



# When you move. We move.

Rollon S.p.A. was set up 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 with creative and efficient solutions in a wide range of applications used on a daily basis.

## Solutions for linear motion



### 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 and automated/manual applications



### Actuators

- Belt driven actuators
- Ball screw driven actuators
- Rack and pinion actuators

## 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

Aerospace



Railway



Logistics



Industrial



Medical



Special Vehicles



Robotics



Packaging



# 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		MCS MCH						
		MCR						
		TVS TVH						
		TCS TCH TECH						
		KCH						
		TCR TECR						
		MVS MVH						
		MTR MVR						
MODLINE Z		ZCS ZCH						
		ZCR ZCY						
		ZMC						
SYS		SYS1						
		SYS2						
PRISMATIC RAIL		203						

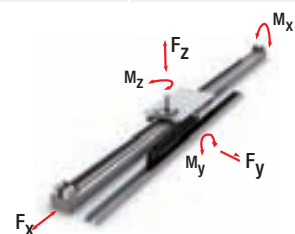
Reported data must be verified according to the application.

For a complete overview about technical data, please consult our catalogues at [www.rollon.com](http://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/s <sup>2</sup> ]	Repeatability accuracy [mm]	Max. travel or stroke (per system) [mm]
	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>				
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
50-100 130-180	6100	3950	6317	548	950	668	5	25	± 0,05	7500*
200	6320	6320	6320	700	820	705	5	25	± 0,05	7500*
28-35-55	-	-	15000	-	-	-	5	50	± 0,1	7500*

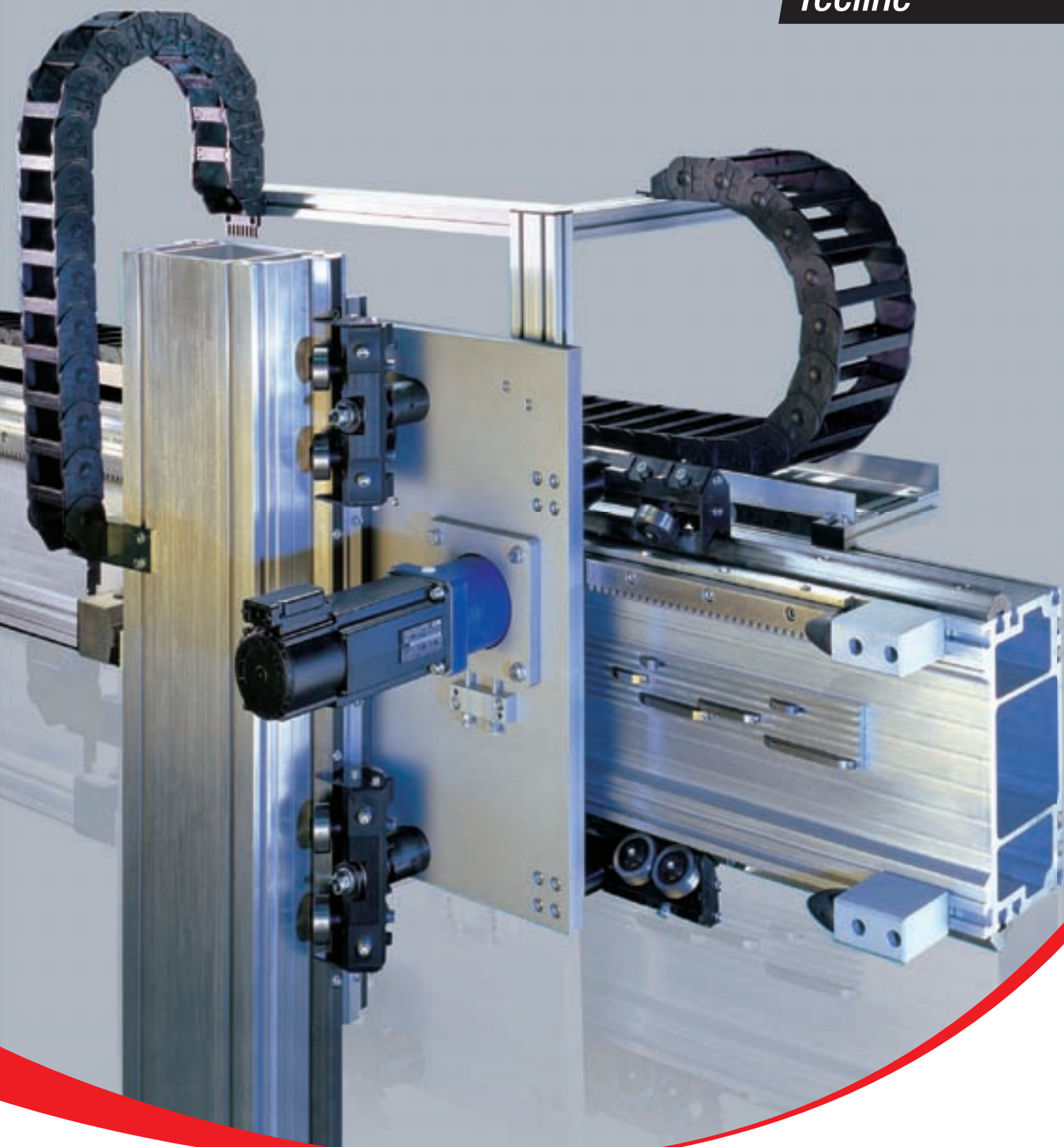


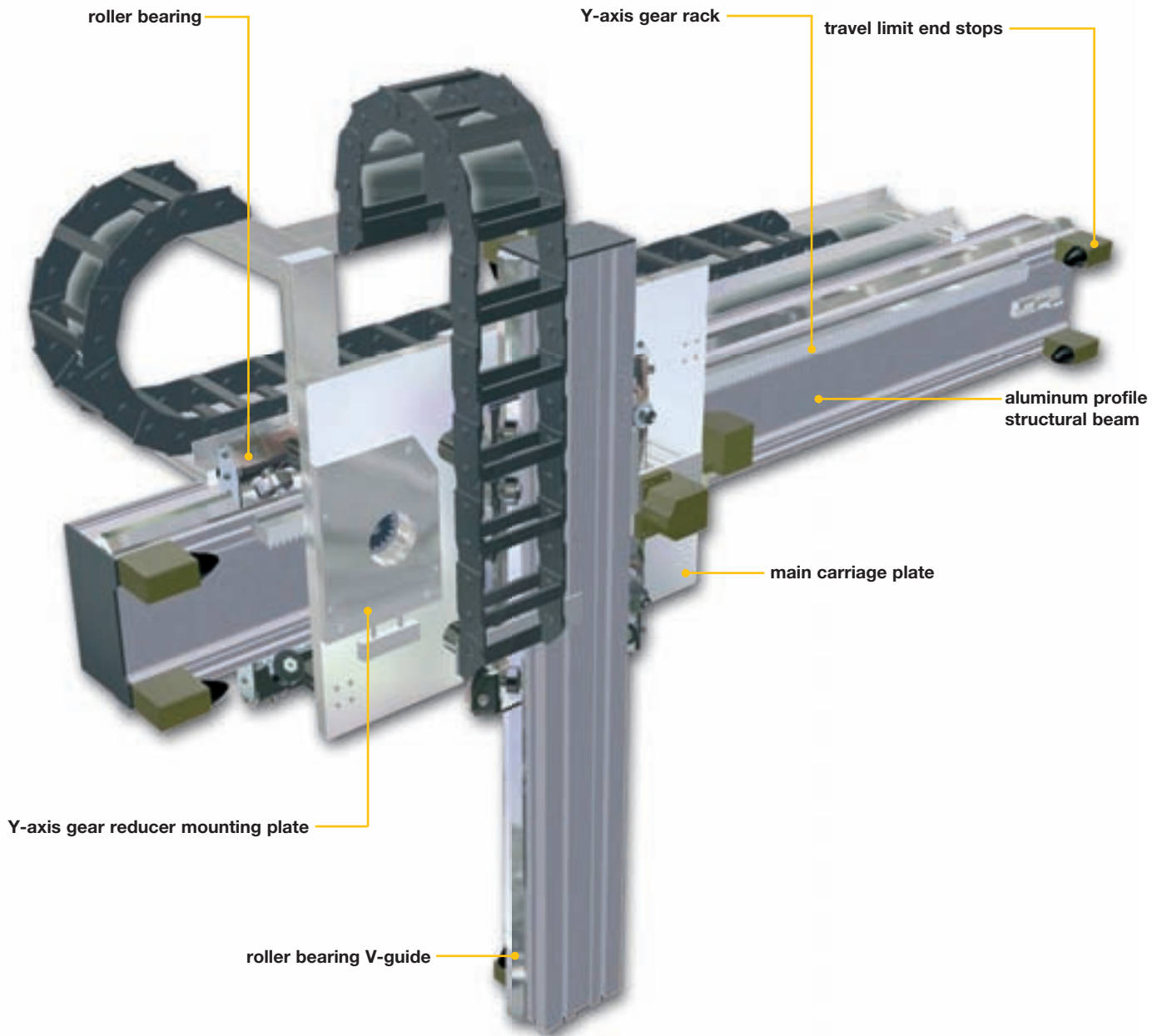


# **ROLLON**<sup>®</sup>

Linear Evolution

**Tecline**





Our **tecline linear system** range is suitable for the handling of loads from 10 up to 1000 kg, by manufacturing **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
- Tempered or 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



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## PROFILES

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### SINGLE AXES



PAR 1 - PAS 1	(180)	18
PAR 2 - PASM 2	(170)	20
PAR 3 - PASM 3	(200)	22
PAR 4 - PASM 4	(200)	24
PAR 5 - PASM 5	(220)	26
PAR 6 - PASM 6	(280)	28
PAR 8 - PASM 8	(280)	30
PAR10 - PASM 10	(360)	32

### DOUBLE AXES



PAR 1/05 - PAS 1/05	(180/90)	34
PAR 2/1 - PASM 2/1	(170/90)	36
PAR 3/1 - PASM 3/1	(200/100)	38
PAR 4/1 - PASM 4/1	(200/100)	40
PAR 5/2 - PASM 5/2	(220/170)	42
PAR 6/2 - PASM 6/2	(280/200)	44
PAR 6/4 - PASM 6/4	(280/200)	46
PAR 8/3 - PASM 8/3	(280/200)	48
PAR 8/6 - PASM 8/6	(280/220)	50
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## COMPONENTS

### STEEL V-SHAPED GUIDE RAILS

56

#### PROFILES EQUIPPED WITH ASSEMBLED

##### V-SHAPED GUIDE RAILS (order codes)

#### RACKS

Adjusting plates for racks

#### PINION GEARS

#### Programmable Automatic Rack Lubrication System

Table for selecting maximum operating torque

#### CONNECTION SHAFTS

#### ROLLERS FOR V-SHAPED GUIDE RAILS 28.6X11 AND 35X16

#### ROLLER SLIDES

Assembly Studs

Order code table for roller slides and pins

#### ANTI-DROP SAFETY SYSTEM

Safety lock-pin (shock absorbers)

## ACCESSORIES



PVS for small and medium profiles	73
Capitalize STATYCA, VALYDA LOGYCA for brand recognition	75
Profile fastening brackets	75
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Cams and cam-holders for micro-switches	79
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# 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, motors and drivers/drives upon request.**

**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 both hardened and tempered and surface-hardened guides: section 28.6x11, 35x16 and 55x25 (max. length 5,900 mm – 28.6x11, max. length 3,980 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 made by leading manufacturers. The cage included in the slides has two purposes: it much the friction between the guide rail and the slide and prolongs their service life, and allows lubrication refills to be performed must less running. 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 cross-sections: 25x25, 30x30, 40x40 mm.

PAR versions with guide rails and roller slides, assembled with milled, KTD induction-hardened racks with pinions in high-performance tempered and surface-hardened steel (ND). PASM versions with guide rails and caged ball roller slides, are normally assembled with KSD racks and pinions in hardened and tempered RD steel, induction-hardened and fully ground. High-performance KRD racks are available upon request (Rs>900 MPa): hardened and tempered, induction-hardened, and fully ground (page 59). 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 safety 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, safety and/or anti-drop devices, etc.) with our technical dept.

## Energy chains or accessories

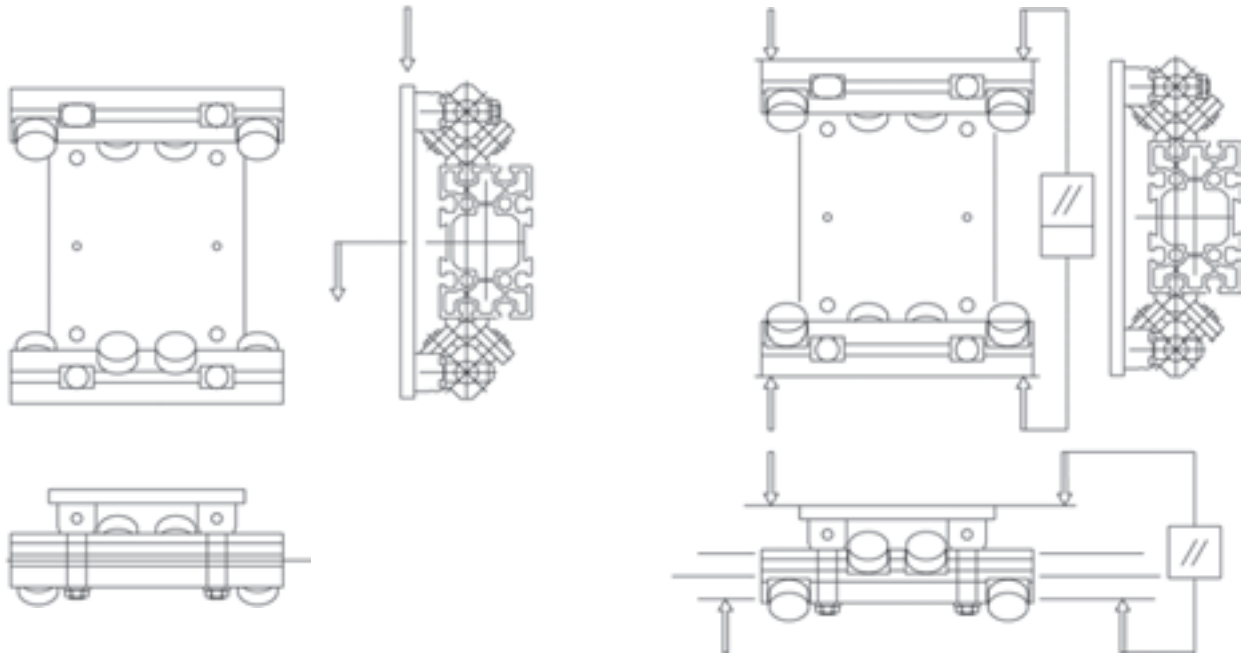
Energy chains are provided upon request, together with a wide range of accessories. Adjustable brackets and supports are included. Standard sizes are those shown in the catalogue. Energy chains and accessories can be added using the order code on page 11.

## 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 65 and 71.



## 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  $\pm 0.03$  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, motors and drives

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

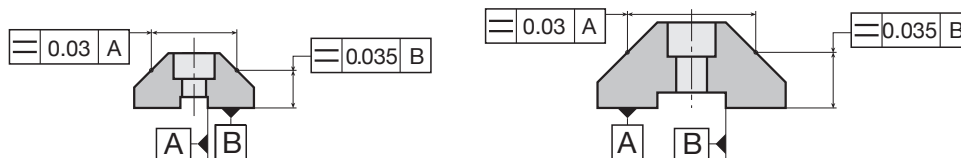
The accuracy of this system is based on the tolerance of:

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 versions: tempered and hardened only, or induction-hardened with a special grinding process, or tempered and hardened.

Hardness: tempered min. 58HRC; tempered and hardened: 240 HB uHB



## Rolling parts

Rollers with double rows of angular contact ball bearings to absorb axial force have a low friction coefficient ( $\pm 0.03$ ) 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 61).

The tangential force and torque values shown in the table on page 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.

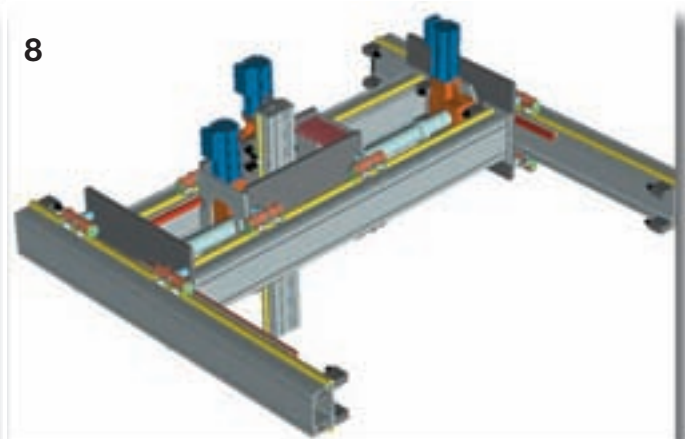
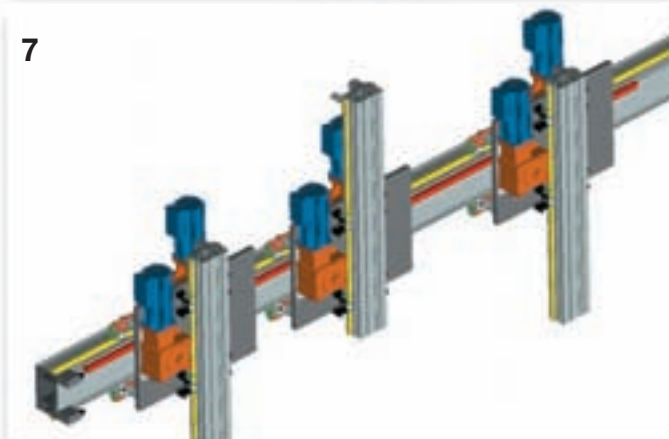
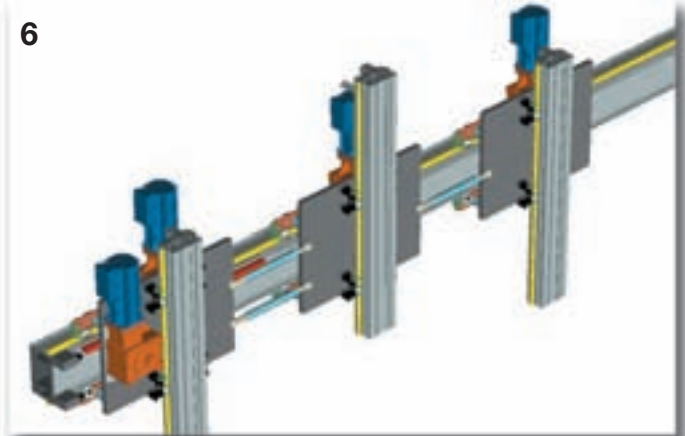
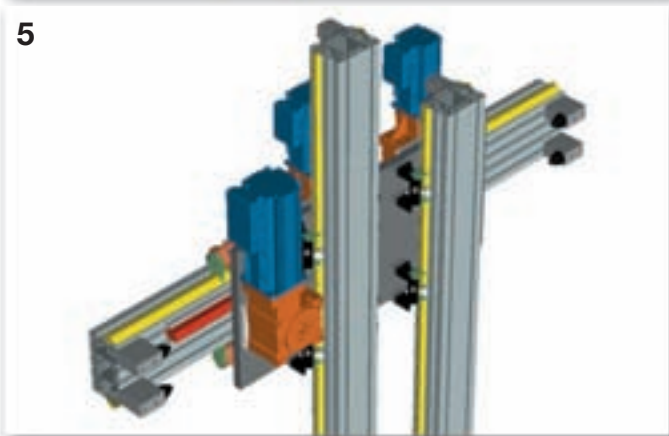
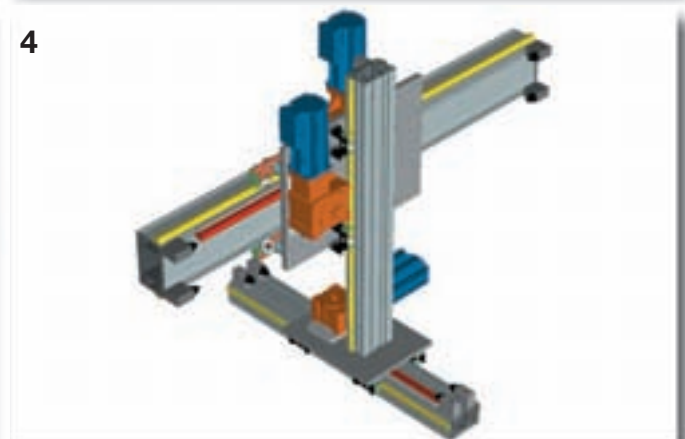
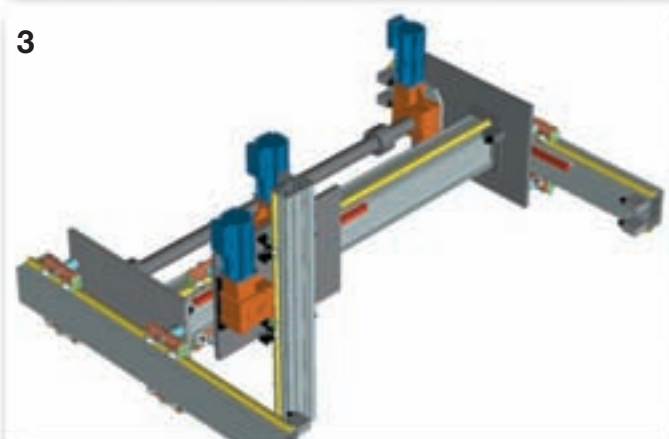
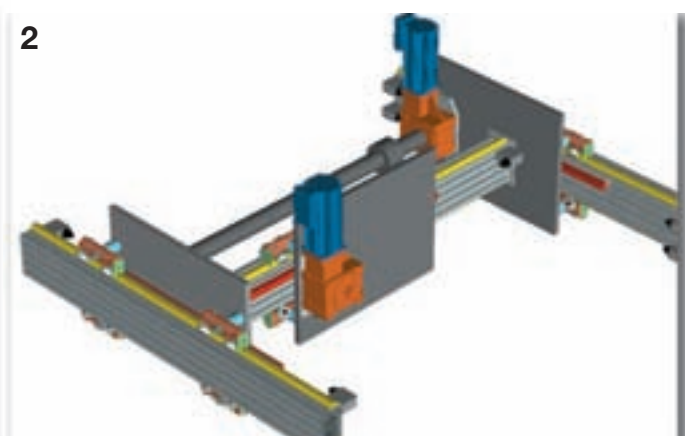
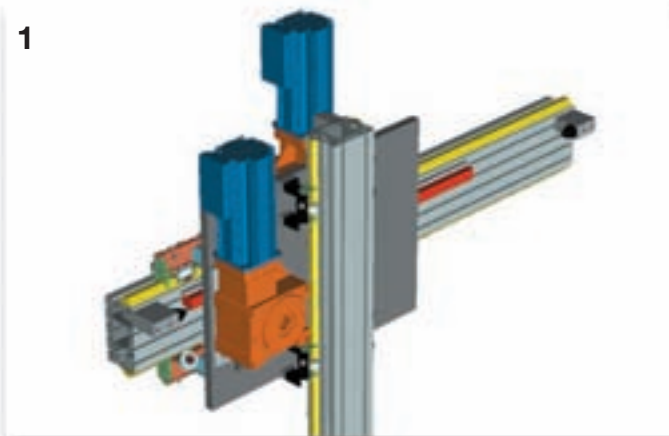
Do not use solvents to clean rollers or roller slides, as you could unintentionally remove the grease lubricating coat applied to the rolling elements during assembly. However, grease may be added slowly to lithium soap according to DIN 51825 - K3N.

## 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.

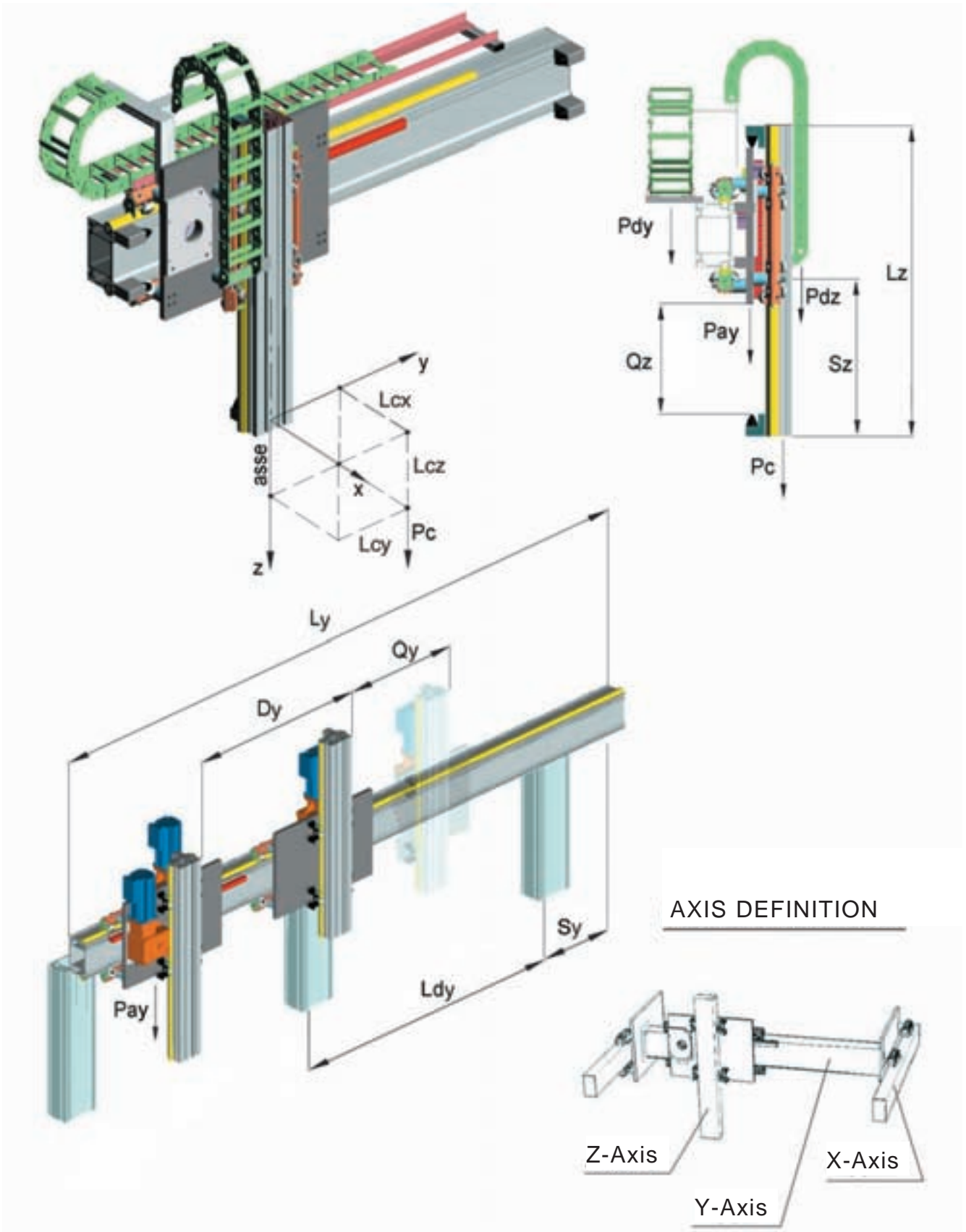
## Guide rails and caged ball roller slides

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 30,000 Km. For applications where dynamic performance is required, our technical dept. will consider the need for special seals or suitable tanks or lubrication systems.



# 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 5) no.....

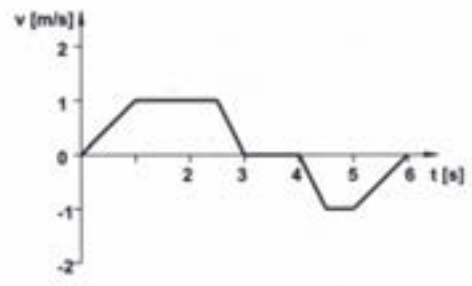
- Total length
- Total working load including EOAT (add Z axis for Y and X axes)
- Equipment weight on carriage (gearbox, cylinder, OPTIONAL)
- Weight distributed on the beam (energy chain)
- Beam supports
- Max. projection (any cantilever, the largest)
- Span (largest)
- Offset load's centre of gravity (X-axis)
- Offset load's centre of gravity (Y-axis)
- Offset load's centre of gravity (Z-axis)
- Additional force, if any
- Possible distance between the carriages (see solutions 6 - 7 on page 5)
- Transmission performance
- Assembly: vertical= 90° - slope = 30°, 45°, 60° - horizontal = 0°
- Stroke
- Speed
- Acceleration
- Cycle time
- Positioning accuracy
- Repeatability
- Work environment (temperature and cleanliness)
- Daily working cycles
- Minimum service life requested

	Z-Axis		Y-Axis		X-Axis	
Lz	<input type="checkbox"/>	Ly	<input type="checkbox"/>	Lx	<input type="checkbox"/>	[mm]
Pc	<input type="checkbox"/>	Py	<input type="checkbox"/>	Px	<input type="checkbox"/>	[kg]
		Pay	<input type="checkbox"/>	Pax	<input type="checkbox"/>	[kg]
Pdz	<input type="checkbox"/>	Pdy	<input type="checkbox"/>	Pdx	<input type="checkbox"/>	[kg/m]
		n°	<input type="checkbox"/>	n°	<input type="checkbox"/>	
Sz	<input type="checkbox"/>	Sy	<input type="checkbox"/>	Sx	<input type="checkbox"/>	[mm]
		Ldy	<input type="checkbox"/>	Ldx	<input type="checkbox"/>	[mm]
Lcx	<input type="checkbox"/>				<input type="checkbox"/>	[mm]
Lcy	<input type="checkbox"/>				<input type="checkbox"/>	[mm]
Lcz	<input type="checkbox"/>				<input type="checkbox"/>	[mm]
F	<input type="checkbox"/>	F	<input type="checkbox"/>	F	<input type="checkbox"/>	[N] +/-
		Dy	<input type="checkbox"/>	Dx	<input type="checkbox"/>	[mm]
η	<input type="checkbox"/>				<input type="checkbox"/>	
α°	<input type="checkbox"/>				<input type="checkbox"/>	
Qz	<input type="checkbox"/>	Qy	<input type="checkbox"/>	Qx	<input type="checkbox"/>	[mm]
Vz	<input type="checkbox"/>	Vy	<input type="checkbox"/>	Vx	<input type="checkbox"/>	[m/s]
Az	<input type="checkbox"/>	Ay	<input type="checkbox"/>	Ax	<input type="checkbox"/>	[m/s²]
Tz	<input type="checkbox"/>	Ty	<input type="checkbox"/>	Tx	<input type="checkbox"/>	[s]
+/-	<input type="checkbox"/>				<input type="checkbox"/>	
+/-	<input type="checkbox"/>				<input type="checkbox"/>	[mm]
	<input type="checkbox"/>					
N°	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	[Km]

Working cycle



Working cycle example



Remarks: .....

.....  
 .....  
 .....

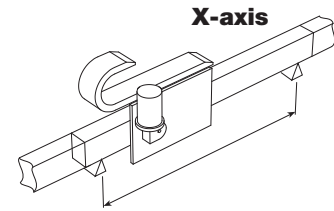
# Preliminary selection table (1-2-3 axes)

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



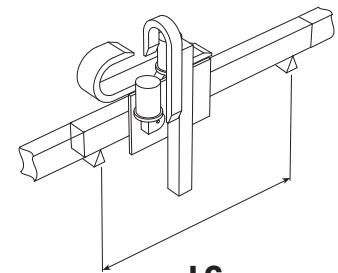
LC

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

Y-Z-axes

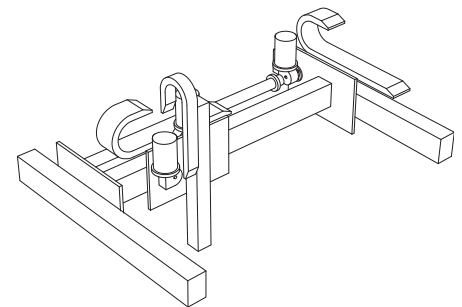


LC

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

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

X-Y-Z-axes



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

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

$M_{totY+Z} \text{ PA 6/4} = M_{base} + (q_y \cdot \text{stroke}_{Q_y} + q_z \cdot \text{stroke}_{Q_z}) / 1000 + P_c = 244 + (66 \cdot 4,000 + 48 \cdot 2,000) / 1,000 + 300 = 904 \text{ kg}$

$P_{totX} = M_{tot} \text{ PA 6/4} (Y+Z) \cdot 0.66 = 596.6 \text{ kg}$

$Lx = \text{stroke}_x + 1,200 \text{ approx.} = 5,000 + 1,200 = 6,200 \text{ mm}$

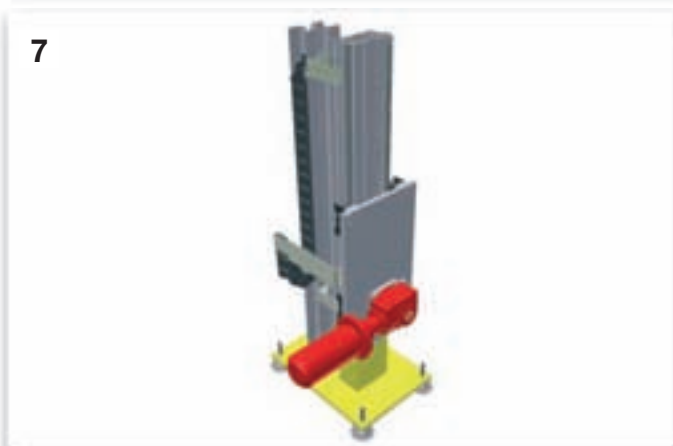
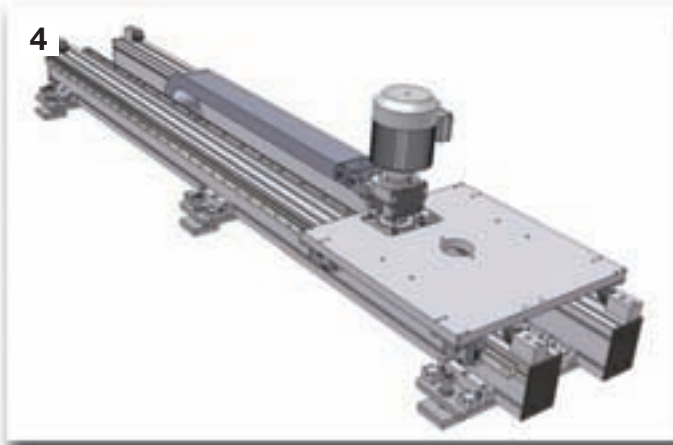
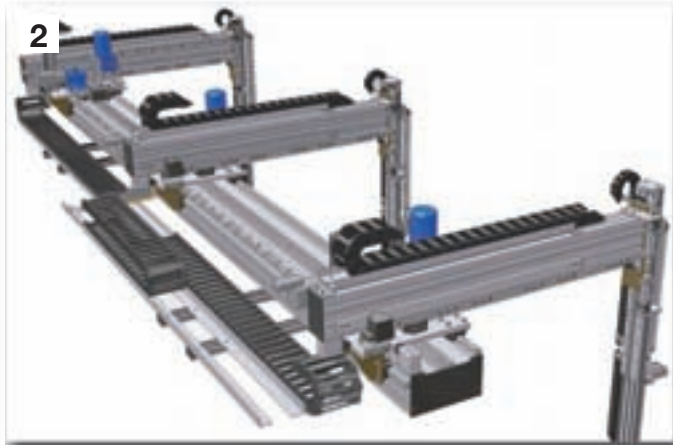
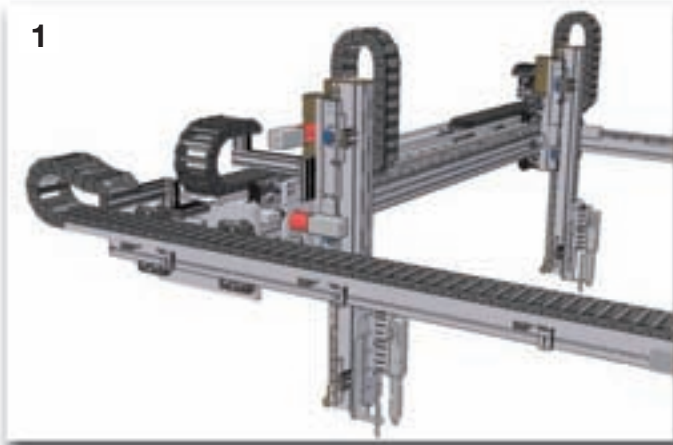
By analyzing the table of X axes based on the load (P<sub>totX</sub>) profile length (Lx) and deflection, it is possible to select 2 linear axes PA 6X

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.**

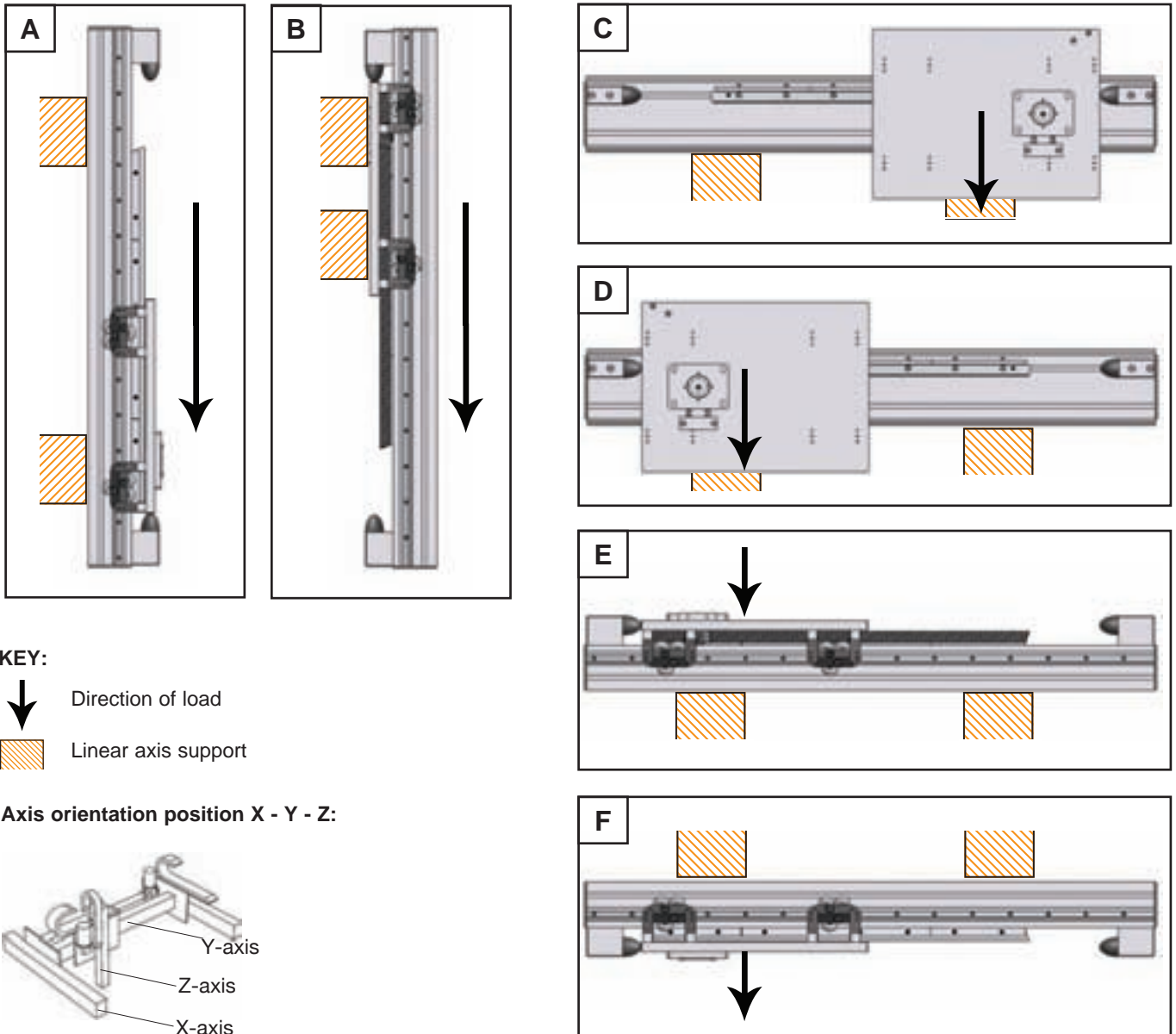




- 1/5 Pick and place system with twin vertical axis and rack and pinion drive for the production of panels in the construction industry.
- 2 Pipe handling system in welding plant.
- 3/6 Multicarriage handling system with separate rack and pinion drive for each X and Y axis.
- 4 Shuttle system for 6-axis of SCARA robot.
- 7 Column lift - load 100 kg - stroke 17 m.

