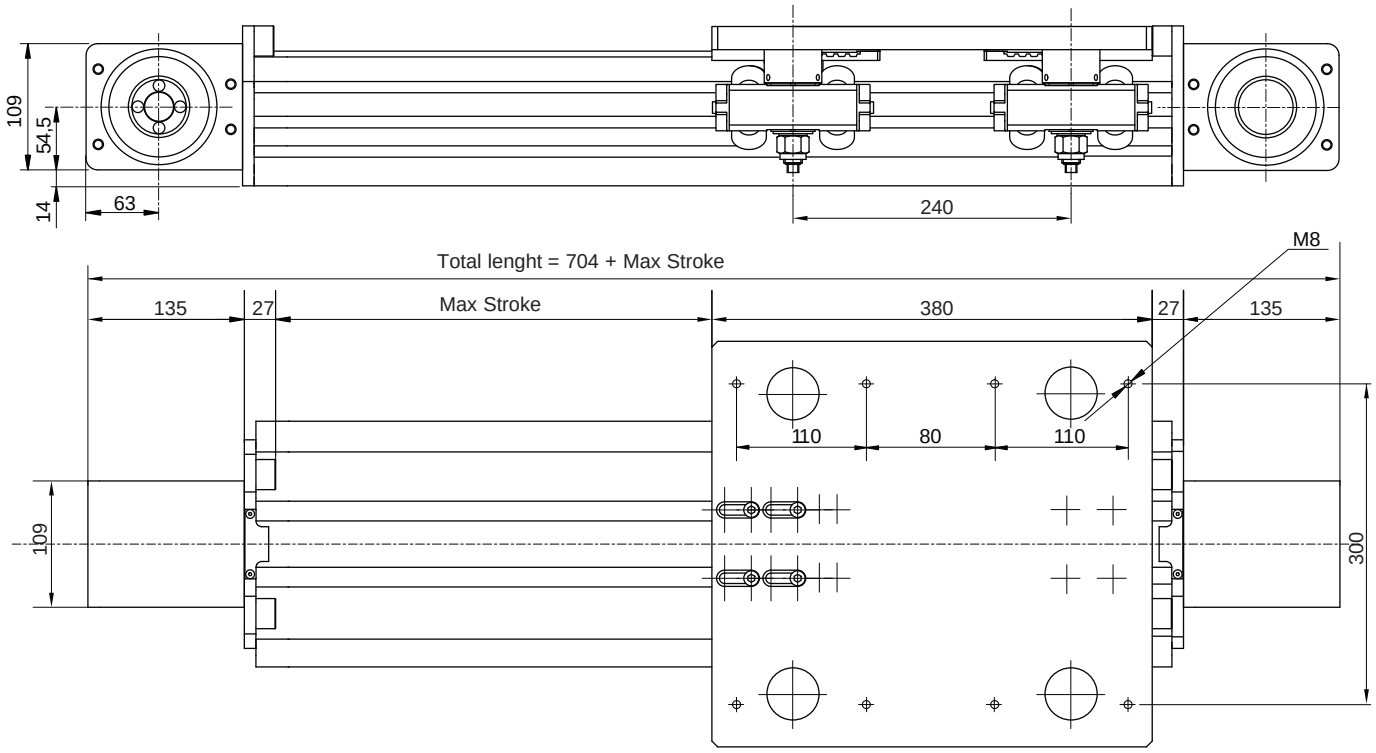
Constructive data	TECR 170 - TECH 170	
Belt	50 ATL 10	
Sliding (TECR170)	4 roller slides	[mm]
Sliding (TECH 170)	4 ball slides size 20	[mm]
Profile	Statyca (see page ML-13)	
Pulley Ø	95,49	[mm]
Linear displacement per revolution	300	[mm]

Weight	TECH 170 - TECR 170	
Inertia of the pulley	0,0053	[kgm^2]
Belt weight	0,68	[kg/m]
Carriage weight	8,6	[kg]
Base module (corsa=0)	M_{base}= 38	[kg]
1.000 mm profile	q=23	[kg]

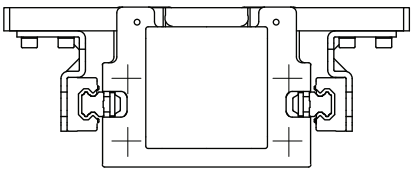
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot Stroke_{max}/1.000$** $Stroke_{max}$ [mm]

TECRR 180 - TECH 180 (EASY)

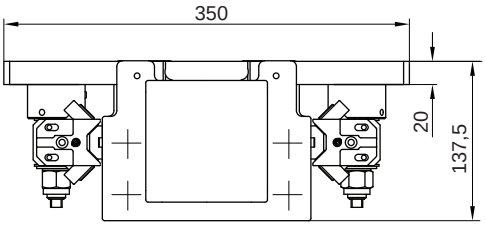
Patent pending



Recirculating ball slides



Roller slides

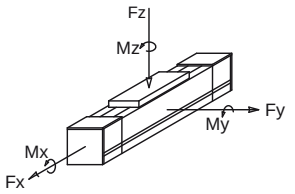


Performances	TECRR 180	
Max stroke	7.480	[mm]
Max speed	5	[m/s]
Max acceleration	20	[m/s^2]
Repositioning accuracy	± 0,1*	[mm]
Loadless torque	4,2	[Nm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
TECRR180	490	1.170	1.170	2.700	5.900	5.900

The dynamic values indicated do not correspond to maximum theoretical load capacities. They already take safety factors into account which are suitable for machinery in the automation sector. In the event of combined stress consult the technical support service.



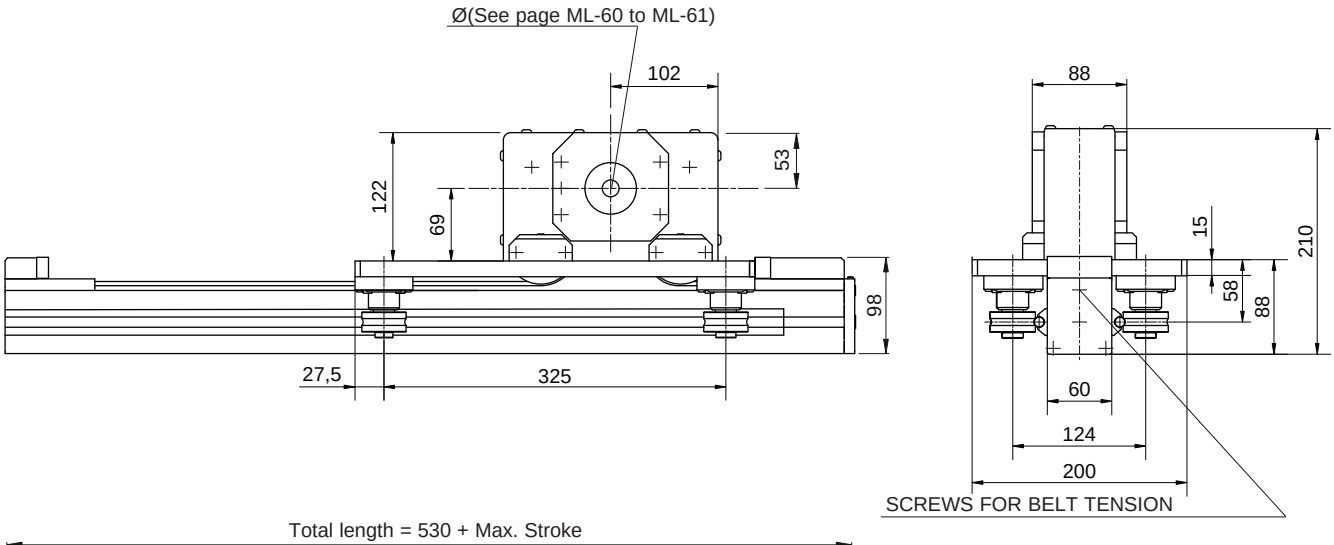
Fx= Max belt strenght

Constructive data		
Belt	40ATL10	
Sliding	4 slides 4 rollers Ø30	[mm]
Profile	180x90	
Pulley Ø	92,31	[mm]
Linear displacement per revolution	290	[mm]

Weight		
Inertia of the pulley	0,0037	[kgm^2]
Belt weight	0,55	[kg/m]
Carriage weight	13	[kg]
Base module (stroke=0)	M_{base}=33	[kg]
1.000 mm profile	q=16	[kg]

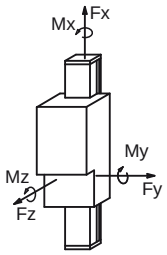
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot Stroke_{max}/1.000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10



60x90 profile available

IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.



Fx= Max belt strength

Performances	ZCG 60	
Max. stroke	5,470	[mm]
Max. speed	4	[m/s]
Max. acceration	20	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCG 60	60	200	340	2,000	2,100	1,500

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

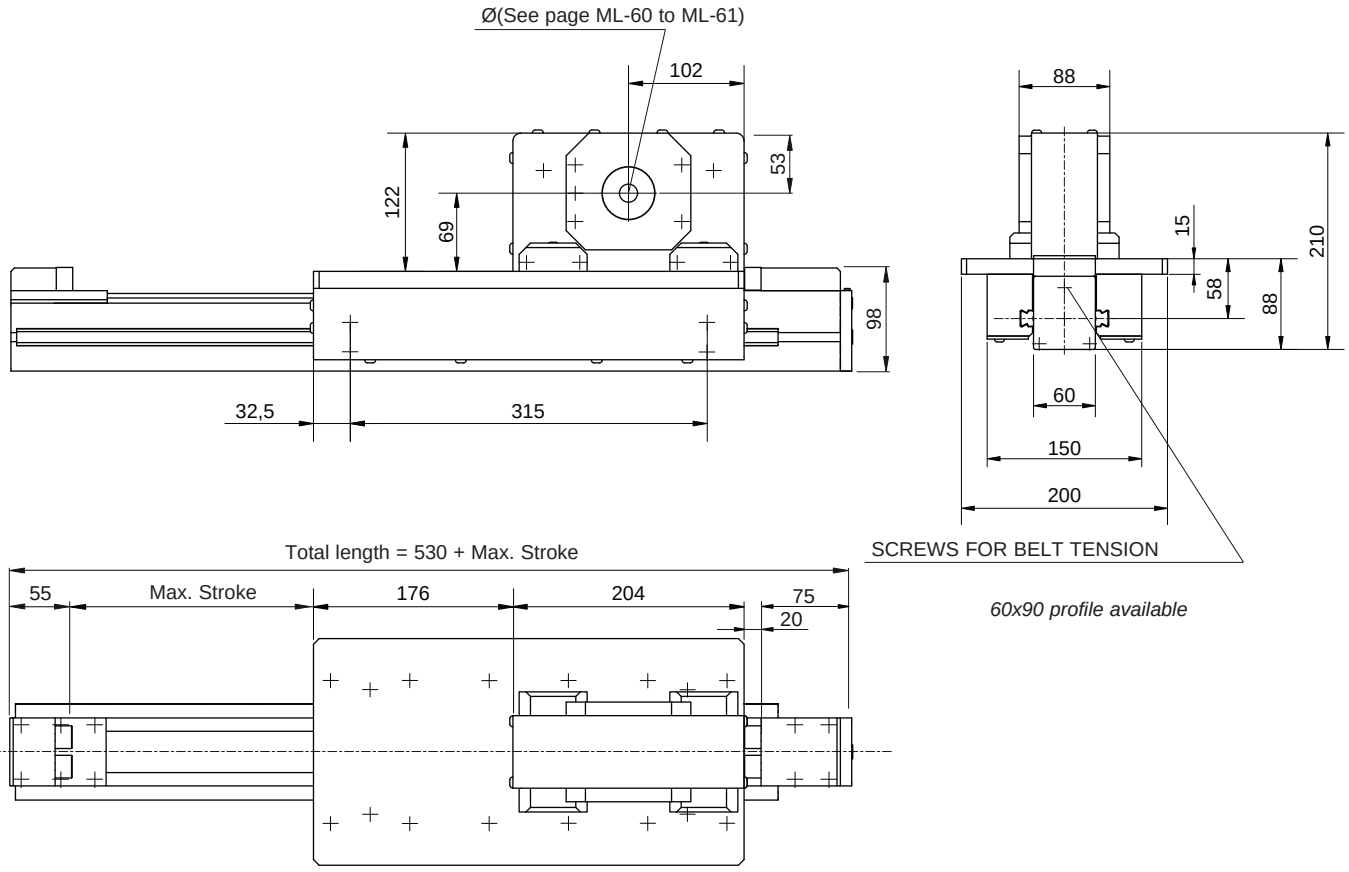
Assembly positions and load direction, see page ML-10

Data		
Belt	32AT10	
Slide	4 shaped roller slides Ø 42 [mm]	
Load bearing profile	F01-1 (see page ML-11)	
Pulley Ø	70.03	[mm]
Linear displacement per rev.	220	[mm]

Weights		
Inertia of the pulley	0.0013	[kgm^2]
Belt weight	0.19	[kg/m]
Carriage weight	10	[kg]
Base module (stroke=0)	M_{base}=14	[kg]
1,000 mm profile	q=6	[kg]

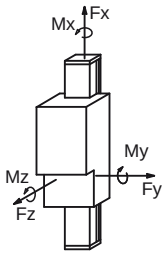
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10



60x90 profile available

IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.



Fx= Max belt strength

Performances	ZCL 60	
Max. stroke	5,470	[mm]
Max. speed	4	[m/s]
Max. acceleration	40	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCL 60	151	570	630	2,000	4,180	3,740

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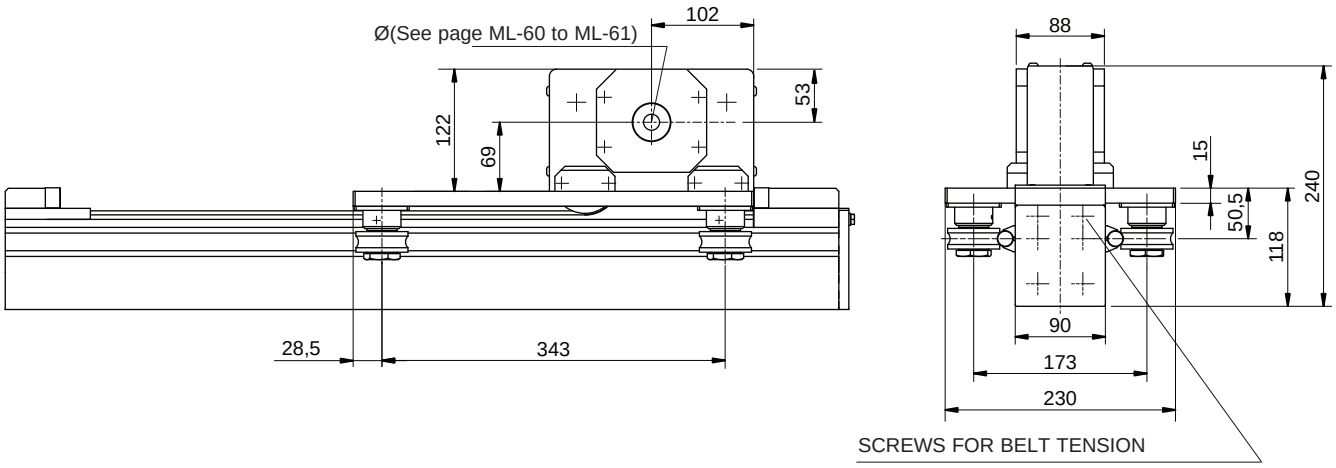
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

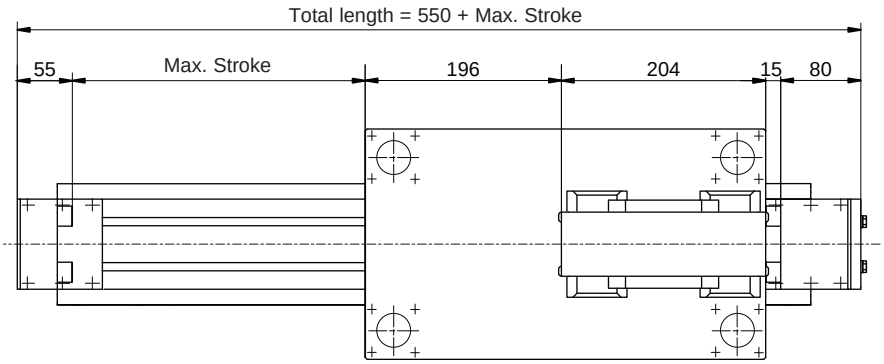
Data		
Belt	32AT10	
Slide	4 caged ball roller slides 15	
Load bearing profile	F01-1 (see page ML-11)	
Pulley Ø	70.03	[mm]
Linear displacement per rev.	220	[mm]

Weights		
Inertia of the pulley	0.0013	[kgm^2]
Belt weight	0.19	[kg/m]
Carriage weight	11	[kg]
Base module (stroke=0)	M_{base}=16	[kg]
1,000 mm profile	q=7.2	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

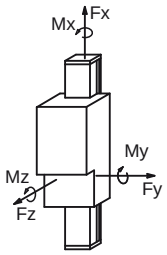
Accessories: see page ML-10





90x180 profile available

IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.