# Assembly positions and load direction

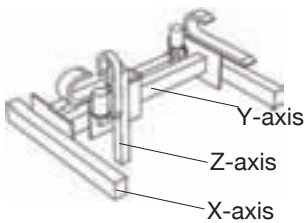
For single-axis roller versions



KEY:

- Direction of load
- Linear axis support

Axis orientation position X - Y - Z:



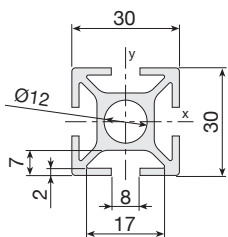
## Simplified code setting of the module

<b>EXAMPLE</b>	P	A	S	M	5	/	2	/	mm/mm/	...
<b>SERIES</b>	P									
<b>SLIDE</b>	A= rack									
<b>DRIVE</b>	R= Roller slides S= caged ball linear guides - high performance									
<b>PROFILE MACHINING</b>	M= profile with machined guide plane and rack plane									
<b>SIZE OF X-AXIS</b>	See catalog from page 18 to page 55									
<b>SIZE OF Z-AXIS</b>	See catalogue from page 18 to page 55 "X"= Z-axis not provided									
<b>STROKE / Length</b>	"mm" = X-axis / Y-axis / Z-axis									
<b>ACCESSORY CODES</b>	Various accessory codes									



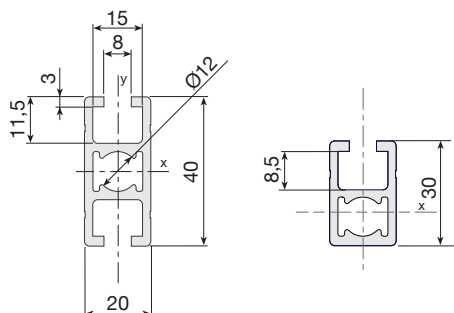
# Profile specifications (see machining code table on page 83)

## Small profiles



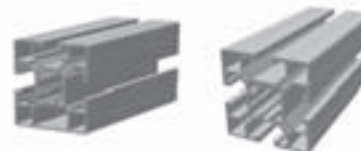
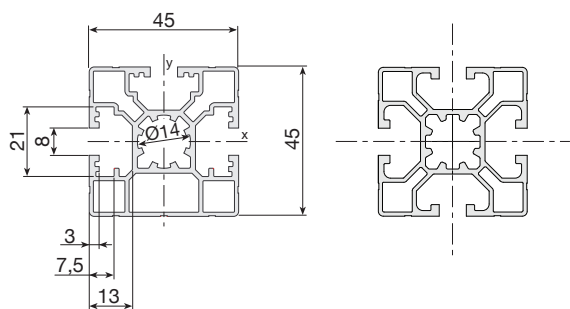
### MB 1-1 (30x30)

Weight	1.2	kg/m
Max. length	6	m
Moment of inertia Ix	39,000	mm <sup>4</sup>
Moment of inertia Iy	39,000	mm <sup>4</sup>



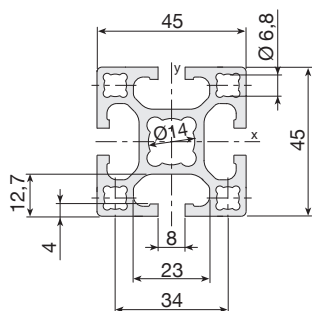
### E01-7 (20x40)    E01-8(20x30)

Weight	1.3	0.75	kg/m
Max length	6	6	m
Moment of inertia Ix	22,000	24,600	mm <sup>4</sup>
Moment of inertia Iy	46,000	15,700	mm <sup>4</sup>



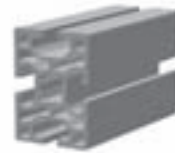
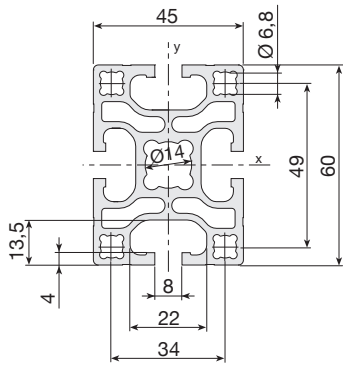
### E01-6 (45x45) light    E01-11

Weight	1.4	1.4	kg/m
Max. length	6	6	m
Moment of inertia Ix	137,000	103,500	mm <sup>4</sup>
Moment of inertia Iy	138,000	103,500	mm <sup>4</sup>

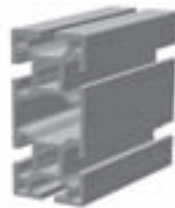
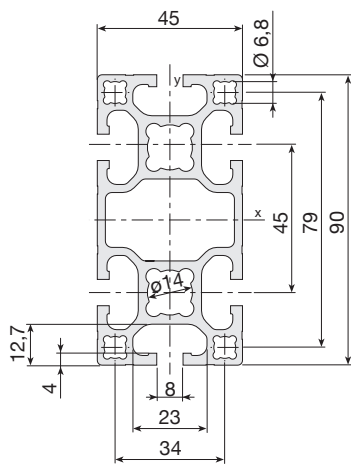


### E 01-1 (45x45)

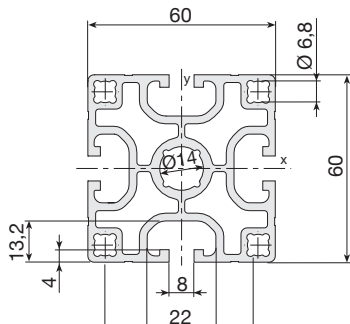
Weight	2	kg/m
Max. length	6	m
Moment of inertia Ix	155,000	mm <sup>4</sup>
Moment of inertia Iy	155,000	mm <sup>4</sup>



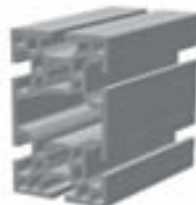
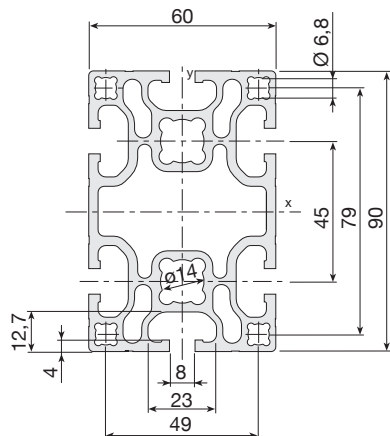
E 01-2 (45x60)		
Weight	2.7	kg/m
Max. length	6	m
Moment of inertia Ix	340,000	mm <sup>4</sup>
Moment of inertia Iy	208,000	mm <sup>4</sup>



E 01-3 (45x90)		
Weight	3.5	kg/m
Max. length	6	m
Moment of inertia Ix	1,055,000	mm <sup>4</sup>
Moment of inertia Iy	284,000	mm <sup>4</sup>

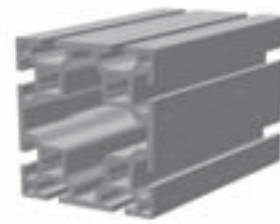
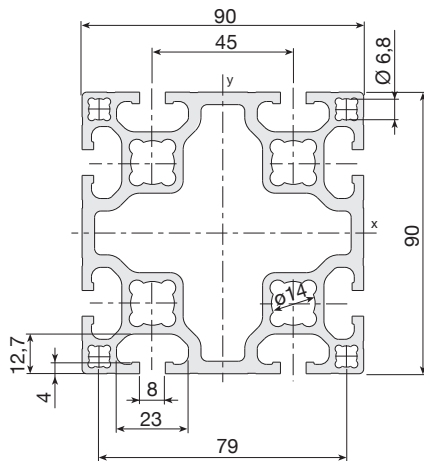


F 01-1 (60x60)		
Weight	3.6	kg/m
Max. length	6	m
Moment of inertia Ix	466,600	mm <sup>4</sup>
Moment of inertia Iy	466,600	mm <sup>4</sup>



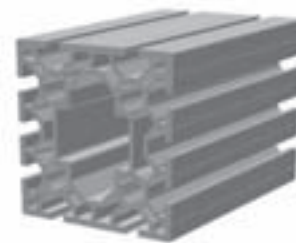
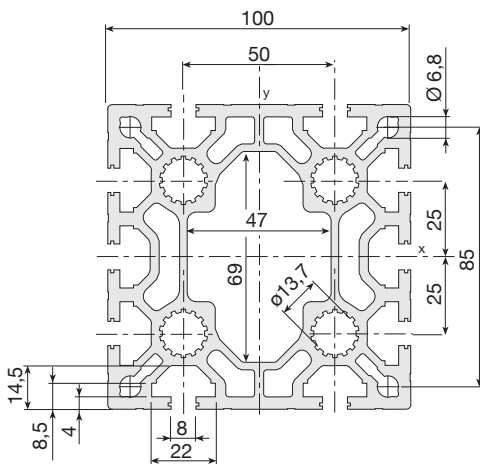
F 01-2 (60x90)		
Weight	4.6	kg/m
Max. length	6	m
Moment of inertia Ix	1,450,500	mm <sup>4</sup>
Moment of inertia Iy	641,600	mm <sup>4</sup>

## Medium profiles



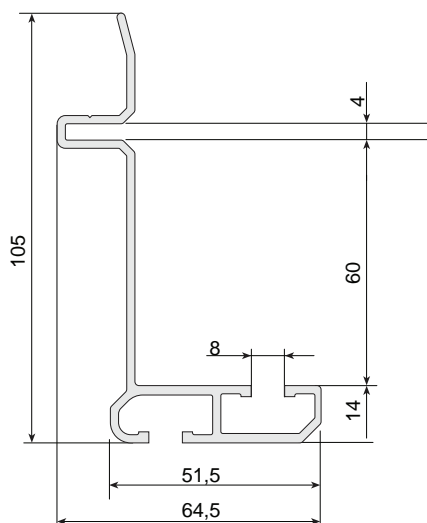
### E 01-4 (90x90)

Weight	6	kg/m
Max. length	6	m
Moment of inertia I <sub>x</sub>	2,027,000	mm <sup>4</sup>
Moment of inertia I <sub>y</sub>	2,027,000	mm <sup>4</sup>
Polar moment of inertia I <sub>z</sub>	1,100,000	mm <sup>4</sup>
Bending section modulus W <sub>x</sub>	45,040	mm <sup>3</sup>
Bending section modulus W <sub>y</sub>	45,040	mm <sup>3</sup>



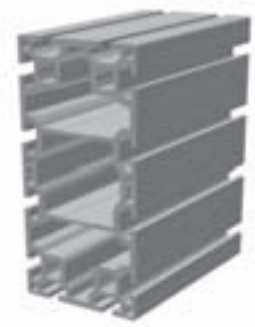
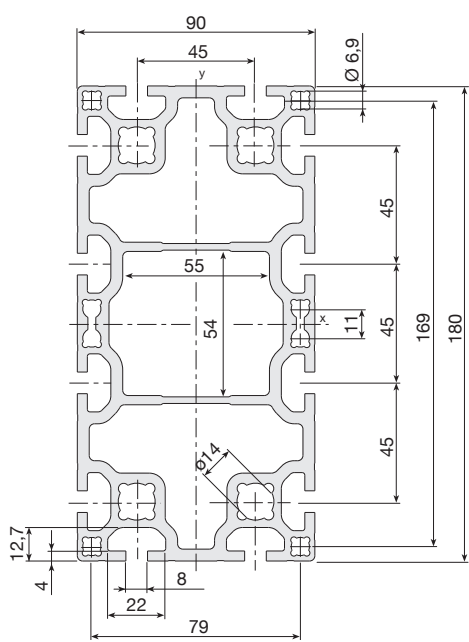
### MA 1-5 (100x100)

Weight	9.5	kg/m
Max. length	6	m
Moment of inertia I <sub>x</sub>	3,800,000	mm <sup>4</sup>
Moment of inertia I <sub>y</sub>	3,650,000	mm <sup>4</sup>
Polar moment of inertia I <sub>z</sub>	1,900,000	mm <sup>4</sup>
Bending section modulus W <sub>x</sub>	76,000	mm <sup>3</sup>
Bending section modulus W <sub>y</sub>	73,000	mm <sup>3</sup>



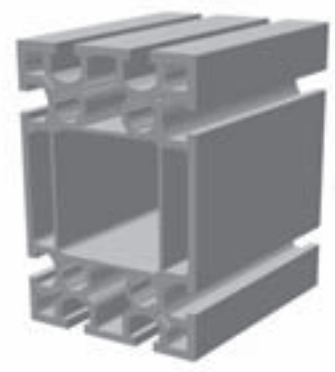
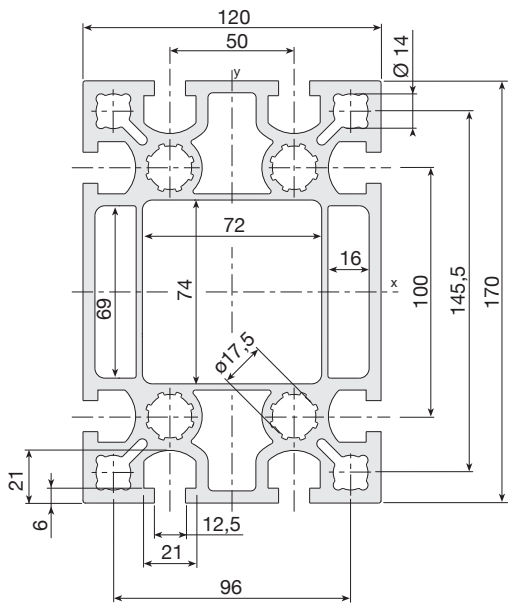
### 7400568 energy chain support profile

Weight	1.3	kg/m
Available length	6	m

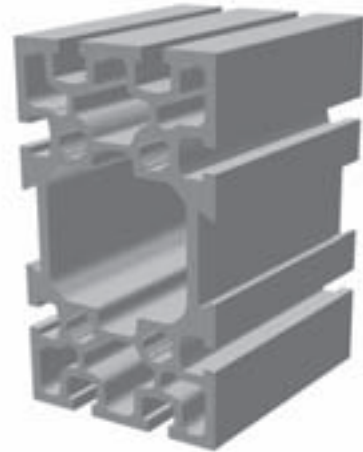
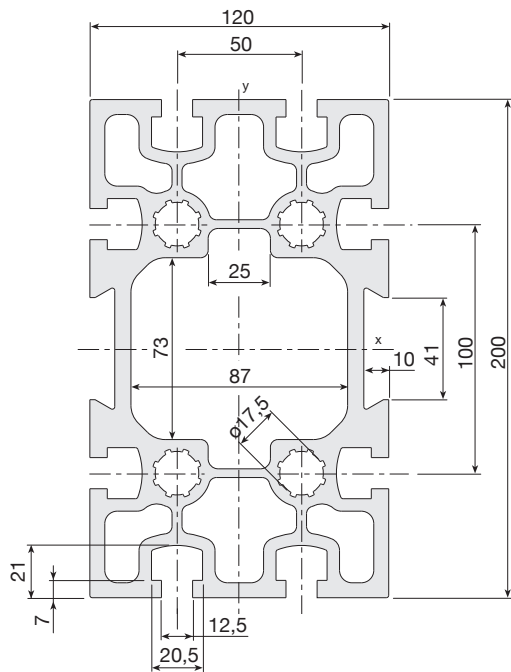


E 01-5 (90x180)		
Weight	approx. 12	kg/m
Max. length	8	m
Moment of inertia Ix	15,180,000	mm <sup>4</sup>
Moment of inertia Iy	4,420,000	mm <sup>4</sup>
Polar moment of inertia Iz	4,400,000	mm <sup>4</sup>
Bending section modulus Wx	168,670	mm <sup>3</sup>
Bending section modulus Wy	98,220	mm <sup>3</sup>

Load bearing profiles

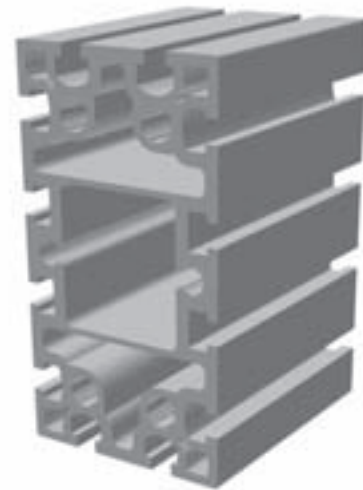
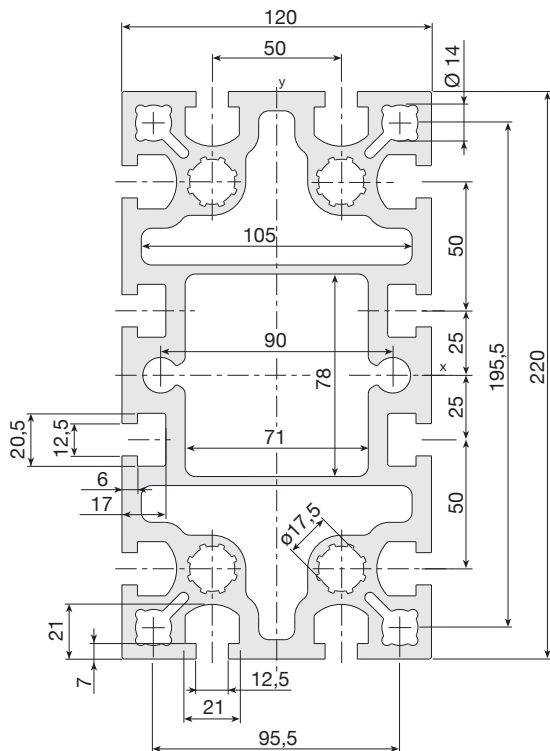


STATYCA (120x170)		
	code 202.1753	
Weight	17	kg/m
Max. length	12	m
Moment of inertia Ix	20,360,000	mm <sup>4</sup>
Moment of inertia Iy	10,200,000	mm <sup>4</sup>
Polar moment of inertia Iz	8,460,000	mm <sup>4</sup>
Bending section modulus Wx	239,500	mm <sup>3</sup>
Bending section modulus Wy	170,000	mm <sup>3</sup>



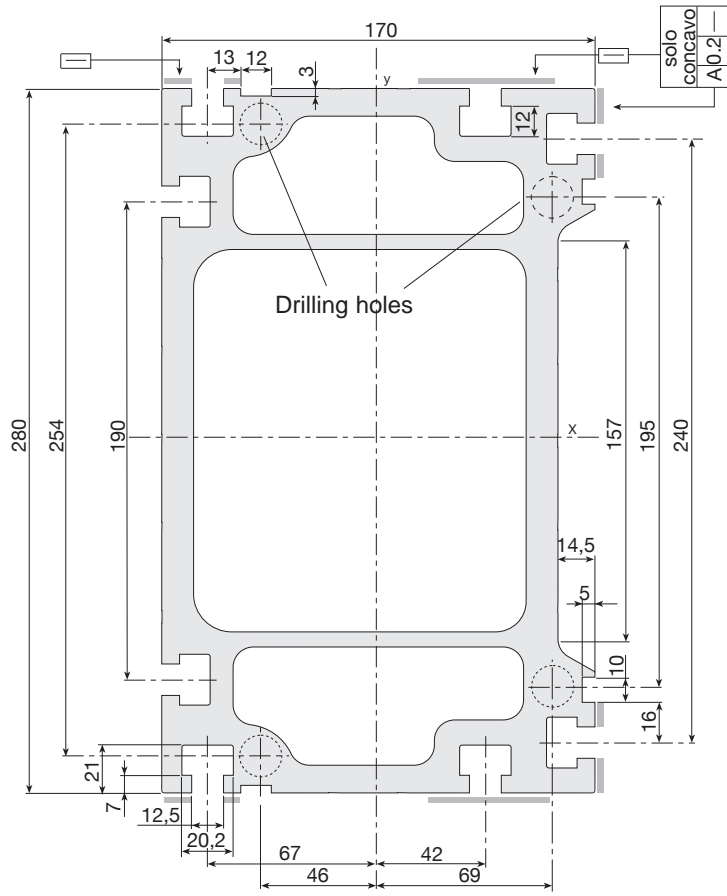
<b>VALYDA (120x200)</b>		<b>code 202.1146</b>
Weight	21	kg/m
Max. length	12	m
Moment of inertia Ix	32,980,000	mm <sup>4</sup>
Moment of inertia Iy	12,980,000	mm <sup>4</sup>
Polar moment of inertia Iz	10,500,000	mm <sup>4</sup>
Bending section modulus Wx	329,800	mm <sup>3</sup>
Bending section modulus Wy	215,130	mm <sup>3</sup>
Only anodized up to	9	m

\* Dovetail inserts available in various size

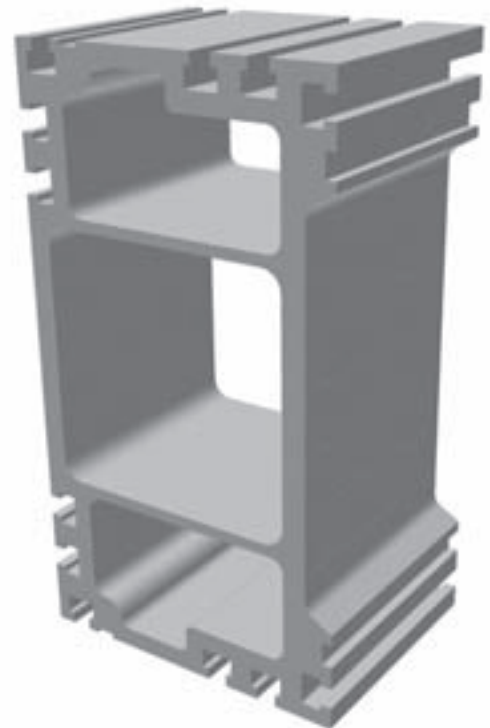
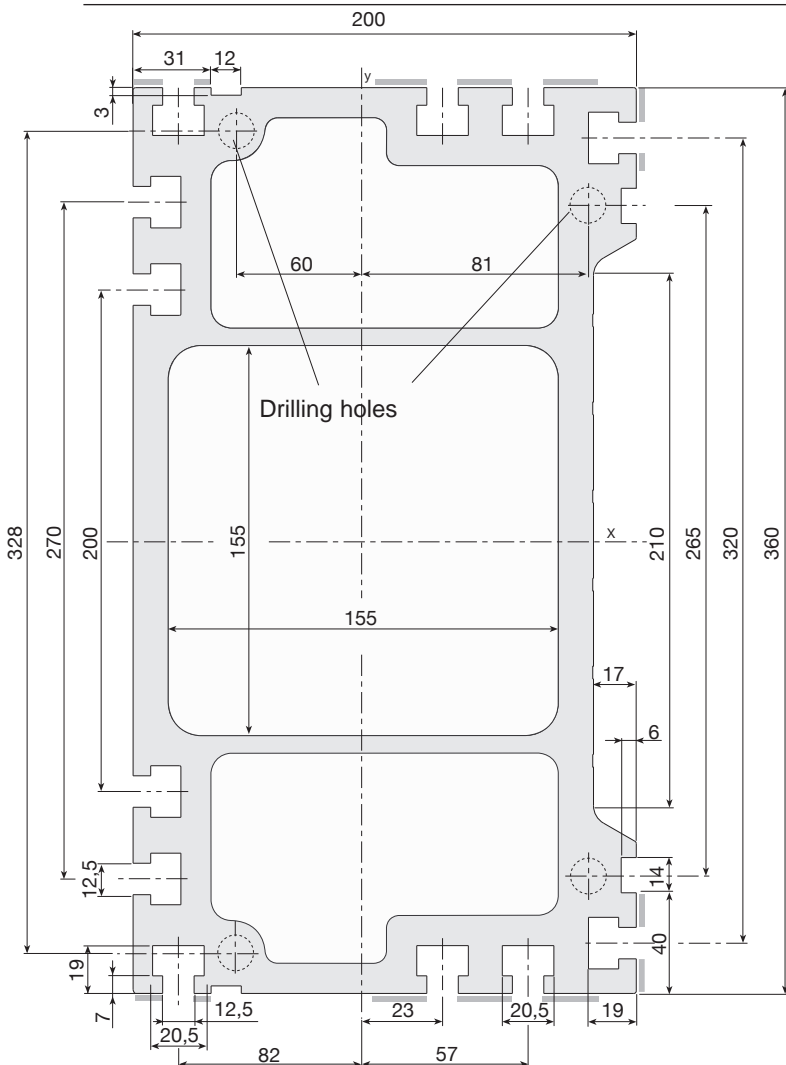


<b>LOGYCA (120x220)</b>		<b>code 202.2184</b>
Weight	25	kg/m
Max. length	12	m
Moment of inertia Ix	46,550,000	mm <sup>4</sup>
Moment of inertia Iy	15,650,000	mm <sup>4</sup>
Polar moment of inertia Iz	14,300,000	mm <sup>4</sup>
Bending section modulus Wx	423,182	mm <sup>3</sup>
Bending section modulus Wy	260,833	mm <sup>3</sup>
Only anodized up to	9	m





<b>PRATYCA (170x280)</b>		code 202.1147
Weight	40	kg/m
Max. length	12	m
Moment of inertia I <sub>x</sub>	134,103,000	mm <sup>4</sup>
Moment of inertia I <sub>y</sub>	50,288,000	mm <sup>4</sup>
Polar moment of inertia I <sub>z</sub>	72,700,000	mm <sup>4</sup>
Bending section modulus W <sub>x</sub>	957,790	mm <sup>3</sup>
Bending section modulus W <sub>y</sub>	591,620	mm <sup>3</sup>

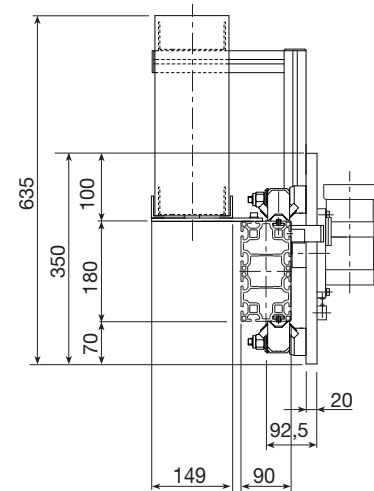
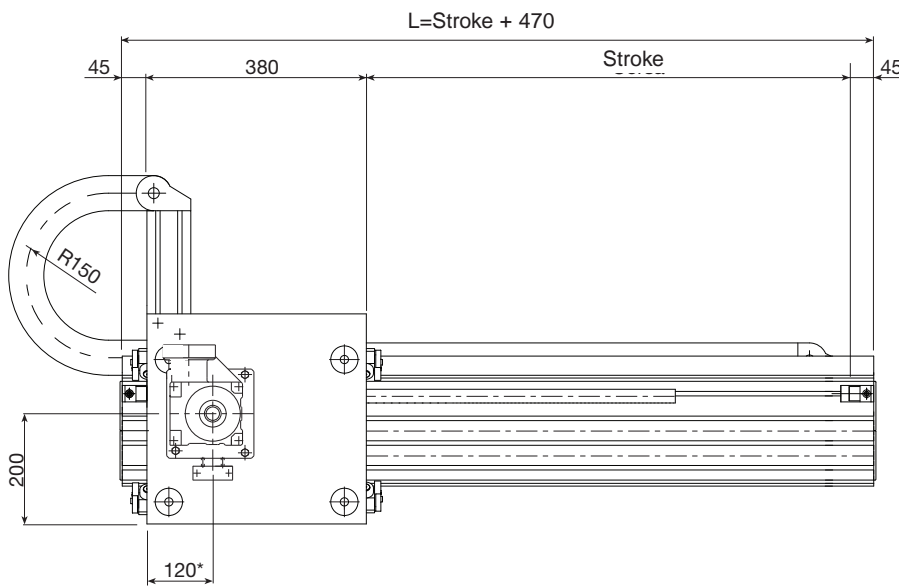


<b>SOLYDA (200x360)</b>		code 202.0342
Weight	60	kg/m
Max. length	12	m
Moment of inertia I <sub>x</sub>	318,687,200	mm <sup>4</sup>
Moment of inertia I <sub>y</sub>	105,533,000	mm <sup>4</sup>
Polar moment of inertia I <sub>z</sub>	150,000,000	mm <sup>4</sup>
Bending section modulus (W <sub>x</sub> )	1,770,500	mm <sup>3</sup>
Bending section modulus (W <sub>y</sub> )	1,035,300	mm <sup>3</sup>

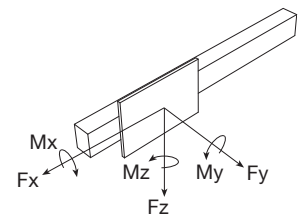
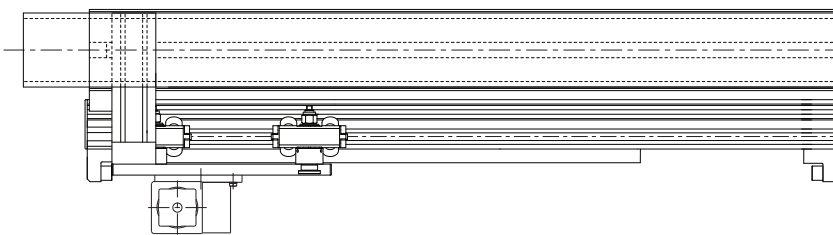
# PAR 1

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3.5 [m/s]
Max. acceleration	8 [m/s <sup>2</sup> ]
Repeatability	± 0.2 [mm]
Beam max. length without joint	8,000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PAR 1	490	1,170	1,170	2,700	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 10

Construction data	X-axis
Load-bearing beam (see page 15/17)	E01-5
Rack (tempered, helical teeth: module KTD)	module 2 [mm <sup>2</sup> ]
Guide rail	28x11 (hardened)
Translation	4 roller slides with 4 rollers Ø30
Room available for energy chain	115x45 approx. [mm <sup>2</sup> ]
Pinion pitch diameter type ND	44.56 (as an alternative 63.66) [mm]

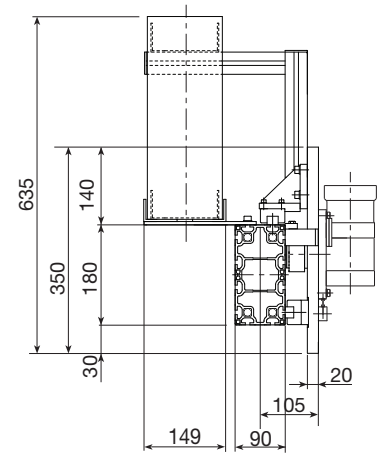
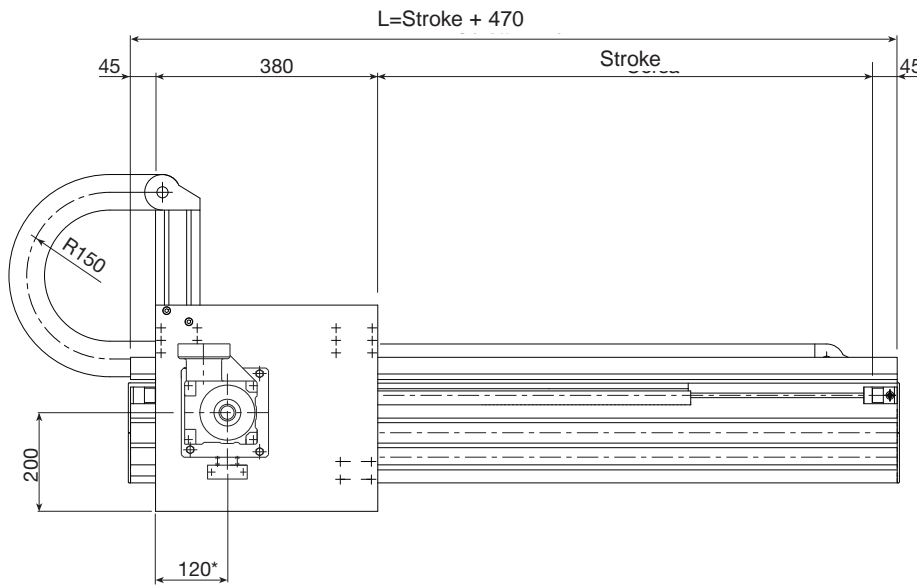
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 28 [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 15 [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 19 [kg/m]

## Formula:

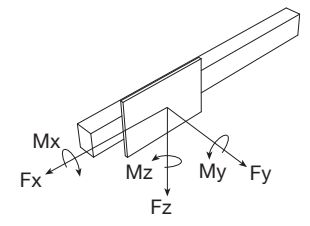
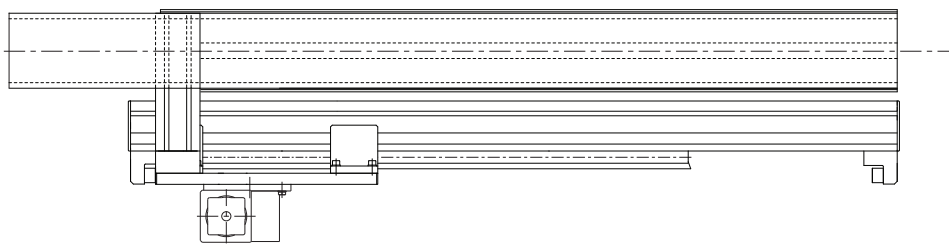
Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)		
Max. speed	3.5	[m/s]
Max. acceleration	10	[m/s <sup>2</sup> ]
Repeatability	± 0.05	[mm]
Beam max. length without joint	8,000	[mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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 15/17)	E01-5	
Rack (tempered, helical teeth, ground: module KSD)	module 2	[mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 20	
Room available for energy chain	115x45 approx.	[mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	44.56 (as an alternative 63.66)	[mm]

Weights	X-axis	
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 27	[kg]
Slide (plates + carriages)	M <sub>slitta</sub> = 14	[kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 19	[kg/m]

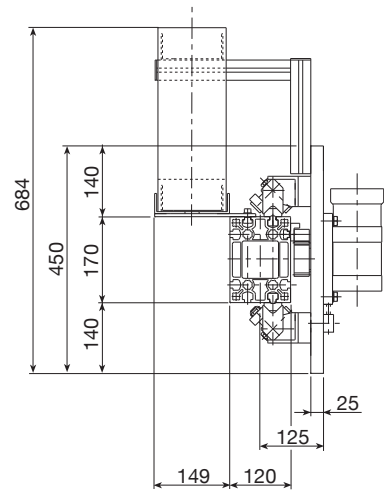
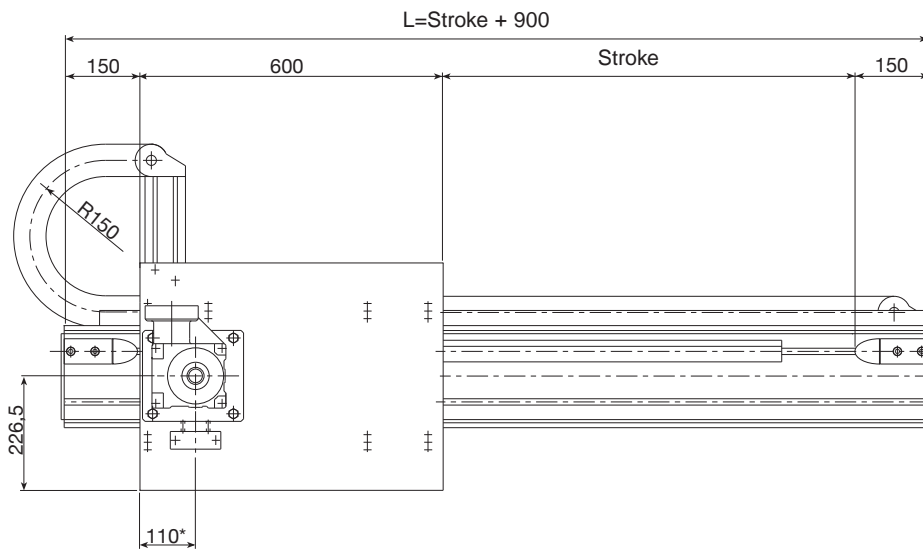
**Formules:**

Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$   
 Module total weight:  $M_{tot} = M_{base} + (q_x \cdot \text{stroke}_x) / 1,000$  Stroke<sub>x</sub> [mm]

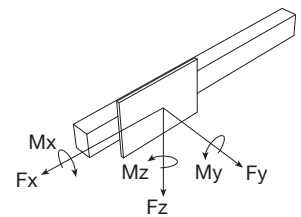
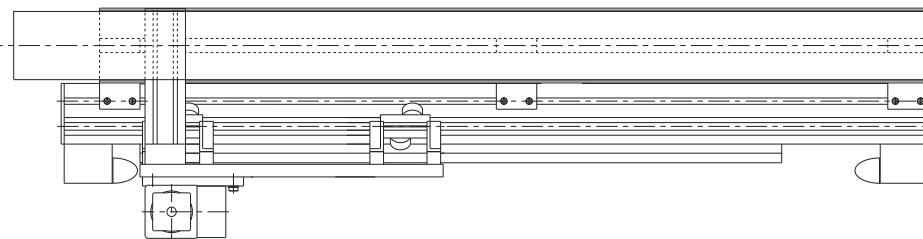
# PAR 2

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3.5 [m/s]
Max. acceleration	10 [m/s <sup>2</sup> ]
Repeatability	± 0.2 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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 10

Construction data	X-axis
Load-bearing beam (see page 15/17)	Statyca
Rack (tempered, helical teeth: module KTD)	module 3 [mm <sup>2</sup> ]
Guide rail	35x16 (hardened and polished)
Translation	4 roller slides with 2 rollers Ø40
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	63.66 (as an alternative 89.13) [mm]

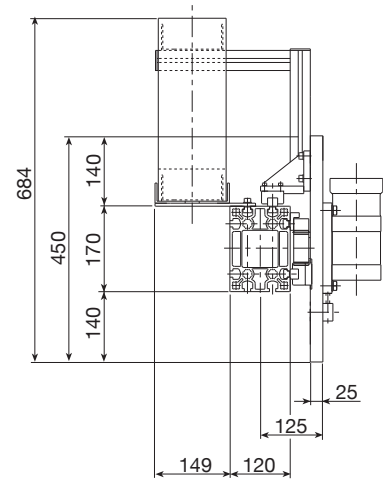
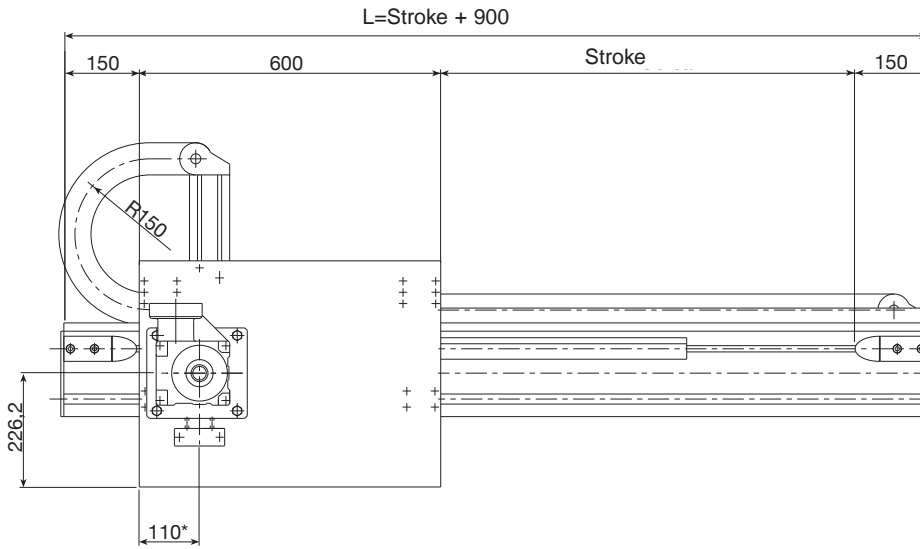
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 59 approx. [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 29 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 31 approx. [kg/m]

**Formula:**

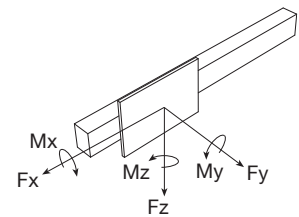
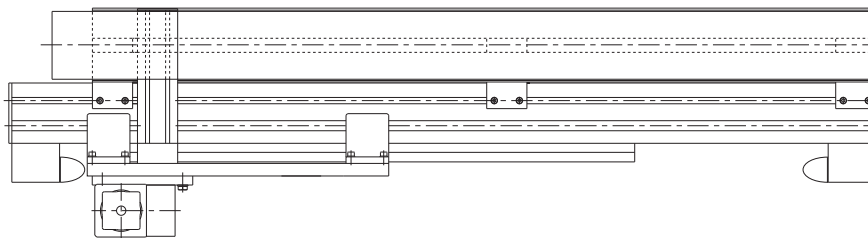
Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3.5 [m/s]
Max. acceleration	10 [m/s <sup>2</sup> ]
Repeatability	± 0.05 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions
Model M <sub>x</sub> [Nm] M <sub>y</sub> [Nm] M <sub>z</sub> [Nm] F <sub>x</sub> [N] F <sub>y</sub> [N] F <sub>z</sub> [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 15/17)	Statyca
Rack (tempered, helical teeth, ground: module KSD)	module 3 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 20
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	63.66 (as an alternative 89.13) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 57 approx. [kg]
Slide (plates + carriages)	M <sub>slitta</sub> = 29 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 29 approx. [kg/m]

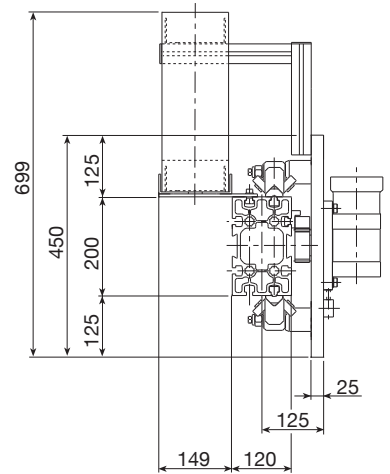
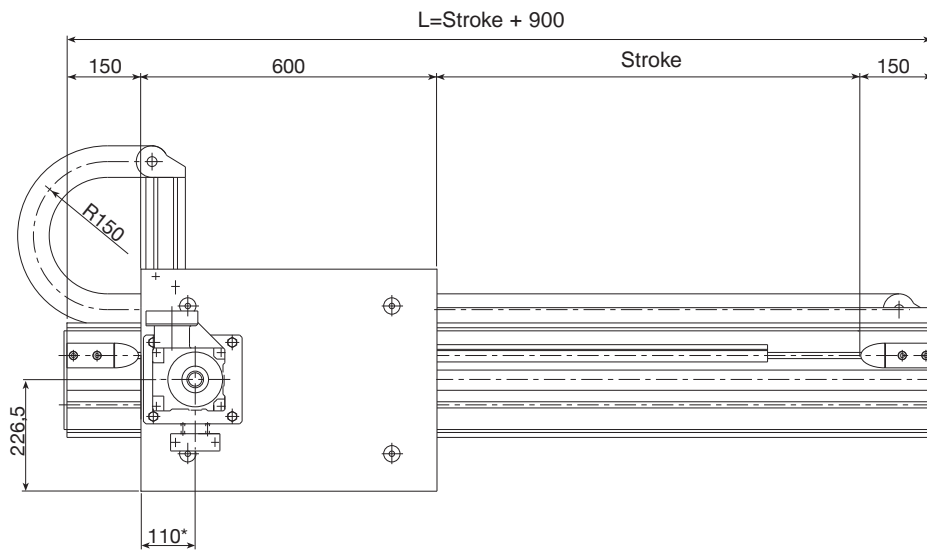
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

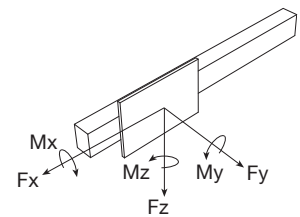
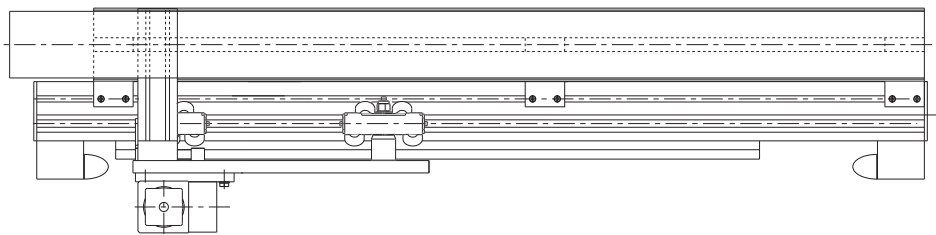
# PAR 3

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3 [m/s]
Max. acceleration	7 [m/s <sup>2</sup> ]
Repeatability	± 0.2 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PAR 3	1,115	2,685	2,685	6,100	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.

Assembly positions and load direction, see page 10

Construction data	X-axis
Load-bearing beam (see page 15/17)	Valyda
Rack (tempered, helical teeth: module KTD)	module 3 [mm <sup>2</sup> ]
Guide rail	28x11 (hardened and polished)
Translation	4 roller slides with 4 rollers Ø40
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	63.66 (as an alternative 89.13) [mm]

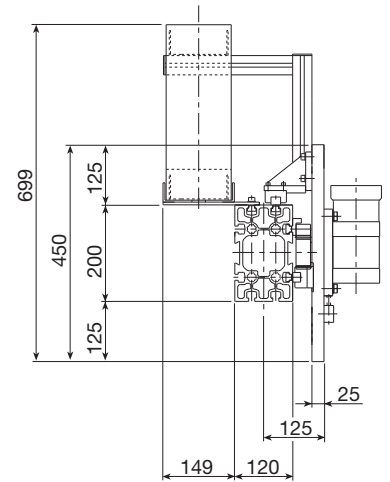
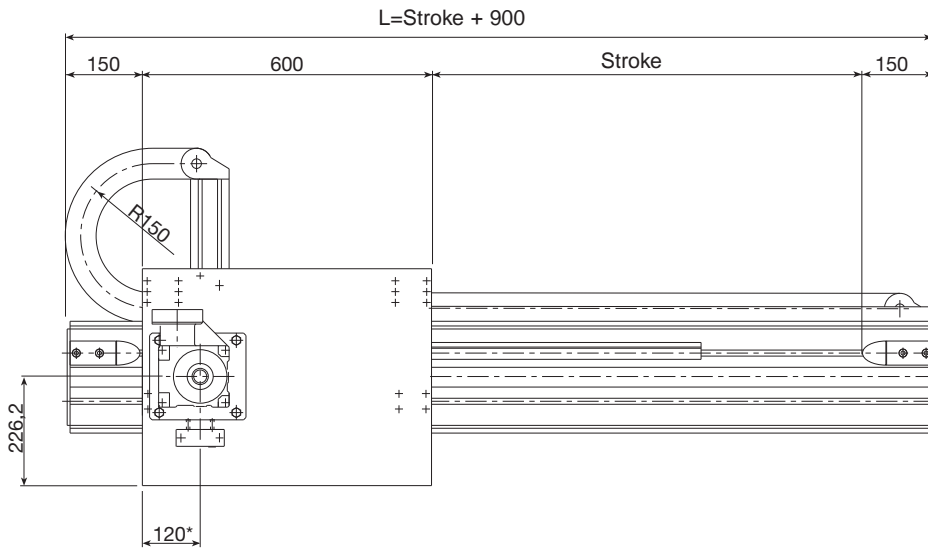
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 70 approx. [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 36 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 35 approx. [kg/m]

**Formula:**

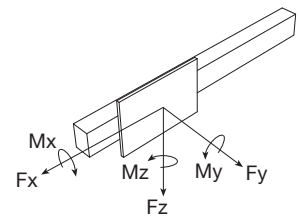
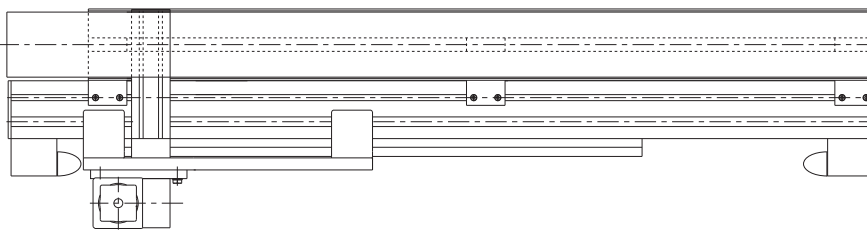
Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

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 ( $L \leq 1,600$ mm)	
Max. speed	3 [m/s]
Max. acceleration	7 [m/s <sup>2</sup> ]
Repeatability	$\pm 0.05$ [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 6,100 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 15/17)	Valyda
Rack (tempered, helical teeth, ground: module KSD)	module 3 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 20
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	63.66 (as an alternative 89.13) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =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]

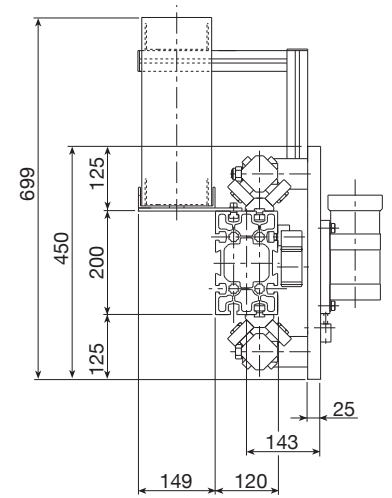
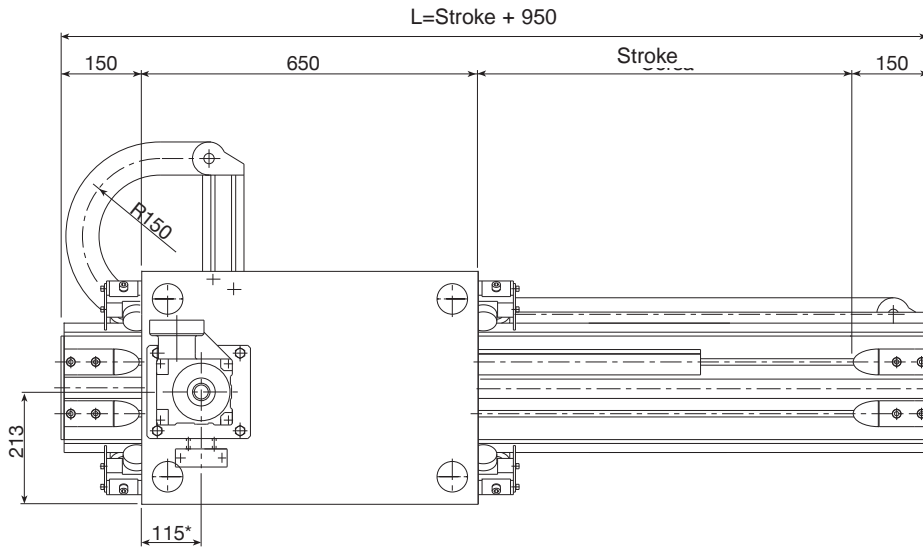
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

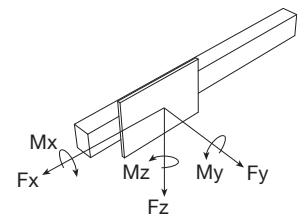
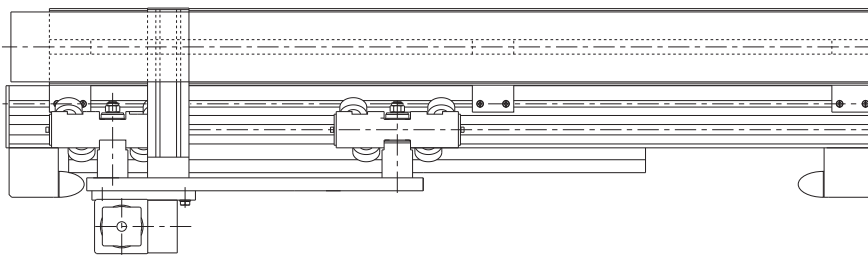
# PAR 4

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3 [m/s]
Max. acceleration	7 [m/s <sup>2</sup> ]
Repeatability	± 0.2 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PAR 4	2,200	5,350	5,380	8,400	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.

Assembly positions and load direction, see page 10

Construction data	X-axis
Load-bearing beam (see page 15/17)	Valyda
Rack (tempered, helical teeth: module KTD)	module 4 [mm <sup>2</sup> ]
Guide rail	55x25 (hardened and polished)
Translation	4 roller slides with 4 rollers Ø52
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Ø Pinion pitch diameter type ND	76.39 (as an alternative 106.10) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 96 approx. [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 48 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 48 approx. [kg/m]

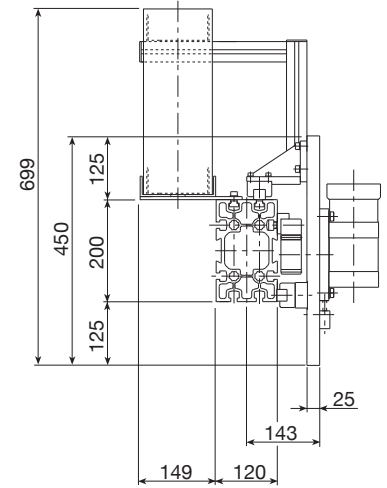
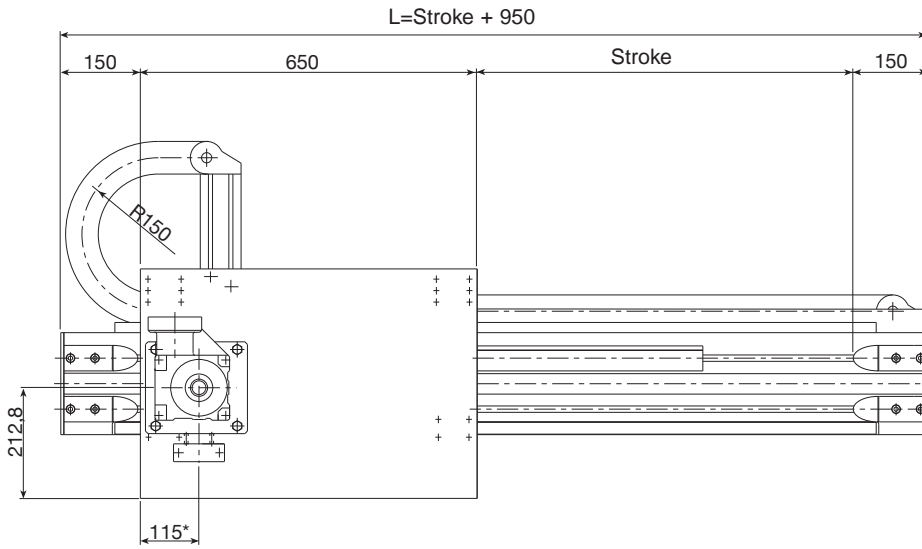
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

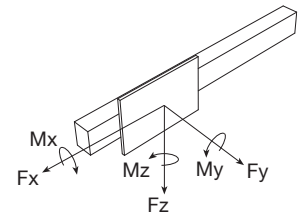
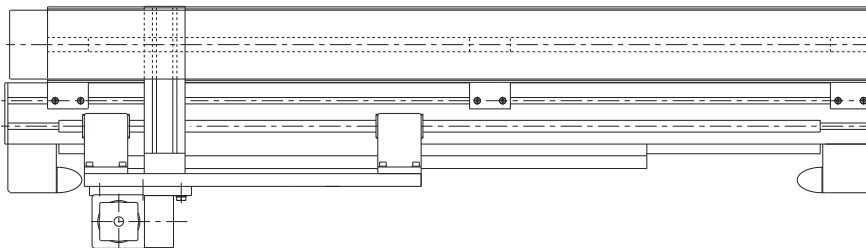


P / A / S / M / 200 / Stroke / Length / FRD / ...

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 ( $L \leq 1,600$ mm)	
Max. speed	3 [m/s]
Max. acceleration	7 [m/s <sup>2</sup> ]
Repeatability	$\pm 0,05$ [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	8,400	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 15/17)	Valyda
Rack (tempered, helical teeth, ground: module KSD)	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 25
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =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]

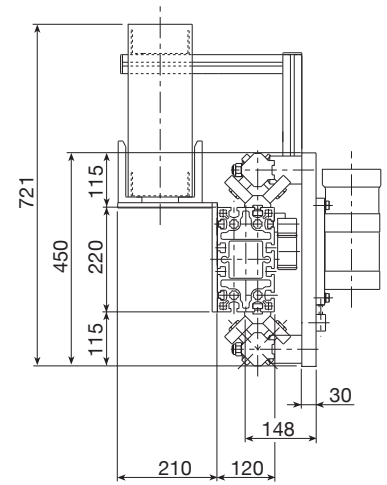
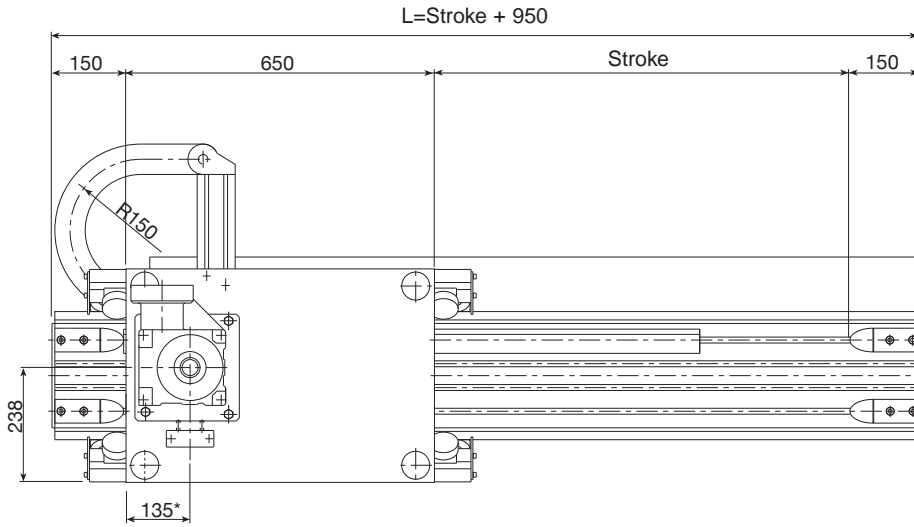
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

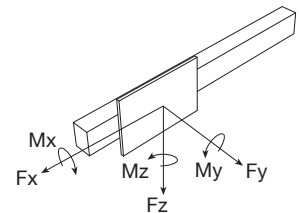
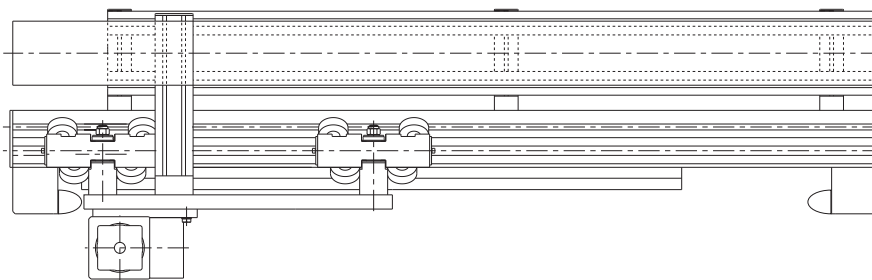
# PAR 5

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)		
Max. speed	3	[m/s]
Max. acceleration	6	[m/s <sup>2</sup> ]
Repeatability	± 0.2	[mm]
Beam max. length without joint	12000	[mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PAR 5	3,000	6,720	6,720	9,800	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 10

Construction data	X-axis
Load-bearing beam (see page 15/17)	Logyca
Rack (tempered, helical teeth: module KTD)	module 4 [mm <sup>2</sup> ]
Guide rail	55x25 (hardened and polished)
Translation	4 roller slides with 4 rollers Ø62
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Ø Pinion pitch diameter type ND	76.39 (as an alternative 106.10) [mm]

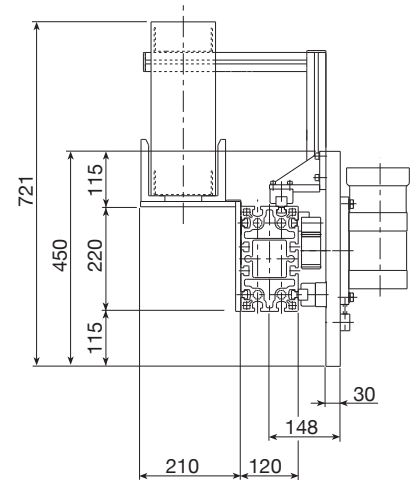
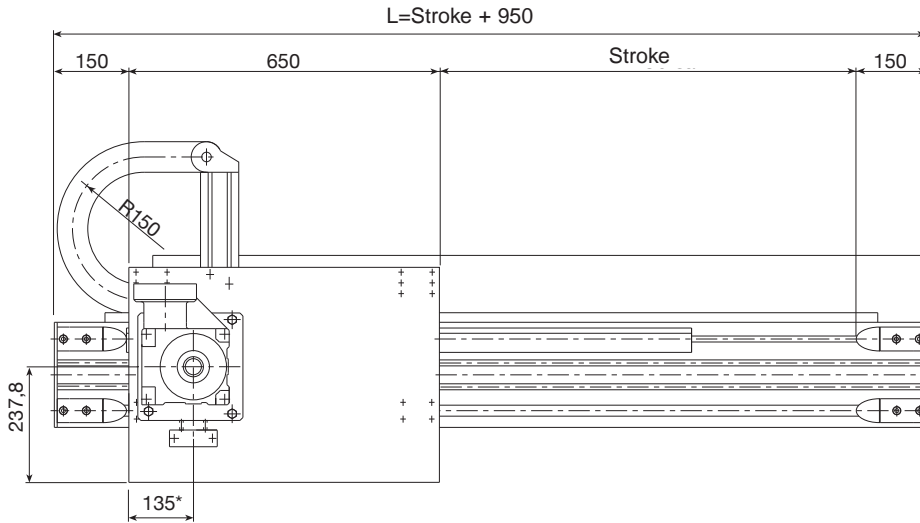
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 106 approx. [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 54 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 52 approx. [kg/m]

**Formula:**

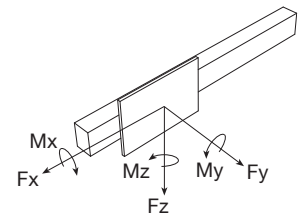
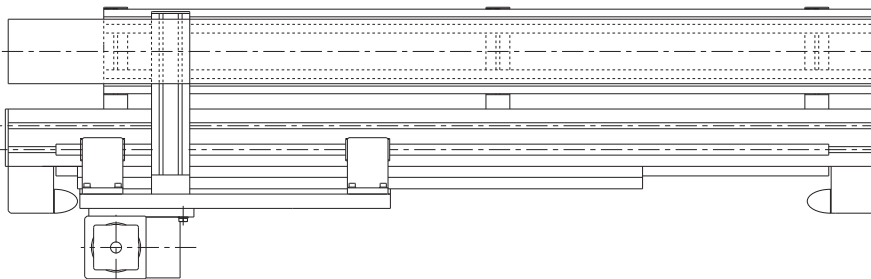
Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

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

250 Kg PC 500 Kg  
High Cycle Rate Low Cycle Rate



\* For indication only, variable according to the gearbox chosen



Performances	X-axis
Max. load ( $P_{c_{max}}$ ) with load on axis ( $L \leq 1,600$ mm)	
Max. speed	3 [m/s]
Max. acceleration	6 [m/s <sup>2</sup> ]
Repeatability	$\pm 0.05$ [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	9,800	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 15/17)	Logyca
Rack (tempered, helical teeth, ground: module KSD)	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 25
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =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]

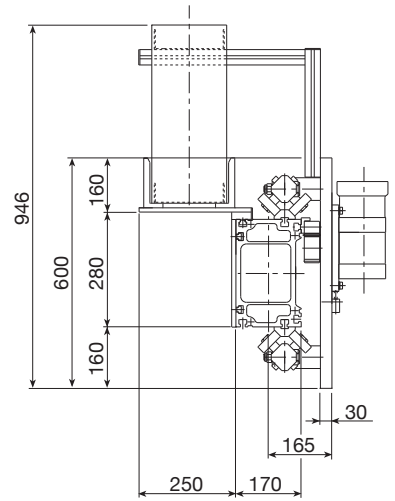
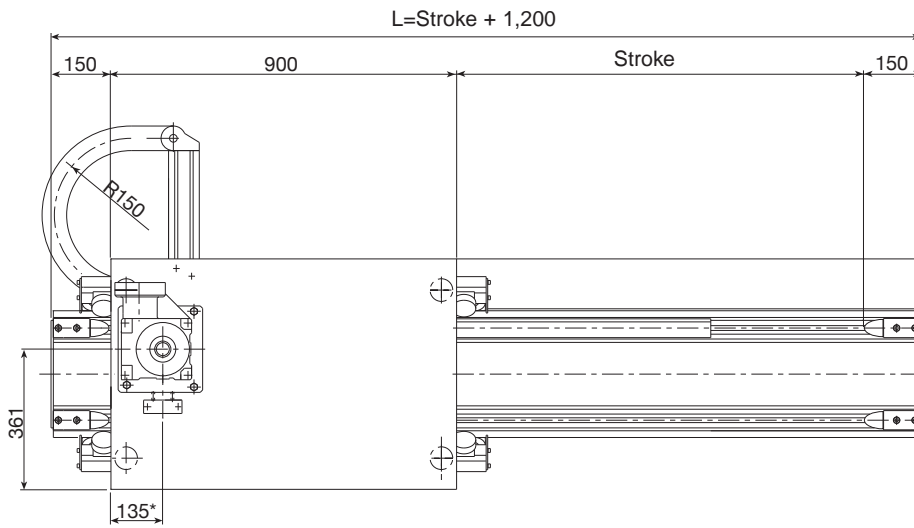
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

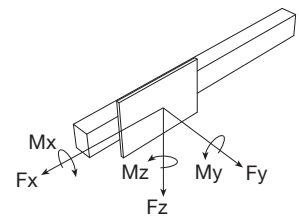
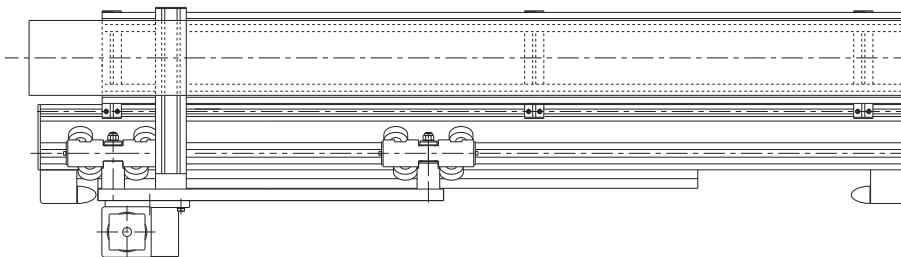
# PAR 6

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3 [m/s]
Max. acceleration	4 [m/s <sup>2</sup> ]
Repeatability	± 0.2 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PAR 6	3,700	8,770	8,770	10,280	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 10

Construction data	X-axis
Load-bearing beam (see page 15/17)	Pratyca
Rack (tempered, helical teeth: module KTD)	module 4 [mm <sup>2</sup> ]
Guide rail	55x25 (hardened and polished)
Translation	4 roller slides with 4 rollers Ø62
Room available for energy chain	175x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10) [mm]

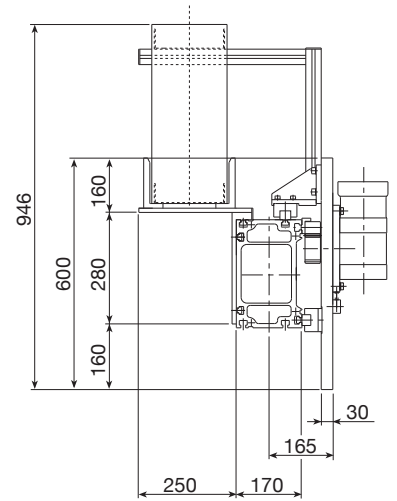
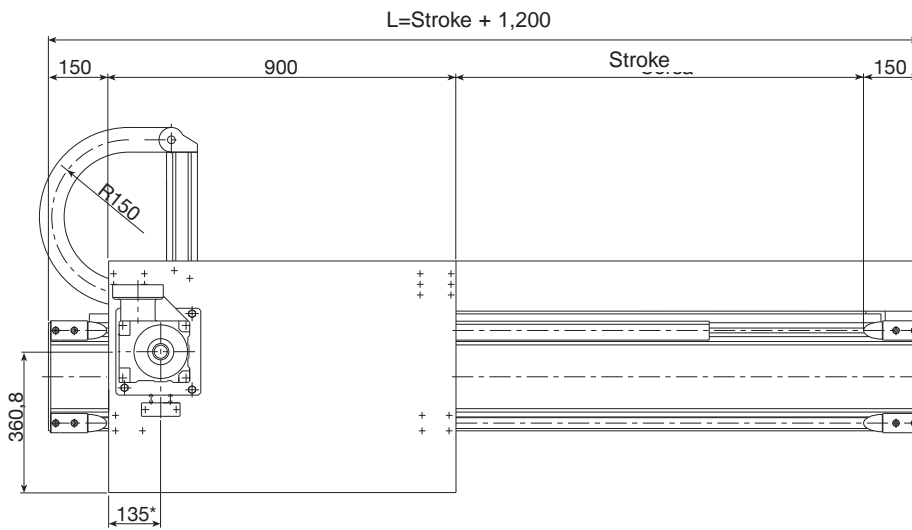
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 164 [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 79 [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 19 [kg/m]

**Formula:**

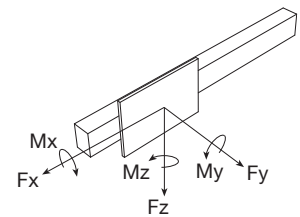
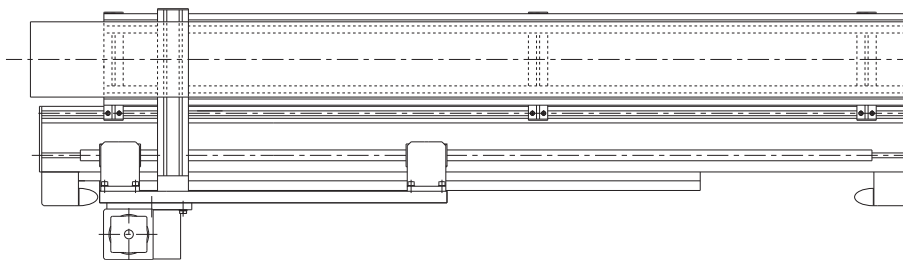
Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	3 [m/s]
Max. acceleration	5 [m/s <sup>2</sup> ]
Repeatability	± 0.05 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions
Model M <sub>x</sub> [Nm] M <sub>y</sub> [Nm] M <sub>z</sub> [Nm] F <sub>x</sub> [N] F <sub>y</sub> [N] F <sub>z</sub> [N]
PASM 6 4,160 6,750 6,750 10,280 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 15/17)	Pratyca
Rack (tempered, helical teeth, ground: module KSD)	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 30
Room available for energy chain	175x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10) [mm]

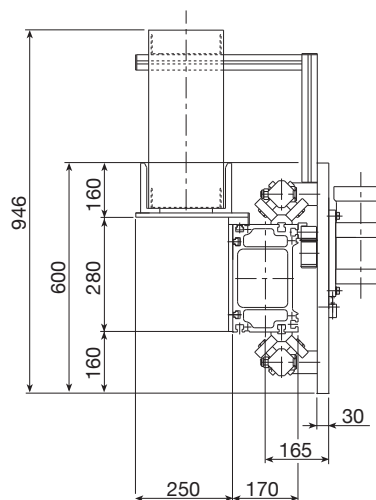
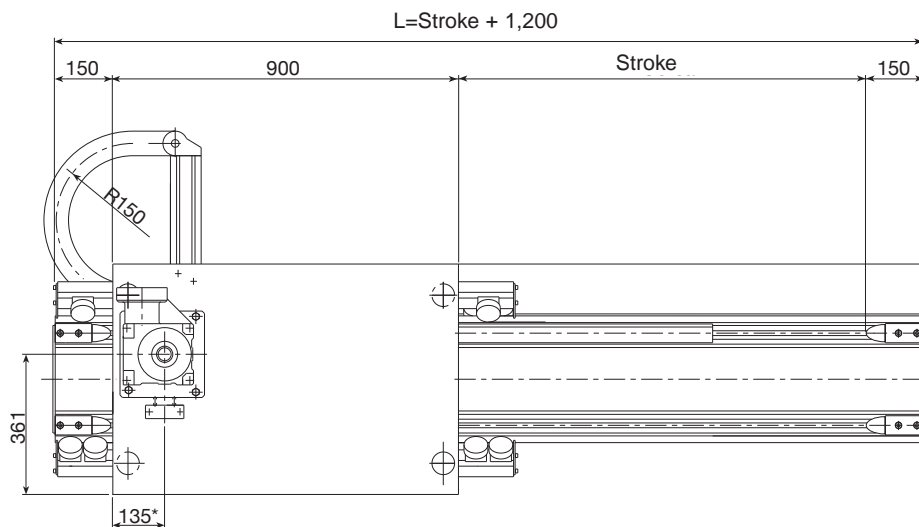
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 149 approx. [kg]
Slide (plates + carriages)	M <sub>slitta</sub> = 69 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 60 approx. [kg/m]

**Formula:**  
 Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

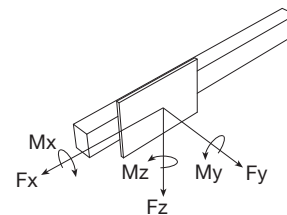
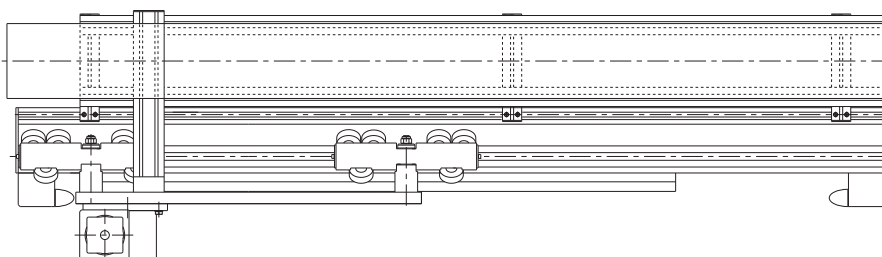
# PAR 8

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	2.5 [m/s]
Max. acceleration	2 [m/s <sup>2</sup> ]
Repeatability	± 0.25 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PAR 8	5,550	8,800	13,160	10,280	44,800	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 63-64).

### Assembly positions and load direction, see page 10

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

Construction data	X-axis
Load-bearing beam (see page 15/17)	Pratyca
Rack (tempered, helical teeth: module KTD)	module 4 [mm <sup>2</sup> ]
Guide rail	55x25 (hardened and polished)
Translation	4 roller slides with 6 rollers Ø62
Room available for energy chain	175x45 [mm <sup>2</sup> ]
Ø Pinion pitch diameter type ND	76.39 (as an alternative 106.10) [mm]

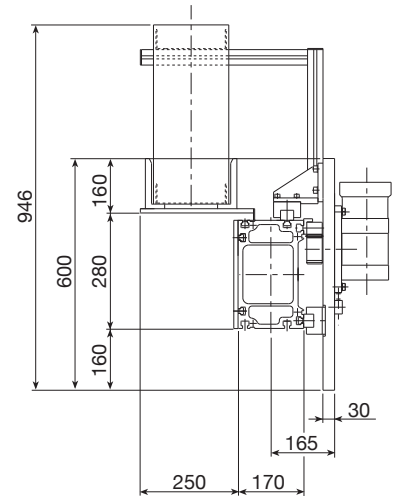
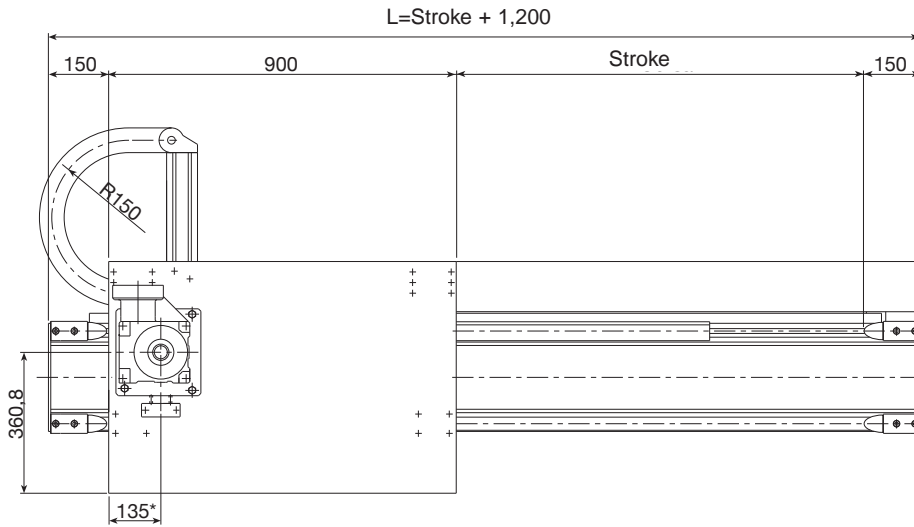
Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 173 approx. [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 88 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 66 approx. [kg/m]

### Formula:

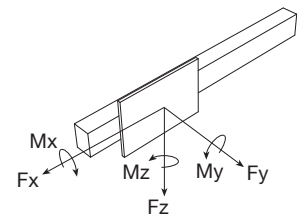
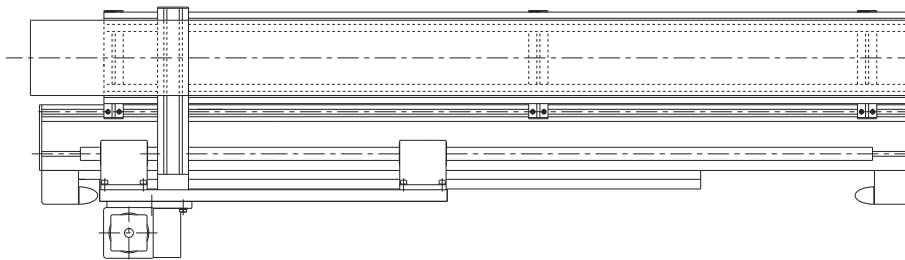
Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	2.5 [m/s]
Max. acceleration	2 [m/s <sup>2</sup> ]
Repeatability	± 0.1 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions						
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
PASM 8	5,840	13,100	13,100	11,420	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 (tempered, helical teeth, ground: module KSD)	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 35
Room available for energy chain	175x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	76.39 (as an alternative 106.10) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 159 approx. [kg]
Slide (plates + carriages)	M <sub>slitta</sub> = 76 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 64 approx. [kg/m]

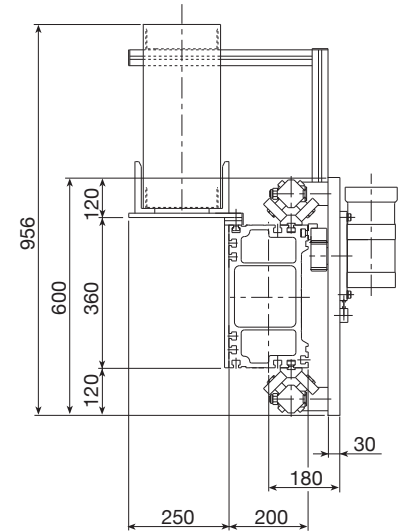
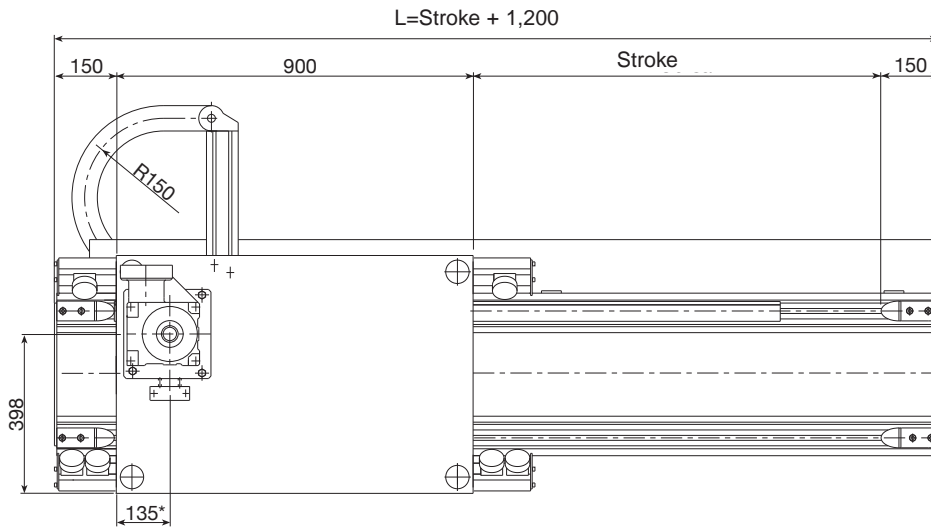
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

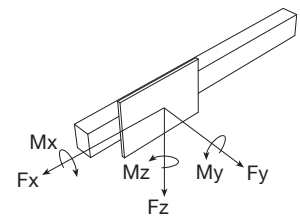
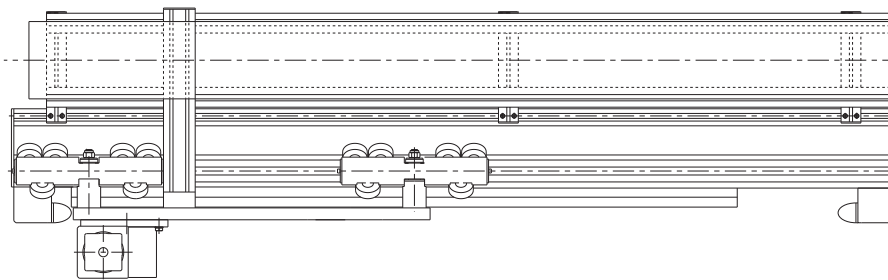
# PAR 10

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

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	2.5 [m/s]
Max. acceleration	2 [m/s <sup>2</sup> ]
Repeatability	± 0.25 [mm]
Beam max. length without joint	12000 [mm]

### Assembly positions and load direction, see page 10

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

Recommended max working conditions
Model M <sub>x</sub> [Nm] M <sub>y</sub> [Nm] M <sub>z</sub> [Nm] F <sub>x</sub> [N] F <sub>y</sub> [N] F <sub>z</sub> [N]
PAR 10 6,900 8,800 13,160 10,280 44,860 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 63-64).