Fx= Max belt strength

Performances	ZCG 90	
Max. stroke	5,450	[mm]
Max. speed	4	[m/s]
Max. acceleration	15	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCG 90	120	400	540	2,000	3,400	1,800

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

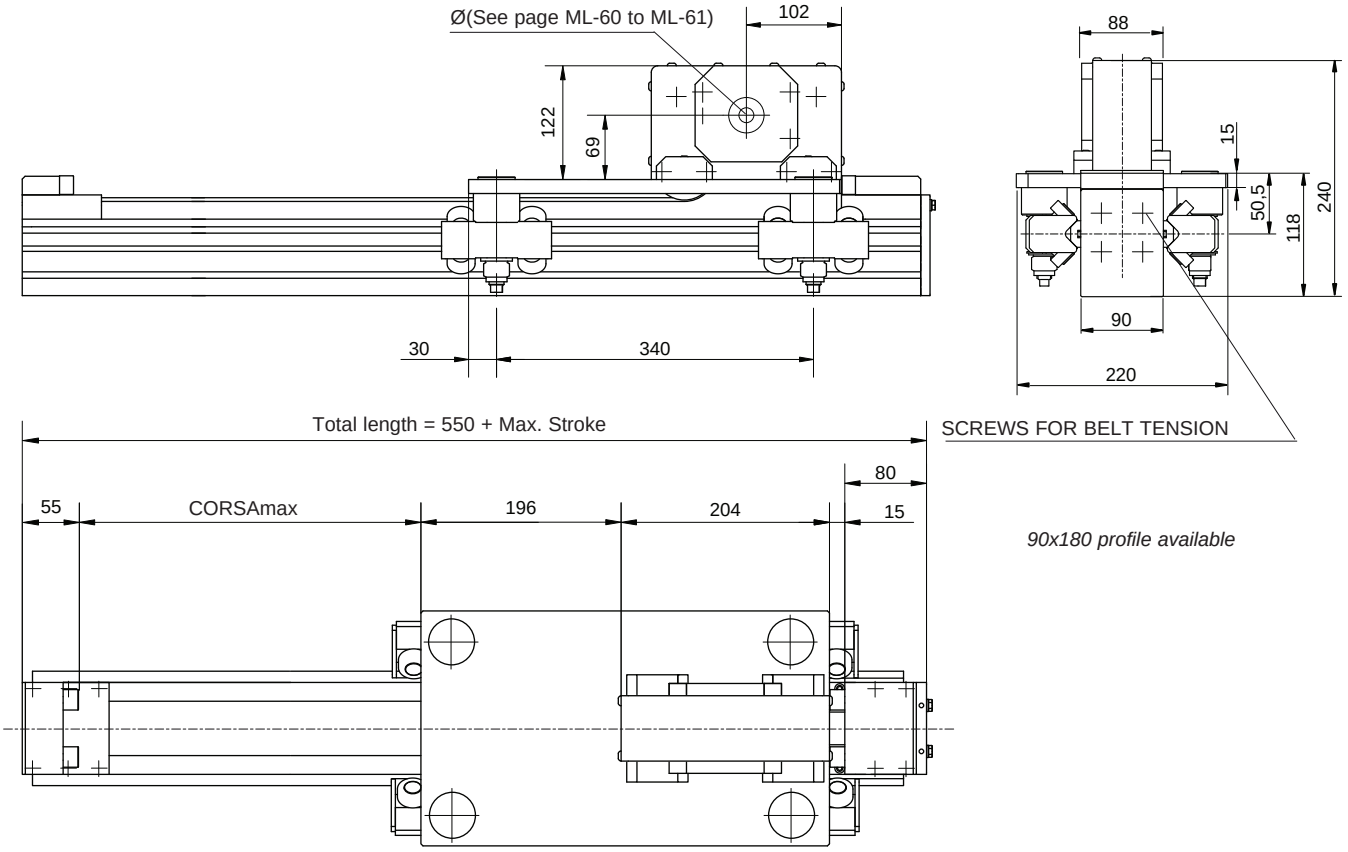
Assembly positions and load direction, see page ML-10

Data		
Belt	32AT10	
Slide	4 shap. r. Ø52 - guide Ø16	
Load bearing profile	E01-4 (see page ML-11)	
Pulley Ø	70.03	[mm]
Linear displacement per rev.	220	[mm]

Weights		
Inertia of the pulley	0.0013	[kgm^2]
Belt weight	0.19	[kg/m]
Carriage weight	10.5	[kg]
Base module (stroke=0)	M_{base}=16	[kg]
1.000 mm profile	q=8.5	[kg]

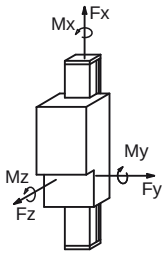
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10



90x180 profile available

IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.



Fx= Max belt strength

Performances	ZCRR 90	
Max. stroke	5,450	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCRR 90	300	1,000	1,000	2,000	6,700	6,700

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

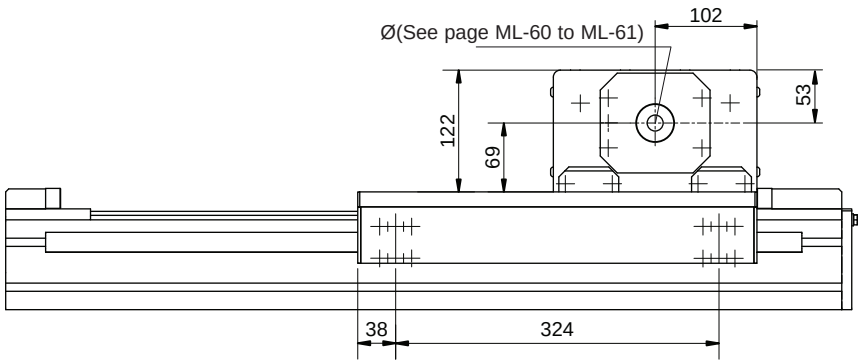
Assembly positions and load direction, see page ML-10

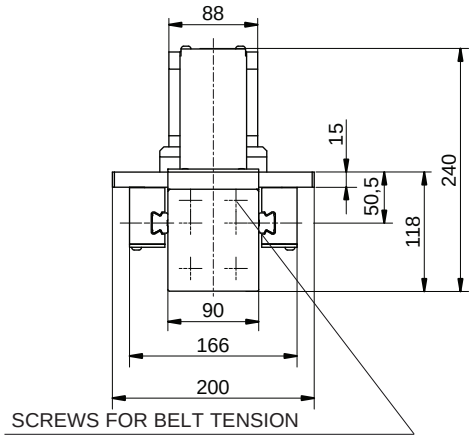
Data		
Belt	32 AT 10	
Slide	4 slides 4 roll. Ø30	[mm]
Load bearing profile	E01-4 (see page ML-11)	
Pulley Ø	70.03	[mm]
Linear displacement per rev.	220	[mm]

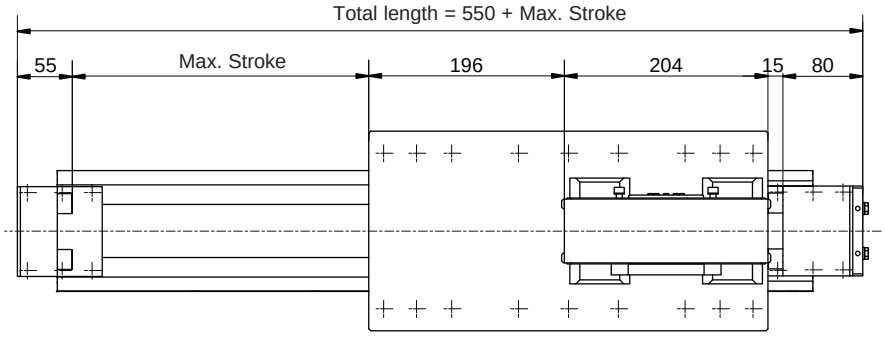
Weights		
Inertia of the pulley	0.0013	[kgm^2]
Belt weight	0.21	[kg/m]
Carriage weight	13	[kg]
Base module (stroke=0)	M_{base}= 20	[kg]
1,000 mm profile	q=11.2	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10

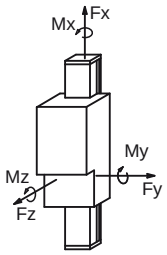






90x180 profile available

IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.



Fx= Max belt strength

Performances	ZCL 90	
Max. stroke	5,450	[mm]
Max. speed	4	[m/s]
Max. acceleration	20	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCL 90	260	730	1,000	2,000	5,500	5,000

The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

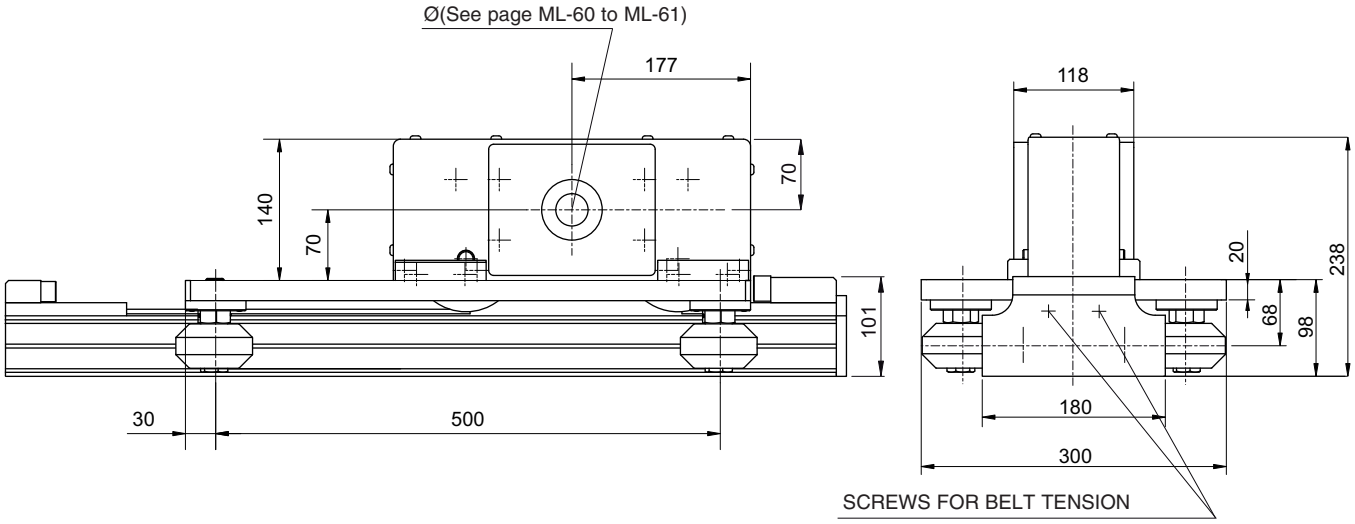
Data		
Belt	32AT10	
Slide	4 caged ball roller slides 20	
Load bearing profile	E01-4 (see page ML-11)	
Pulley Ø	70.03	[mm]
Linear displacement per rev.	220	[mm]

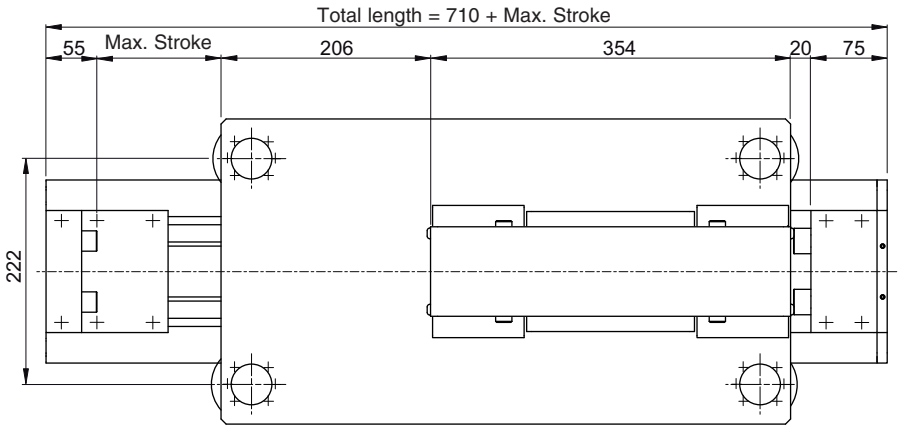
Weights		
Inertia of the pulley	0.0013	[kgm^2]
Belt weight	0.19	[kg/m]
Carriage weight	11.5	[kg]
Base module (stroke=0)	M_{base}=18.5	[kg]
1,000 mm profile	q=11.5	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

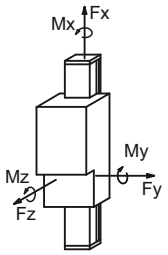
Registered model

Accessories: see page ML-10





IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.