Construction data	X-axis
Load-bearing beam (see page 15/17)	Solyda
Rack (tempered, helical teeth: module KTD)	module 4 [mm <sup>2</sup> ]
Guide rail	55x25 (hardened and polished)
Translation	4 roller slides with 6 rollers Ø62
Room available for energy chain	115x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10) [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 196 approx. [kg]
Slide (plates + carriages)	M <sub>slide</sub> = 88 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 85 approx. [kg/m]

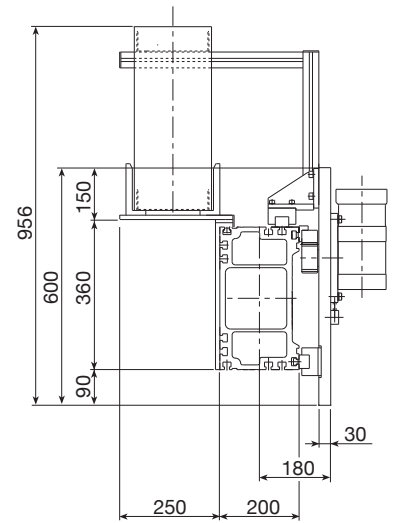
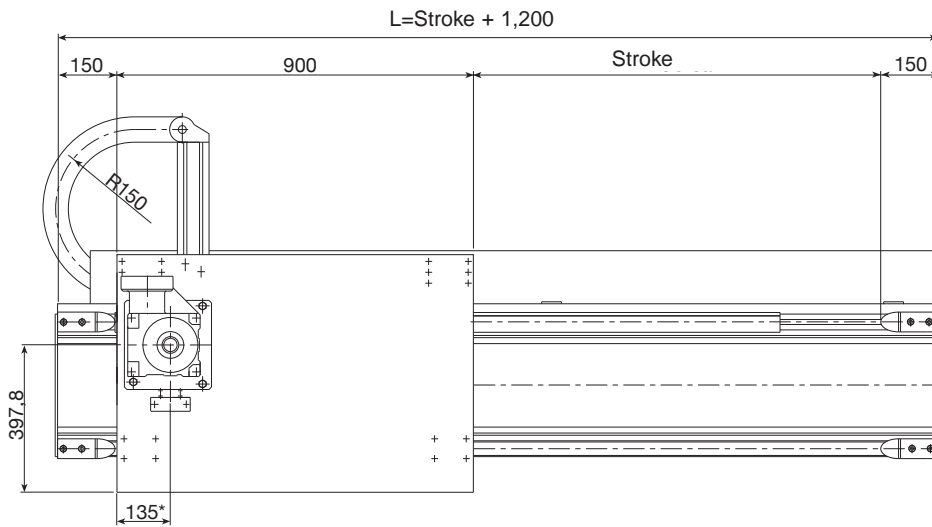
### Formula:

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

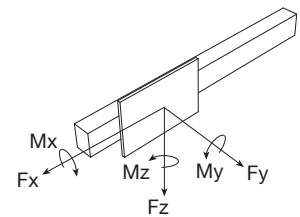
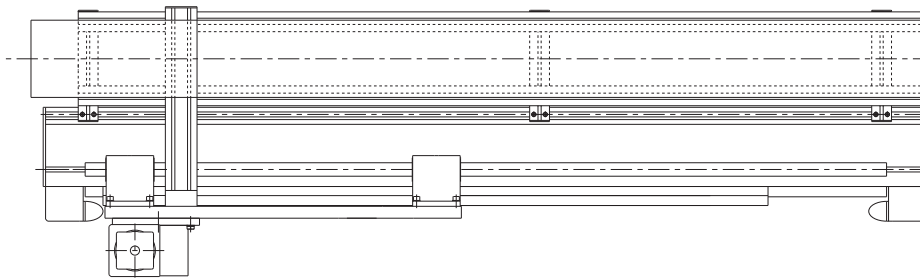


P / A / S / M / 360 / Stroke / Length / FRD / ...

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 <sub>max</sub> ) with load on axis (L ≤ 1,600 mm)	
Max. speed	2.5 [m/s]
Max. acceleration	3 [m/s <sup>2</sup> ]
Repeatability	± 0.1 [mm]
Beam max. length without joint	12000 [mm]

Recommended max working conditions
Model M <sub>x</sub> [Nm] M <sub>y</sub> [Nm] M <sub>z</sub> [Nm] F <sub>x</sub> [N] F <sub>y</sub> [N] F <sub>z</sub> [N]
PASM10 7,240 13,100 13,100 11,600 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)	Solyda
Rack (tempered, helical teeth, ground: module KSD)	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	Size 35
Room available for energy chain	175x45 [mm <sup>2</sup> ]
Pinion pitch diameter (induction-hardened, ground - RD)	127.32 [mm]

Weights	X-axis
"Base" model (stroke <sub>x</sub> =0)	M <sub>base</sub> = 182 approx. [kg]
Slide (plates + carriages)	M <sub>slitta</sub> = 76 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>x</sub> = 83 approx. [kg/m]

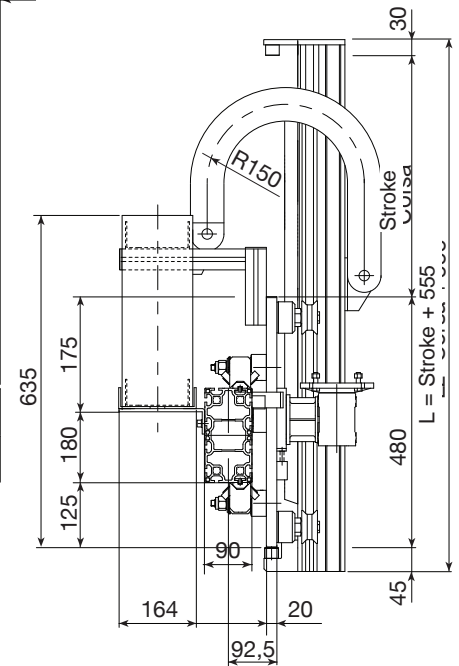
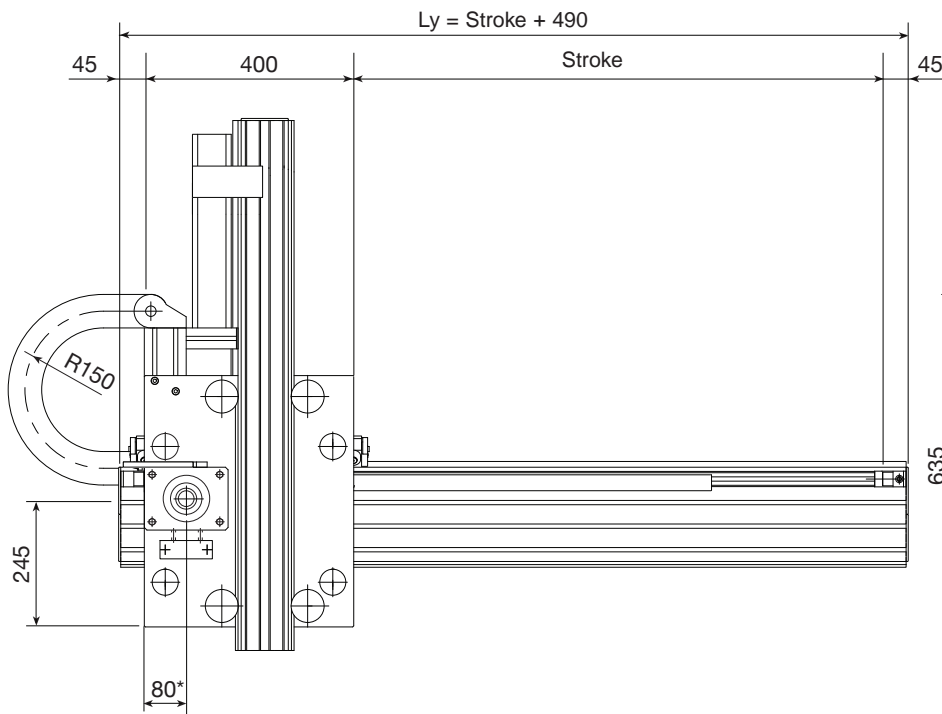
**Formula:**

Module total weight:  $M_{tot} = M_{base} + (q_x \cdot stroke_x) / 1,000$  Stroke<sub>x</sub> [mm]

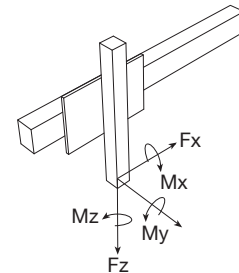
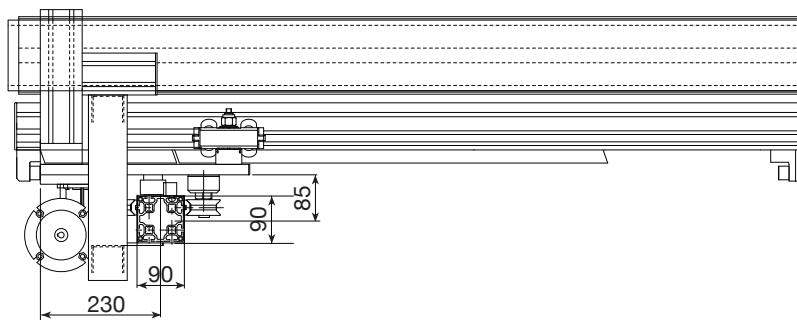
# PAR 1/05

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

5 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 ( $P_{c\ max}$ ) with load on axis ( $L_z \leq 1,600\ mm$ )			
Max. speed	3.5	3.5	[m/s]
Max. acceleration	8	5	[m/s <sup>2</sup> ]
Repeatability	-	$\pm 0.2^*$	[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	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 15/17)	E01-5	E01-4
Rack (tempered, helical teeth: module KTD)	module 2	module 2 [mm <sup>2</sup> ]
Guide rails	28x11 (hardened)	28x11 (hardened)
Translation	4 roller slides with 4 rollers $\varnothing 30$	4 V-shaped rollers $\varnothing 63$
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	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]

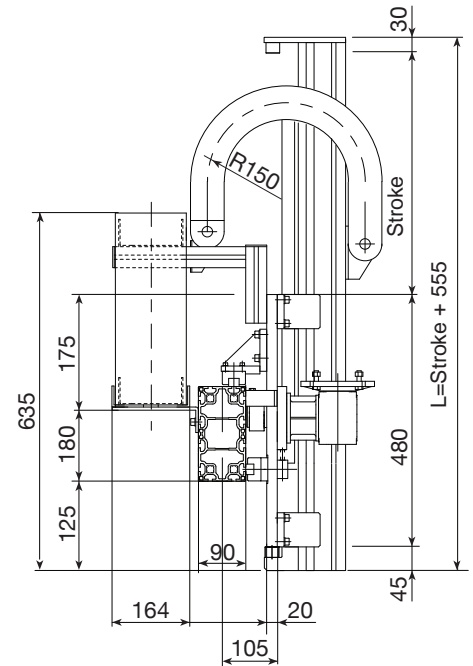
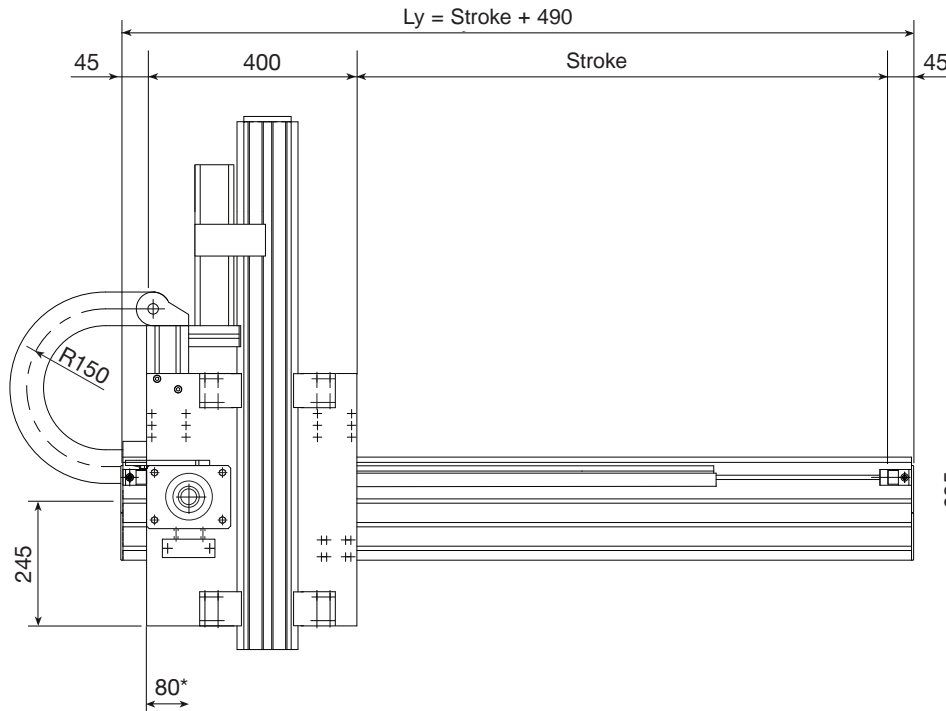
### Formules:

Actual load:  $P_{eff} = P_{max} - (L_z - 1,600) / 1,000 \cdot q_z < of\ Pc$

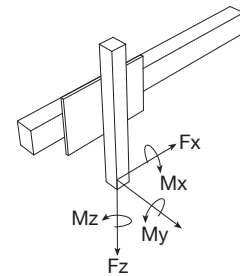
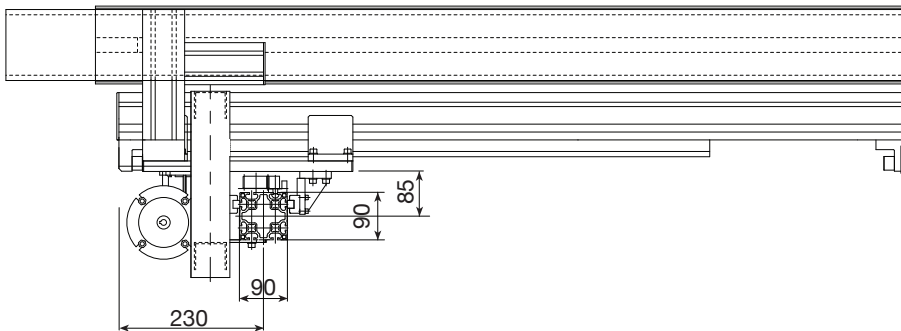
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot stroke_y + q_z \cdot stroke_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

Y-Axis / P / A / S / 180 / Stroke / Length / FRD / ...  
 Z-Axis / P / A / S / 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3.5	3.5 [m/s]
Max. acceleration	8	5 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	E01-5	E01-4
Rack (tempered, helical teeth, ground: module KSD)	module 2	module 2 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 20	size 15
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 59 [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 26 [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 24	q <sub>z</sub> = 14 [kg/m]

**Formules:**

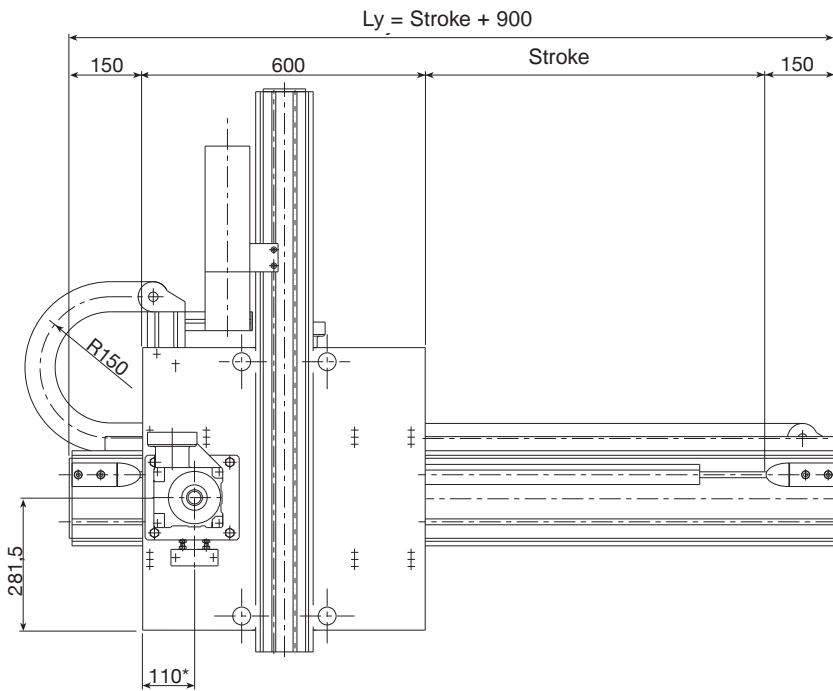
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

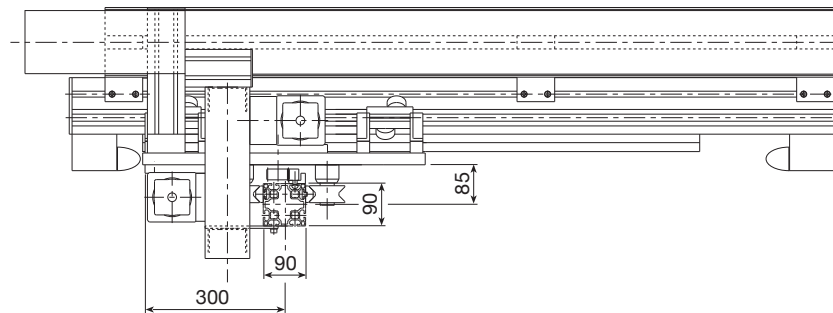
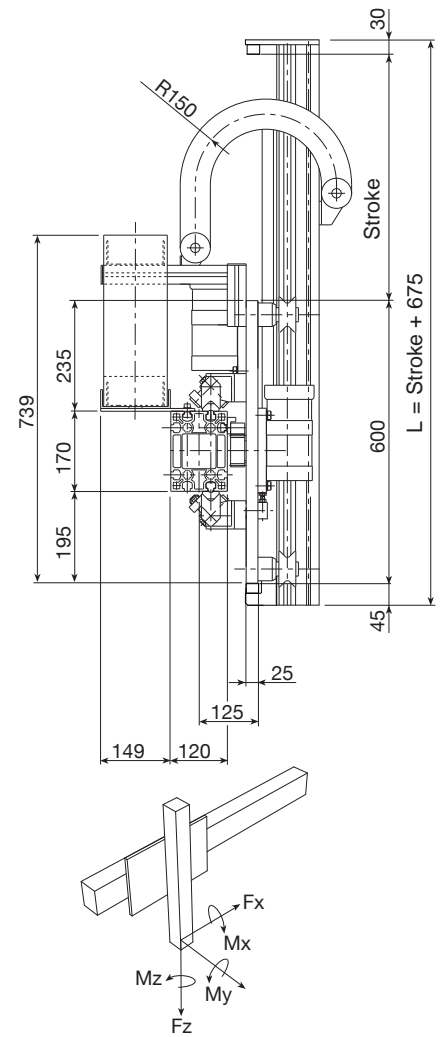
# PAR 2/1

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

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 ( $P_{c \max}$ ) with load on axis ( $L_z \leq 1,600$ mm)		
Max. speed	3.5	3.5 [m/s]
Max. acceleration	10	7 [m/s <sup>2</sup> ]
Repeatability	-	$\pm 0.2^*$ [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 15/17)	Statyca	E01-4
Rack (tempered, helical teeth: module KTD)	module 3	module 2 [mm <sup>2</sup> ]
Guide rails	28x11 (hardened and polished)	28x11 (hardened and polished)
Translation	4 roller slides with 2 rollers $\varnothing 30$	4 V-shaped rollers $\varnothing 63$
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	63.66 (as an alternative 89.13)	44.56 (as an alternative 63.66) [mm]

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

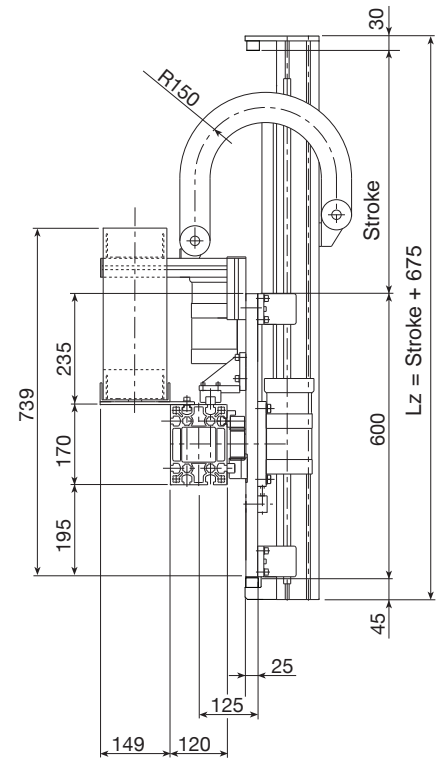
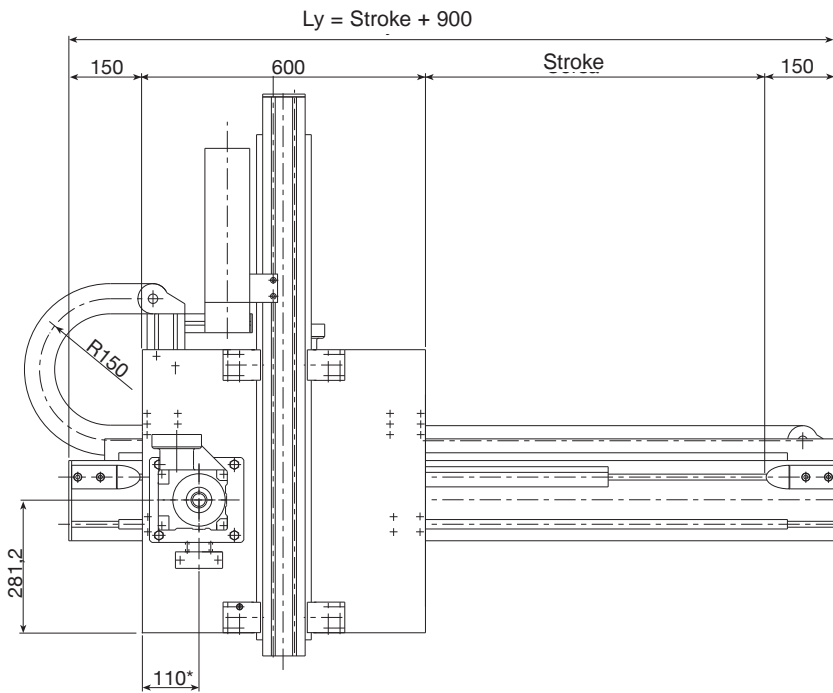
### Formules:

Actual load:  $P_{\text{eff}} = P_{\text{max}} - (L_z - 1,600) / 1,000 \cdot q_z < \text{of } P_c$

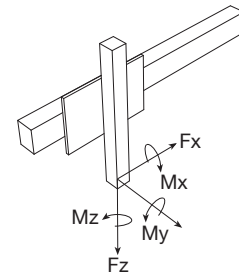
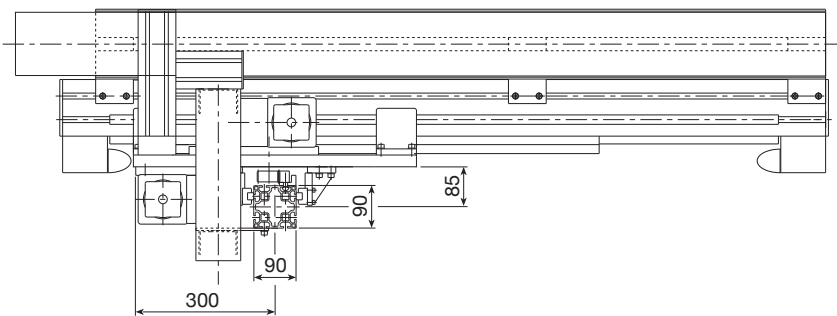
Module total weight:  $M_{\text{tot}} = M_{\text{base}} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3.5	3.5 [m/s]
Max. acceleration	10	7 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Statyca	E01-4
Rack (tempered, helical teeth, ground: module KSD)	module 3	module 2 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 20	size 15
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 89 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 43 approx [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 29 approx.	q <sub>z</sub> = 14 approx. [kg/m]

**Formules:**

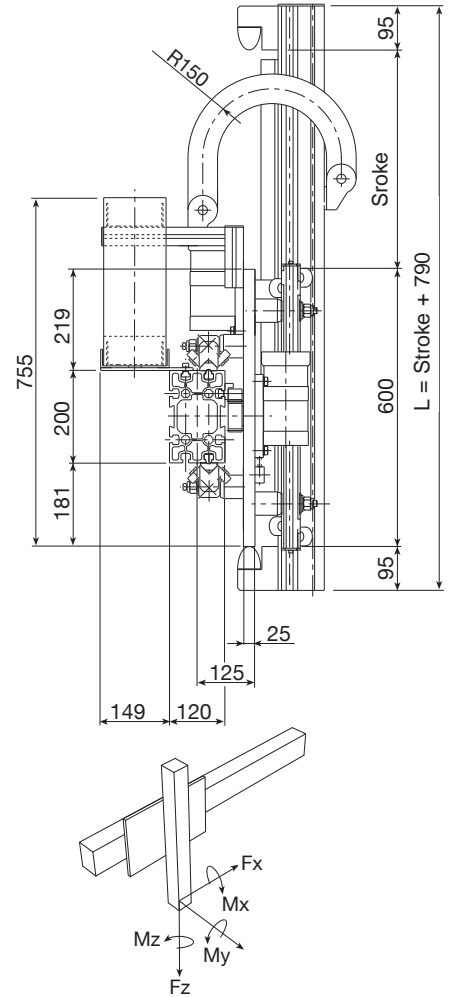
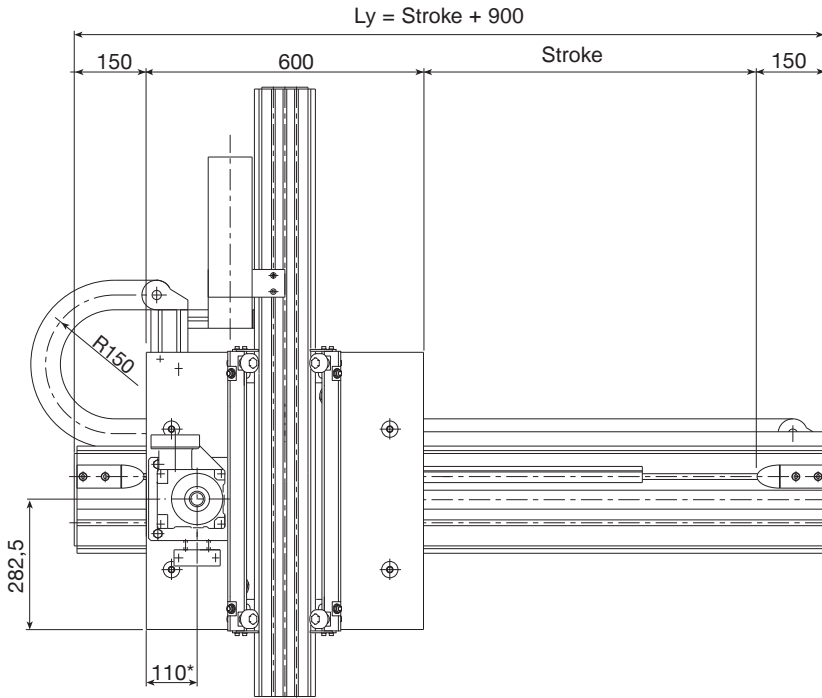
Actual load:  $P_{eff} = P_{max} \cdot (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

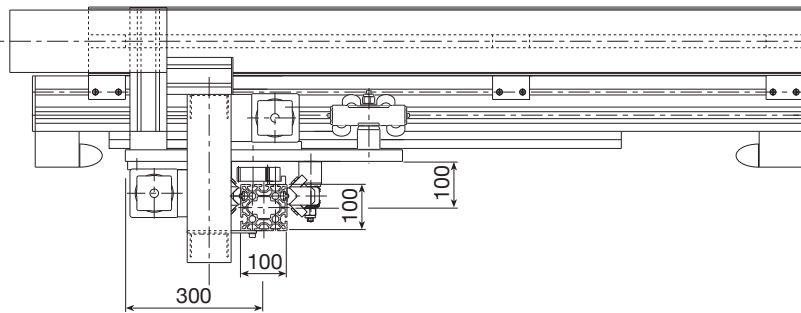
# PAR 3/1

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

25 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	7	7	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Valyda	MA1-5
Rack (tempered, helical teeth: module KTD)	module 3	module 3 [mm <sup>2</sup> ]
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 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	63.66 (as an alternative 89.13)	63.66 (as an alternative 89.13) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)	M <sub>base</sub> = 111 approx.	[kg]
Slide (plates + carriages)	M <sub>slide</sub> = 54 approx.	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 35 approx.	q <sub>z</sub> = 24 approx. [kg/m]

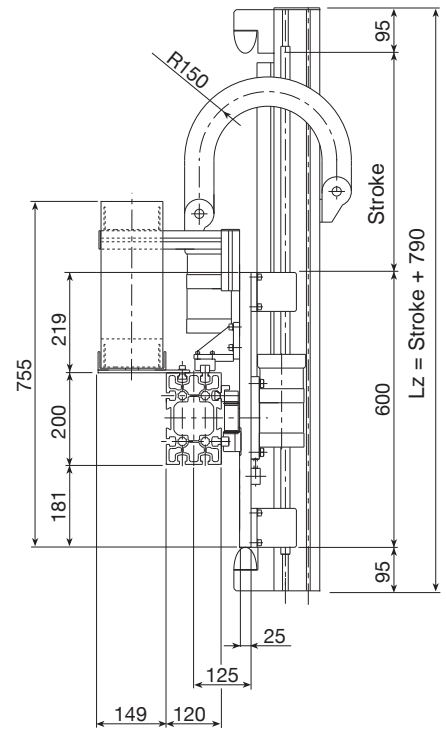
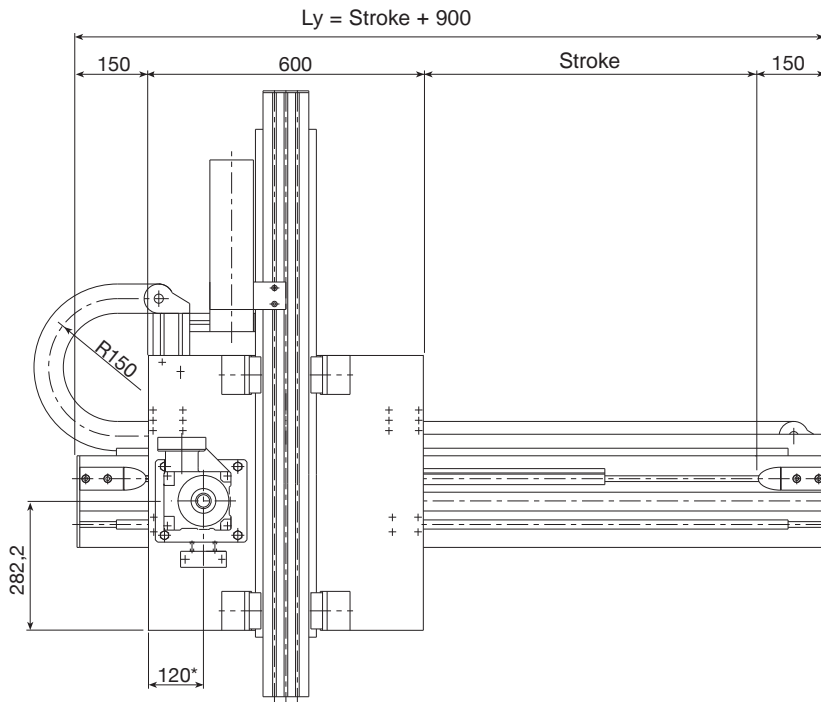
### Formules:

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

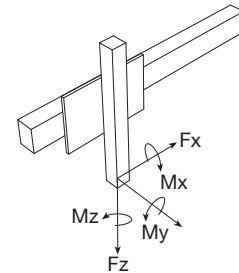
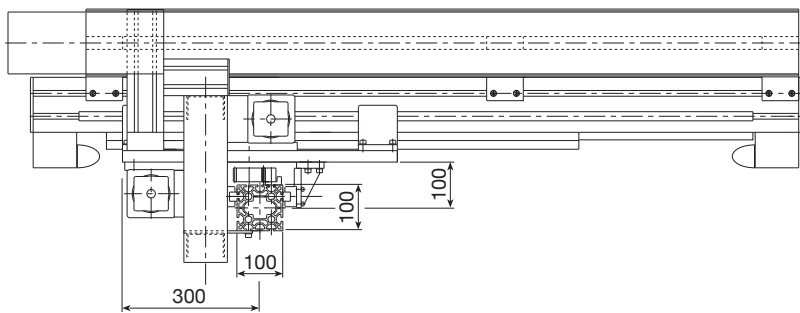
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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

25 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3	3 [m/s]
Max. acceleration	7	7 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Valyda	MA1-5
Rack (tempered, helical teeth, ground: module KSD)	module 3	module 3 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 20	size 20
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 100 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 45 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 33 approx.	q <sub>z</sub> = 21 approx. [kg/m]

**Formules:**

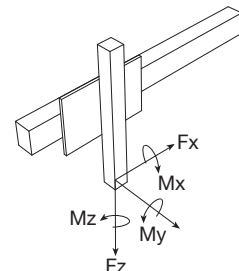
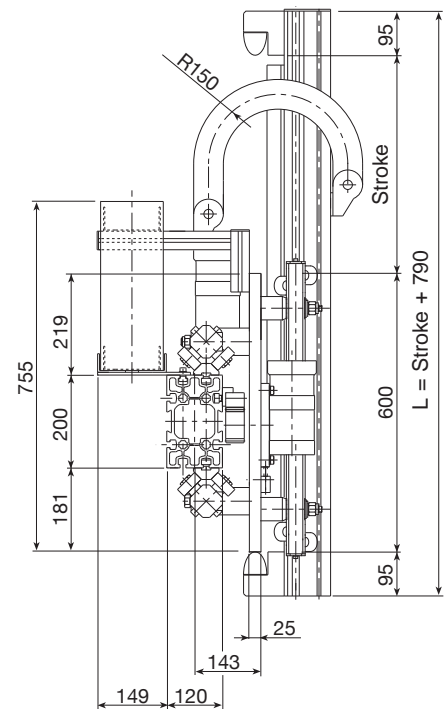
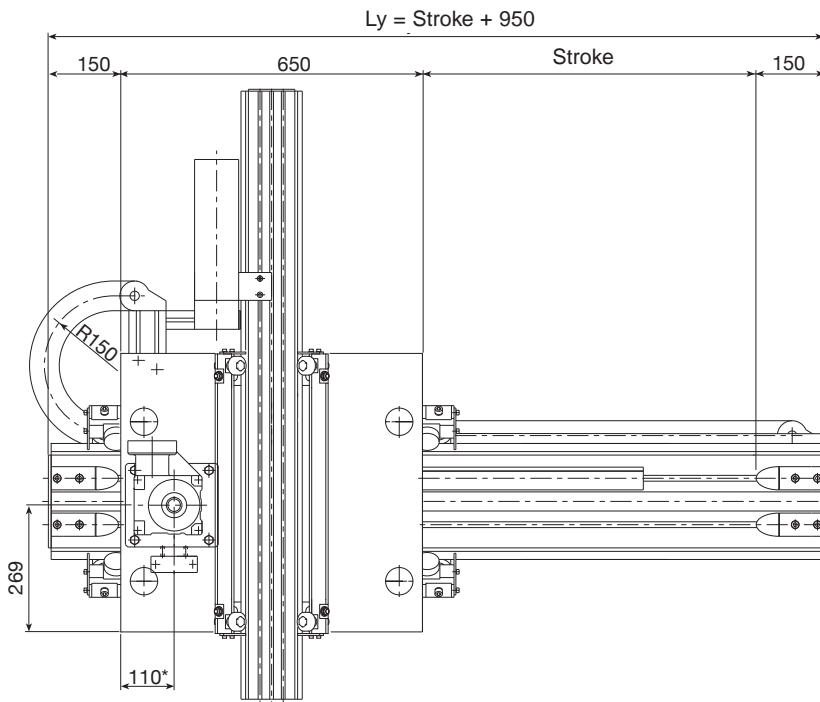
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < of Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot stroke_y + q_z \cdot stroke_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

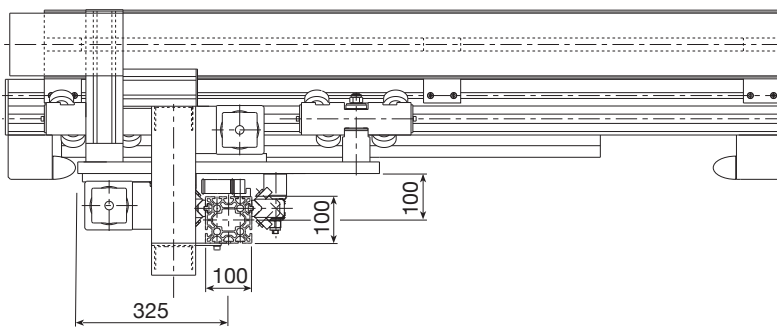
# PAR 4/1

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

25 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3	3 [m/s]
Max. acceleration	7	7 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Valyda	MA1-5
Rack (tempered, helical teeth: module KTD)	module 4	module 3 [mm <sup>2</sup> ]
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 <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)	M <sub>base</sub> = 140 approx.	[kg]
Slide (plates + carriages)	M <sub>slide</sub> = 69 approx.	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 48 approx.	q <sub>z</sub> = 24 approx. [kg/m]

## Formules:

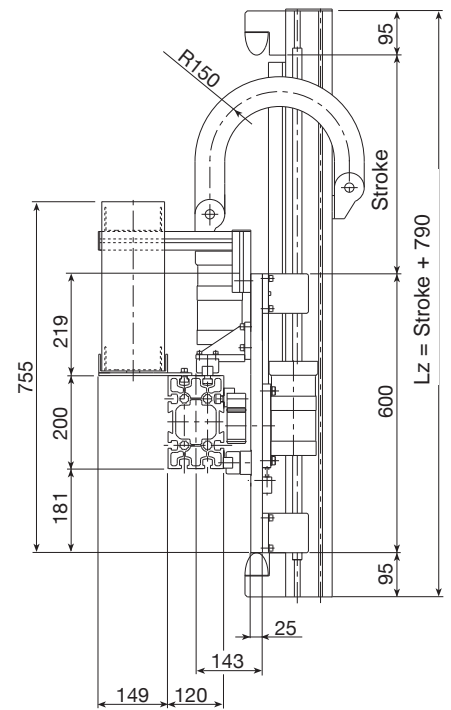
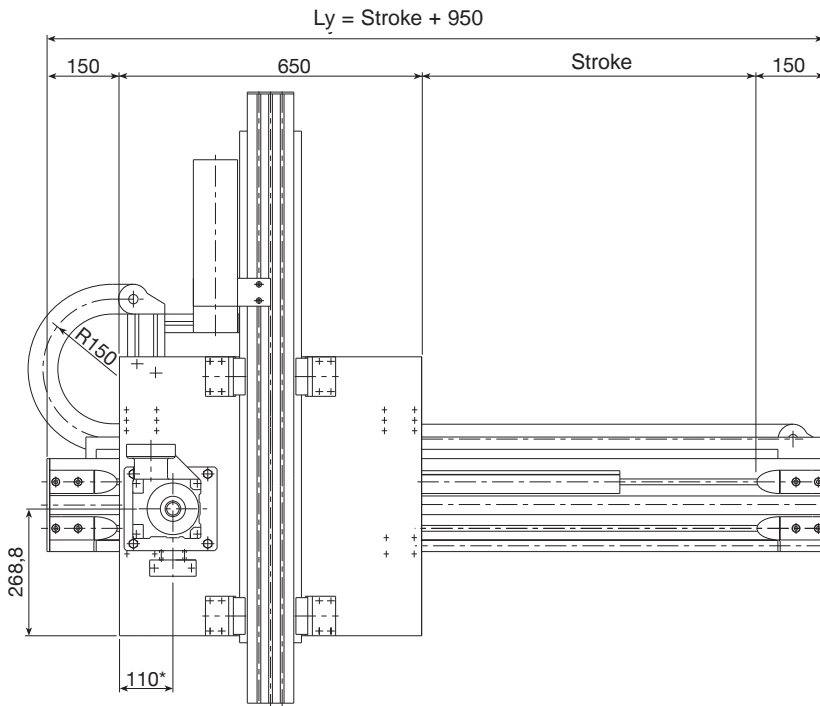
Actual load:  $P_{eff} = P_{max} \cdot (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

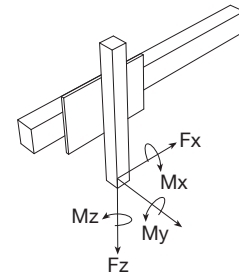
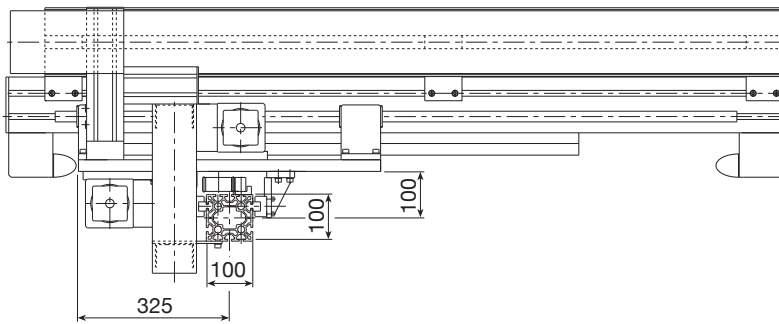


Y-Axis / P / A / S / M / 200 / Stroke / Length / FRD / ...  
 Z-Axis / P / A / S / M / 100 / Stroke / Length / X / FRD / ...

25 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3	3 [m/s]
Max. acceleration	7	7 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Valyda	MA1-5
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 3 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 25	size 20
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 121 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 59 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 40 approx.	q <sub>z</sub> = 21 approx. [kg/m]

**Formules:**

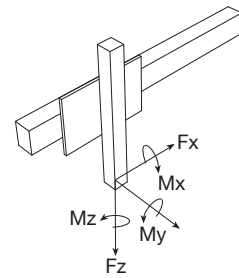
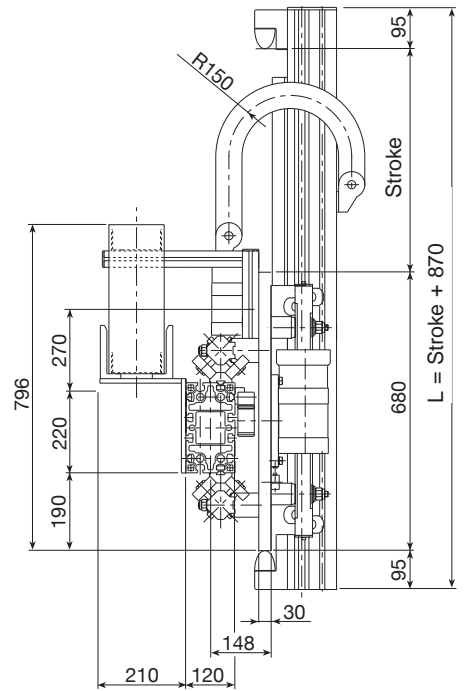
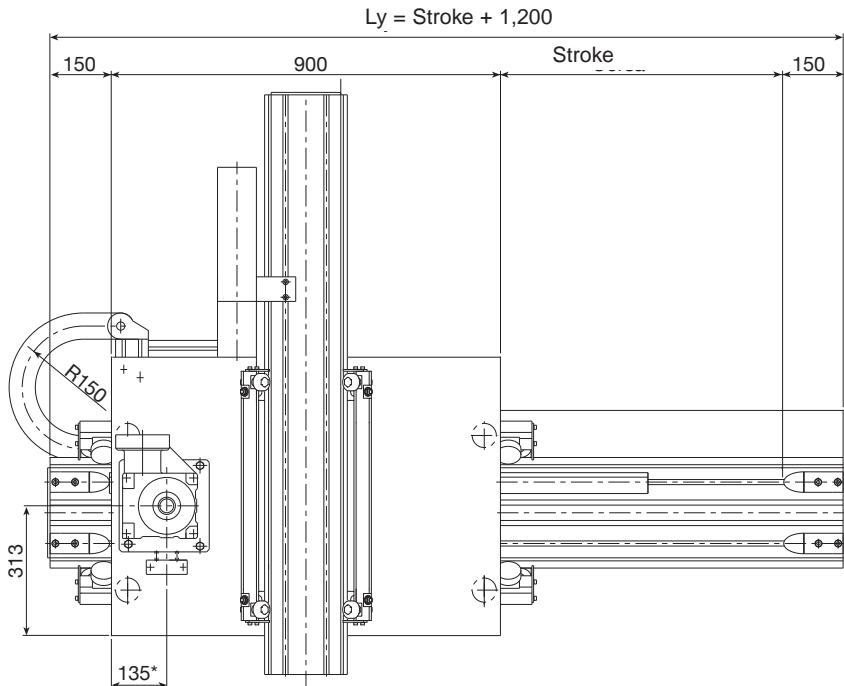
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

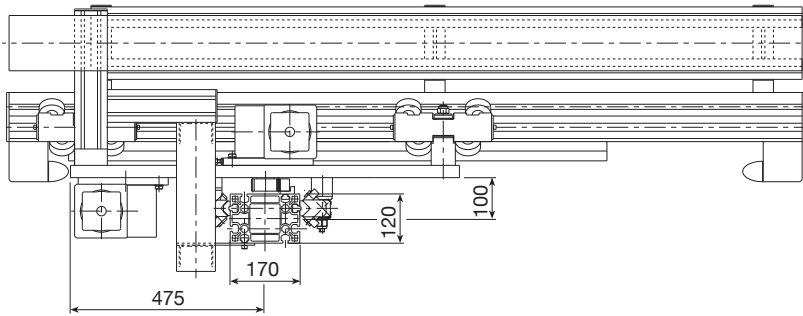
# PAR 5/2

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

60 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	6	4	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Logyca	Statyca
Rack (tempered, helical teeth: module KTD)	module 4	module 3 [mm <sup>2</sup> ]
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 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 195 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 98 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 52 approx.	q <sub>z</sub> = 31 approx. [kg/m]

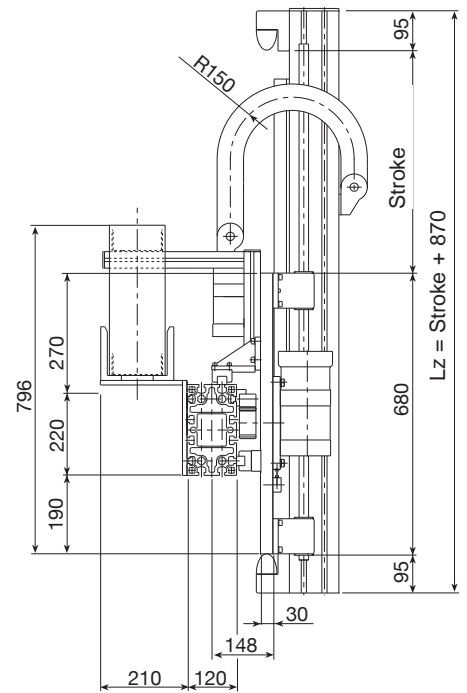
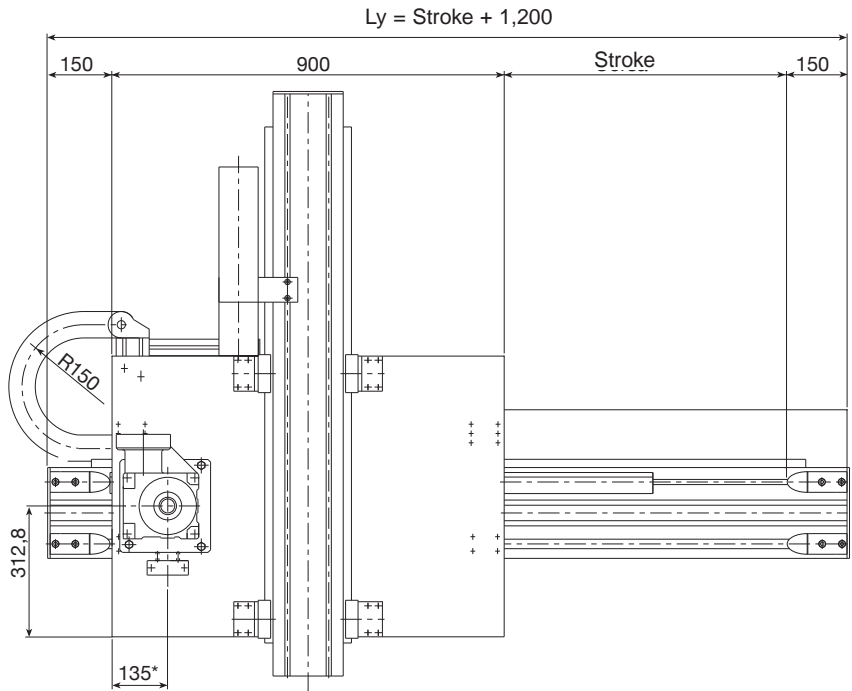
### Formules:

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

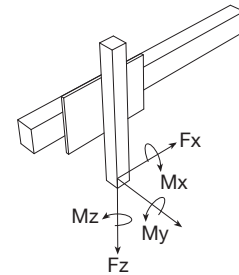
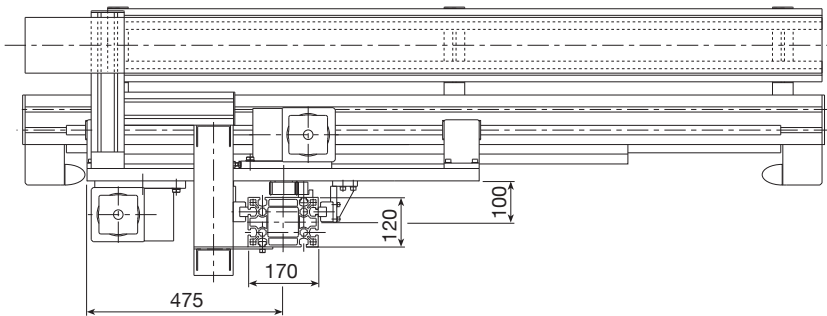
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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

60 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3	3 [m/s]
Max. acceleration	6	4 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Logyca	Statyca
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 3 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 25	size 25
Room available for energy chain	115x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 178 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 95 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 44 approx.	q <sub>z</sub> = 29 approx. [kg/m]

**Formules:**

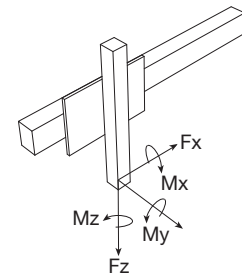
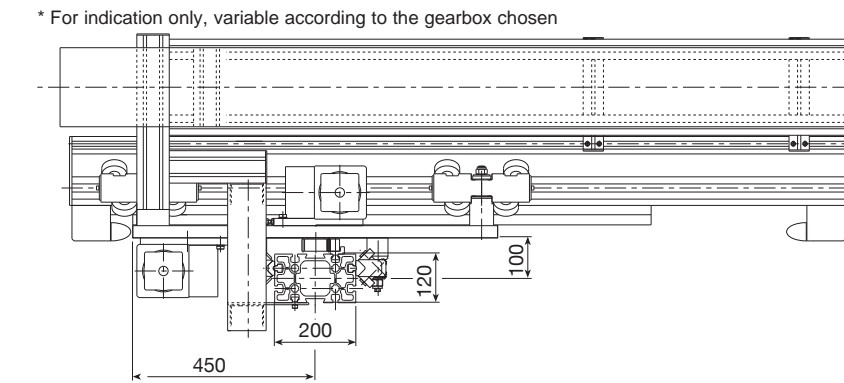
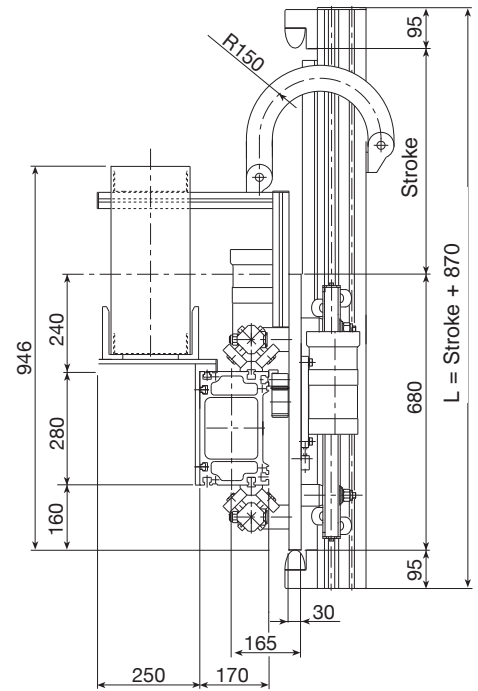
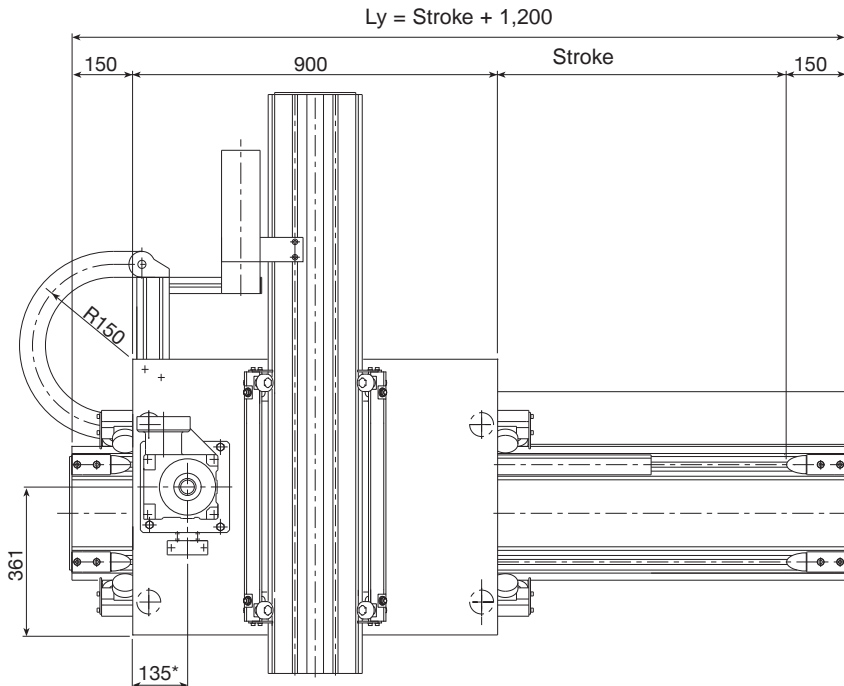
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600)/1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

# PAR 6/2

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

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



Performances	Y-axis	Z-axis
Max. load (Pc <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	3	3 [m/s]
Max. acceleration	4	4 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Pratyca	Valyda
Rack (tempered, helical teeth: module KTD)	module 4	module 3 [mm <sup>2</sup> ]
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 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 220 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 99 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 66 approx.	q <sub>z</sub> = 35 approx. [kg/m]

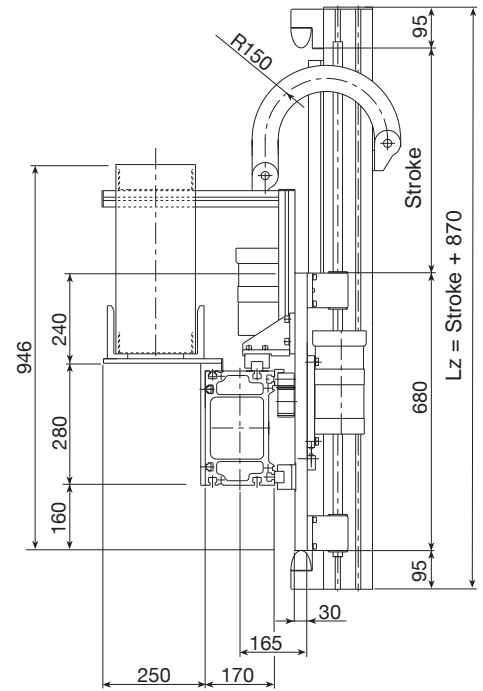
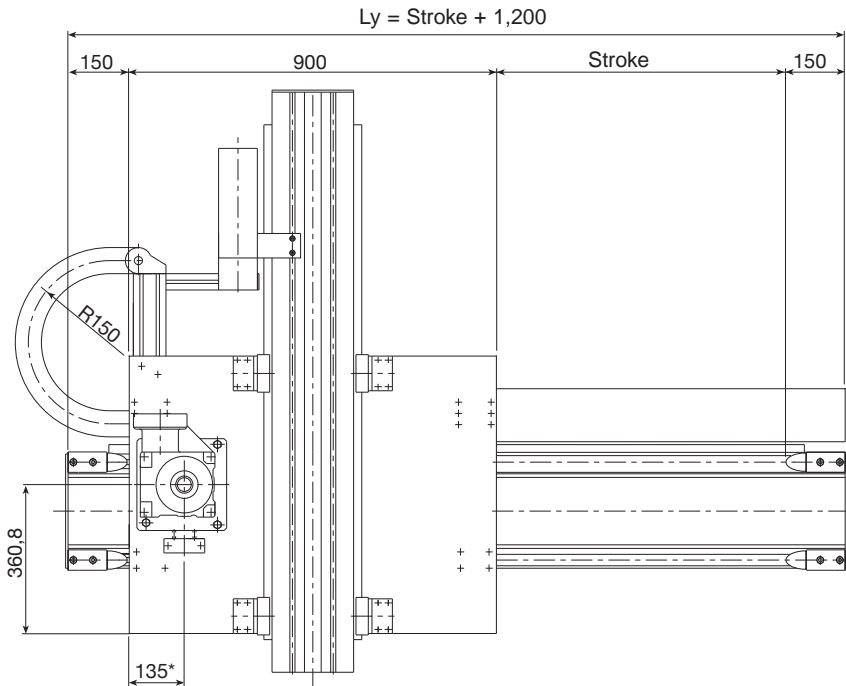
### Formules:

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

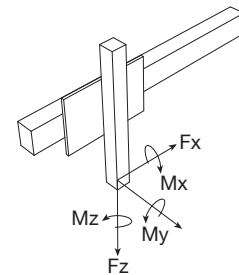
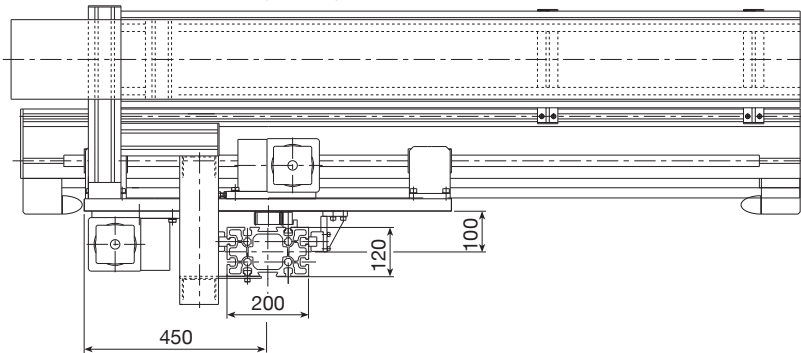
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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



\* For indication only, variable according to the gearbox chosen



Performances	Y-axis	Z-axis	
Max. load (Pc <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	3	[m/s]
Max. acceleration	4	4	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Pratyca	Valyda	
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 3	[mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 30	size 25	
Room available for energy chain	175x45	75x45	[mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 202 approx.	[kg]
Slide (plates + carriages)		M <sub>slide</sub> = 86 approx.	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 60 approx.	q <sub>z</sub> = 34 approx.	[kg/m]

**Formules:**

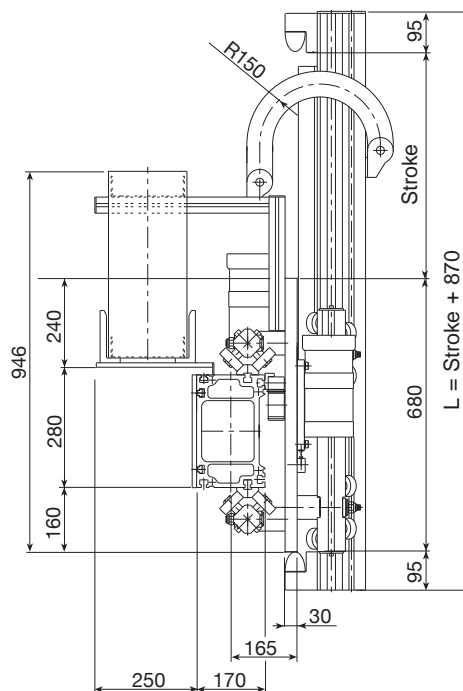
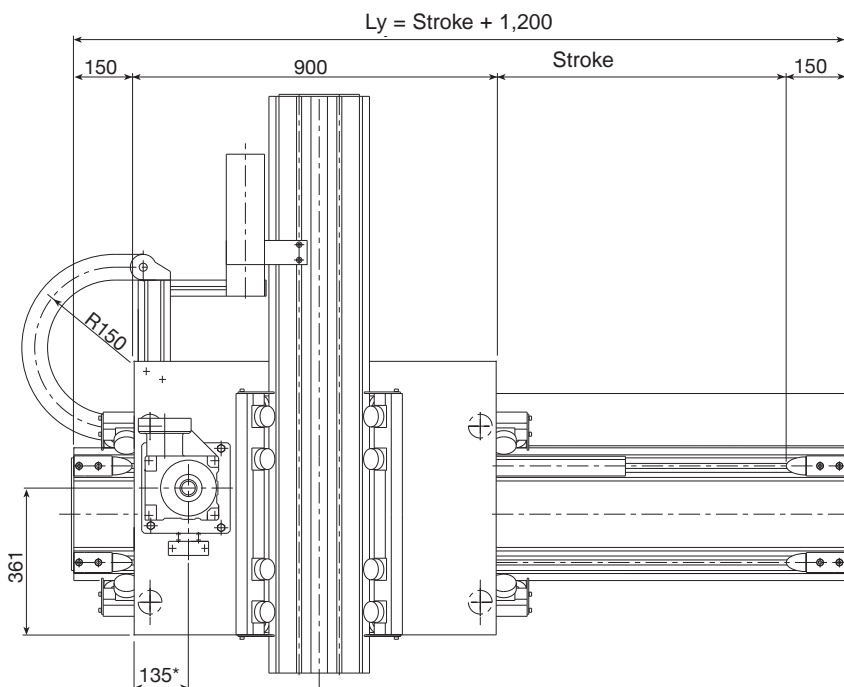
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

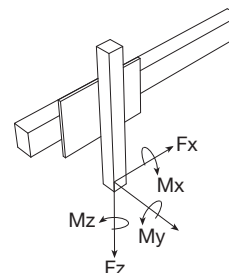
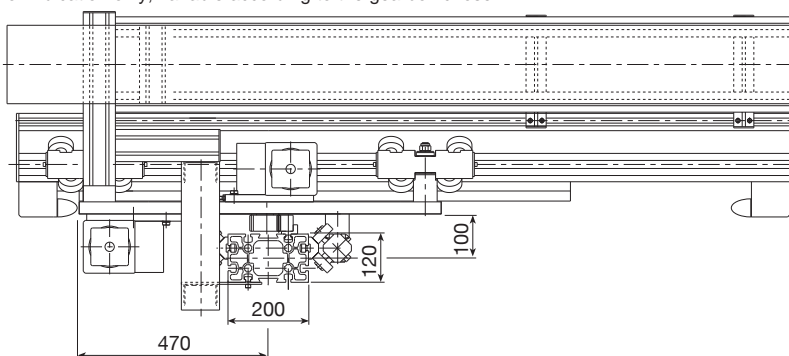
# PAR 6/4

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

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



\* For indication only, variable according to the gearbox chosen



Performances	Y-axis	Z-axis	
Max. load (Pc <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	2	[m/s]
Max. acceleration	4	3	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Pratyca	Valyda
Rack (tempered, helical teeth: module KTD)	module 4	module 4 [mm <sup>2</sup> ]
Guide rails	55x25 (hardened and polished)	55x25 (hardened and polished)
Translation	4 roller slides with 4 rollers Ø62	2 roller slides with 6 rollers Ø52
Room available for energy chain	175x45	75x45 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 244 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 112 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 66 approx.	q <sub>z</sub> = 48 approx. [kg/m]

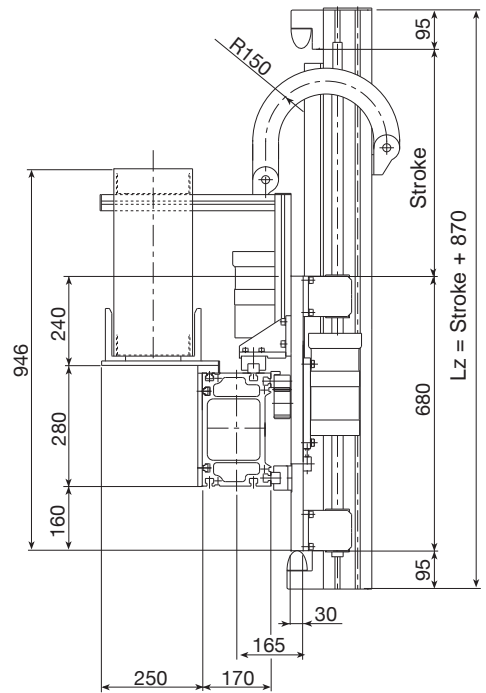
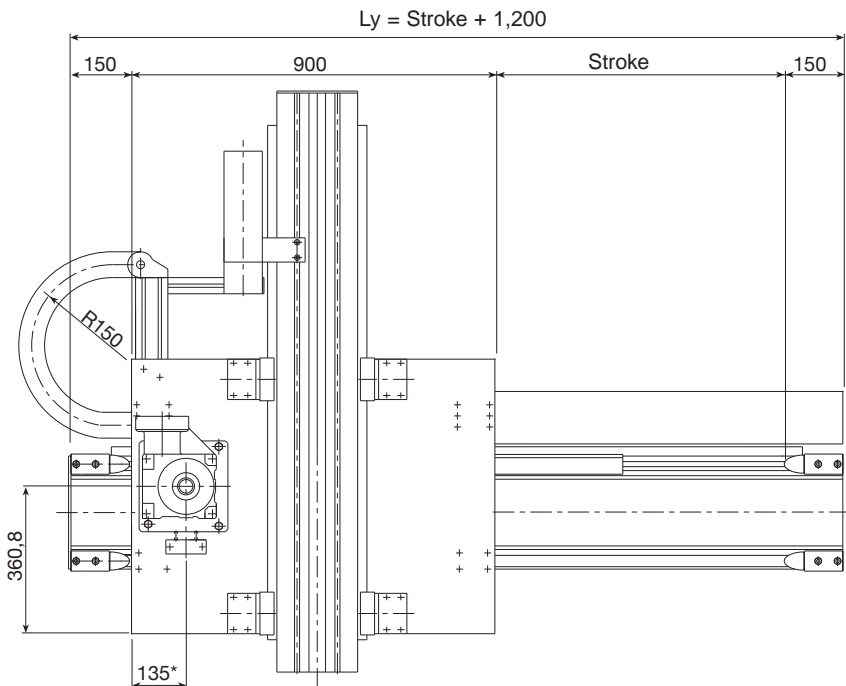
### Formules:

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

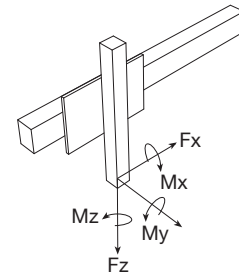
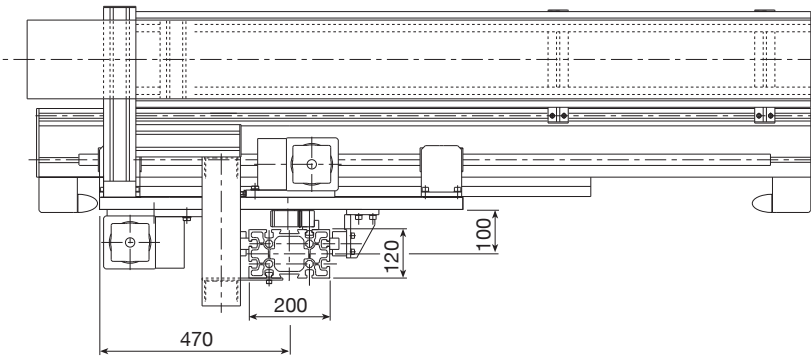
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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



\* For indication only, variable according to the gearbox chosen



Performances	Y-axis	Z-axis	
Max. load (Pc <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	3	2	[m/s]
Max. acceleration	4	3	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Pratycia	E01-4	
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 4	[mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 30	size 25	
Room available for energy chain	175x45	75x45	[mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 217 approx.	[kg]
Slide (plates + carriages)		M <sub>slide</sub> = 105 approx.	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 60 approx.	q <sub>z</sub> = 39 approx.	[kg/m]

**Formules:**

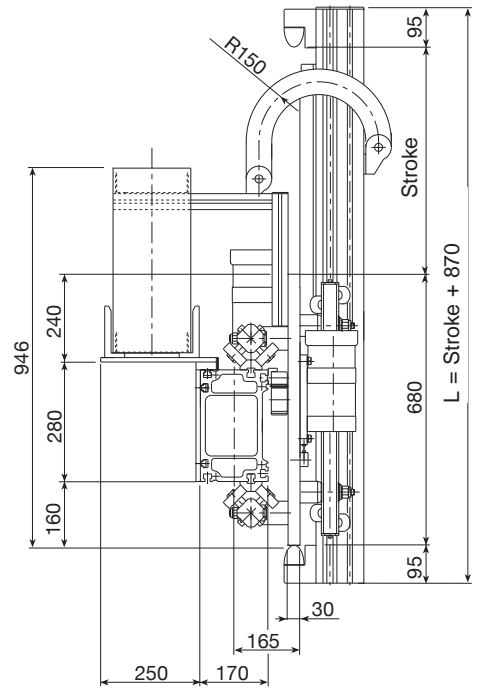
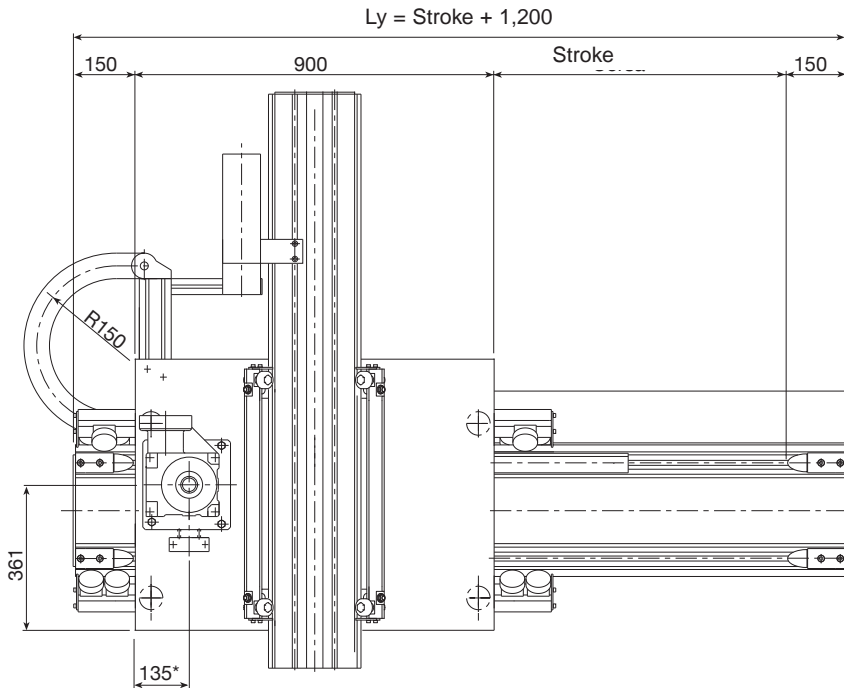
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

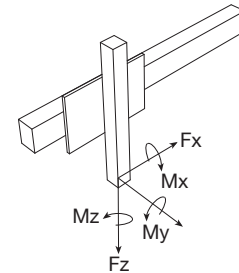
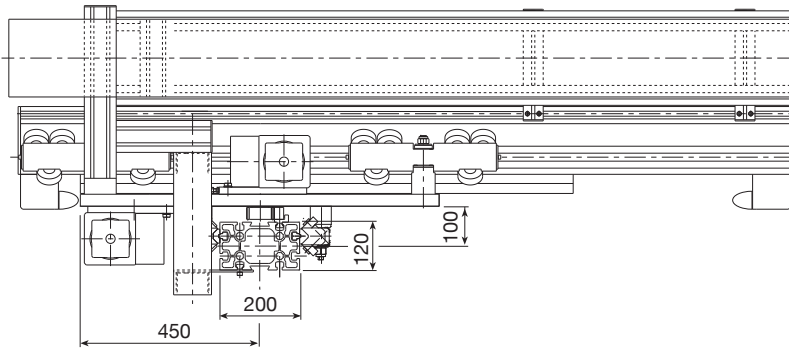
# PAR 8/3

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

100 Kg **PC** 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	2.5	2 [m/s]
Max. acceleration	2.5	3 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 63-64).

Constructive data	Y-axis	Z-axis
Load-bearing beam (see page 15/17)	Pratyca	Valyda
Rack (tempered, helical teeth: module KTD)	module 4	module 3 [mm <sup>2</sup> ]
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 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	63.66 (as an alternative 89.13) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 232 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 111 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 66 approx.	q <sub>z</sub> = 35 approx. [kg/m]

### Formules:

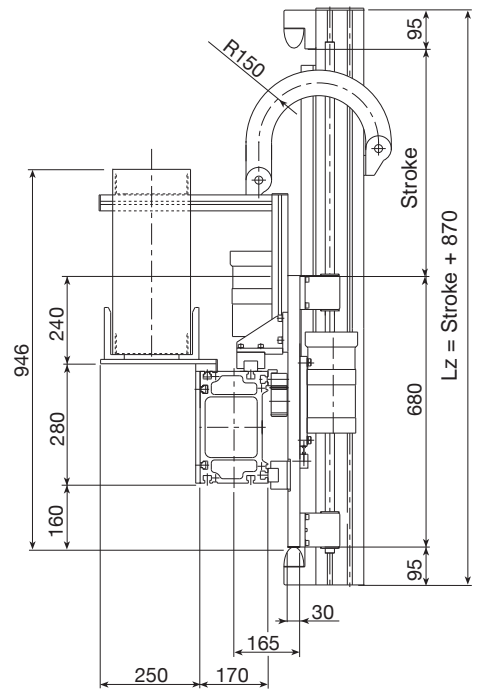
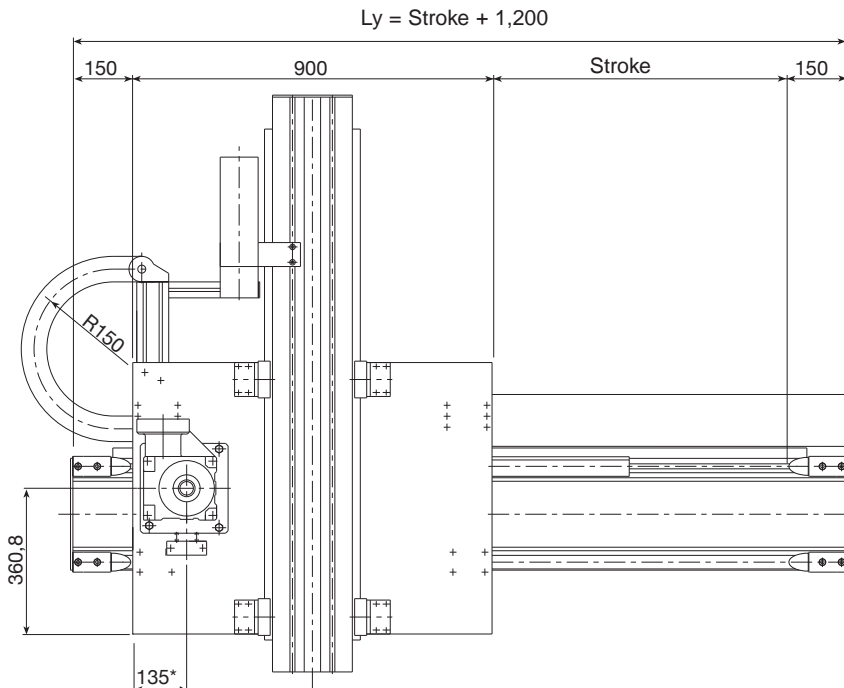
Actual load:  $P_{eff} = P_{max} \cdot (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

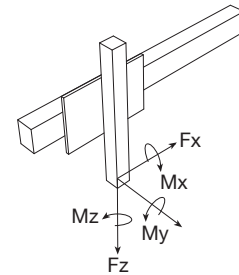
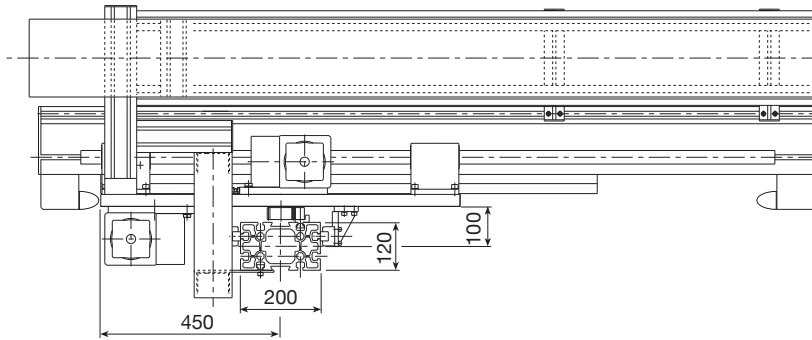


Y-Axis / P / A / S / M / 280 / Stroke / Length / FRD / ...  
 Z-Axis / P / A / S / 200 / M / Stroke / Length / X / FRD / ...