Fx= Max belt strength

Performances	ZCY 180	
Max. stroke	6,750	[mm]
Max. speed	4	[m/s]
Max. acceleration	15	[m/s^2]
Repeatability	± 0.6	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCY 180	220	350	280	3,000	2,400	1,800

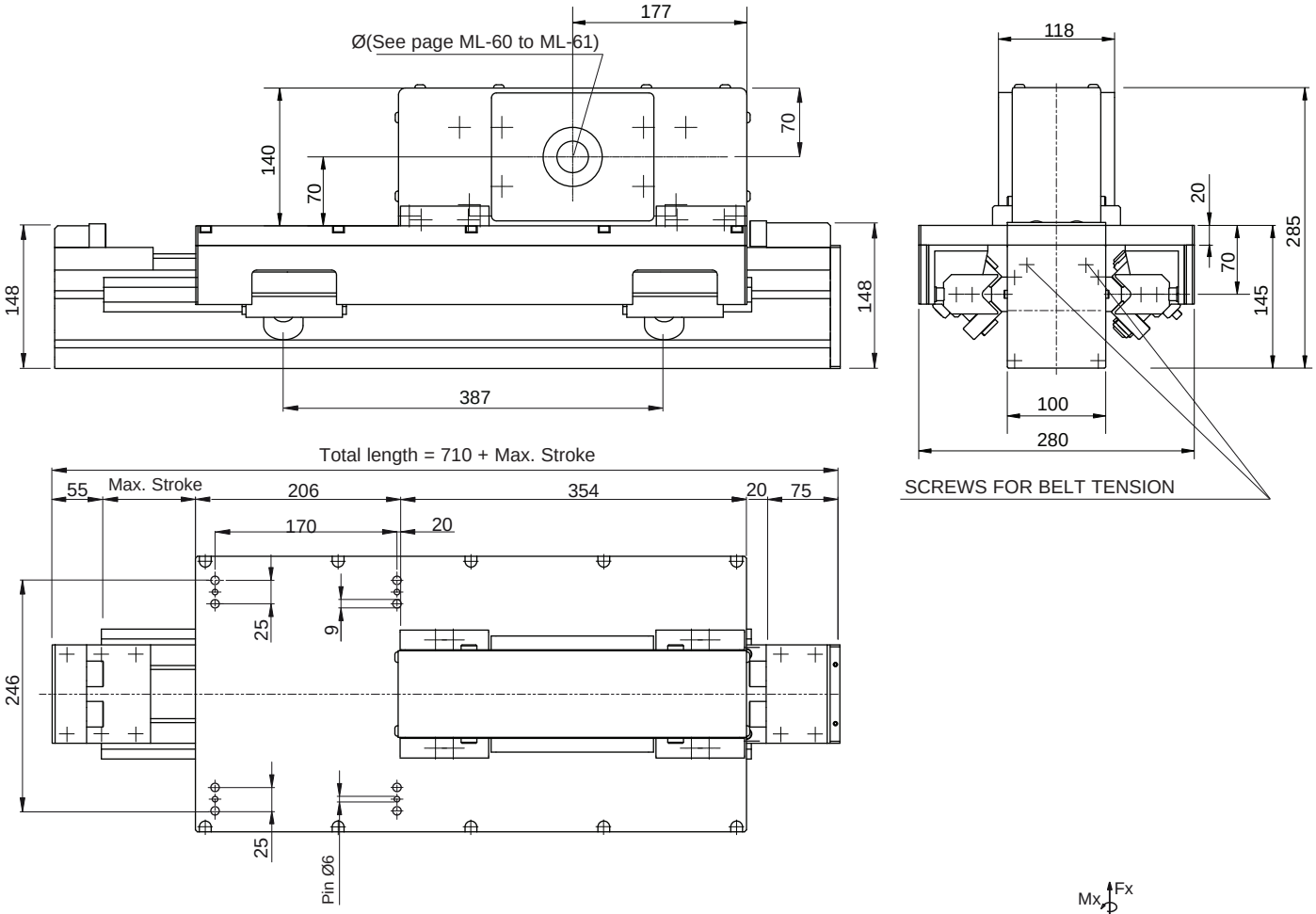
The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page ML-10

Data		
Belt	50ATL10	
Slide	4 Rollers Ø 76	[mm]
Load bearing profile	Sys -1G (see page ML-14)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights		
Inertia of the pulley	0.0067	[kgm^2]
Belt weight	0.34	[kg/m]
Carriage weight	23.2	[kg]
Base module (stroke=0)	M_{base}=33.5	[kg]
1,000 mm profile	q=11.61	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q\cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]



IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.

Performances	ZCRQ 100	
Max. stroke	5,300	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCRQ 100	360	1,200	1,200	4,000	7,320	7,320

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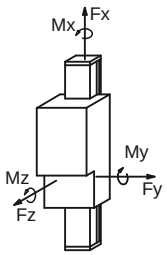


Fx= Max belt strength

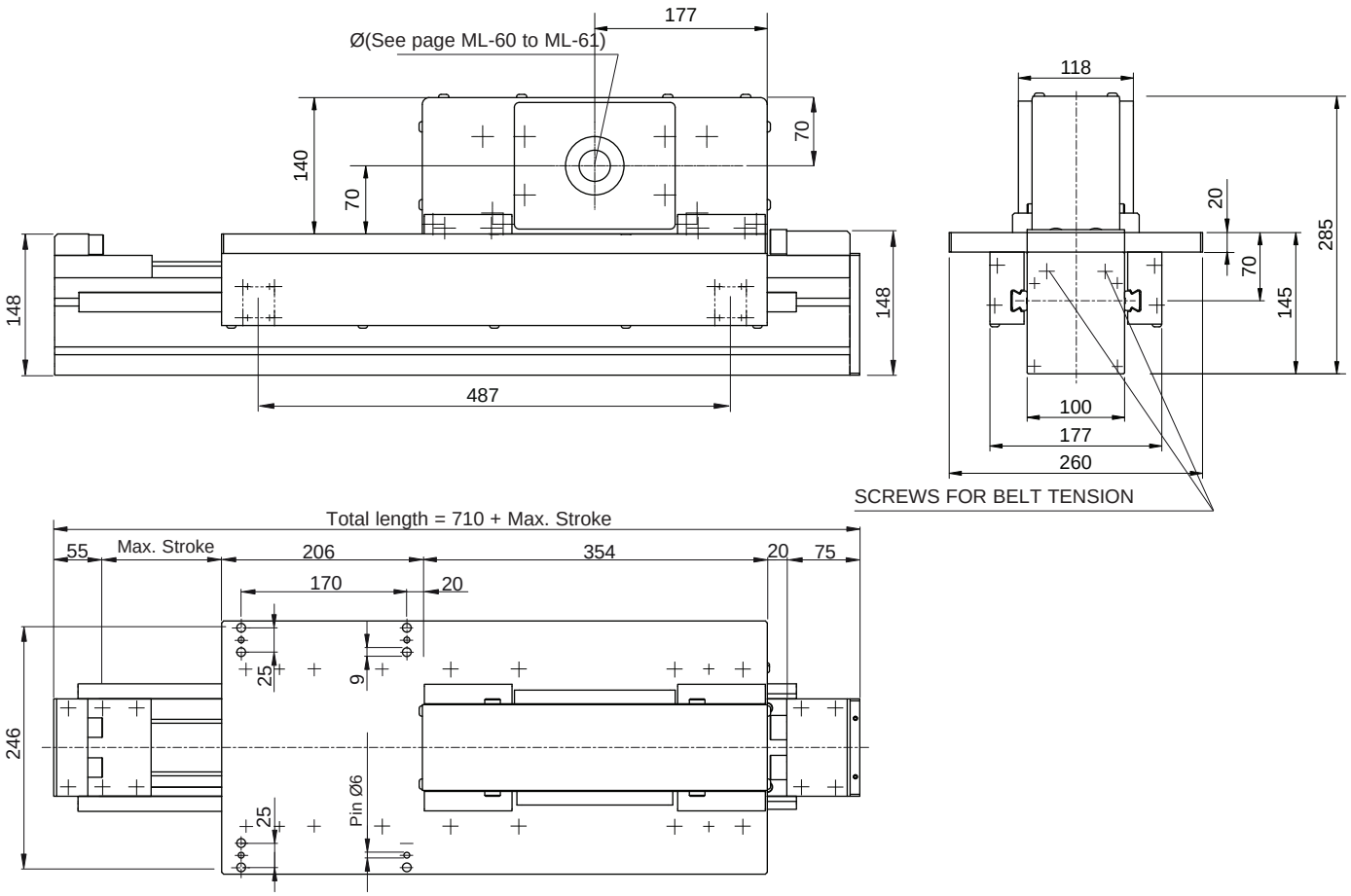
Assembly positions and load direction, see page ML-10

Data		
Belt	50 ATL 10	
Slide	4 slides 2 roll. Ø 40	[mm]
Load bearing profile	MA 1-5 (see page ML-12)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights		
Inertia of the pulley	0.0067	[kgm^2]
Belt weight	0.34	[kg/m]
Carriage weight	25	[kg]
Base module (stroke=0)	M_{base}=36.5	[kg]
1,000 mm di profile	q=16.5	[kg]

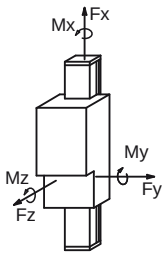
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10



IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.

Performances	ZCS 100	
Max. stroke	5,300	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]



Fx= Max belt strength

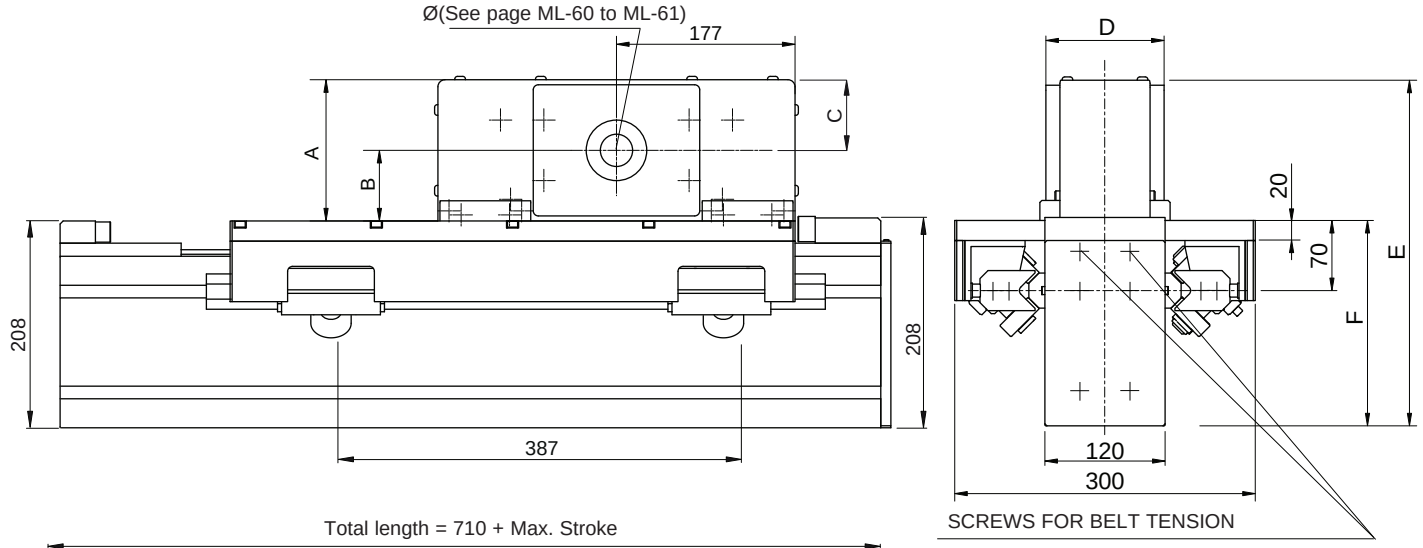
Suggested working load conditions						
Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCS 100	480	1,630	1,840	4,000	7,360	8,260

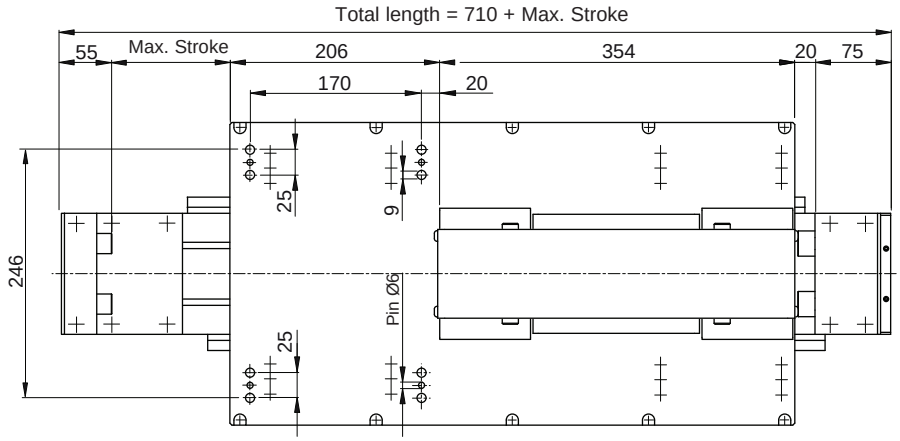
The dynamic values shown do not refer to the max. theoretical load capacity.
They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

Data		
Belt	50 ATL 10	
Slide	4 caged ball roller slides 20	
Load bearing profile	MA 1-5 (see page ML-12)	
Pulley Ø	95.49	[mm]
Linear displacement per rev.	300	[mm]

Weights		
Inertia of the pulley	0.0067	[kgm^2]
Belt weight	0.34	[kg/m]
Carriage weight	24.4	[kg]
Base module (stroke=0)	M_{base}=36.6	[kg]
1,000 mm profile	q=15.2	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]



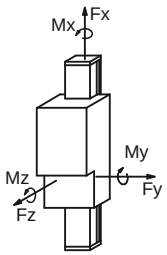


IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.

Performances	ZCRQ 170 - ZCERQ 170	
Max. stroke	5,300	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCRQ 170	440	1,485	1,485	4,000	7,620	7,620
ZCERQ 170	440	1,485	1,485	6,000	7,620	7,620



Fx= Max belt strength

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They include a safety coefficient for automated machinery.
In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page ML-10

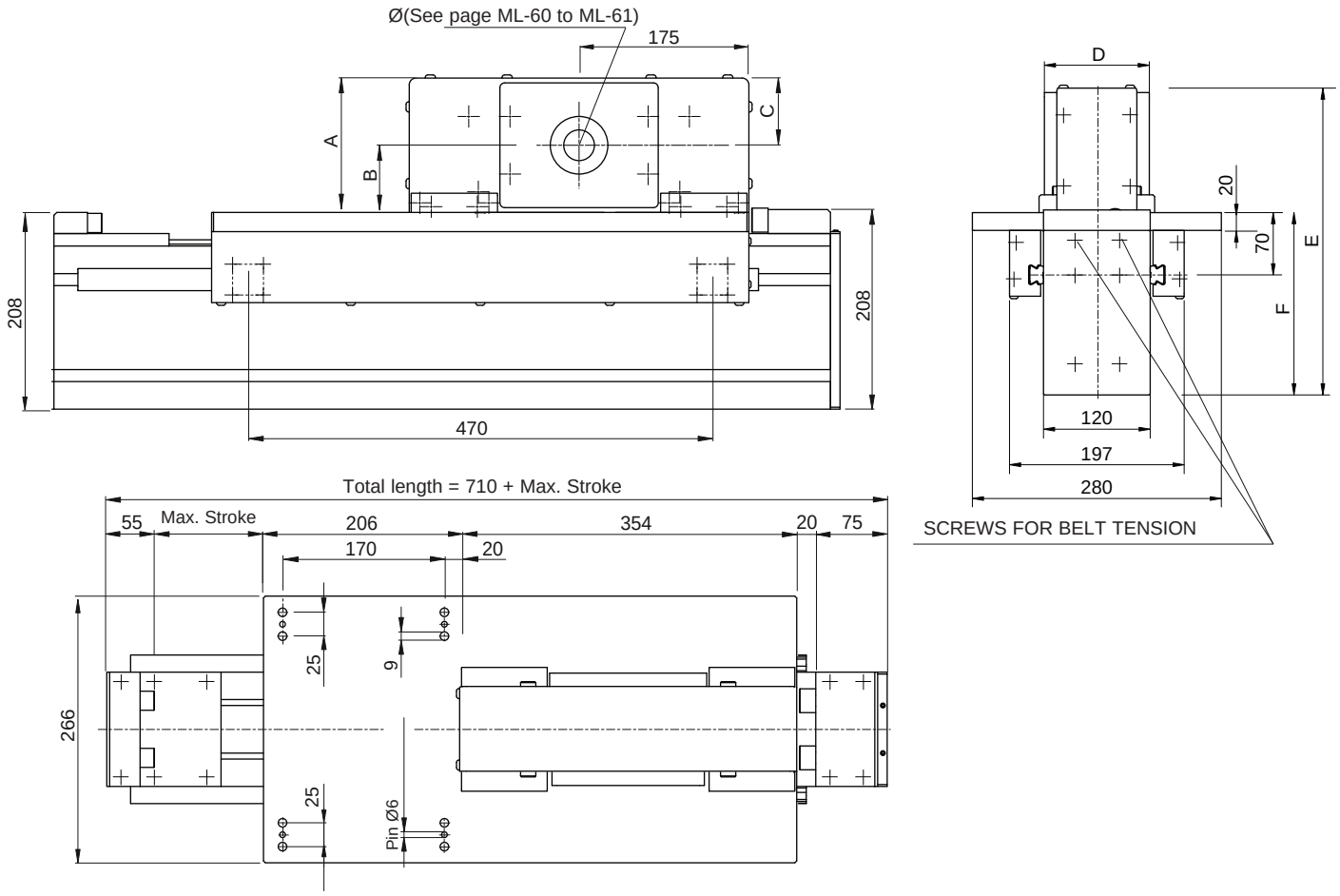
Belt	A	B	C	D	E	F
50	140	70	70	118	345	205
75	164	82	82	143	379	215

Data	ZCRQ 170	ZCERQ 170	
Belt	50 ATL 10	75 ATL 10	
Slide	4 slides 2 roll. Ø 40		[mm]
Load bearing profile	Statyca	(see page ML-13)	
Pulley Ø	95.49		[mm]
Linear displacement per rev.	300		[mm]

Weights	ZCRQ 170	ZCERQ 170	
Inertia of the pulley	0.0067	0.010	[kgm^2]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	27.6	32	[kg]
Base module (stroke=0)	M_{base}=47	M_{base}=51.4	[kg]
1,000 mm profile	q=25	q=25	[kg]

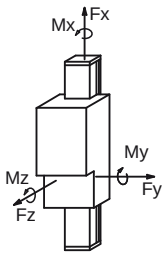
To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10



IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.