100 Kg PC 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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2.5	2	[m/s]
Max. acceleration	2.5	3	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Pratyca	Valyda	
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 3	[mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 35	size 25	
Room available for energy chain	175x45	75x45	[mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 220 approx.	[kg]
Slide (plates + carriages)		M <sub>slide</sub> = 102 approx.	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 64 approx.	q <sub>z</sub> = 34 approx.	[kg/m]

**Formules:**

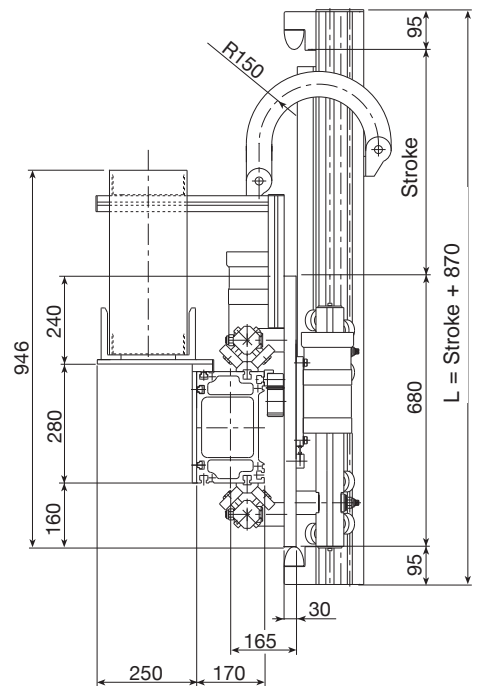
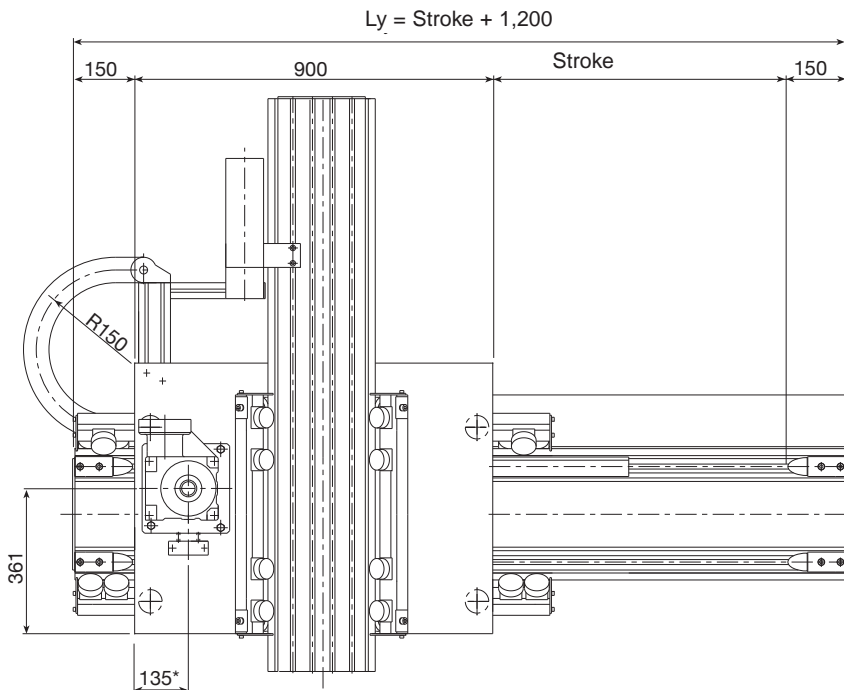
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

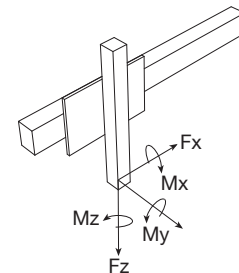
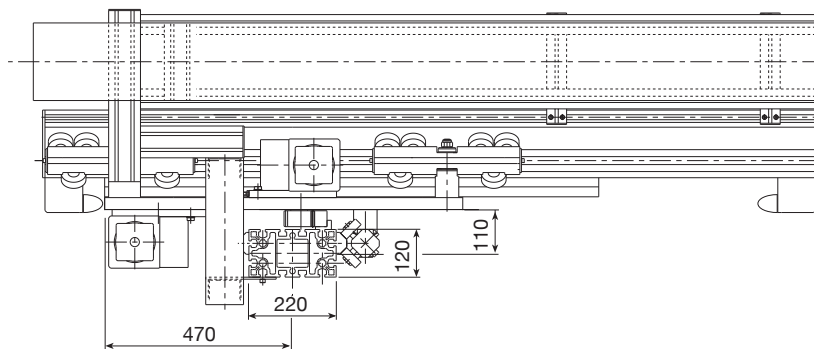
# PAR 8/6

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

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 63-64).

Constructive data	Y-axis	Z-axis
Load-bearing beam (see page 15/17)	Pratyca	Logyca
Rack (tempered, helical teeth: module KTD)	module 4	module 4 [mm <sup>2</sup> ]
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 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)	M <sub>base</sub> = 260 approx.	[kg]
Slide (plates + carriages)	M <sub>slide</sub> = 122 approx.	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 66 approx.	q <sub>z</sub> = 52 approx. [kg/m]

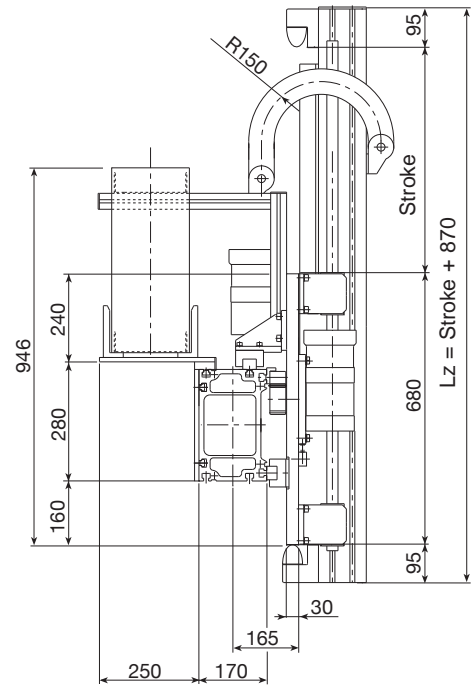
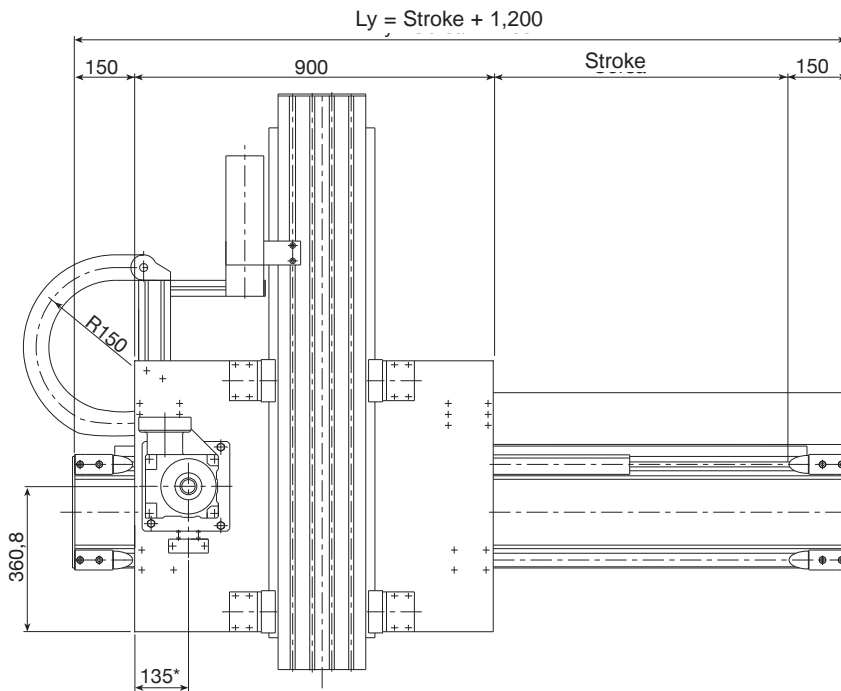
### Formules:

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

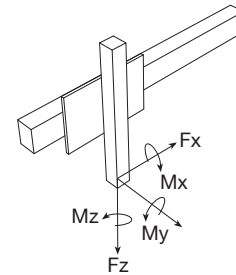
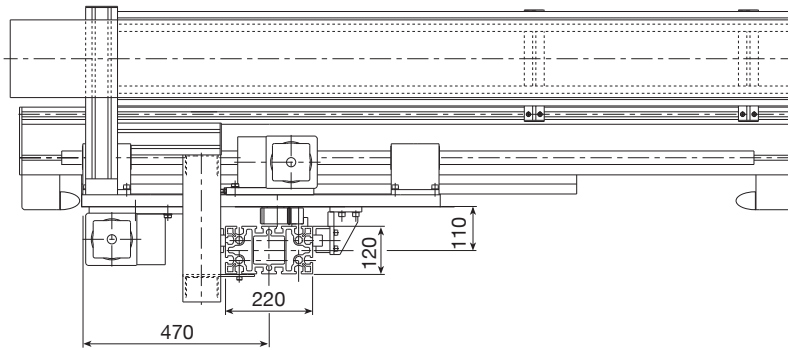
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$  Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Pratyca	Logyca
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 35	size 30
Room available for energy chain	175x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 234 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 102 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 64 approx.	q <sub>z</sub> = 46 approx. [kg/m]

**Formules:**

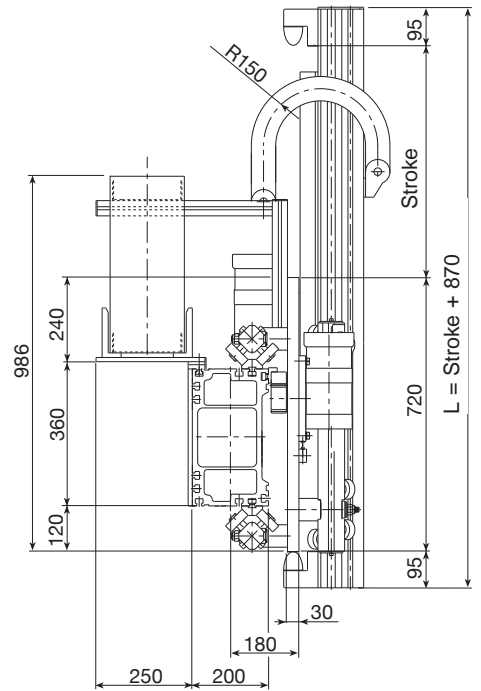
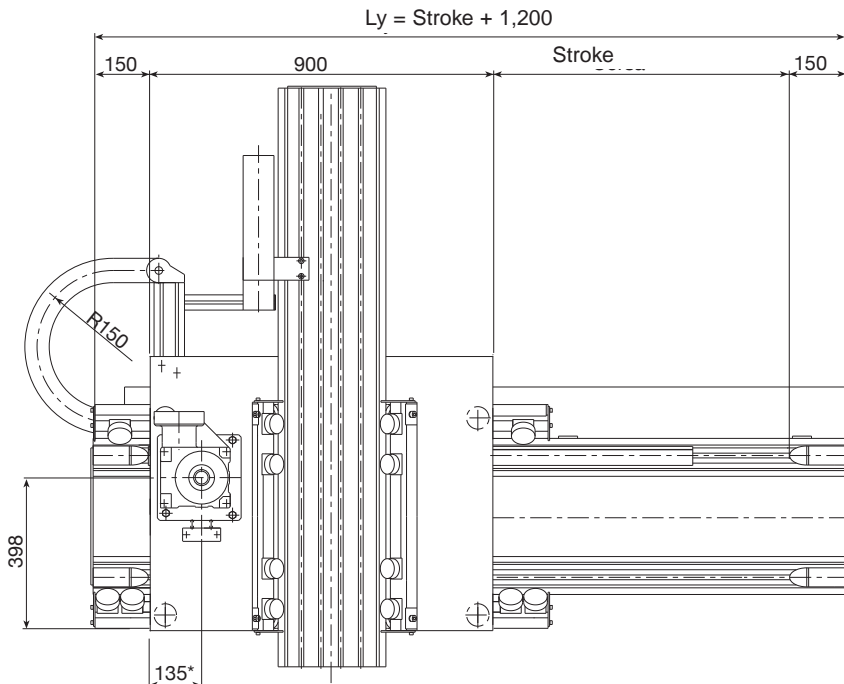
Actual load: P<sub>eff.</sub> = P<sub>max</sub> - (Lz - 1,600)/1,000 \* q<sub>z</sub> < of Pc

Module total weight: M<sub>tot</sub> = M<sub>base</sub> + (q<sub>y</sub> \* stroke<sub>y</sub> + q<sub>z</sub> \* stroke<sub>z</sub>) / 1,000 Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

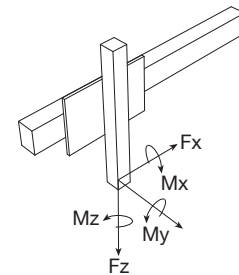
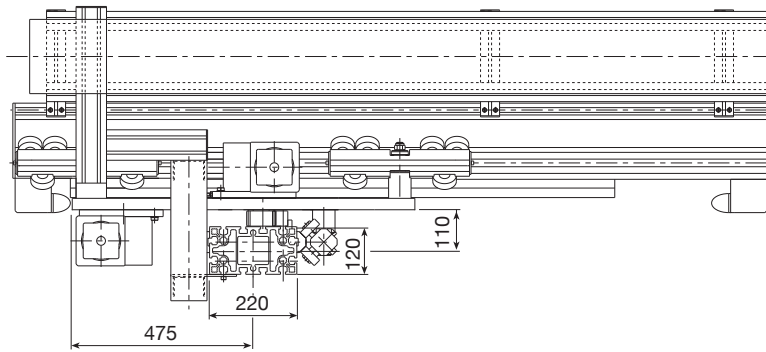
# PAR 10/6

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

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	2.5	2
Max. acceleration	2	2
Repeatability	-	±0.25*
Beam max. length without joint	12000	12000

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

Recommended max working conditions					
Model	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 63-64).

Constructive data	Y-axis	Z-axis
Load-bearing beam (see page 15/17)	Solyda	Logyca
Rack (tempered, helical teeth: module KTD)	module 4	module 4
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
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10)

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 283 approx.
Slide (plates + carriages)		M <sub>slide</sub> = 122 approx.
Beam (incl. guide rails and rack)	q <sub>y</sub> = 85 approx.	q <sub>z</sub> = 52 approx.

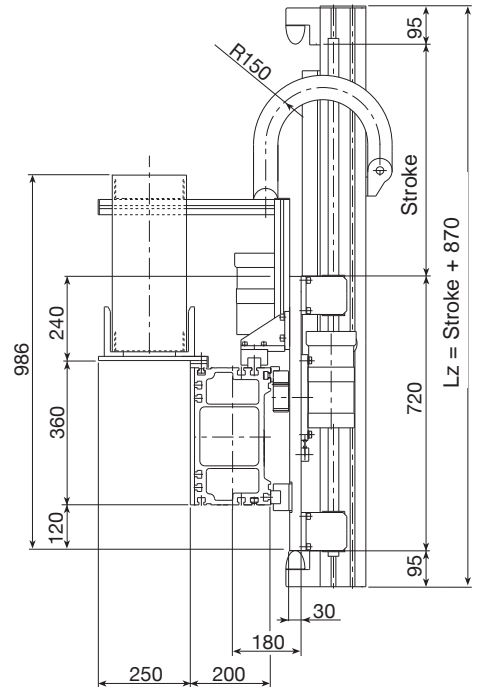
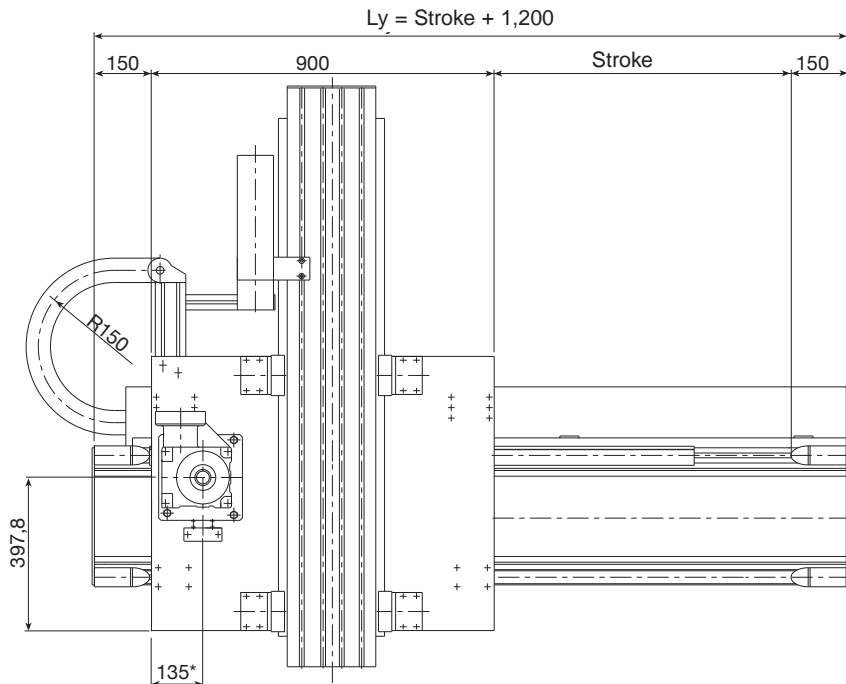
### Formules:

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

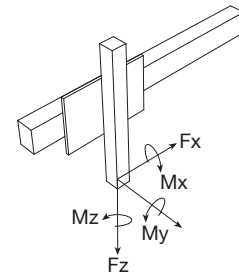
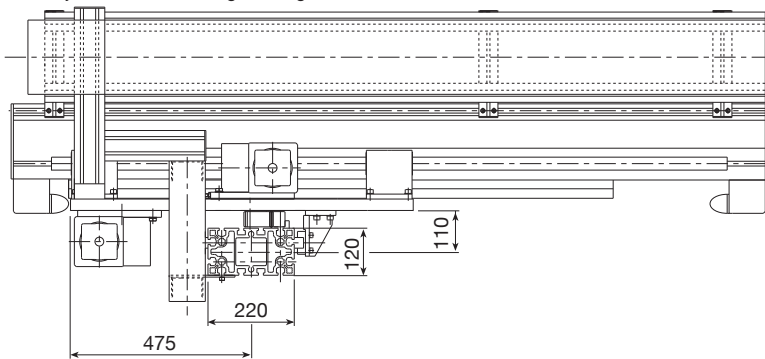
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	2.5	2 [m/s]
Max. acceleration	2	2 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Solyda	Logyca
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 35	size 30
Room available for energy chain	175x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 260 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 102 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 83 approx.	q <sub>z</sub> = 46 approx. [kg/m]

**Formules:**

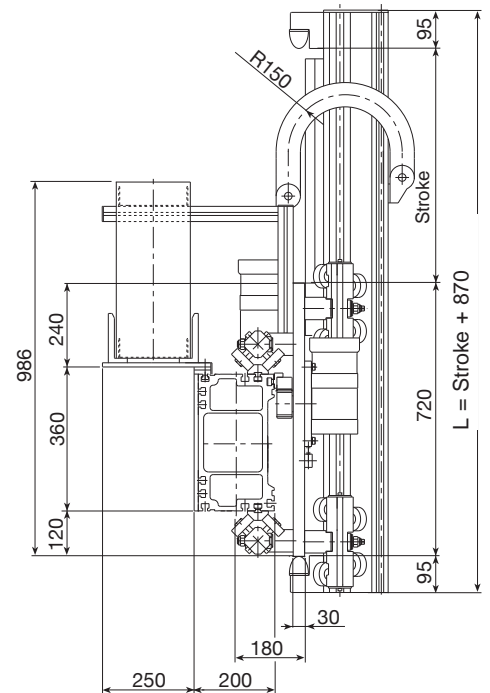
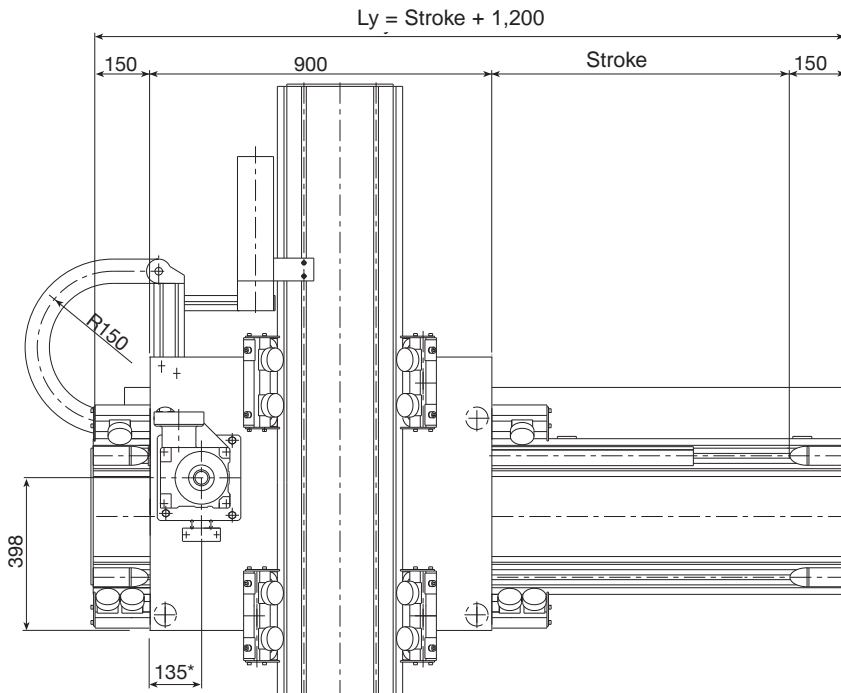
Actual load:  $P_{eff} = P_{max} - (Lz - 1,600) / 1,000 \cdot q_z < \text{of } Pc$

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

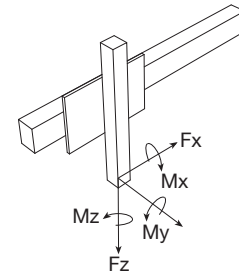
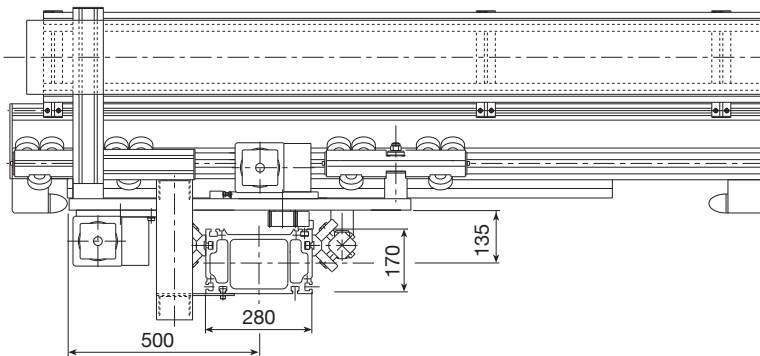
# PAR 10/8

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

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)		
Max. speed	2	2 [m/s]
Max. acceleration	2	2 [m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 63-64).

Constructive data	Y-axis	Z-axis
Load-bearing beam (see page 15/17)	Solyda	Pratycza
Rack (tempered, helical teeth: module KTD)	module 4	module 4 [mm <sup>2</sup> ]
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 [mm <sup>2</sup> ]
Pinion pitch diameter type ND	76.39 (as an alternative 106.10)	76.39 (as an alternative 106.10) [mm]

Weights	Y-axis	Z-axis
"Base" model (stroke <sub>x</sub> and stroke <sub>z</sub> =0)	M <sub>base</sub> = 300 approx.	[kg]
Slide (plates + carriages)	M <sub>slide</sub> = 122 approx	[kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 85 approx.	q <sub>z</sub> = 66 approx. [kg/m]

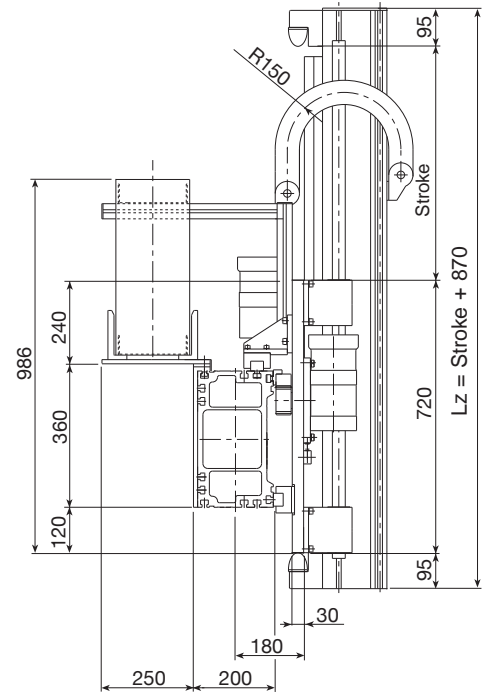
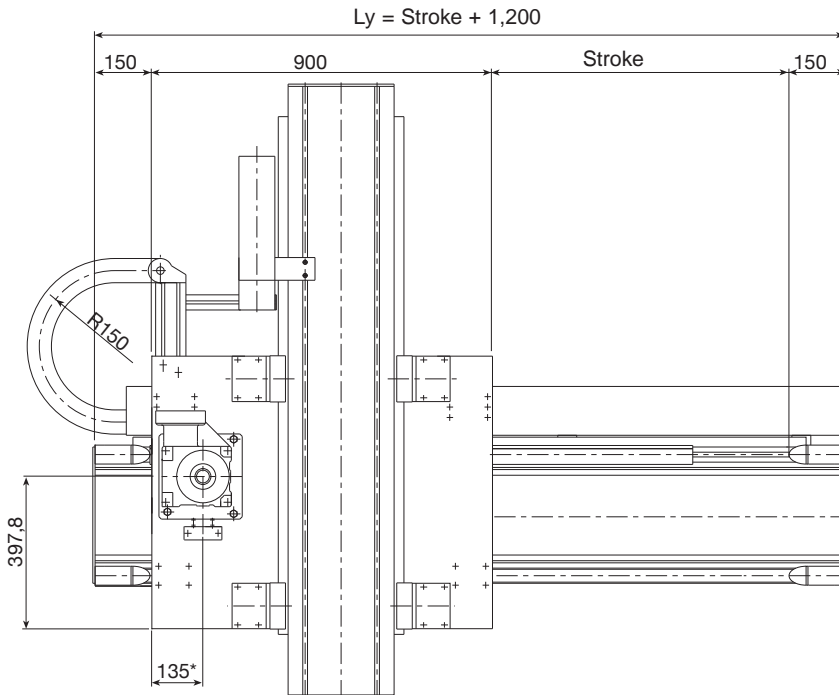
### Formules:

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

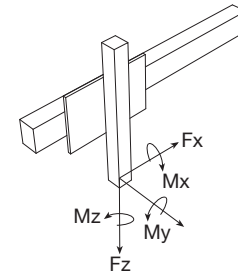
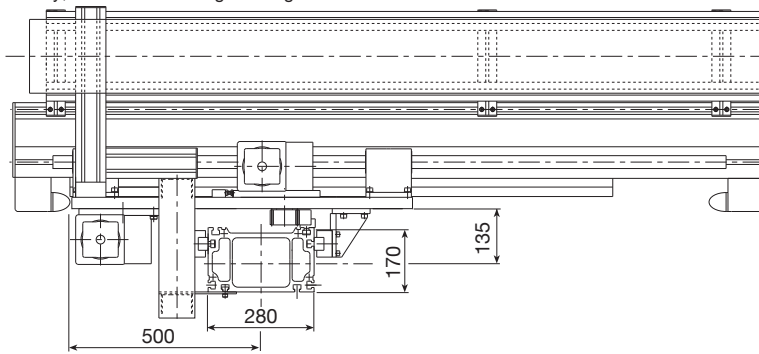
Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

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 <sub>max</sub> ) with load on axis (Lz ≤ 1,600 mm)			
Max. speed	2	2	[m/s]
Max. acceleration	2	2	[m/s <sup>2</sup> ]
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 <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>z</sub> [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 15/17)	Solyda	Pratyca
Rack (tempered, helical teeth, ground: module KSD)	module 4	module 4 [mm <sup>2</sup> ]
Translation: 4 caged ball roller slides and guide rails	size 35	size 35
Room available for energy chain	175x45	75x45 [mm <sup>2</sup> ]
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 <sub>x</sub> and stroke <sub>z</sub> =0)		M <sub>base</sub> = 275 approx. [kg]
Slide (plates + carriages)		M <sub>slide</sub> = 102 approx. [kg]
Beam (incl. guide rails and rack)	q <sub>y</sub> = 83 approx.	q <sub>z</sub> = 64 approx. [kg/m]

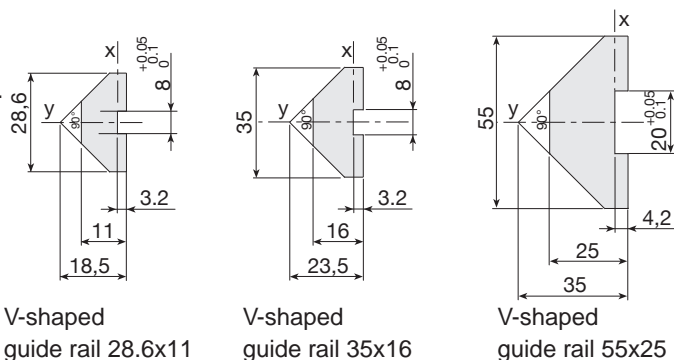
**Formules:**

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

Module total weight:  $M_{tot} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000$     Stroke<sub>x</sub> and stroke<sub>z</sub> [mm]

# Steel V-shaped guide rails

Material: high-performance alloy steel: R > 900 MPa  
 Hardened and tempered: core hardness 240 HB.  
 Induction-hardened and polished. Track hardness > 58 HRC  
 Guide rail 28.6x11 code 203.0012 has anti-oxidation coating.  
 Anti-oxidation coating is available for all versions upon request.

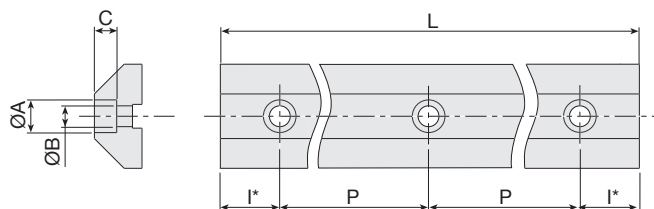


Features	28.6x11	35x16	55x25	
Moment of inertia Ix	2,148	7,932	41,906	mm <sup>4</sup>
Moment of inertia Iy	14,490	36,405	194,636	mm <sup>4</sup>
Weight	2	3.5	7.8	Kg/m

## 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:

- **.L** V-shaped guide rails, length L, **not drilled**
- **.LF** V-shaped guide rails, length L, **drilled**



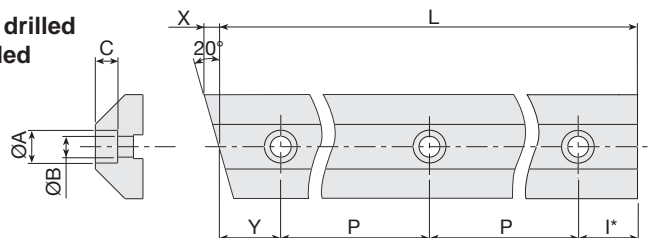
\*: If "I" is more than 80 mm, a hole is added to the two ends of the guide rail. Centre-distance 20 for guide rails 203.0027/28; Center-distance 25 for guide rails 203.0122/0423

Size	Treatment	Max. Length	P	I	A	B	C	Code
28,6x11	hardened & tempered	3980	150	40	11	7	5	<b>203.0008</b>
28,6x11	hardened anti-oxidation	3980	150	40	11	7	5	<b>203.0030</b>
35x16	hardened & tempered	5900	150	25	11	7	7.5	<b>203.0028</b>
35x16	Induction-hardened	4000	100	50	11	7	7.5	<b>203.0027</b>
55x25	hardened & tempered	5900	200	50	18	11	11.5	<b>203.0122</b>
55x25	Induction-hardened	4000	150	25	18	11	11.5	<b>203.0423</b>

## 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:

- **.LX** V-shaped guide rails with 1 slanting cut, length L, **not drilled**
- **.LFX** 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". If "I" is more than 80 mm, a hole is added to the end of the guide rail. Centre-distance 20 mm for guide rail 203.0027/28; Centre-distance 25 mm for guide rail 203.0122/0423.

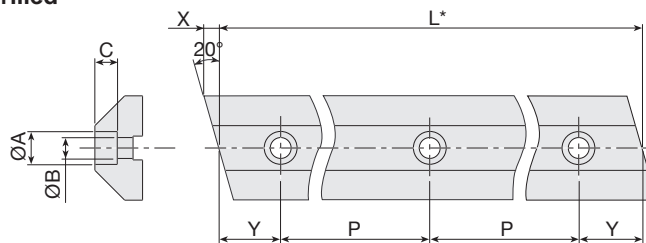
Size	Treatment	Max. Length	P	Y	I	A	B	C	Code
28.6x11	hardened & tempered	3,850	150	50	50	11	7	5	<b>203.0008</b>
28.6x11	hardened anti-oxidation	3,850	150	50	50	11	7	5	<b>203.0030</b>
35x16	hardened & tempered	5,900	150	25	25	11	7	7.5	<b>203.0028</b>
35x16	Induction-hardened	4000	100	50	50	11	7	7.5	<b>203.0027</b>
55x25	hardened & tempered	5,900	200	25	75	18	11	11.5	<b>203.0122</b>
55x25	Induction-hardened	4000	150	25	25	18	11	11.5	<b>203.0423</b>



### 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:

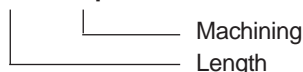
- **.LXX** V-shaped guide rails with 2 slanting cuts, length L, **not drilled**
- **.LFX** V-shaped guide rails with 2 slanting cuts, length L, **drilled**



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

Size	Treatment	Max. Length	P	Y	A	B	C	Code
28,6x11	hardened & tempered	3850	150	50	11	7	5	<b>203.0008</b>
28,6x11	indurita antioss.	3850	150	50	11	7	5	<b>203.0030</b>
35x16	hardened & tempered	5900	150	25	11	7	7.5	<b>203.0028</b>
35x16	Induction-hardened	4000	100	50	11	7	7.5	<b>203.0027</b>
55x25	hardened & tempered	5900	200	50	17	11	11.5	<b>203.0122</b>
55x25	Induction-hardened	4000	150	25	17	11	11.5	<b>203.0423</b>

**EXAMPLE OF ORDER:** n° 2 pieces cod203.0027 / 5150 . LFX + n°1 piece 203.0027 / 5840 . LFX



### V-shaped guide rail assembly inserts

Material: C40 galvanized steel.

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

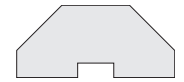
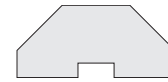
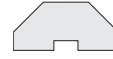
B and D: suitable for load-bearing profiles (see pages 15 to 17)

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

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

# Profiles equipped with assembled V-shaped guide rails (order codes)

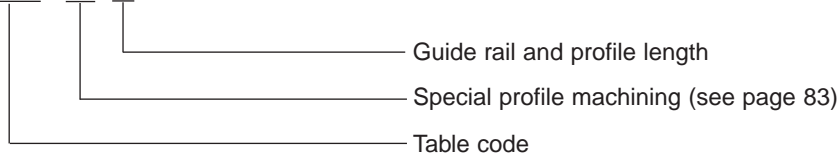
For the profile specifications see from page 12 to page 17, for guide rails: page 56, for inserts: page 57.