Performances	ZCL 170 - ZCEL 170	
Max. stroke	5,300	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]



Fx= Max belt strength

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCL 170	810	2,940	4,560	4,000	10,400	12,000
ZCEL 170	810	2,940	4,560	6,000	10,400	12,000

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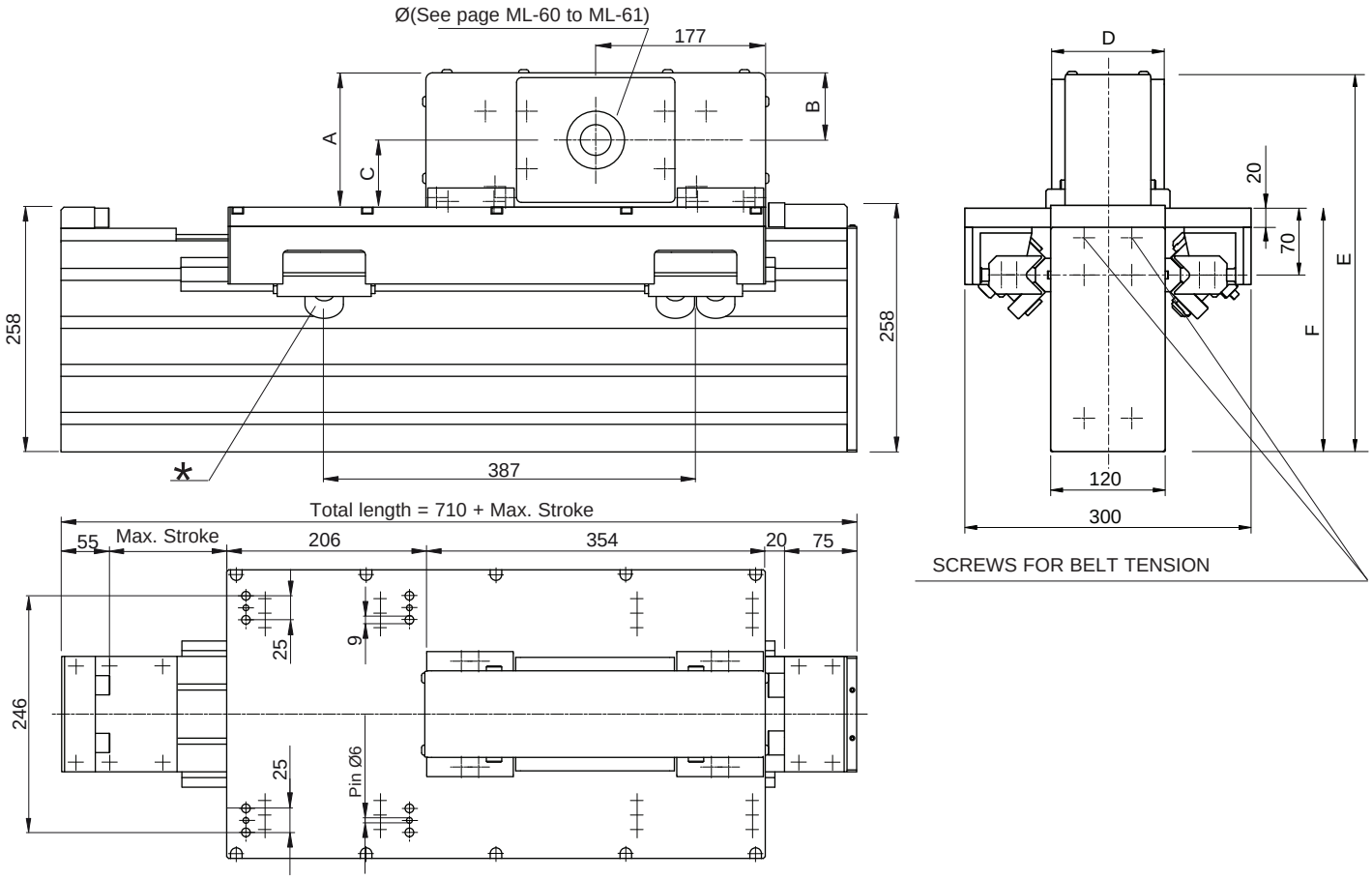
In case of peak forces acting together please ask the technical dept

Belt	A	B	C	D	E	F
50	140	70	70	118	345	205
75	164	82	82	143	379	215

Data	ZCL 170	ZCEL 170	
Belt	50 ATL 10	75 ATL 10	
Slide	4 caged ball roller slides 25		
Load bearing profile	Statyca	(see page ML-13)	
Pulley Ø	95.49		[mm]
Linear displacement per rev.	300		[mm]

Weights	ZCL 170	ZCEL 170	
Inertia of the pulley	0.0067	0.010	[kgm^2]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	27.6	31.6	[kg]
Base module (stroke=0)	M_{base}=46.2	M_{base}=50.2	[kg]
1,000 mm profile	q=24	q=24	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]



IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.

*: Please specify the roller orientation according to the barycentre of the applied load. Values corresponding to the most favourable load position.

Performances	ZCRQ 220 - ZCERQ 220	
Max. stroke	11,300	[mm]
Mas. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCRQ 220	440	1,900(*)	1,485	4,000	7,620	9,500(*)
ZCERQ 220	440	1,900(*)	1,485	6,000	7,620	9,500(*)

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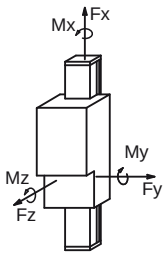
In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page ML-10



Fx= Max belt strength

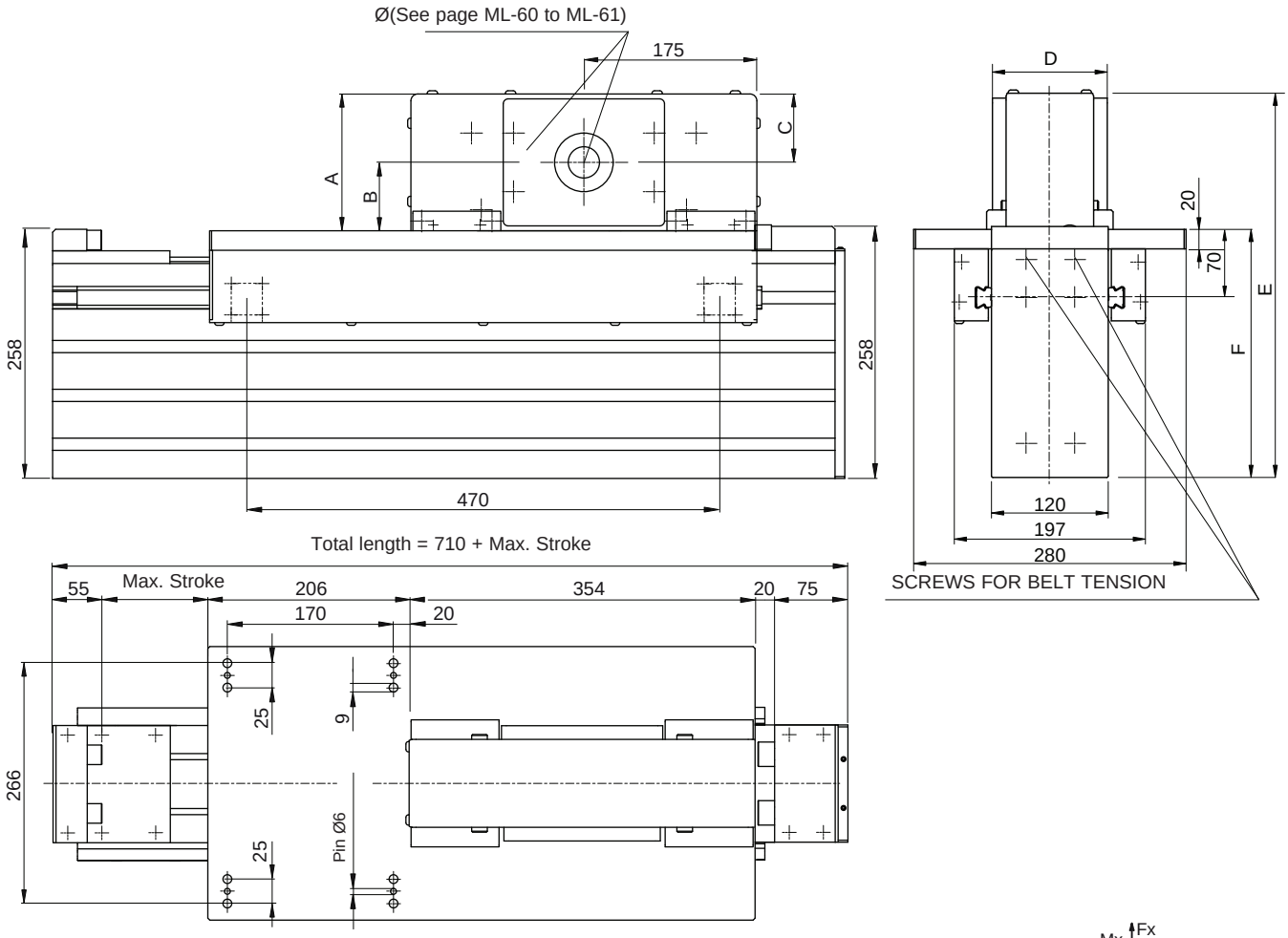
Belt	A	B	C	D	E	F
50	140	70	70	118	395	255
75	164	82	82	143	429	265

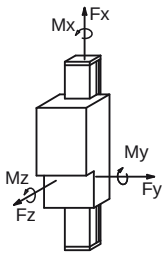
Data	ZCRQ 220	ZCERQ 220	
Belt	50 ATL 10	75 ATL 10	
Slide	4 slides 3 rollers Ø 40		[mm]
Load bearing profile	Logyca	(see page ML-13)	
Pulley Ø	95.49		[mm]
Linear displacement per rev.	300		[mm]

Weights	ZCRQ 220	ZCERQ 220	
Inertia of the pulley	0.0067	0.010	[kgm^2]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	26	30	[kg]
Base module (stroke=0)	M_{base}=52	M_{base}=56	[kg]
1,000 mm profile	q=33.6	q=34	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

Accessories: see page ML-10





Fx= Max belt strength

IMPORTANT: when pairing ZC... modules with TC... modules, please check the required Z axis stroke, as this could be limited by the size of the module plates sizes.

Performances	ZCL 220 - ZCEL 220	
Max. stroke	11,305	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s^2]
Repeatability	± 0.1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZCL 220	810	2,940	4,560	4,000	10,400	12,000
ZCEL 220	810	2,940	4,560	6,000	10,400	12,000

The dynamic values shown do not refer to the max. theoretical load capacity.
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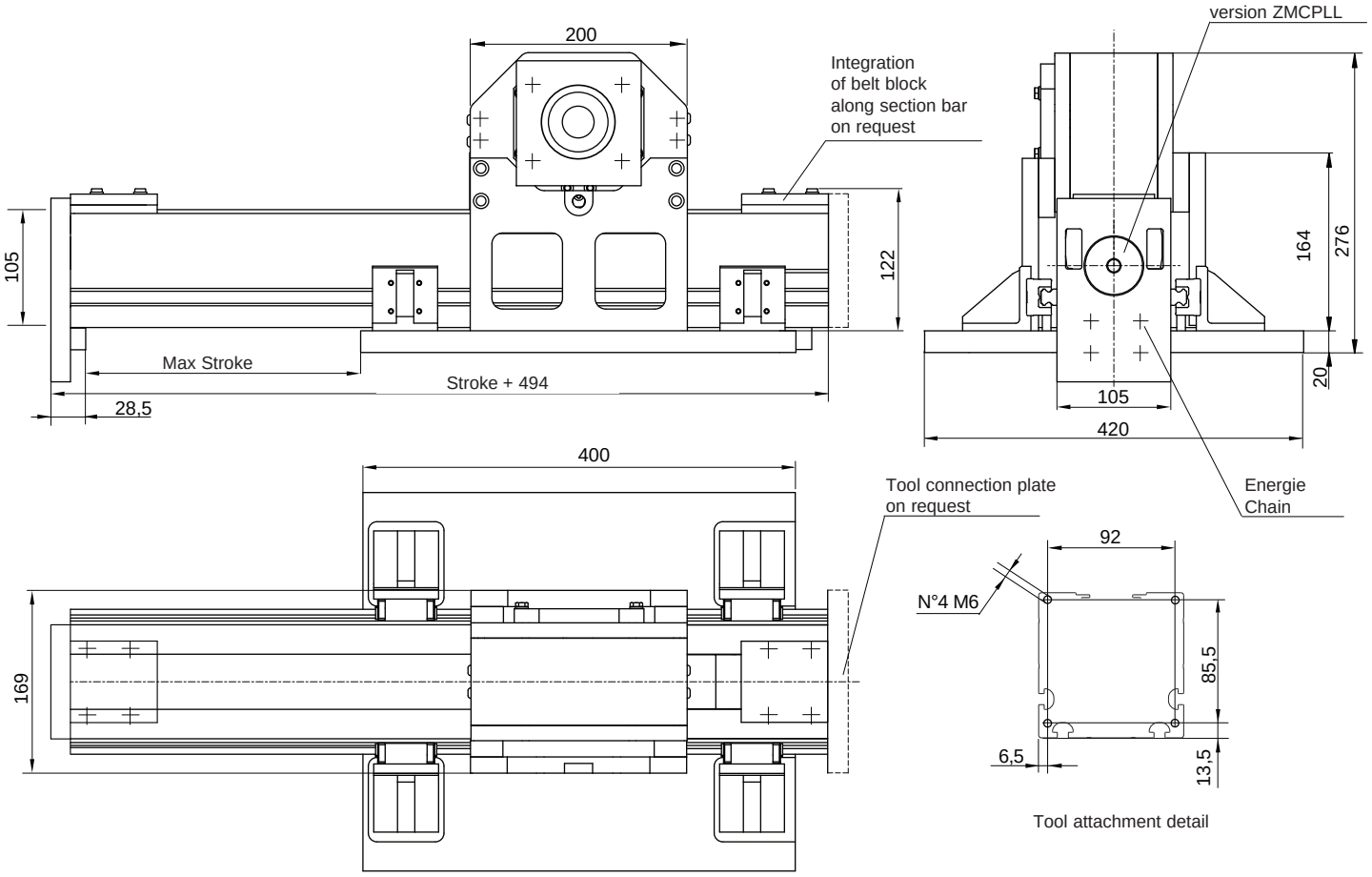
Belt	A	B	C	D	E	F
50	140	70	70	118	395	255
75	164	82	82	143	429	265

Data	ZCL 220	ZCEL 220	
Belt	50 ATL 10	75 ATL 10	
Slide	4 caged ball roller slides 25		
Load bearing profile	Logyca	(see page ML-13)	
Pulley Ø	95.49		[mm]
Linear displacement per rev.	300		[mm]

Weights	ZCL 220	ZCEL 220	
Inertia of the pulley	0.0067	0.010	[kgm^2]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	27.5	37.5	[kg]
Base module (stroke=0)	M_{base}=53	M_{base}=57	[kg]
1,000 mm profile	q=32.3	q=32.7	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot stroke_{max}/1{,}000$** $Stroke_{max}$ [mm]

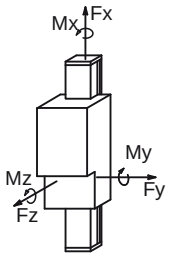


Performances	ZMCPLL 105	
Integrated pneumatic cylinder	Ø 50	[mm]
Maximum cylinder stroke	2000	[mm]
Max Speed	3	[m/s]
Maximum acceleration	25	[m/s^2]
Repositioning precision	± 0,1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZMCPLL105	260	700	700	2.500	4.500	4.500

The dynamic values indicated do not correspond to maximum theoretical load capacities. They already take safety factors into account which are suitable for machinery in the automation sector. In the event of combined stress consult the technical support service.