	Guide rail	203.0008	203.0030	203.0028	203.0027	203.0122	203.0423
 <b>E01-3</b>		237.0029	237.0030	237.0013	237.2398	-	-
 <b>F01-1</b>		237.0031	237.0032	237.0014	237.0015	-	-
 <b>F02-1</b>		237.0033	237.0034	237.0016	237.0017	-	-
 <b>E01-4</b>		237.0035	237.0036	237.0018	237.0019	-	-
 <b>MA1-3</b>		237.0037	237.0038	237.1387	237.1388	-	-
 <b>MA1-5</b>		237.0039	237.0040	237.1141	237.1142	-	-
 <b>E01-5</b>		237.0041	237.0042	237.0027	237.0028	-	-
 <b>STATYCA</b>		237.0043	237.0044	237.2159	237.2158	237.2301	237.0005
 <b>VALYDA</b>		237.0045	237.0046	237.2126	237.2013	237.0004	237.1542
 <b>LOGYCA</b>		237.0047	237.0048	237.0020	237.2421	237.0021	237.0022
 <b>PRATYCA</b>		237.0049	237.0050	237.0023	237.0024	237.2157	237.1543
 <b>SOLYDA</b>		237.0051	237.0052	237.0025	237.0026	237.0002	237.0006

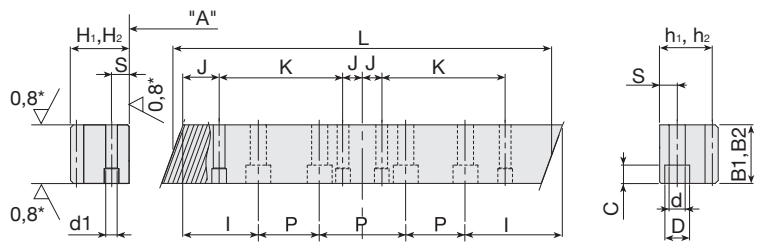
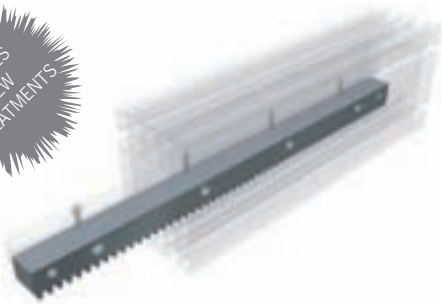
Order code:

237.XXXX - XX / L



## Helical teeth

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



\*Surface machining **not available** on KBD, KTD versions

Type	Rs	Hardness tooth	Quality	Precision
<b>KBD</b> CK45 normalized milled	650 N/mm <sup>2</sup>	-	Q8	0.085mm/300mm
<b>KTD</b> CK45 normalized induction-hardened teeth	650 N/mm <sup>2</sup>	≥ HRC 56	Q9	0.085mm/300mm
<b>KSD</b> CK45 norm. induction-hard., teeth and ground sides	> 650 N/mm <sup>2</sup>	≥ HRC 56	Q6	0.025mm/300mm
<b>KRD</b> AISI 9840 alloy steel induct.-hard., teeth and ground sides	> 900 N/mm <sup>2</sup>	HRC 60 c.a.	Q6	0.025mm/300mm

Mod.	H <sub>1</sub>	H <sub>2</sub>	B <sub>1</sub>	B <sub>2</sub>	L	I	J	d	D	C	d1(H7)	S	h <sub>1</sub>	h <sub>2</sub>	P	K	kg	Codice
2	25	24	25	24	500	62.5	35	7	11	7	6	8	23	22	125	430	2.2	<b>211.2429</b>
2	25	24	25	24	1,000	62.5	35	7	11	7	6	8	23	22	125	430	4.3	<b>211.2363</b>
3	30	29	30	29	500	62.5	35	10	15	9	8	9	27	26	125	430	3.0	<b>211.2367</b>
3	30	29	30	29	1,000	62.5	35	10	15	9	8	9	27	26	125	430	6.1	<b>211.2351</b>
4	40	39	40	39	500	62.5	35	10	15	9	8	12	36	35	125	430	5.5	<b>211.2366</b>
4	40	39	40	39	1,000	62.5	35	10	15	9	8	12	36	35	125	430	10.9	<b>211.2349</b>

**H<sub>1</sub> h<sub>1</sub>** for racks KBD, KTD

**H<sub>2</sub> h<sub>2</sub>** for racks KRD, KSD

**B<sub>1</sub>** for racks KBD,KTD,

**B<sub>2</sub>** for racks KRD, KSD

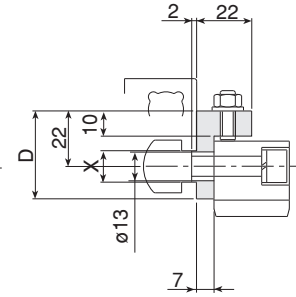
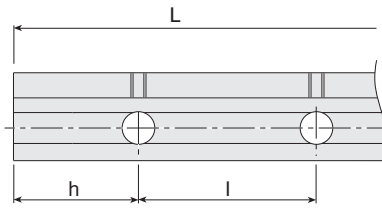
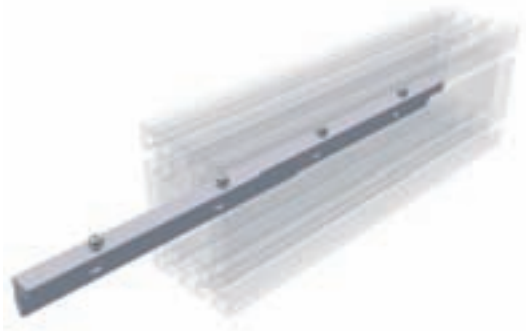
**EXAMPLE OF ORDER:**

**code 211.2367 / KSD**

\_\_\_\_\_ Tooth and treatment characteristics

# Adjusting plates for racks

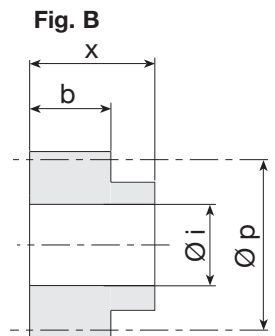
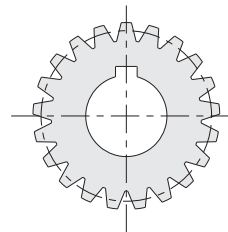
Material: 6082 clear anodized aluminium alloy



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

# Pinion Gears

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



Type	Material	Surface treatment	RS	Quality	Tooth hardness
ND Pinion with helical teeth	Special steel	tempered and hardened	>900 N/mm <sup>2</sup>	Q8	HRC 50
RD Pinion with ground helical teeth	16MnCr5	temp. induction-hardened	>900 N/mm <sup>2</sup>	Q7	HRC 60

## Helical tooth pinion

mod.	Weight	Z	$\phi p$	$\phi i$ avail.	b	x	Code
2	0.2	21	44.56	22	28	56	<b>201.0005</b>
2	0.6	30	63.66	22,30,32	28	56	<b>201.0012</b>
3	0.8	20	63.66	22,25,30,32	28	65	<b>201.0007</b>
3	1.4	28	89.13	25,30,32	28	65	<b>201.0013</b>
4	1.5	18	76.39	32	40	75	<b>201.0009</b>
4	2.8	25	106.10	55	40	80	<b>201.0014</b>

EXAMPLE OF ORDER:

code 201.0007 /ND / 25

Inner diameter ( $\phi i$ )

Features and treatment

# Programmable Automatic Rack Lubrication System

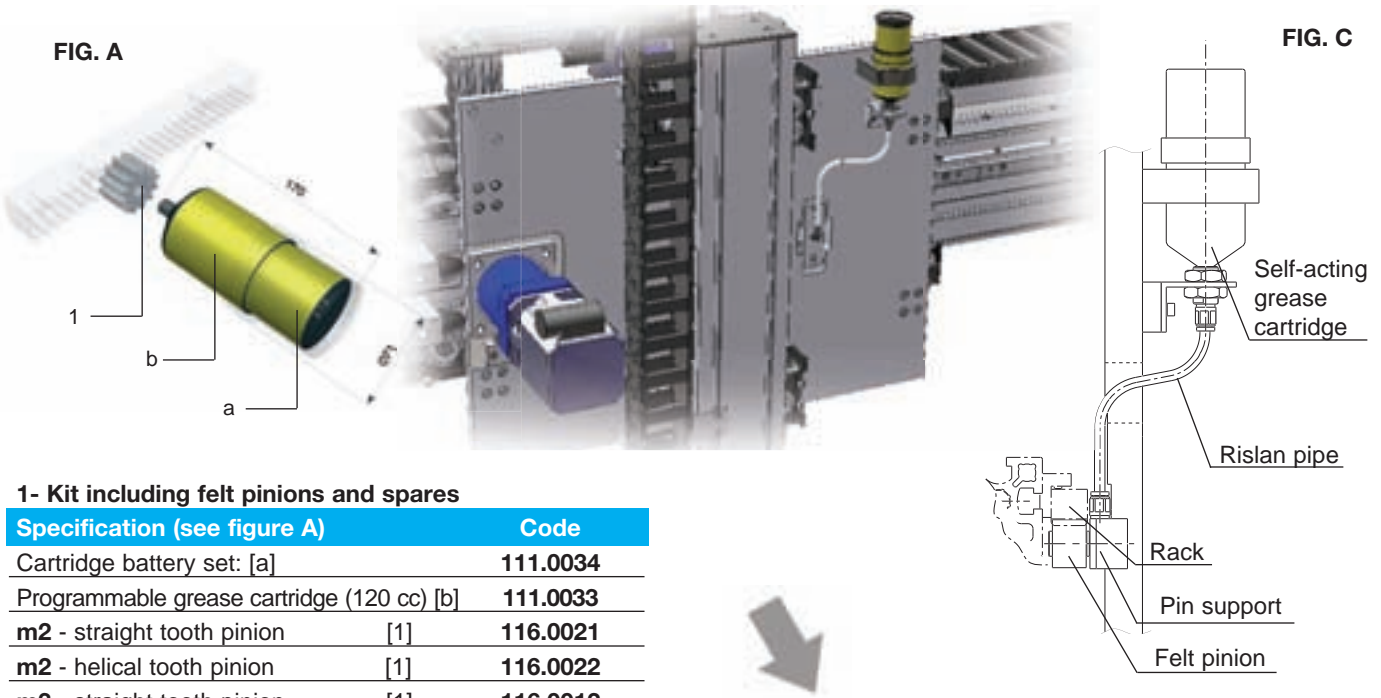
Tecline

Grease is delivered by means of an electromechanically controlled device with replaceable battery (average life: ca. 1 year) (a). The grease is spread evenly on the racks through the specific pinion (1). You will need one kit per rack.

Kit: - for complete standard systems assembled on-site, the kit includes the products listed in Fig. C (e.g.: Fig. B);

- spare parts are those shown in Fig. A (codes in table 1);

FIG. B



## 1 - Kit including felt pinions and spares

Specification (see figure A)	Code
Cartridge battery set: [a]	111.0034
Programmable grease cartridge (120 cc) [b]	111.0033
m2 - straight tooth pinion [1]	116.0021
m2 - helical tooth pinion [1]	116.0022
m3 - straight tooth pinion [1]	116.0012
m3 - helical tooth pinion [1]	116.0025
m4 - straight tooth pinion [1]	116.0023
m4 - helical tooth pinion [1]	116.0024

## 2 - Complete self-acting lubrication system

Specification (see figures B and C)	Code
Complete kit	136.0003

## Table for selecting maximum operating torque

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

Module	Pinion / Racks - Helical tooth					
	Z [n°]	Øp [mm]	KBD	KTD	KFD/KSD	KRD
2	21	44.56	42	140	150	200
	30	63.66	55	190	205	265
3	20	63.66	100	370	400	500
	28	89.13	240	475	500	650
4	18	76.39	250	810	880	1000
	25	106.1	460	1100	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 KTD

Pinion = Øp 63.66 (370 Nm)

Safety factor = A x B x C = 1.575

Motion (A)	Speed (B)	Lubrication (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

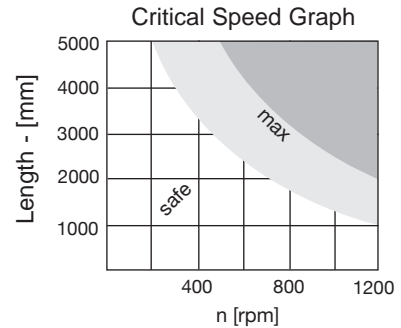
Tab.2

Maximum transmissible torque = Maximum torque 370 / Safety factor 1,575 ≤ 235 Nm

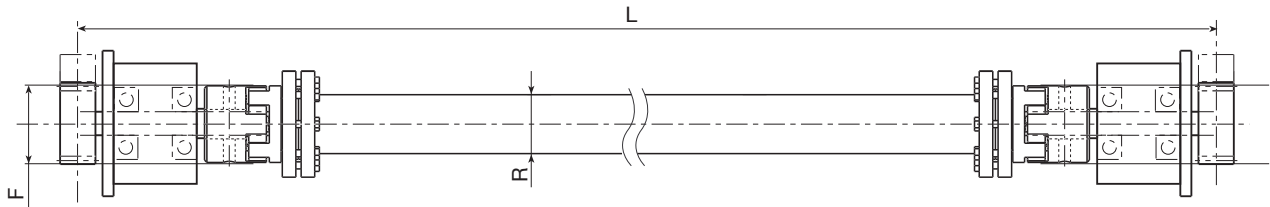
For heavy-duty applications, please ask our technical dept. to carry out the appropriate checks.

# Connection shafts

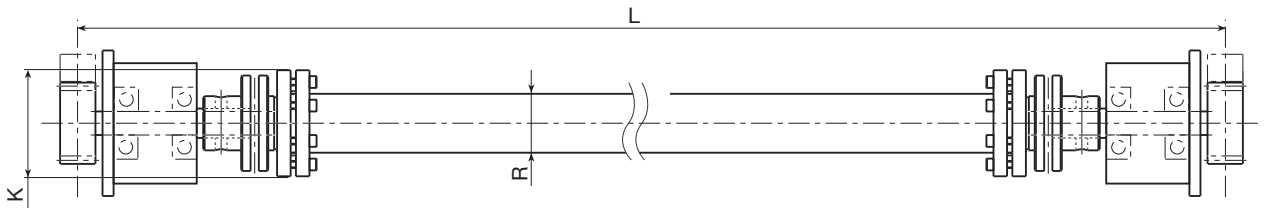
The Tecline range includes a series of hollow shafts for connecting the pinions on the systems. We can supply standard connections, according to your application requirements. The complete kit includes all the components needed to make the connection, with shrink-discs and crop down sizes of pins for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



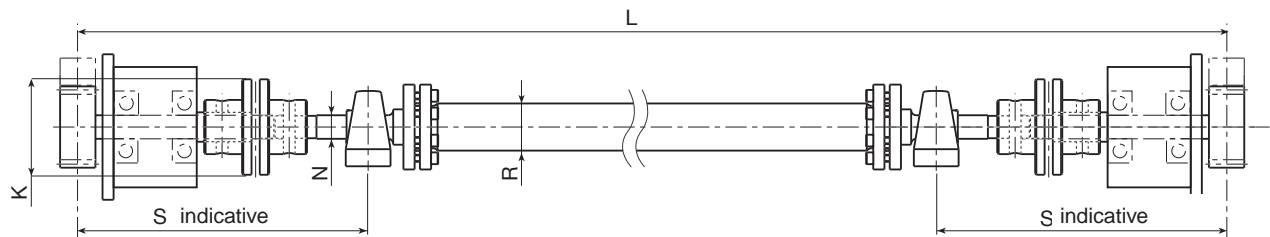
**Type 1 - Elastic joint with connecting shaft, suitable for low speeds with center-distance and length of up to 2 m.**



**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**



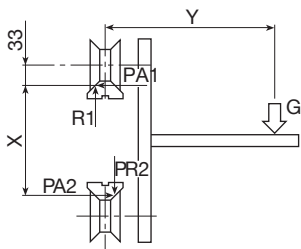
R(*)	K	F	N	S	L <sub>max</sub>	MTwork [Nm]	Mom. of inertia [kgm <sup>2</sup> ]	Type 1: Code/L	Type 2: Code/L	Type 3: Code/L
40	67	55	20	200	6,200	20	0.0028 + 0.46 x L. x 10 <sup>-6</sup>	<b>436.0948</b>	<b>436.0957</b>	<b>436.0965</b>
50	81	65	25	235	6,300	35	0.0092 + 0.66 x L. x 10 <sup>-6</sup>	<b>436.0949</b>	<b>436.0958</b>	<b>436.0966</b>
50	93	80	25	235	6,300	70	0.0161 + 1.34 x L. x 10 <sup>-6</sup>	<b>436.0951</b>	<b>436.0971</b>	<b>436.0974</b>
70	104	95	25	235	6,400	100	0.0293 + 2.93 x L. x 10 <sup>-6</sup>	<b>436.0952</b>	<b>436.0960</b>	<b>436.0968</b>
80	126	120	25	250	6,400	190	0.0793 + 4.5 x L. x 10 <sup>-6</sup>	<b>436.0955</b>	<b>436.0963</b>	<b>436.0984</b>
90	143	-	-	-	6,500	300	0.1456 + 6.53 x L. x 10 <sup>-6</sup>	-	<b>436.0986</b>	<b>436.0987</b>
110	185	-	-	-	6,000	420	0.3499 + 12.3 x L. x 10 <sup>-6</sup>	<b>436.0144</b>	<b>436.0145</b>	<b>436.0146</b>

(\*) 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

Tecline

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.

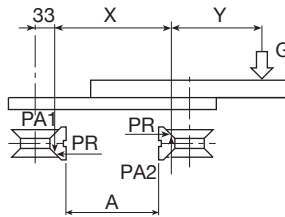


$$P_{A1} = \frac{G \cdot Y}{X} = P_{A2}$$

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

$$P_{R2} = P_{A2}$$

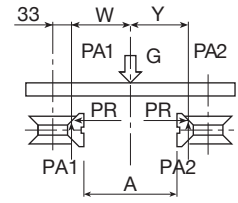
$$X = A + 20 \text{ mm}$$



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

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

$$X = A + 20 \text{ mm}$$



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

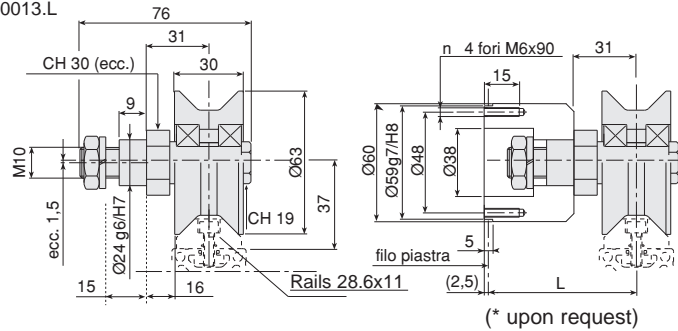
$$P_{A2} = G - P_{A1}$$

$$X = A + 20 \text{ mm}$$

## 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



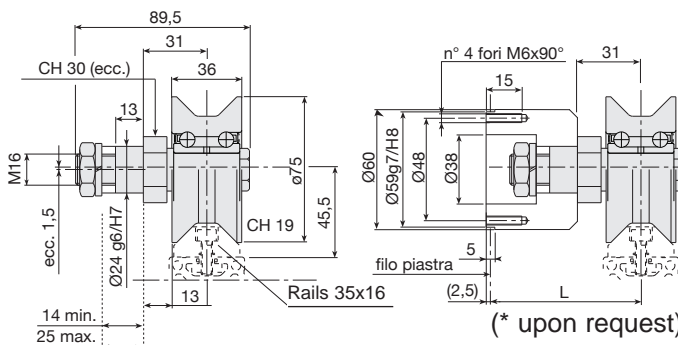
Roller code anti-oxidation treatment and stainless steel bearings: additional code NXE

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  $P_{a \text{ eff}} < 0.4 P_{r \text{ eff}}$ .

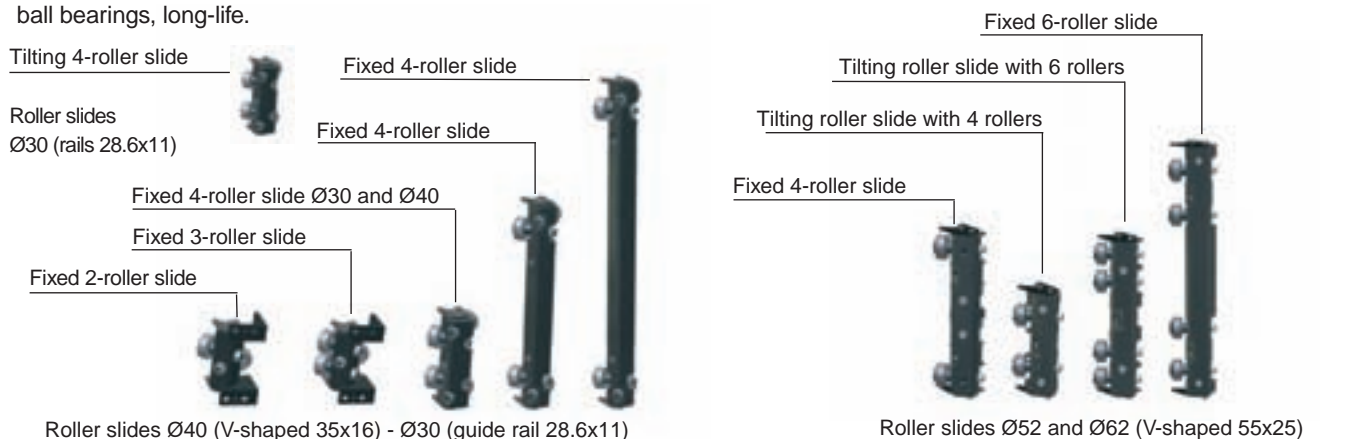
\* IMPORTANT: upon request, spacers can be supplied to increase the centre-distance between the guide rail and the roller supporting surface. In addition to the roller code, please indicate the required centre-distance (L), e.g. 205.0011.L



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

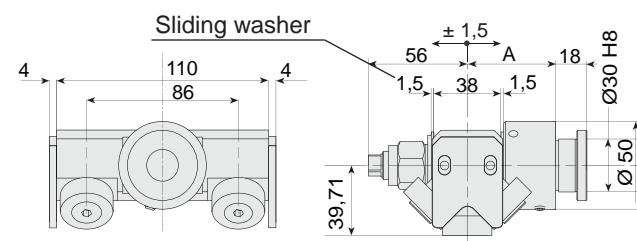
# Roller slides

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



## 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

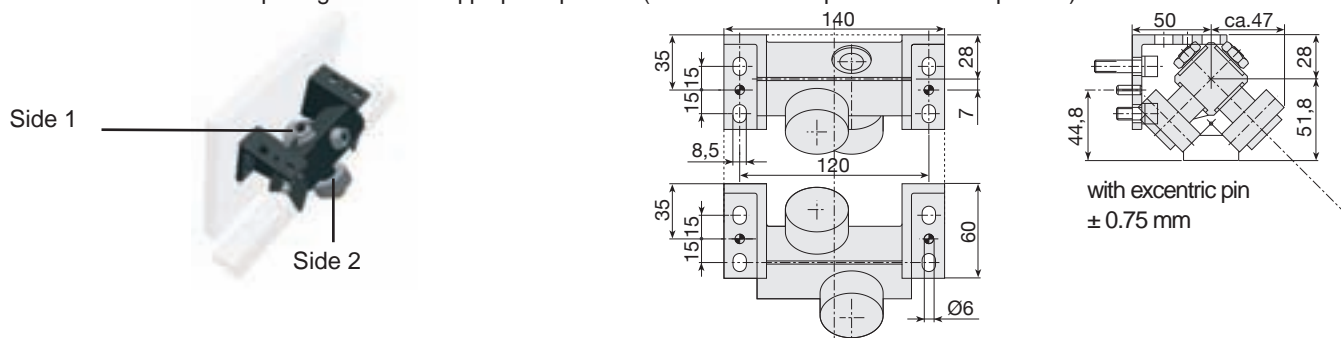
	A	Weight [kg]	Code
Roller slide with concentric pin	75	1.8	<b>204.0052</b>
Roller slide with excentric pin (±1 mm)	75	1.8	<b>204.0053</b>
Roller slide with concentric pin	50	1.4	<b>204.0054</b>
Roller slide with excentric pin (±1 mm)	50	1.4	<b>204.0055</b>

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

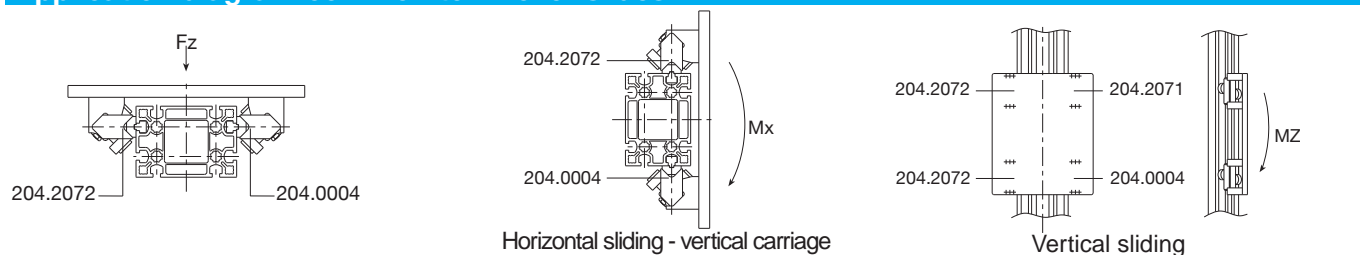
## 2 Roller slides Ø40 for V-shaped guide rails 35x16

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 rollers in the neutral position).



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

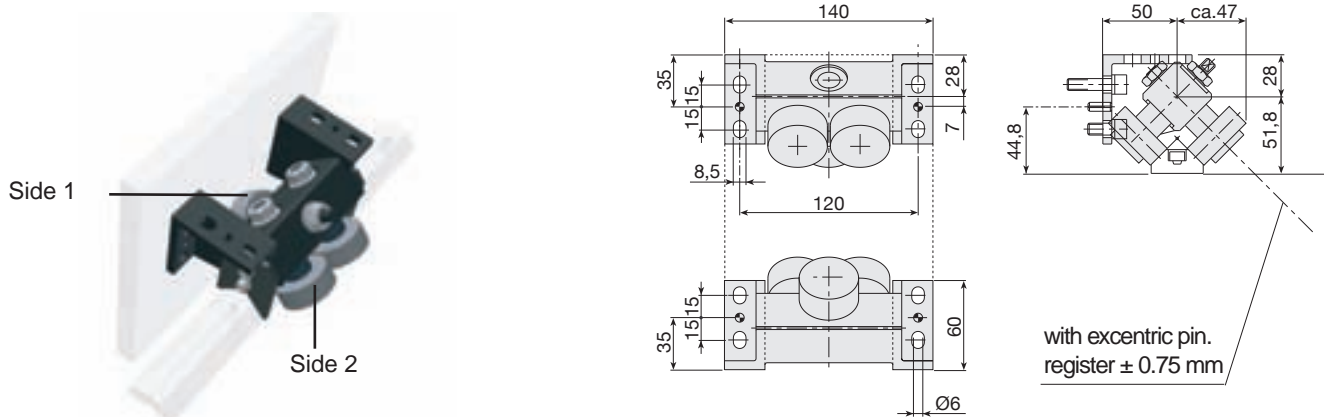
## Application diagram common to 2-roller slides





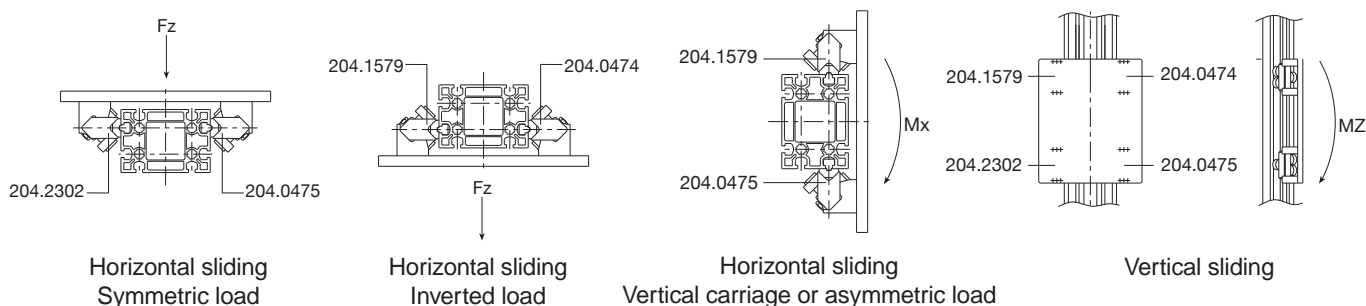
### 3-Roller slides Ø 40 for V-shaped guide rails 35x16

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).



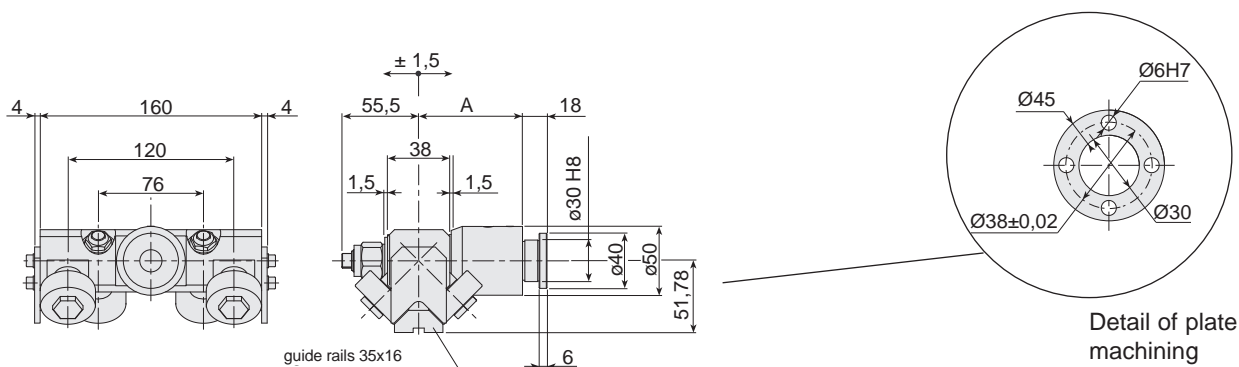
Rollers side 1	Rollers side 2	Specification	Weight [kg]	Code
1 concentric	2 concentric	3-rollers carriage Ø40 - concentric	1.3	<b>204.1579</b>
1 eccentric	2 concentric	3-rollers carriage Ø40 - 1 exc. side 1	1.3	<b>204.0474</b>
2 concentric	1 concentric	3-rollers carriage Ø40 - concentric	1.3	<b>204.2302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

### Application diagram common to 3-roller slides



### 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.



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

	A	Weight [kg]	Code	Spare parts	A	Code
Slide with eccentric stud (±1 mm)	75	2.2	<b>204.0016</b>	Complete body with rollers		<b>204.0013</b>
Slide with eccentric stud (±1 mm)	50	1.8	<b>204.0033</b>	Eccentric stud (±1 mm)	75	<b>236.0011</b>
				Eccentric stud (±1 mm)	50	<b>236.0015</b>

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.

## 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

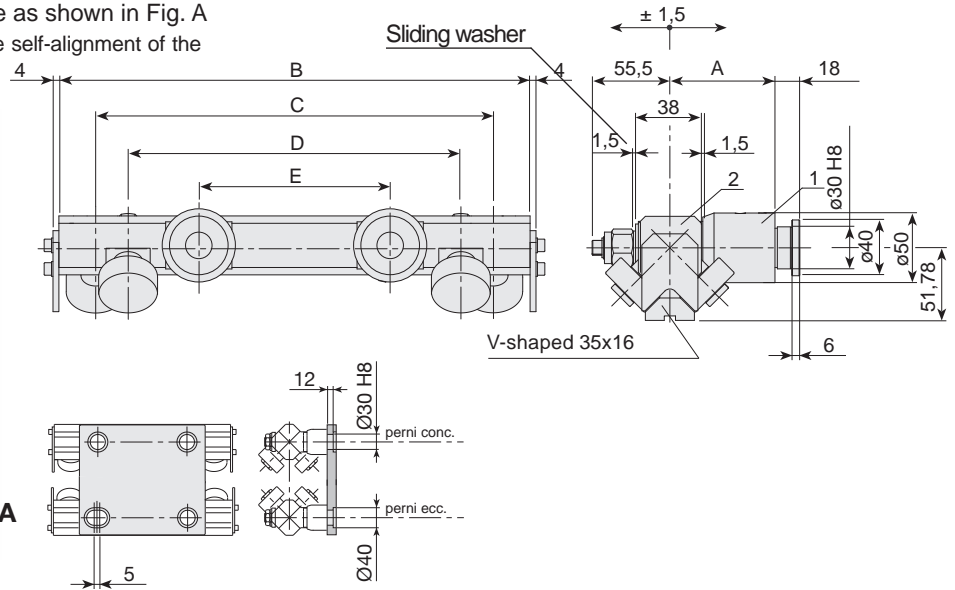


Fig. A

	A	Code
Roller slide L=370 complete with concentric pin	75	<b>204.0017</b>
R. slide L=370 complete with exc. pin ( $\pm 1$ mm)	75	<b>204.0018</b>
Roller slide L=600 complete with concentric pin	75	<b>204.0027</b>
R. slide L=600 complete with exc. pin ( $\pm 1$ mm)	75	<b>204.0028</b>
Roller slide L=370 complete with concentric pin	50	<b>204.0030</b>
R. slide L=370 complete with exc. pin ( $\pm 1$ mm)	50	<b>204.0031</b>
Roller slide L=600 complete with concentric pin	50	<b>204.0034</b>
R. slide L=600 complete with exc. pin ( $\pm 1$ mm)	50	<b>204.0035</b>

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

Pin spare parts (1)	A	Weight [kg]	Code
Concentric pin	75	4.1	<b>236.0010</b>
Eccentric stud ( $\pm 1$ mm)	75	4.1	<b>236.0011</b>
Concentric pin	50	3.5	<b>236.0014</b>
Eccentric stud ( $\pm 1$ mm)	50	3.5	<b>236.0015</b>

## 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

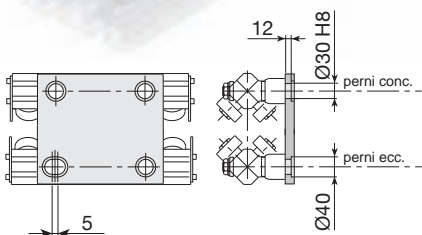
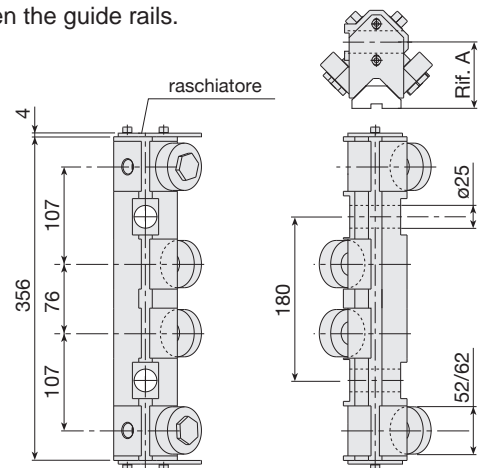


Fig. A

**K version**

inverted roller position see page 63



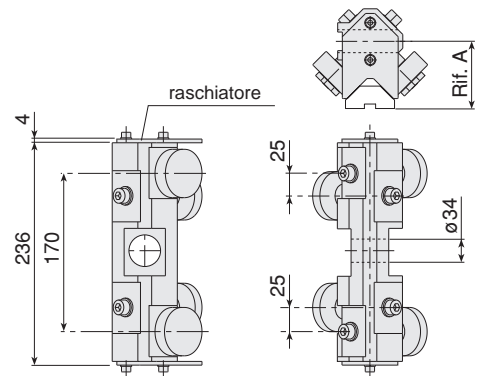
Ø Rollers	Rif. A
Rollers Ø52	71.75
Rollers Ø62	78.85

Technical characteristics	Ø52	Ø62
N° rollers	4	4
Weight [kg.]	4.6	5.2
Spare parts code	<b>204.1518</b>	<b>204.1519</b>

## 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.



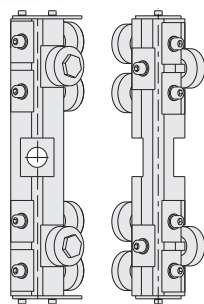
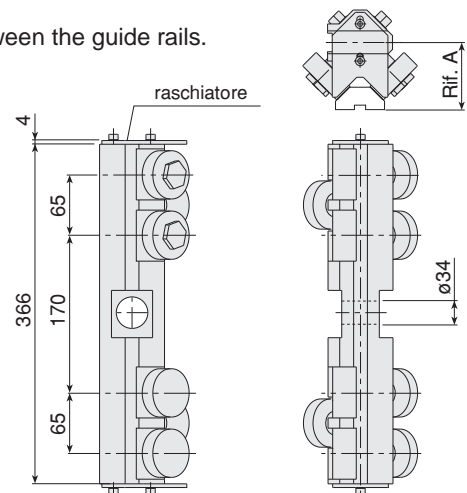
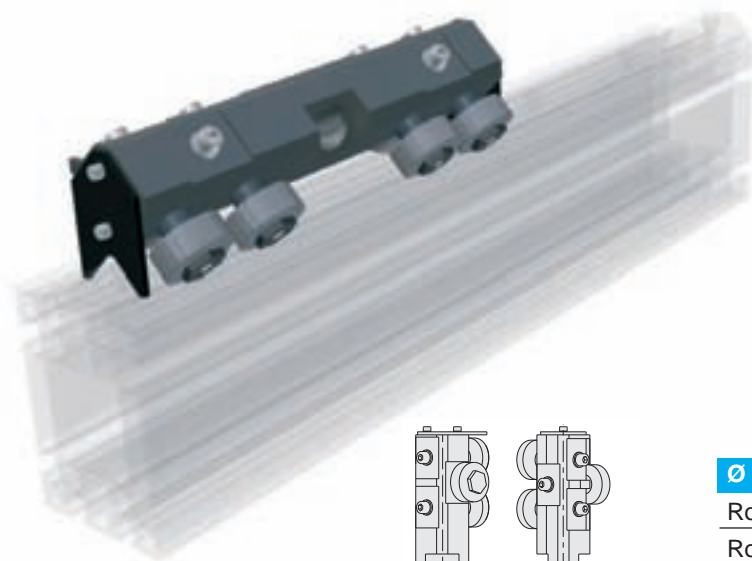
Ø Rollers	Rif. A
Roller Ø52	71.75
Roller Ø62	78.85

Technical characteristics	Ø52	Ø62
N° roller	4	4
Weight [kg.]	3,2	3,8
Spare parts code	<b>204.1520</b>	<b>204.1521</b>

## 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 63

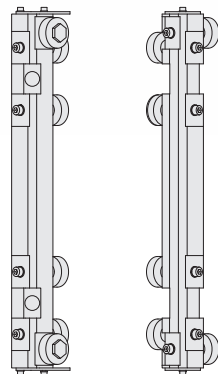
Ø Roller	Rif. A
Roller Ø52	71.75
Roller Ø62	78.85

Technical characteristics	Ø52	Ø62
N° rollers	6	6
Weight [kg.]	4,9	5,9
Spare parts code	<b>204.1522</b>	<b>204.1523</b>

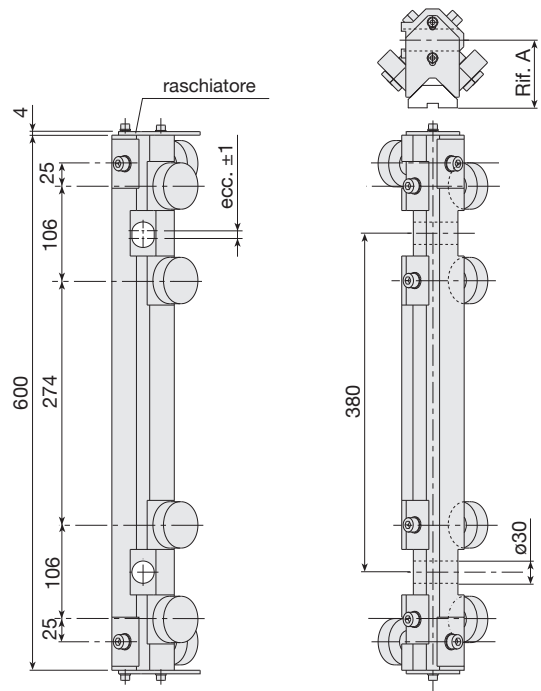
## P-type roller slides (rollers Ø52) and Q-type (rollers Ø62) for V-shaped guide rails 55x25

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 63



Technical characteristics	Ø52	Ø62
N° rollers	6	6
Weight [kg.]	4.9	5.9
Spare parts code	<b>204.2086</b>	<b>204.2283</b>

## 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 hardened and tempered guides

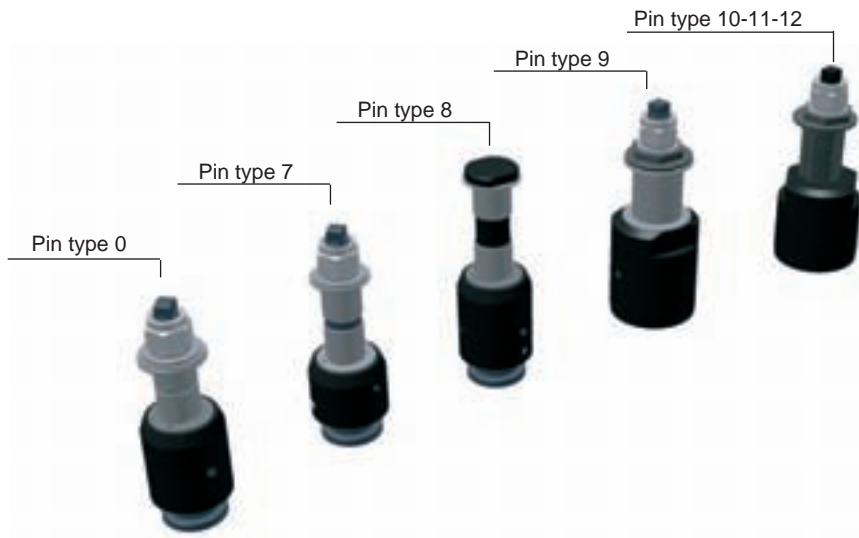
Roller	Cw [N]	C0w[N]	Fr amm.[N]	Max. S.
Ø30	5,000	3,000	1,350	7 m/s
Ø40	9,800	6,200	2,500	7 m/s
Ø52	15,800	10,500	4,250	6 m/s
Ø62	21,100	14,500	5,300	5 m/s