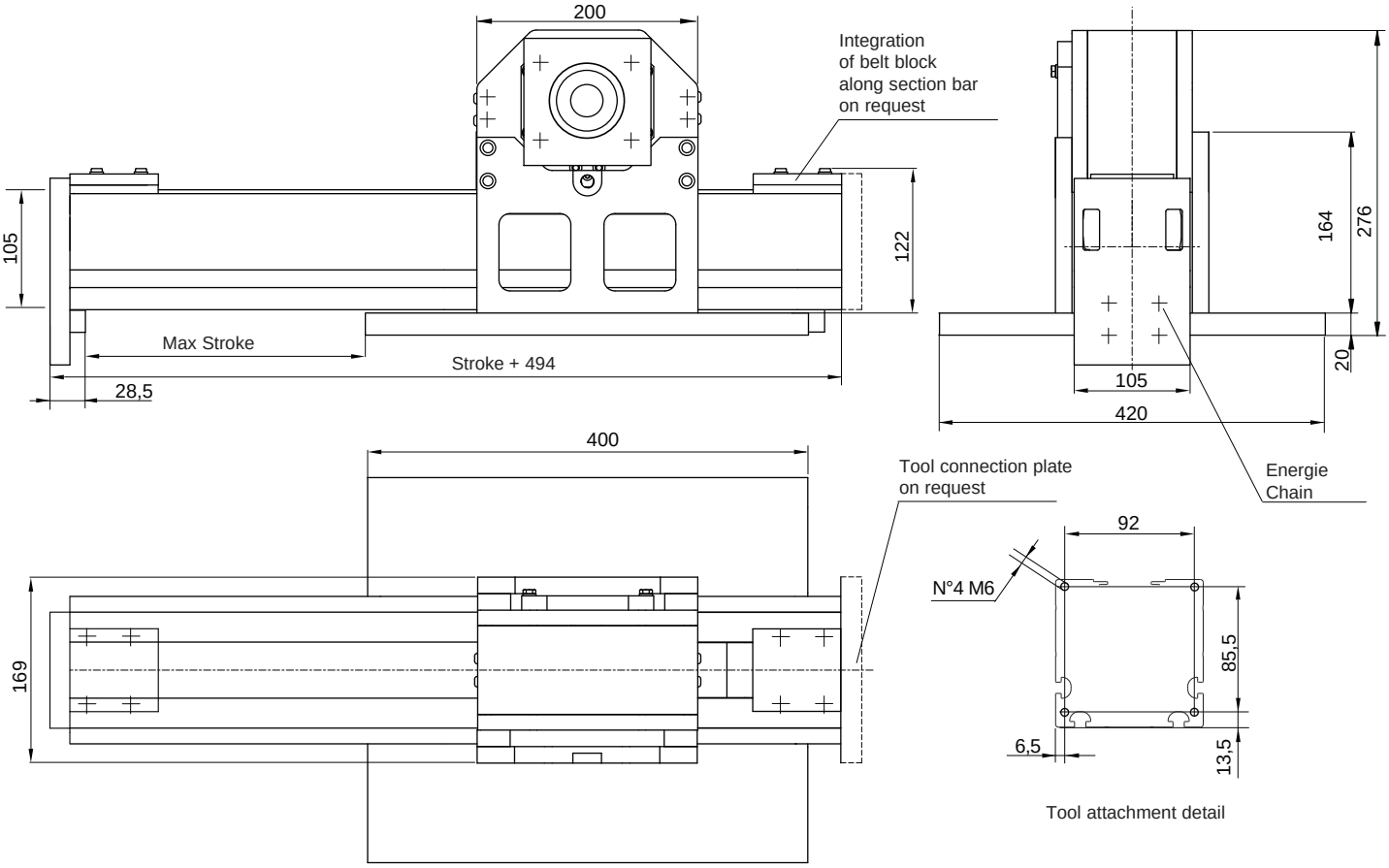
Fx= Max belt strenght

Constructive data		
Belt	50 AT 10	
Slide	4 ball slides size 15	[mm]
Profile	M105	
Pulley Ø	92,3	[mm]
Linear displacement per revolution	290	[mm]

Weights		
Inertia of the pulley	-	[kgm^2]
Belt weight	0,30	[kg/m]
Carriage weight	29	[kg]
Base Module (stroke=0)	M_{base}= 37	[kg]
1.000 profile	q=15	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot Stroke_{max}/1.000$** $Stroke_{max}$ [mm]

Patent pending

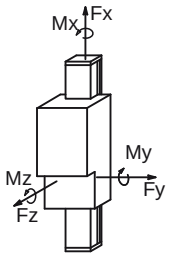


Performances	ZMCH 105	
Max Speed	3	[m/s]
Max Acceleration	25	[m/s^2]
Repositioning accuracy	± 0,1	[mm]

Suggested working load conditions

Module	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
ZMCH105	260	700	700	2.500	4.500	4.500

The dynamic values indicated do not correspond to maximum theoretical load capacities. They already take safety factors into account which are suitable for machinery in the automation sector. In the event of combined stress consult the technical support service.



Fx= Max belt strenght

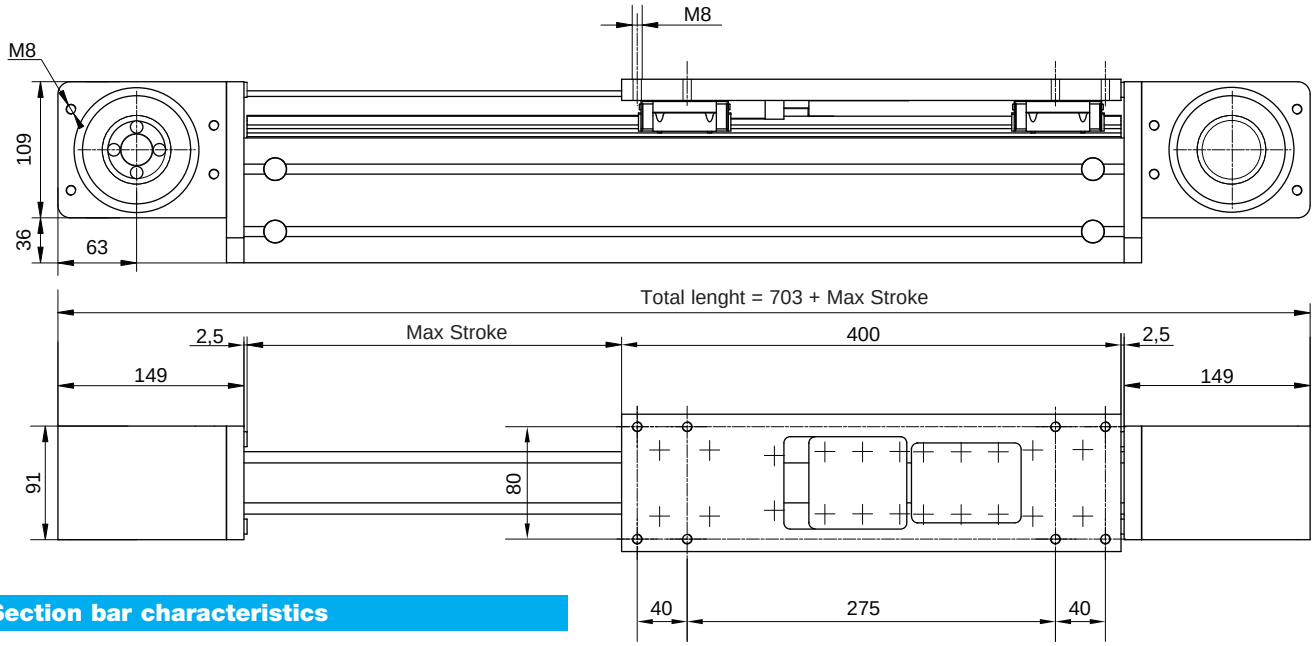
Constructive data		
Belt	50 AT 10	
Sliding	4 ball slides size 15	[mm]
Profile	M105	
Pulley Ø	92,3	[mm]
Linear displacement per revolution	290	[mm]

Weights		
Inertia of the pulley	-	[kgm^2]
Belt weight	0,30	[kg/m]
Carriage weight	29	[kg]
Base module (stroke=0)	M_{base}= 37	[kg]
1.000 mm profile	q=15	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot Stroke_{max}/1.000$** $Stroke_{max}$ [mm]

KCH 100/150/200

GEAR MOTOR ASSEMBLY POSSIBLE FROM EACH SIDE



Section bar characteristics

Module	Mx	My	Weight [Kg/m]
KCH 100	203	54	4,6
KCH 150	30	60	7,1
KCH 200	40	80	9,0

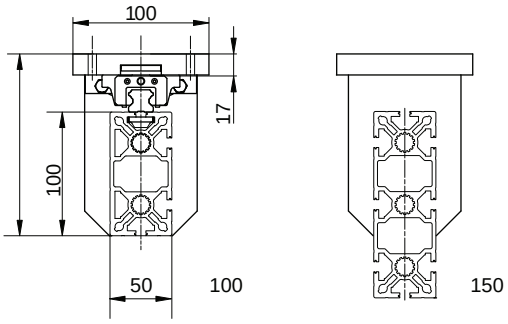
Shrink disc interface

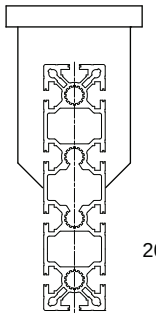
*Pulley hole (motor side = pipe side) Ø14 wrench 5x5 * [mm]

Interfaces with conical shrink discs and/or pulleys in steel are available on request. The heads are equal

Belt adjustment under load (does not require dismantling of equipment)

Sizes available





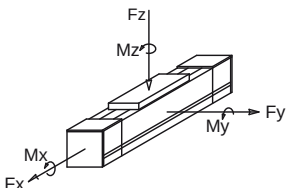
Performances	KCH /...	
Max stroke	5.600	[mm]
Max speed	4	[m/s]
Max acceleration	50	[m/s^2]
Repositioning accuracy	± 0,1*	[mm]
Loadless torque	-	[Nm]

*on request ± 0,05

Suggested working load conditions

Modulo	M_x[Nm]	M_y[Nm]	M_z[Nm]	F_x[N]	F_y[N]	F_z[N]
KCH/...	110	680	680	2.150	6.500	6.000

The dynamic values indicated do not correspond to maximum theoretical load capacities. They already take safety factors into account which are suitable for machinery in the automation sector. In the event of combined stress consult the technical support service.
Choice of beam depending on availability between supports.



Fx= Max belt strenght

Constructive data

Belt	32AT10	
Sliding	4 ball slides	[mm]
Profile	50 x ...	
Pulley Ø	70,03	[mm]
Linear displacement per revolution	220	[mm]
Colour	natural anodisation	

Weights

Inertia of the pulley	-	[kgm^2]
Belt weight	0,38	[kg/m]
Carriage weight	2,2	[kg]
Base module (stroke=0)	M_{base} = 9	[kg]
1.000 mm profile	q=3 + profile	[kg]

To calculate the module weight use the following formula: **$M=M_{base}+q \cdot Stroke_{max}/1.000$** $Stroke_{max}$ [mm]

Drive Pulley Bores for Shrink Discs

Registered model

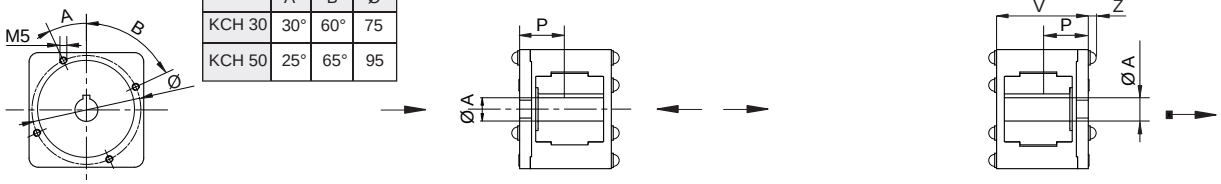
The motor connection is pre-engineered directly on the drive head by means of a removable flange, but integrated in the actual head. The drive shaft and/or the driven shaft are locked into the pulley by shrink-discs. (The gearbox can be easily removed without disassembling the head). Please see page ML-6 to identify the desired motor side (left or right); page ML-61 for shrink-disc and flange diameter and page ML-10 for the order code setting. Non-standard diameters are available upon request.

gearbox entry

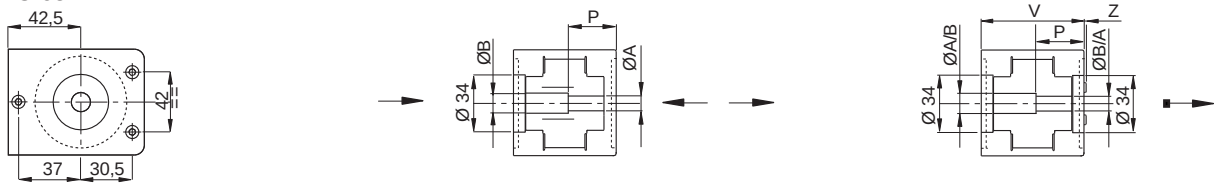
:input A
:input B
output B
output A
driven shaft side

Series KC 30-50

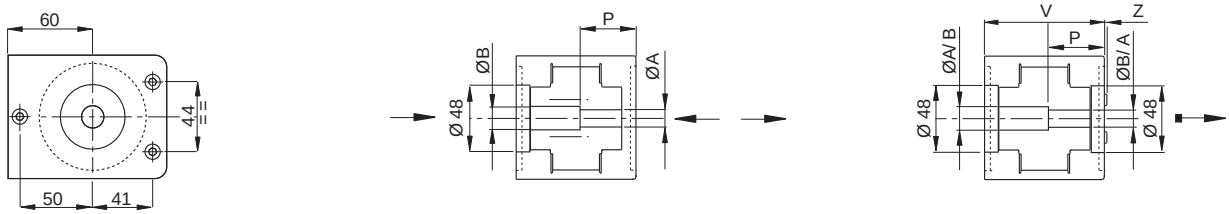
	A	B	Ø
KCH 30	30°	60°	75
KCH 50	25°	65°	95



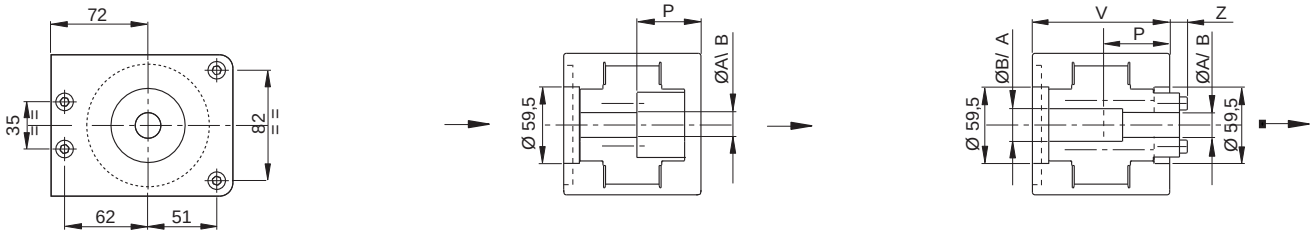
Series MC 65



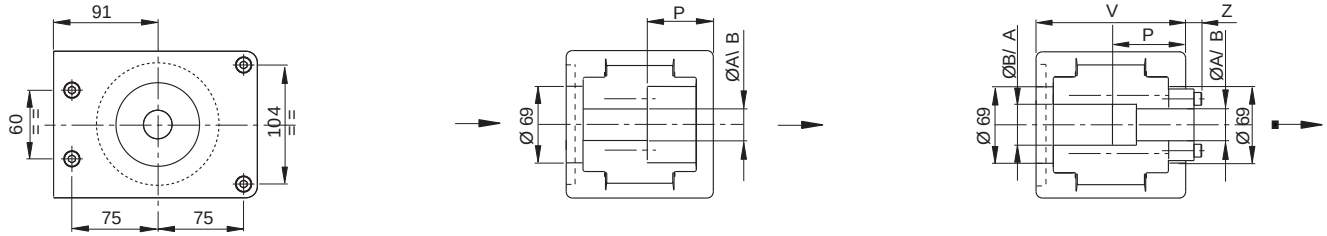
Serie MC 80



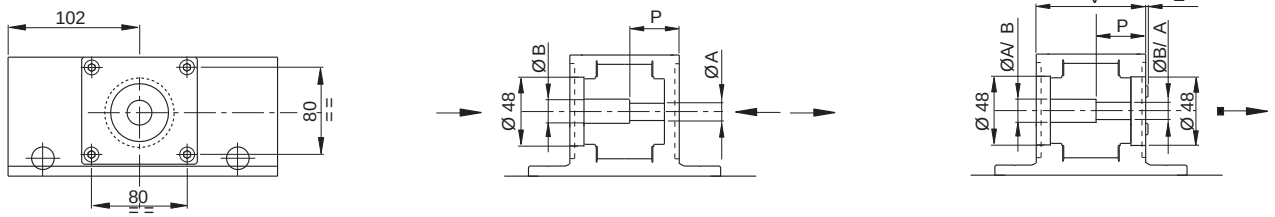
Series MC 105 - TC 180



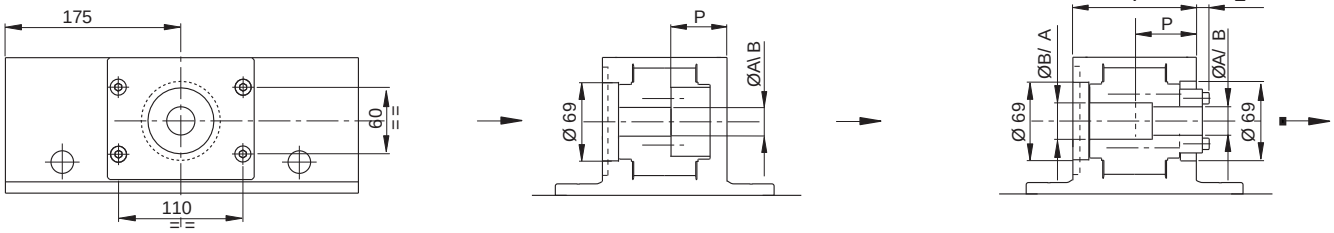
Series TC 170/200 - TC 220 - TC 280 - TC 360



Series ZC 60 - ZC 90



Series ZC 100 - ZCY 180 - ZC 170-220 - ZCE 170-220



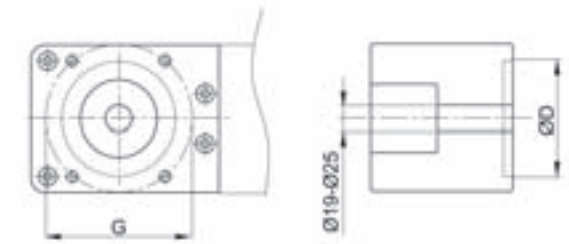
Module	A Ø [mm]	B Ø [mm]	V [mm]	P [mm]	Z [mm]
MC 65 - TC 100	12H7		67	34	0
		14H7	67	34	0
MC 80	16H7		80	52.4	1
		19H7	80	49.4	1
		20H7	80	49.4	1
MC 105 - TC 180	19H7		105	49	13.5
		25H7	105	51	8
TC 170 - TC 200	25H7		117	54.5	12.5
		32H7	117	57.5	7
TC 220 - TC 280 - TC 360	25H7		142	79.5	12.5
		32H7	142	82.5	7
		40H7	142	82.5	7
ZC 60 - ZC 90	16H7		100	62.4	0
		19H7	100	62.4	0
		20H7	100	62.4	0
ZC 100 - ZCY 180	25H7		108	48.5	11.5
		32H7	108	52.5	6
ZC 170 - 220	25H7		108	48.5	11.5
		32H7	108	52.5	6
		40H7	108	52.5	6
ZCE 170 - 220	25H7		143	65	12
		32H7	143	95	12
		40H7	143	95	12

Phosphating of drive and driven pulleys.

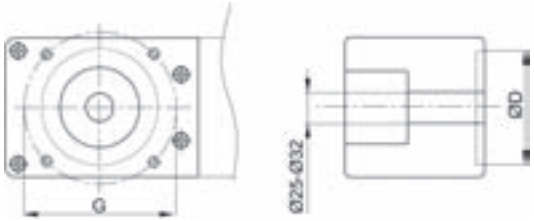
Adapter Flanges

Standard machining for planetary gearboxes - MP or MPTR, LP, EP series.
Machining is performed directly on the removable flange in a symmetric position, suitable for both sides.

Ex. module: MC 105



Ex. module: TC 280



Drilled flange: code E
Blind flange: code X

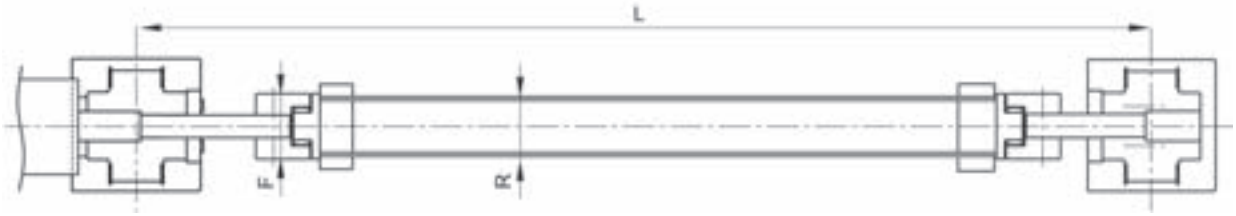
Linear module	Gearbox code			Size
Series		D	Ø	G
MC 65 KC 30-50	LP 050	35	12	44
	EP55	32	12	40
	MP053	32	12	40
MC 80-105 - ZC 60	MPTR080	50	19	65
	LP070	52	16	62
ZC 90	EP75 AA	40	14	52
MC 105 - TC-ZC 100 MC 105 - TC 180	MPTR105	70	25	85
	LP090	68	22	80
	EP90 TT	50	19	65
TC 170-360 ZC 170-220	MPTR130	80	32	110
	LP120	90	32	108
	EP120 TT	70	25	85

Connecting shafts for parallel modules

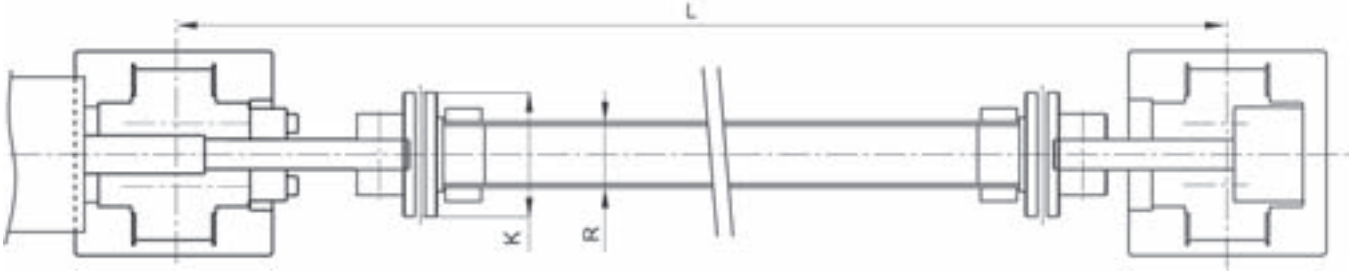
We can supply standard hollow shaft connections, according to your application requirements.
Please specify the type of module to be connected, together with speed, “L” centre-distance, working and peak torques, accuracy.
Some simplified solutions with solid shafts are available for low-speed applications and with “L” of up to 2,000 mm.
If high-speeds and/or “L” of more than 2,000 mm are needed, please ask our technical dept. for the shaft scaling.

The complete kit includes all the components needed to make the connection: tube, shrink-discs, shaft crop ends for connection between pulleys and shrink-discs, any supports.
Tube material: 6060 aluminium alloy
The customer is responsible for ensuring compliance with accident prevention rules in relation to all rotating parts.

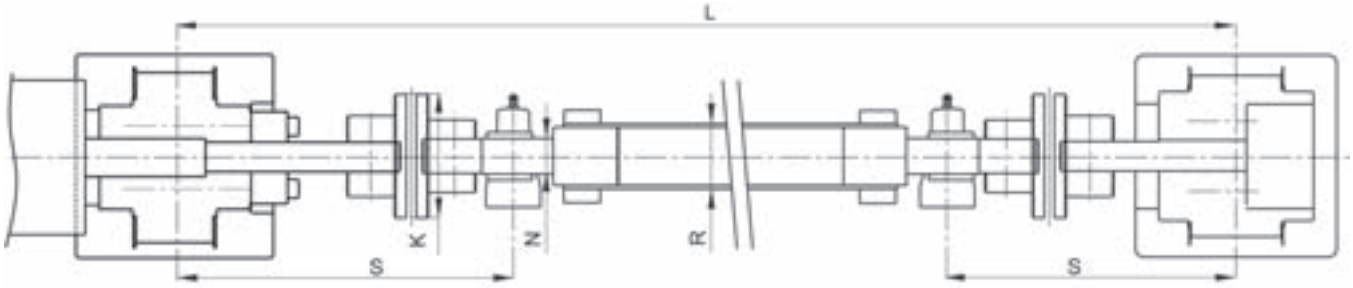
Type 1 - Elastic joint connecting shafts, normally suitable for low-speeds

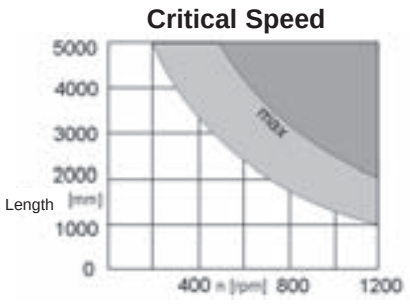


Type 2 - Stainless steel blade joint connecting shafts, suitable for backlash-free transmissions



Type 3 - Stainless steel blade joint connecting shafts and pedestal bearings, suitable for backlash-free transmissions





R(*)	K	F	N	S	Lmax	MTwork [Nm]	Mom.Inertia. [Kgm²]	Type 1: Code/L	Type 2: Code/L	Type 3: Code/L
40	67	55	20	200	6,200	20	0.0028 + 0.46 x L. x10^{-6}	436.0948	436.0957	436.0965
50	81	65	25	235	6,300	35	0.0092 + 0.66 x L. x10^{-6}	436.0949	436.0958	436.0966
50	93	80	25	235	6,300	70	0.0161 + 1.34 x L. x10^{-6}	436.0951	436.0971	436.0974
70	104	95	25	235	6,400	100	0.0293 + 2.93 x L. x10^{-6}	436.0952	436.0960	436.0968
80	126	120	25	250	6,400	190	0.0793 + 4.5 x L. x10^{-6}	436.0955	436.0963	436.0984
90	143	-	-	-	6,500	300	0.1456 + 6.53 x L. x10^{-6}	-	436.0986	436.0987
110	185	-	-	-	6,000	420	0.3499 + 12.3 x L. x10^{-6}	436.0144	436.0145	436.0146

The S value can vary by ± 20%, Lmax by ± 3%, according to the chosen type. Please contact our technical dept.

Spare rollers with pins

Make sure that all the components are locked in place with the appropriate screws. The recommended tightening torque for pin locking screws and nuts is 50 Nm.

Max. load factors for hardened and tempered guides

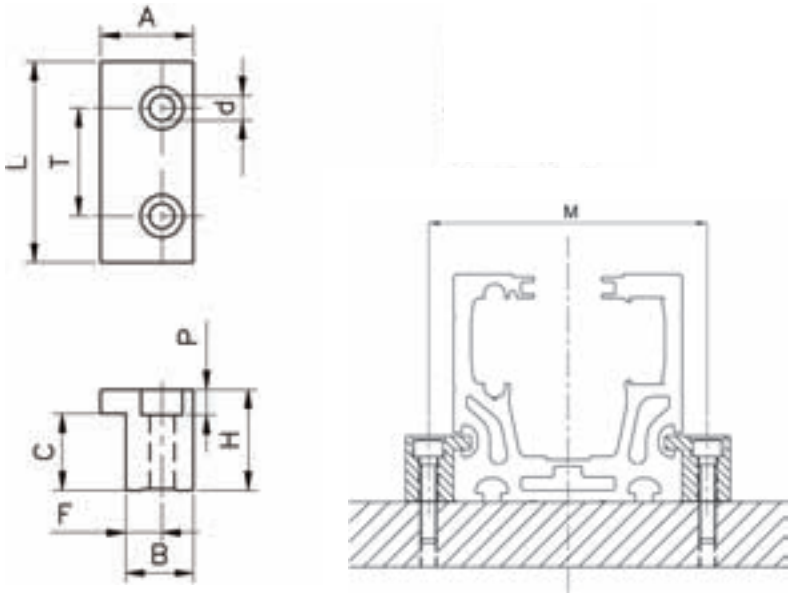
Roller	Cw [N]	C0w[N]	Fr amm.[N]	V max.
Ø30	5,000	3,000	1,350	7 m/s
Ø40	9,800	6,200	2,600	7 m/s
Ø52	15,800	10,500	4,400	6 m/s
Ø62	21,100	14,500	5,600	5 m/s

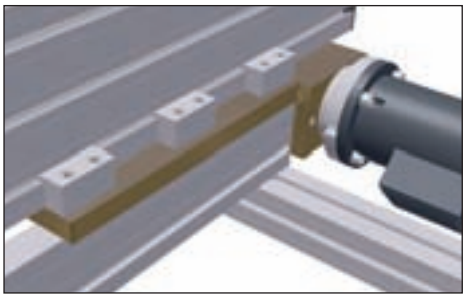
Max. load factors for hardened guides

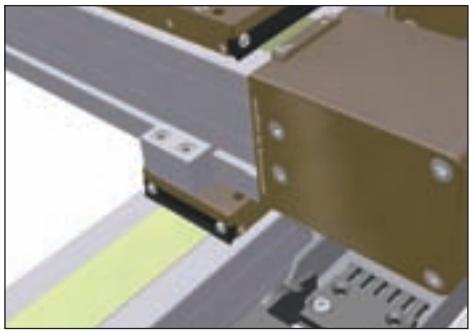
Roller	Cw [N]	C0w[N]	Fr amm.[N]	V max.
Ø30	5,000	3,000	400	2 m/s
Ø40	9,800	6,200	800	13 m/s
Ø52	15,800	10,500	1,400	2.5 m/s
Ø62	21,100	14,500	1,900	2 m/s

Spare roller with pin	Weight [kg]	Code
Ø30 Concentric	0.02	**406.0056**
Ø40 Concentric	0.22	**205.0464**
Ø40 Eccentric (± 0.75 mm)	0.25	**205.0463**
Ø52 Concentric	0.4	**205.0163**
Ø62 Concentric	0.55	**205.0165**

Mounting brackets





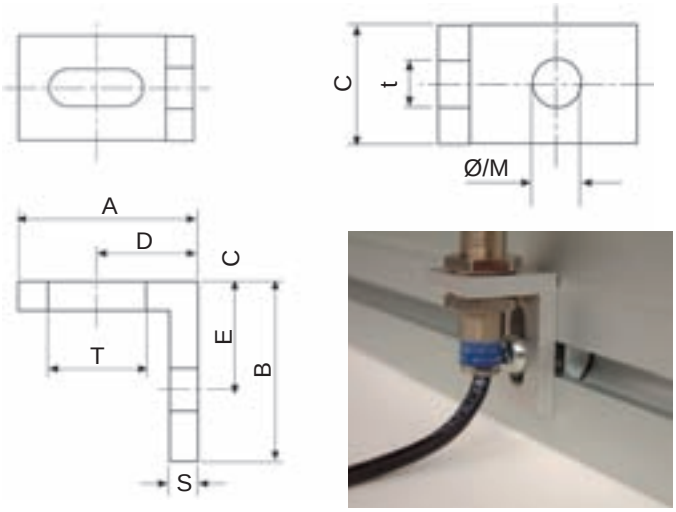


Material: aluminium alloy 6082

Module type	bxh	A	L	T	d	H	P	C	F	B	M	Code
MC 65	67x65	25	50	25	6.7	20	6.8	13.5	10	18	87	**415.0388**
MC 80	80x80	25	50	25	6.7	25	6.8	18.6	10	18	100	**415.0760**
TC-ZC 100		25	50	25	6.7	27	6.8	20.6	10	18	120	**415.0764**
MC 105	105x105	30	50	25	9	30	9.5	23.6	12	22	129	**415.0761**
TC 180	180x90	30	50	25	9	25	9.5	18	12	25	204	**415.0773**
TC 170	120x170										198	
TC 200	120x200	30	90	50	11	40	11	28.3	14	25	228	**415.0762**
TC 220	120x220										248	
TC 280	170x280	30	90	50	11	20	11	11.3	14	25	308	**415.0763**
TC 280Vert.	280x170	30	90	50	11	20	11	13.5	14	25	198	**915.1174**

Accessories and screws

Assembly brackets

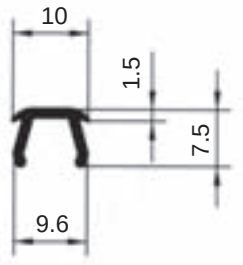


Material: natural, anodised anticorodal alloy.

Thread								Code	
A	B	C	D	E	S	Txt	ØM	Ø	M
45	45	20	25	25	5	20x6.5	6	**A30-76**	**A 30-86**
35	25	20	19	15	5	20x6.5	4	**A30-54**	**A 30-64**
35	25	20	19	15	5	20x6.5	5	**A30-55**	**A 30-65**
35	25	20	19	15	5	20x65	6	**A30-56**	**A 30-66**
25	25	15	14	15	4	13.5x5.5	3	**B30-53**	**B 30-63**
25	25	14	14	15	4	13.5x5.5	4	**B30-54**	**B 30-64**
25	25	15	14	15	4	13.5x5.5	5	**B30-55**	**B 30-65**
25	25	15	14	15	4	13.5x5.5	6	**B30-56**	**B 30-66**

Suitable for all the modules

Filler strips

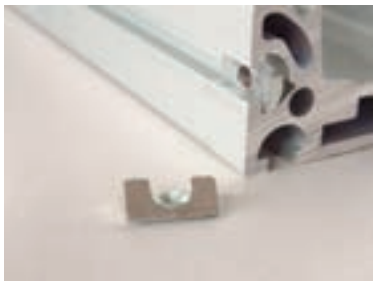


PVC filler strips, grey or black L=5,000 - 6,000 mm
for any longitudinal 8 mm slot

Suitable for series: **MC 80-105, ZC 60-90-100-170, TC 100-180**

Color	Code A /Length
grey	**Cod.A39-25/5000**
black	**Cod.A39-26/5000**
orange (on request)	**Cod.A39-25/6000 A**

Spring nut



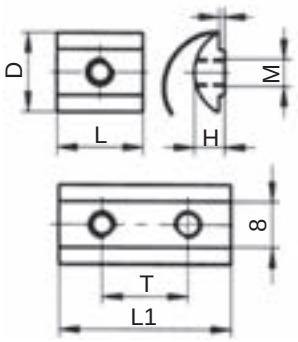


Plate suitable for every kind of module (8 mm slot).
Material: nut in galvanised steel welded to the harmonic steel spring. The B series can also be inserted through the slot.

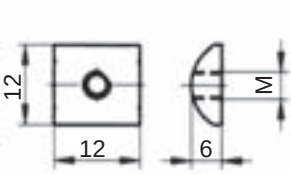
Code A: MC 80-105, ZC 60-90-100-170, TC 100-180
Code B: MC 65

Single plate	Code A	Code B
M5	A32-55	B32-55
M6	A32-65	B32-65
M8	A32-85	B32-85

Double plate	Code A	Code B
M6	A32-67	B32-67

Size					
Base Module	D	H	L	L1	T
MC 105, ZC 100	14	7.8	20	40	30
MC 80	11	4.1	20	40	30

Simple nut

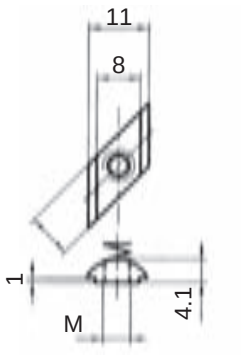


Material: galvanised steel.
Insert through the end of the profile.
Suitable for series:

MC 80-105, ZC 60-90-100-170, TC 100-180

Thread	Code
M5	209.2431
M6	209.2432
M8	209.2433

Front insertable spring nut

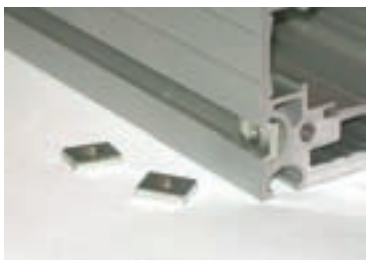


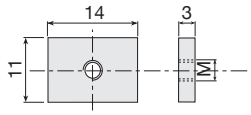
Material: galvanised steel, harmonic steel spring.
To be inserted through the slot.
Suitable for series:

MC 65

Thread	Code B
M3	BD31-30
M4	BD31-40
M5	BD31-50
M6	BD31-60

Simple Nut





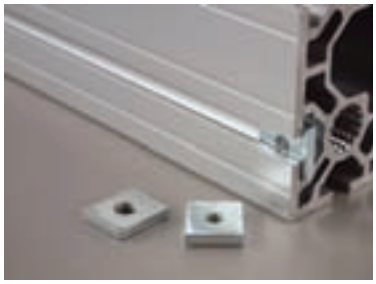
Materiale: galvanised steel.
To be inserted through the slot. Suitable for series:

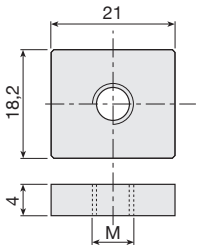
MC 65

Thread	Code B
M4	B32.40
M5	B32.50
M6	B32.60

Threaded nuts and plates

Flat nut





Material: galvanised steel.
Insert through the end of the profile.
Retaining spring upon request.

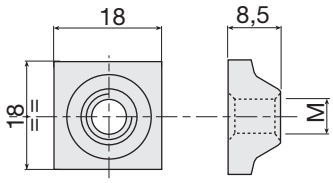
TC-ZC 100, TC 180, ZCY 180

Thread	Code
M4	**A32-40**
M5	**A32-50**
M6	**A32-60**
M8	**A32-80**
Molla	**211.1061**

Semi-rounded threaded inserts with spring

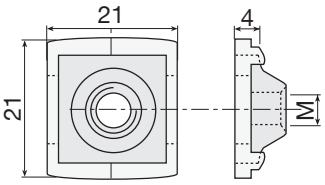
Threaded plate for base profile 45, 50 and 60. Material: galvanised steel.
Important: to be inserted through the
longitudinal slots before assembling.

Suitable for series:
TC-ZC 100, ZCY 180, TC 170-180-200-220-360, ZC 170-220



Thread	Code 18x18	Code 20x20
M4	**209.0031**	**209.0023**
M5	**209.0032**	**209.0019**
M6	**209.0033**	**209.1202**
M8	**209.0034**	**209.0467**

Plastic compound spring for vertical positioning of insert.



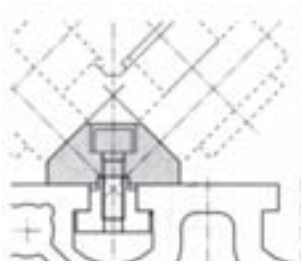
Spring	Code
Suitable for all inserts 18x18	**101.0732**

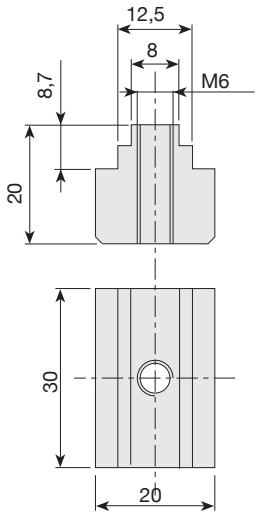
Nuts for steel guide rails

Material: galvanised steel.

Code 209.1855

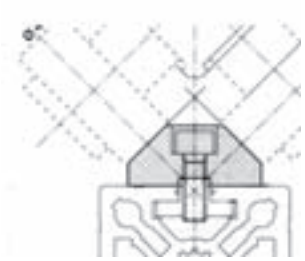
Alignment nuts.
V-shaped guide rail: 35x16
Profile with slot. 12.5 mm.
Series: **TC 170-200-220-280-360 e ZC 170-220**

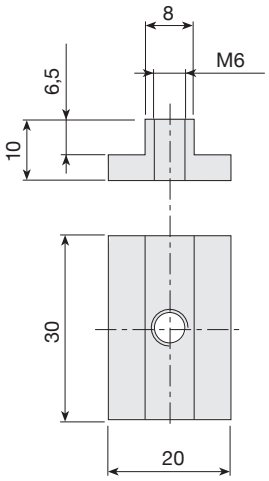




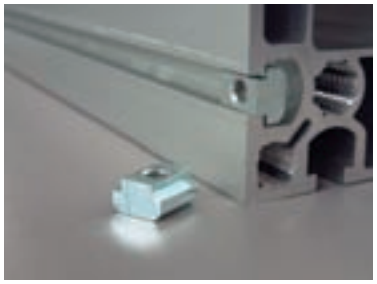
Code 209.0298

Alignment nuts.
V-shaped guide rail: 35x16
Profile with slot 8 mm.
Series: **TC-ZC 100, TC 180**

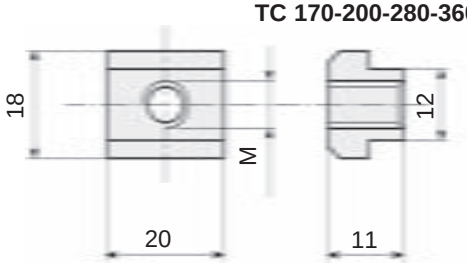




Alignment nut for slot 12.5 mm



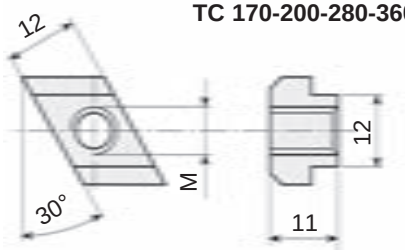
Material: galvanised steel. Suitable for series:
TC 170-200-280-360 and ZC 170-220



Thread	Code
M5	215.1768
M6	215.1769
M8	215.1770
M10	215.2124

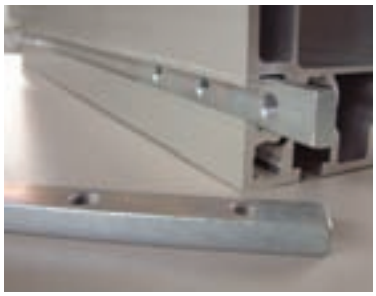
Alignment nut for slot 12.5 mm front insertable

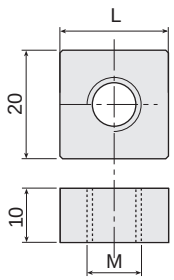
Material: galvanised steel. Suitable for series:
TC 170-200-280-360 and ZC 170-220

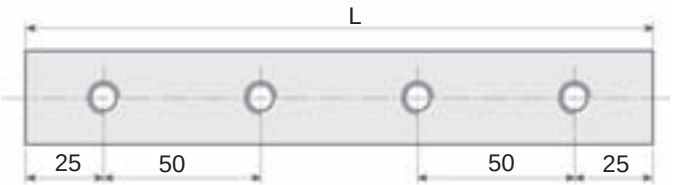


Thread	Code
M5	215.1771
M6	215.1772
M8	215.1773
M10	215.2125

Threaded nuts and plates







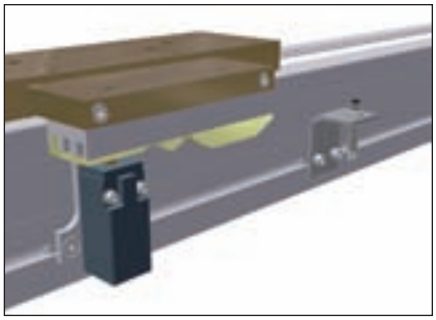
M12 (CH19) hexagonal-head screws can be used as stud bolts in profiles with 12.5 mm slots.

Material: galvanised steel. Suitable for series:
TC 170-200-220-280-360 and ZC 170-220

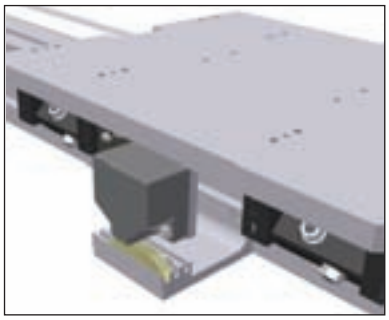
Thread	Type	L	Code
M10	1-hole plate	40	215.0477
M12	1-hole plate	40	209.1281
M10	1-hole plate	20	209.1277
M10	2-holes plate*	80	209.1776
M10	3-holes plate*	150	209.1777
M10	4-holes plate*	200	209.1778
M10	5-holes plate*	250	209.1779
M10	6-holes plate*	300	209.1780
M10	7-holes plate*	350	209.1781

* Hole centre-distance: 50 mm.

Micro-switch brackets - application examples



Mechanical and inductive micro-switches on MC series.



Multi-channel micro-switch on TC series.

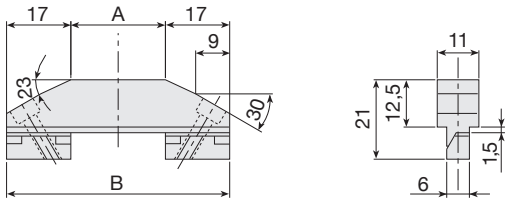
Mechanical and inductive micro-switches on MC series.

Micro-switches and brackets are supplied according to the needs of the application.
We can also supply cams and cam-holders for mechanical micro-switches in accordance with DIN standards.

Cams and cam-holders for micro-switches

Long cams

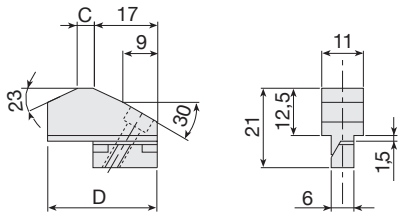
Cams in accordance with DIN 69639 except when marked “#”.
Material: steel with hardened and ground surface.



A	B	Code
25	59	**211.2132**
40	74	**211.2133**
63	97	**211.2134**
80 #	114	**211.2135**
100	134	**211.2136**

Short cams

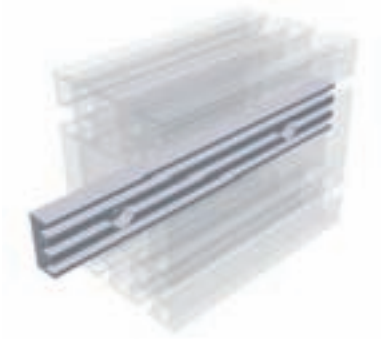
Cams in accordance with DIN 69639
Material: steel with hardened and ground surface.

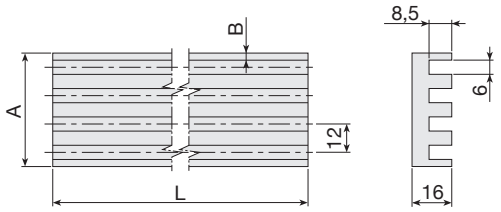


C	D	Code
0	25	**211.2128**
4	29	**211.2129**
10	35	**211.2130**
16	41	**211.2131**

Cam-holder guides

Cams in accordance with DIN 6963
Materiale: lega di alluminio 6060 anodizzato

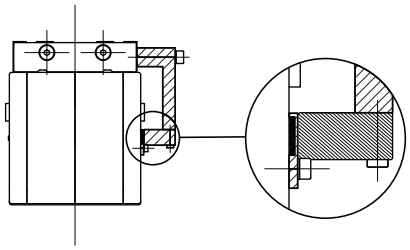




n°	B	A	L	Code
3	3	36	2,000	**202.2138**
4	5.5	53	3,000	**202.2139**
6	5.5	77	3,000	**202.2140**
8	5.5	101	3,000	**202.2141**

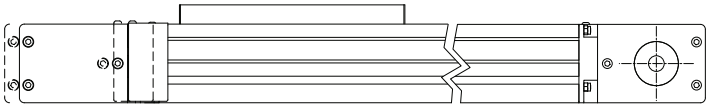
Reader system with magnetic scale and sensor

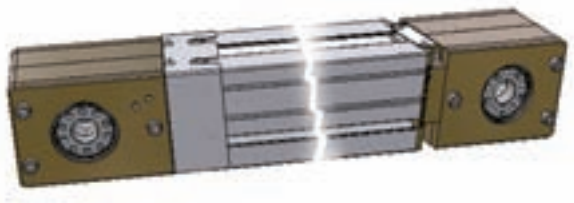
The magnetic scale is applied to the body of the module using a supporting and protective profile.
Precision of between ± 0.015 and ± 0.05 mm
Max speed = 4 ÷ 10 m/s (depending on the type)



Twin drive head

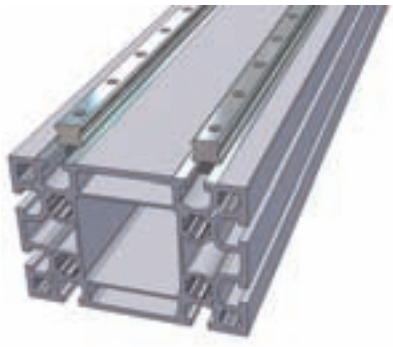
Version with drive head on both sides.





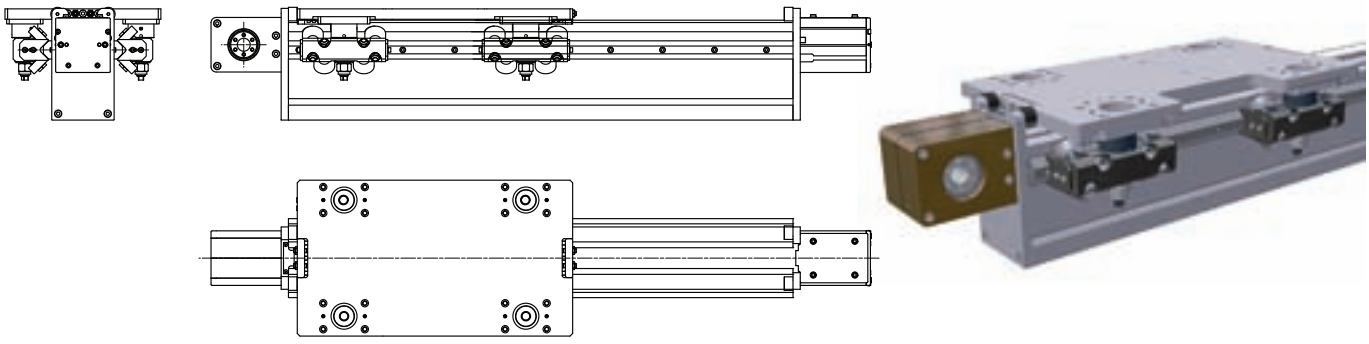
Precision profile machining

Profiles can be machined along their entire length, to provide the required precision or according to application specifications.



Rotatable load-bearing profile to fully exploit the moment of inertia

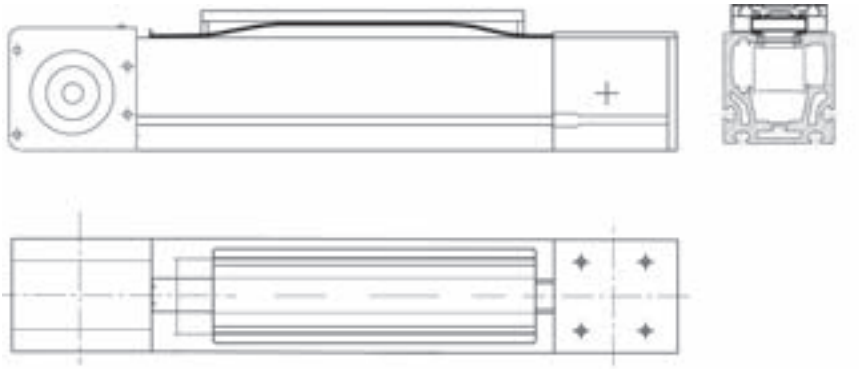
The load-bearing profile can be rotated in order to change the overall dimensions, or to fully exploit the moment of inertia.

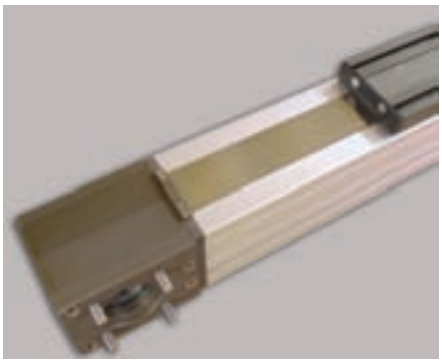


Special applications

Belt protection for series MC - 80 - 105

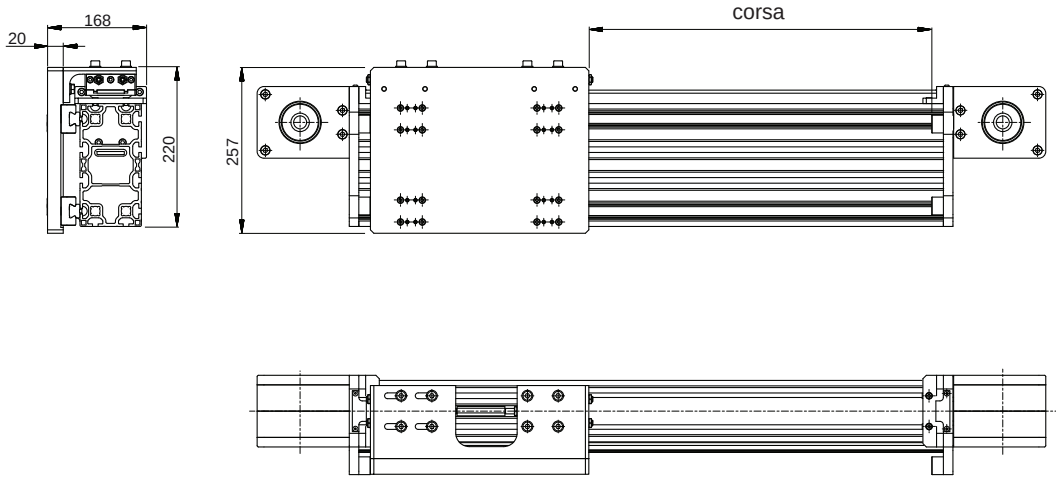
Guard system consisting of a magnetic stainless steel foil to protect the belt from dust and external agents (code: **LI**), which is attached to the profile.
NB: Avoid the use of a metallic band in the presence of ferrous filings. Optional.





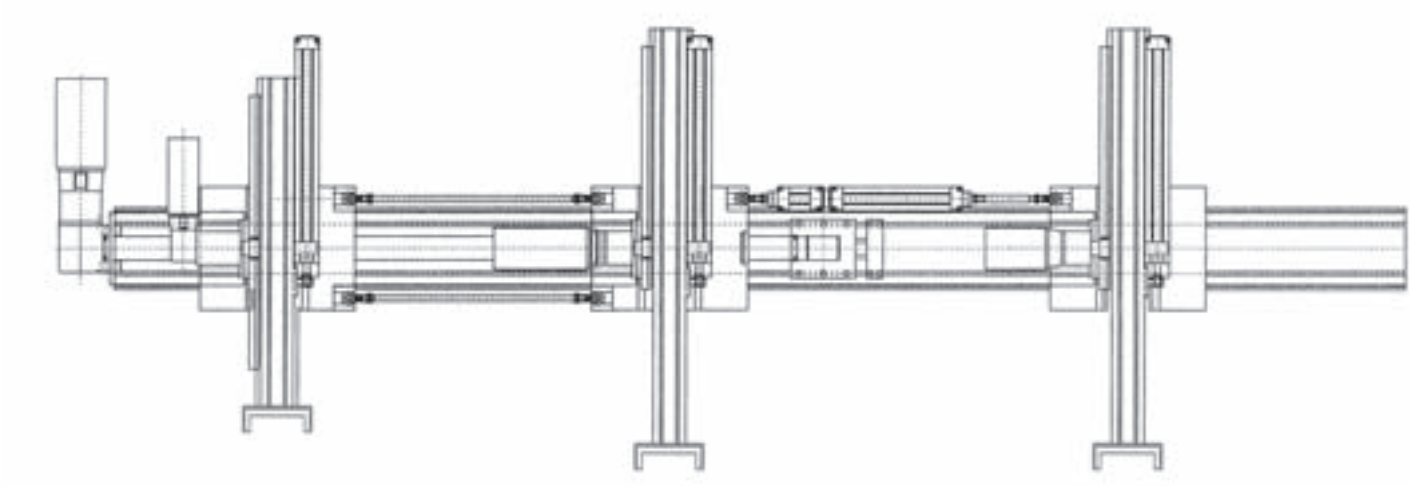
TC series of linear modules with pulley axis turned at 90°

In some applications which involve the use of high speeds and accelerations, the assembly of linear units having a vertical pulley axis and a centre-distance of more than 4 m may force the toothed belt and result in the need for premature maintenance. In this case we suggest you mount the pulleys and the belt in a horizontal position. The modification as shown in the figure below can be requested for the MODLINE TCS series. Optional.



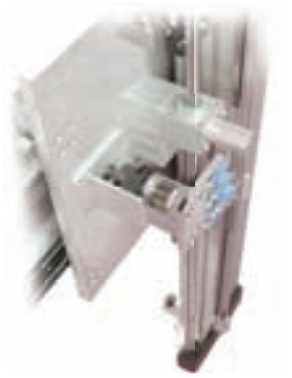
TC multi-carriage linear modules with intermediate belt transmission

Example of horizontal transfer with integrated belt and transmission pulley support, in an intermediate position, all incorporated inside the profile. **(Registered design)**
Special feature: note the compensating cylinders and the horizontal cylinder for the different travel of carriage no. 3.

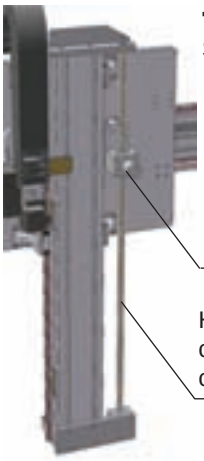


Anti-drop device with pneumatic brake system

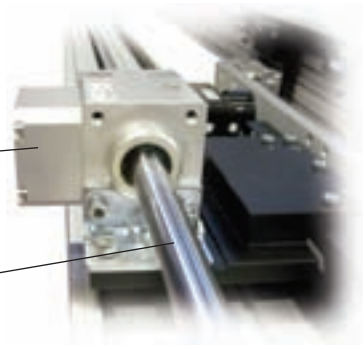
Ant-droop devices, available in a range of sizes, are supplied according to the type of application. For instance, they can act as a mechanical stop to block the free-falling load at any stroke point, or as a lock in static conditions at any position. Two-way blocking occurs following an unexpected pressure drop. A mechanical release system is available upon request (patented). Catalogue available upon request. The kit includes: braking device and rod with relative supports, micro-switch and solenoid valve.
Operating pressure 3-6 Bar.
With no pressure = locked.



Type A
Static



Type B
Dinamic,
for free-falling
loading



1- Static rod blocking device

Type	Code	Rod blocking force [N]	Stroke [mm]
A	236.0018	/ 1,200	/ ...
A	236.0018	/ 1,900	/ ...
A	236.0018	/ 3,000	/ ...
A	236.0018	/ 5,400	/ ...
A	236.0018	/ 7,500	/ ...
A	236.0018	/ 12,000	/ ...

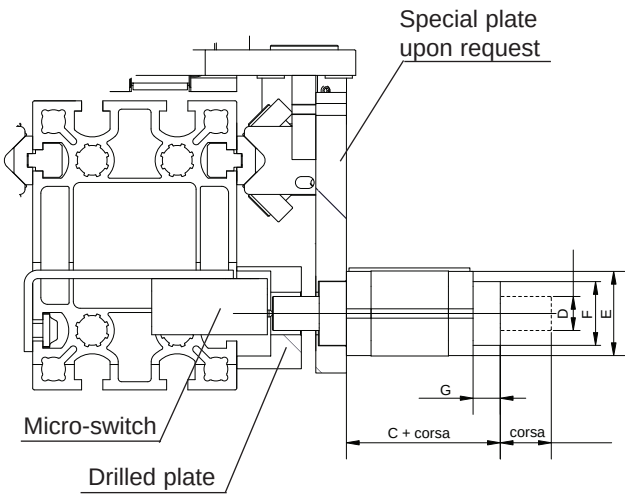
Emergency brake for free-falling load.

1- Dynamic rod blocking device

Type	Code	Rod blocking force [N]	Stroke [mm]
B	236.0019	/ 3,000	/ ...
B	236.0019	/ 5,400	/ ...
B	236.0019	/ 7,500	/ ...
B	236.0019	/ 12,000	/ ...

Lock-pin (stopper cylinders)

Lock-pin devices, available in two sizes, suitable to block the vertical axes in position during horizontal movements. (e.g.: maintenance). The lock-pins are provided with a through rod.
Select the size according to the load. The kit includes: drilled plate for rod, stopper cylinder, micro-switch.
Max. operating pressure: 10 bar.



1- Lock-pin device

ØD rod	stroke	C	E	F	G	Kit Code
20	20	60.5	50	38	16	236.0021
32	30	-	-	-	-	236.0022

2- Accessory: drilled plate for rod

ØD rod	Base	Length	Thickness
20	60	100	39
32	60	100	39

Index

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