### Max. load factors for induction-hardened guides

Roller	Cw [N]	C0w[N]	Fr amm.[N]	Max. S.
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

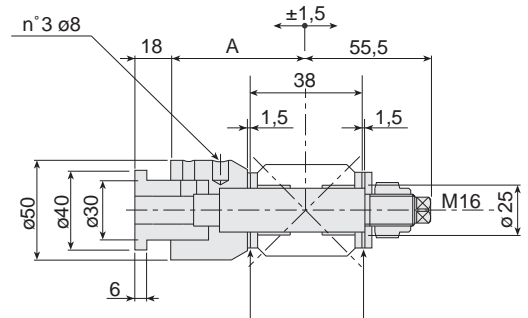
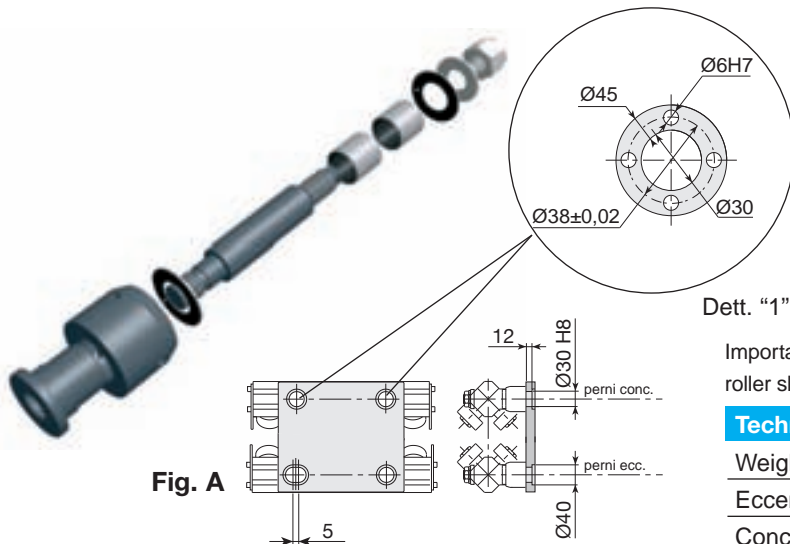
Spare roller with pin	Weight [kg]	Code
Ø30 Concentric	0.02	<b>406.0056</b>
Ø40 Concentric	0.22	<b>205.0464</b>
Ø40 Excentric (± 0.75 mm)	0.25	<b>205.0463</b>
Ø52 Concentric	0.4	<b>205.0163</b>
Ø62 Concentric	0.55	<b>205.0165</b>

Material: burnished steel (Rs=800 N/mm<sup>2</sup>). 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



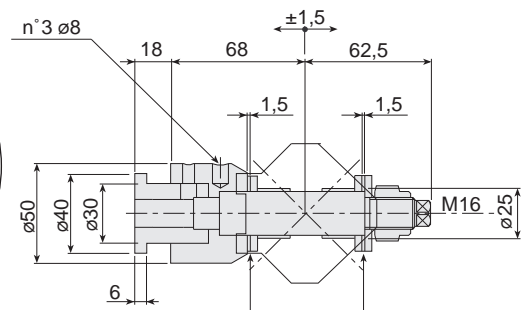
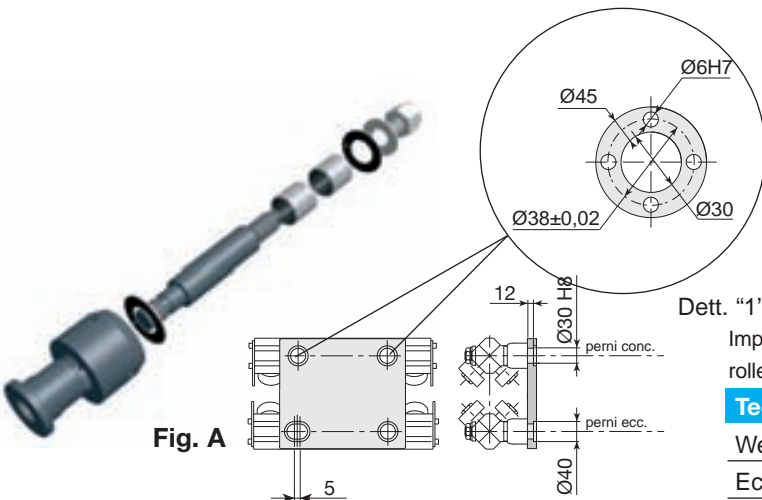
Det. "1"

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

Technical characteristics	A	
Weight [kg.]		1.1 approx.
Eccentric code (± 0,75 mm)	75	<b>236.0011</b>
Concentric code (± 0,75 mm)	50	<b>236.0015</b>

## Type 7 assembly pins suitable for roller slide E-F

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

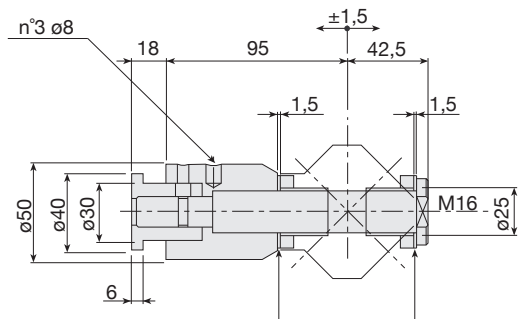
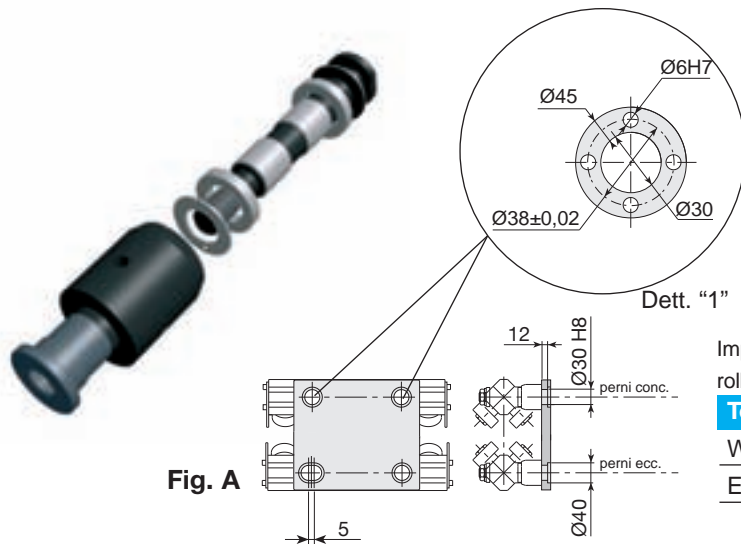


Det. "1"

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

Technical characteristics	A	
Weight [kg.]		1.1 approx.
Eccentric code (± 1 mm)		<b>236.1689</b>

## Assembly pins type 8 suitable for carriage E-F

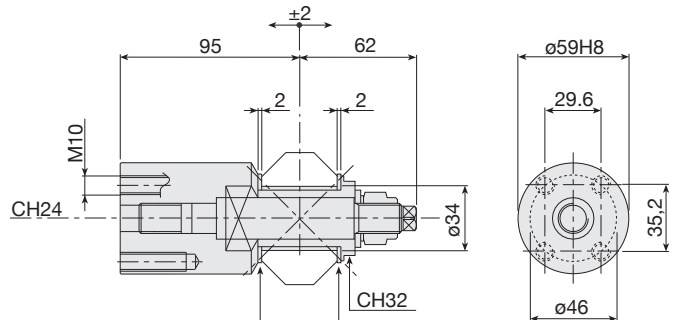


Important: remove the spacer washers to enable self-alignment of the roller slide

### Technical characteristics

Weight [kg.]	1.8 approx.
Excentric code ( $\pm 1$ mm)	<b>236.1691</b>

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

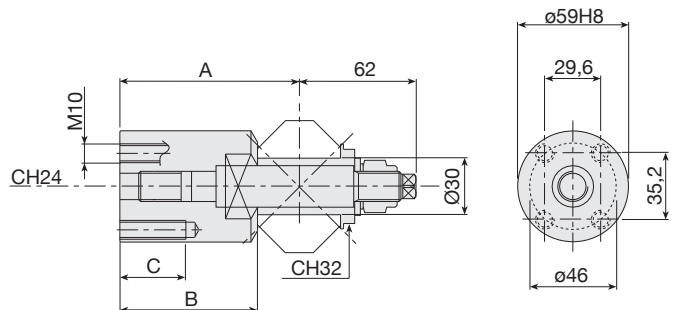


Important: remove the spacer washers to enable self-alignment of the roller slide

### Technical characteristics

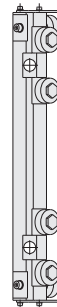
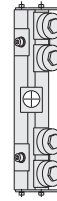
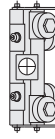
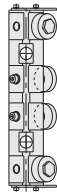
Weight [kg.]	2 approx.
Concentric code	<b>236.2076</b>
Excentric code ( $\pm 1,5$ mm)	<b>236.2079</b>

## Type 10-11-12 assembly pins suitable for tilting roller slides A-D / P-Q



Type	A	B	C	Weight [kg]	Conc.code	Exc. code ( $\pm 1,5$ mm)
10	95	73	35	2	<b>236.2082</b>	<b>236.2083</b>
11	87	65	27	1.8	<b>236.2088</b>	<b>236.2089</b>
12	78	56	18	1.7	<b>236.2090</b>	<b>236.2091</b>

# Order code table for roller slides and pins

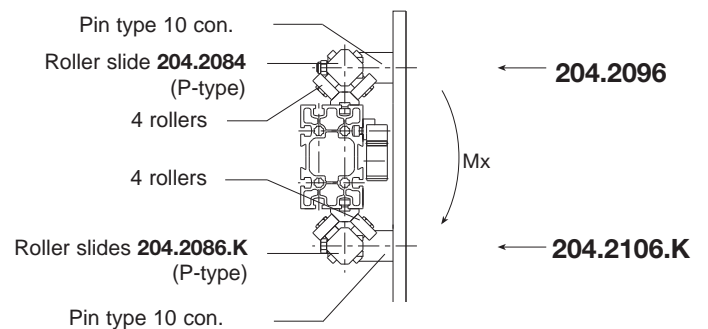
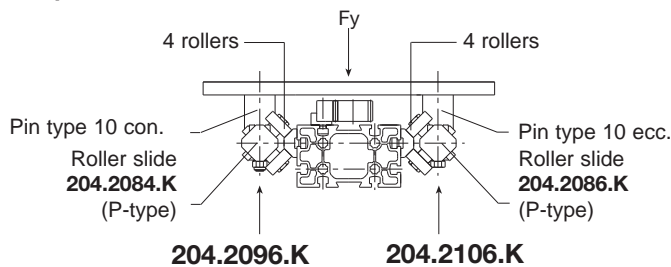


	Roller sl.	E	F	G	H	I	L	P	Q	
	Pin	∅ roller	52	62	52	62	52	62	52	62
	7	con.	204.1314	204.1318	-	-	-	-	-	-
		exc.	204.1344	204.1348	-	-	-	-	-	-
	8	con.	204.1315	204.1319	-	-	-	-	-	-
		exc.	204.1345	204.1349	-	-	-	-	-	-
	9	con.	-	-	204.2092	204.2093	204.2094	204.2095	-	-
		exc.	-	-	204.2102	204.2103	204.2104	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 safety device with pneumatic brake system

Anti-drop safety 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.

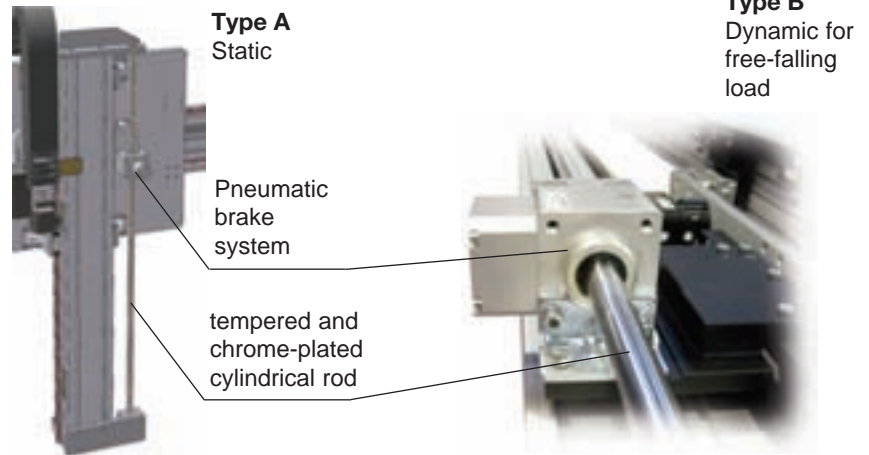
Two-way blocking occurs following an unexpected pressure drop.

A mechanical safety 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.



## 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

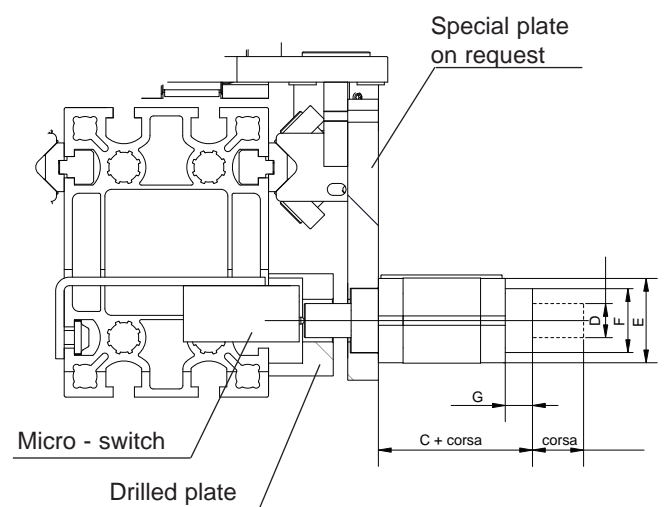
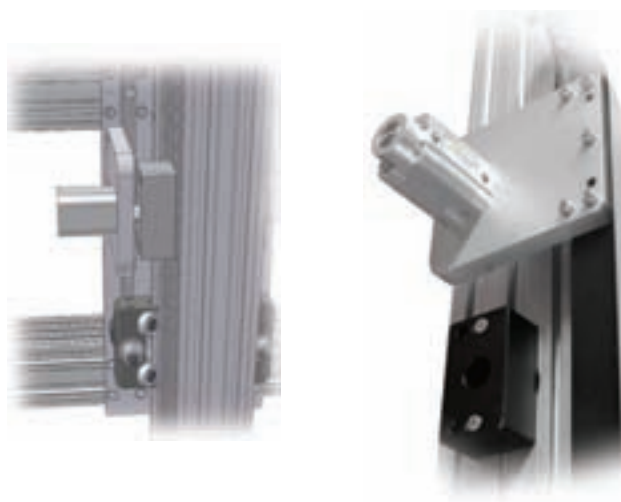
## 1- Dynamic rod blocking device

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	/ ...

# Safety lock-pin (stopper cylinder)

Lock-pins are available in two sizes to block the vertical axes in the safety position to allow horizontal movements during maintenance. The safety 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- Safety lock-pin

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

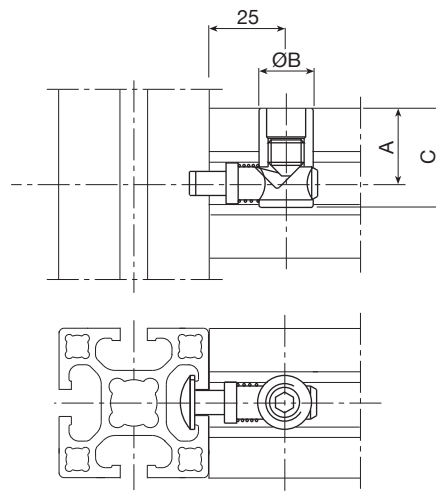
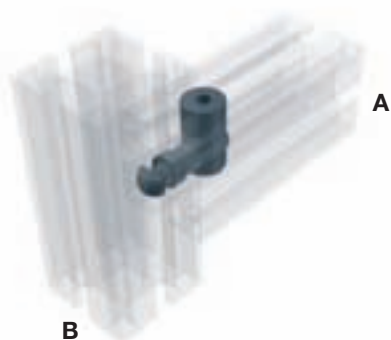
## 2- Accessory: drilled plate for rod

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



## PVS® with round head and orthogonal milling

PVS® connecting elements with round anchor head and orthogonal milling that can be inserted frontally into the slots to join two orthogonal profiles.

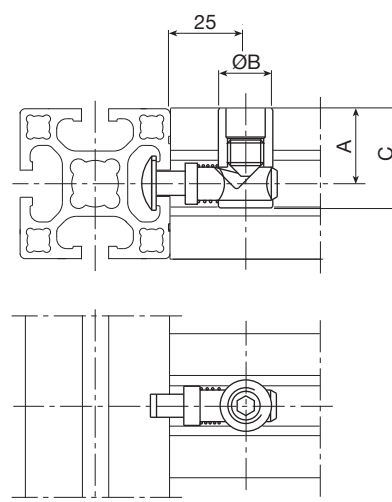
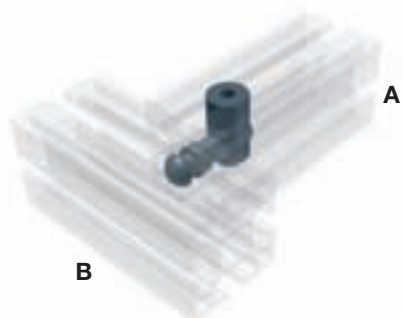


Profile B	Profile A			
	30	45	50	60
60	-	-	-	F20-20
50	-	-	A20-20	A20-20
45	-	E20-20	E20-20	E20-20
30	B20-20	B210-20	B210-20	B210-20

Profile base	30	45	50	60
A wheelbase	15	22,5	25	30
B Ø milling	15.1	18.1	18.1	18.1
C profile milling	22	30.5	33	38

## PVS® with round head and parallel milling

PVS® connecting elements with round anchor head and parallel milling that can be inserted frontally into the slots to join two orthogonal profiles.

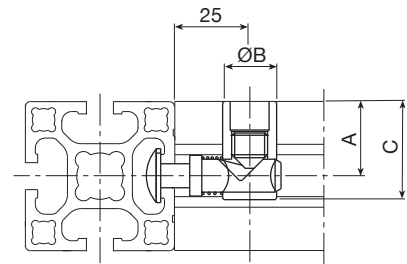
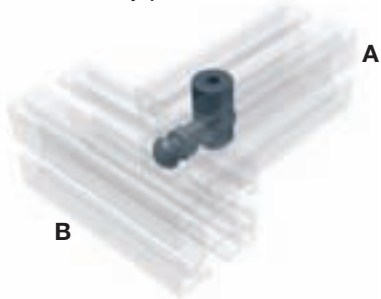


Profile B	Profile A			
	30	45	50	60
60	-	-	-	F20-10
50	-	-	A20-10	A20-10
45	-	E20-10	E20-10	E20-10
30	B20-10	B210-10	B210-10	B210-10

Profile base	30	45	50	60
A wheelbase	15	22.5	25	30
B Ø milling	15.1	18.1	18.1	18.1
C profile milling	22	30.5	33	38

## PVS® with general-purpose round head

PVS® connecting elements with round anchor head, to be inserted into the slot at the beginning of the profile, to join two orthogonal profiles in any position.

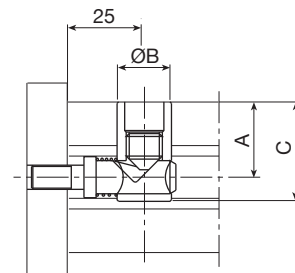


Profile B	Profile A	30	45	50	60
	60	-	-	-	-
50	-	-	-	A20-90	A20-90
45	-	-	E20-90	E20-90	E20-90
30	B20-90	B20-90	B20-90	B20-90	B20-90

Profile base	30	45	50	60
A wheelbase	15	22.5	25	30
B Ø milling	15.1	18.1	18.1	18.1
C profile milling	22	30.5	33	38

## PVS® with threaded head

PVS® connecting elements with threaded anchor head, for fixing to plates or other assemblies.

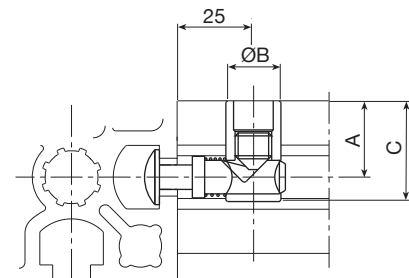
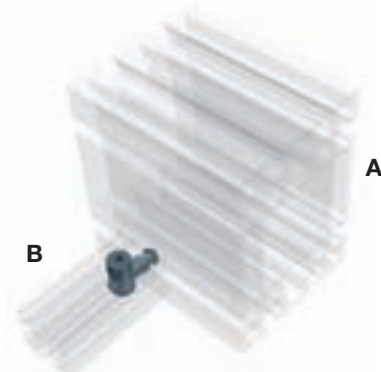


Profile	M6	M8
	60	-
50	-	A20-60
45	-	E20-60
30	B20-66	B20-60

Profile base	30	45	50	60
A wheelbase	15	22,5	25	30
B Ø milling	15.1	18.1	18.1	18.1
C profile milling	22	30,5	33	38

## Special PVS®

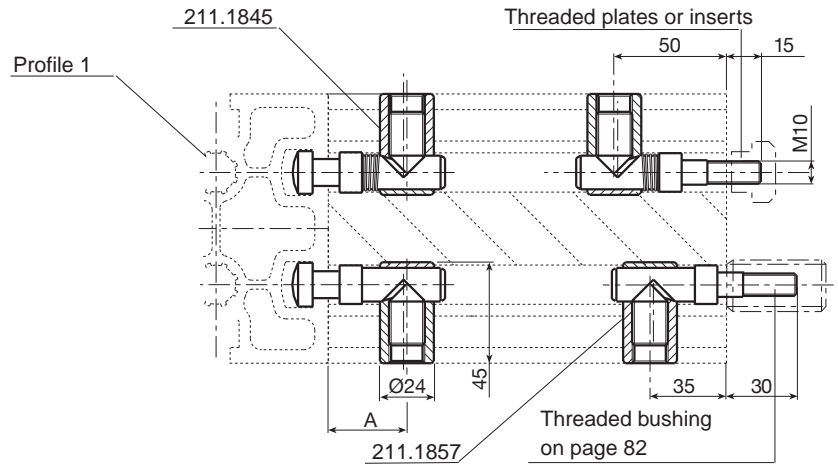
PVS® connecting elements with round head for fixing small/medium size profiles to beams.



Profile B	Profile A	load-bearing profile
	60	-
50	-	211.1849
45	-	211.0023
40	-	211.0018

Profile base	30	45	50	60
A wheelbase	15	22.5	25	30
B Ø milling	15.1	18.1	18.1	18.1
C profile milling	22	30.5	33	38

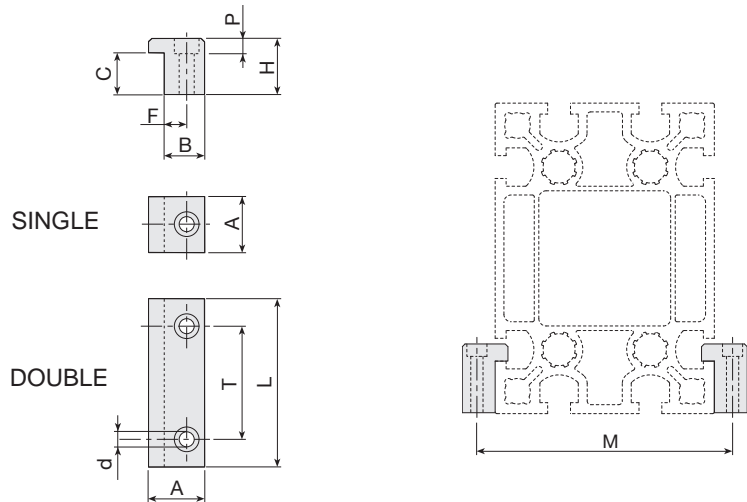
PVS® connecting elements with round anchor head and threaded head for beams and plate assembly.



Profile 1	A
LOGYCA and VALYDA	35
STATYCA	38
Threaded version code	<b>211.1857</b>
Round head version code	<b>211.1845</b>

## Profile anchor brackets

Material: aluminium alloy (Rs=310 N/mm<sup>2</sup>).

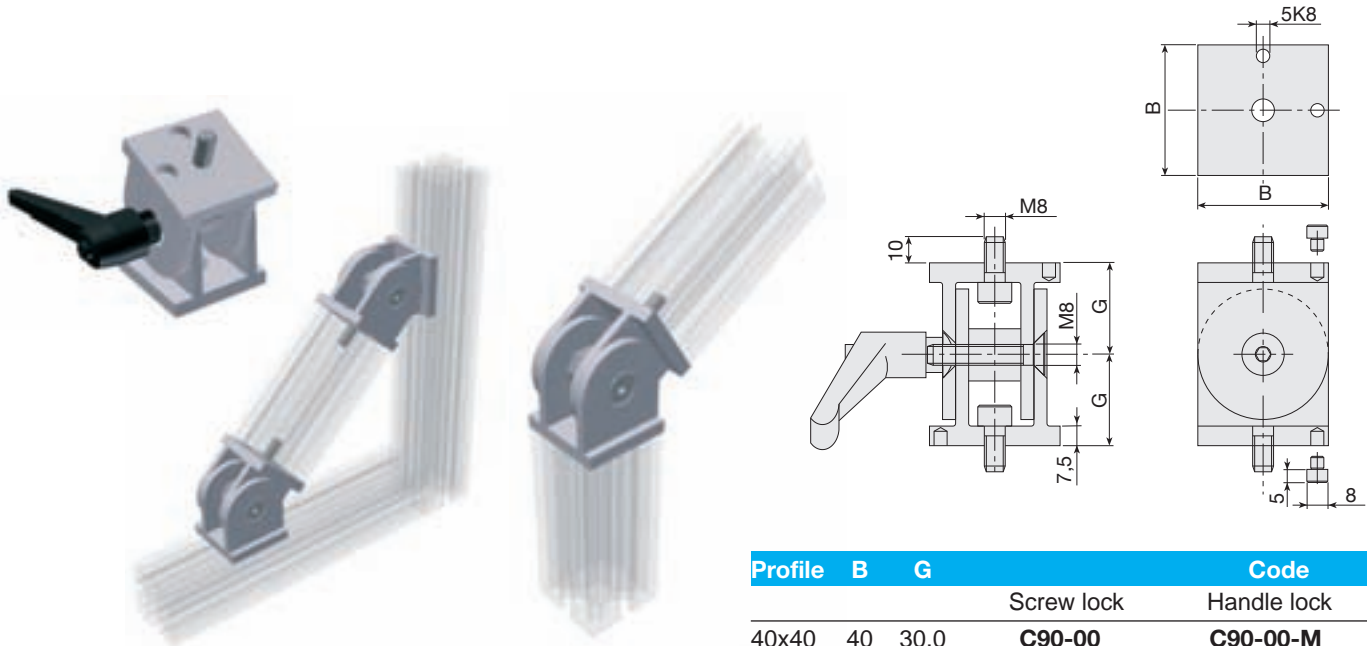


Profile	A	L	T	d	H	P	C	F	B	M	single code	double code
E01-6 ; E01-1 ; E01-3 / E01-4 ; E01-5	30	50	25	9	25	9.5	18	12	22	69/114	<b>415.0772</b>	<b>415.0773</b>
F01-1 / F01-2 horizontal	30	50	25	9	30	9.5	25.3	12	22	84/114	<b>215.0044</b>	<b>215.0043</b>
F01-2 vertical	30	50	25	9	25	9.5	18	12	22	84	<b>415.0772</b>	<b>415.0773</b>
MA1-3 / MA1-5	25	50	25	6.7	27	6.8	20.6	10	18	120	<b>415.0769</b>	<b>415.0764</b>
STATYCA	30	90	50	11	40	11	28.3	14	25	198	<b>415.0767</b>	<b>415.0762</b>
VALYDA horizontal	30	90	50	11	40	11	28.3	14	25	228	<b>415.0767</b>	<b>415.0762</b>
VALYDA vertical	30	90	50	11	50	11	43.1	14	25	148	<b>215.0042</b>	<b>215.0041</b>
LOGYCA	30	90	50	11	40	11	28.3	14	25	248	<b>415.0767</b>	<b>415.0762</b>
PRATYCA horizontal	30	90	50	11	20	11	11.3	14	25	308	<b>415.0768</b>	<b>415.0763</b>
PRATYCA vertical	30	90	50	11	25	11	13.5	14	25	198	-	<b>915.1174</b>
SOLYDA horizontal	30	90	50	11	20	11	11.3	14	25	308	<b>415.0768</b>	<b>415.0763</b>
SOLYDA vertical	30	90	50	11	25	11	13.5	14	25	198	-	<b>915.1174</b>

# L-shaped brackets

## Joint for small profiles

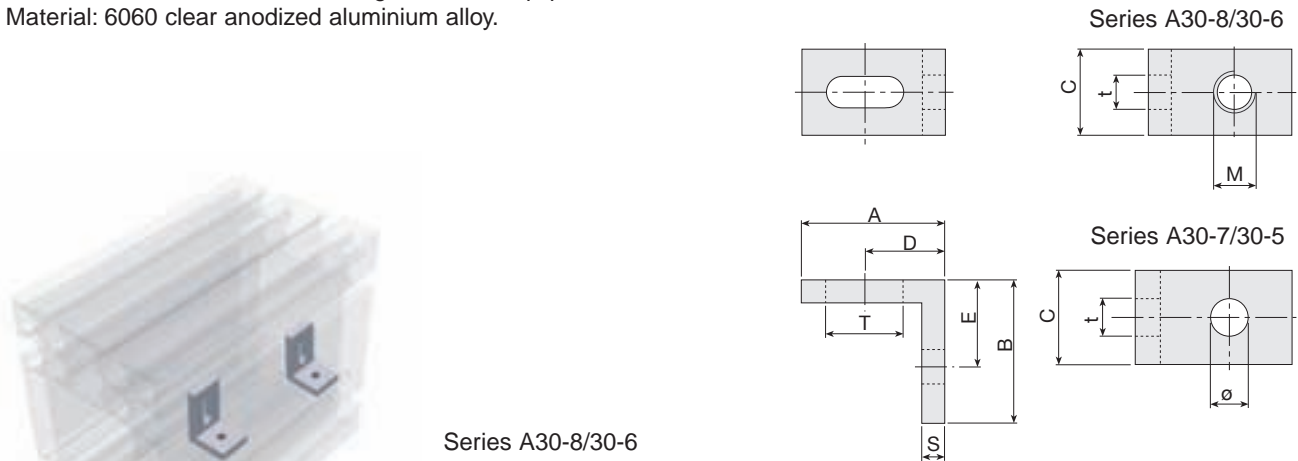
Mainly used to improve structural rigidity by means of diagonal struts. Can also be used as a hinge to fix command or control devices (consoles, display units, etc.) to existing structures.



Profile	B	G	Code	
			Screw lock	Handle lock
40x40	40	30.0	<b>C90-00</b>	<b>C90-00-M</b>
45x45	45	32.5	<b>E90-00</b>	<b>E90-00-M</b>
50x50	50	35.0	<b>A90-00</b>	<b>A90-00-M</b>

## Threaded hole bracket

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



Series A30-8/30-6

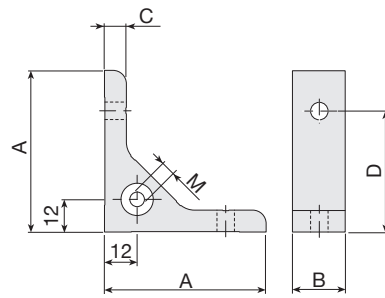
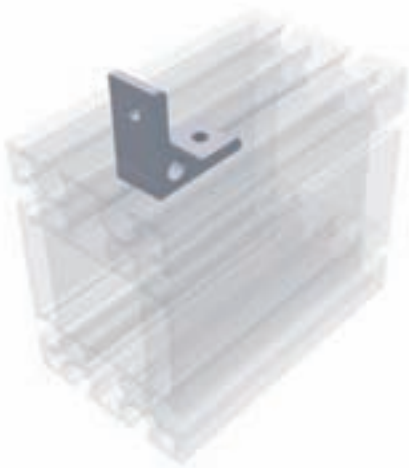
Series A30-7/30-5

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

### Bracket for mounting additional equipment

L-shaped bracket for mounting additional equipment and improving the rigidity of frames made with profiles.

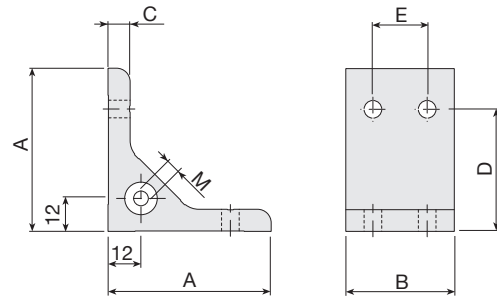
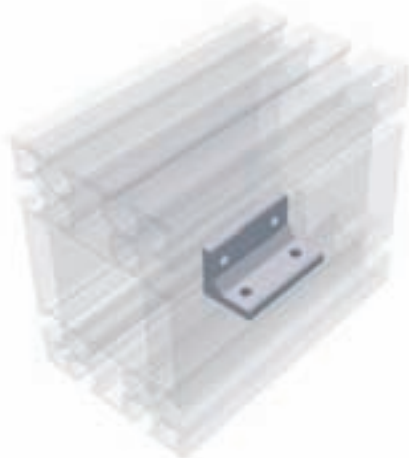
Material: 6060 clear anodized aluminium alloy.



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

### Bracket for mounting additional profiles

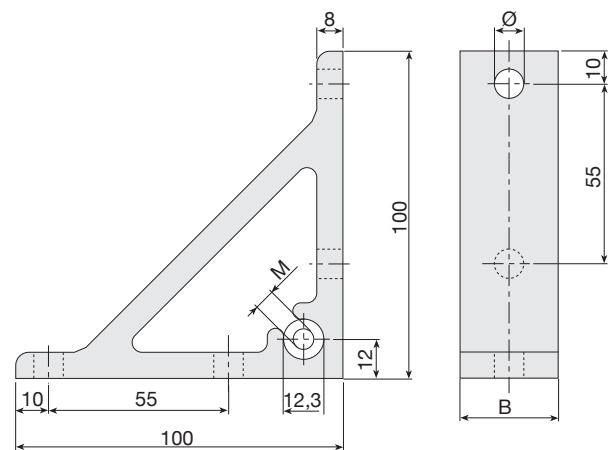
Material: 6060 clear anodized aluminium alloy.



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

### Bracket for mounting additional profiles

Material: 6060 clear anodized aluminium alloy.

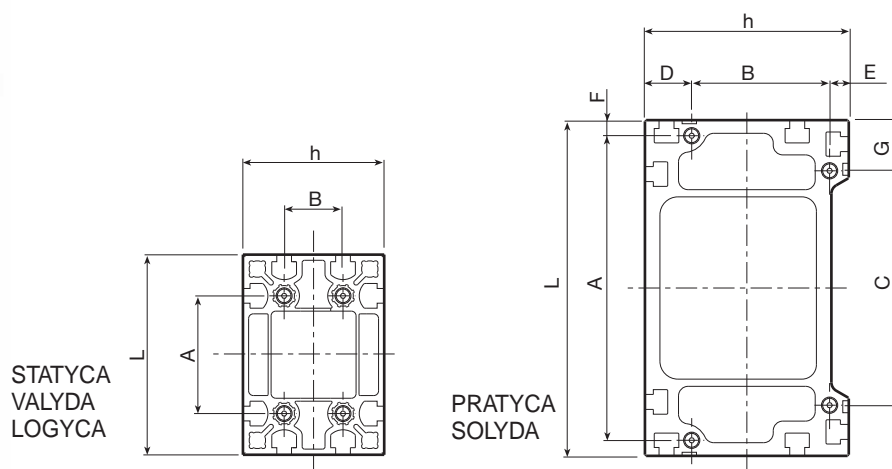
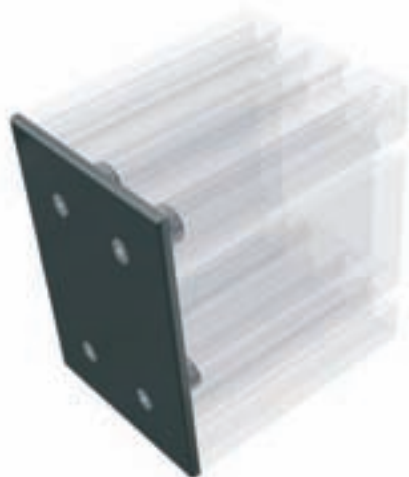


	B	M	Ø	Code
Without bushing	30	-	9	<b>A30-30</b>
Without bushing	20	-	6.5	<b>B30-30</b>
With bushing	30	M6	9	<b>A30-40</b>
With bushing	20	M6	6.5	<b>B30-40</b>

## 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 indicated in the drawing (in this case the end caps are supplied without any bushings). Please specify whether profiles will require end caps.

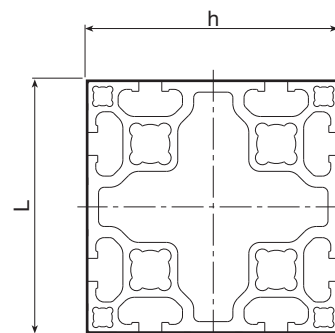
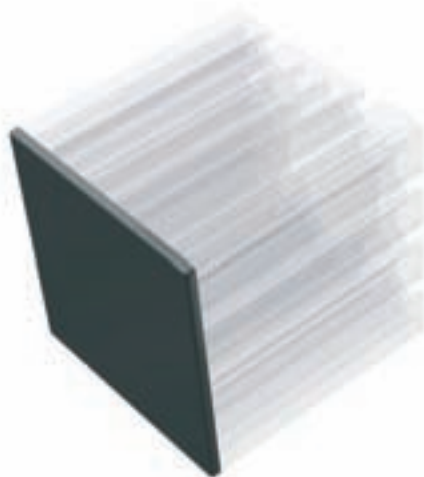
Material: black polyethylene, 6 mm thick. End caps in 6 mm-thick aluminium alloy are available upon request.



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

The end caps for small and medium profiles have no screws or bushes and are fitted simply by exerting moderate pressure on the end of the profile.

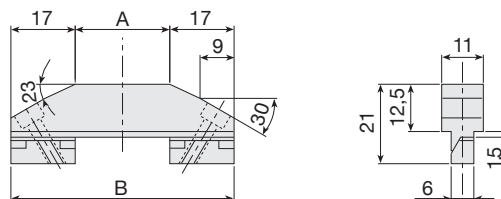
Material: black polyethylene, approx. 5 mm thick.



Profile	L	h	Code
MB 1-1	30	30	<b>B40-30</b>
E01-2	60	45	<b>E40-20</b>
E01-3	90	45	<b>E40-30</b>
E01-4	90	90	<b>E40-40</b>
E01-5	180	90	<b>E40-60</b>
E01-11/E01-6/E01-1	45	45	<b>E40-10</b>
E01-7	45	20	-
F01-1	60	60	<b>F40-10</b>
F01-2	90	60	<b>F40-20</b>
MA1-3	150	50	<b>A40-30</b>
MA1-5	100	100	<b>A40-50</b>
E01-13	90	135	<b>E40-10/E40-30</b>

## Long cams (type B)

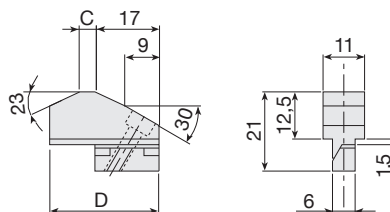
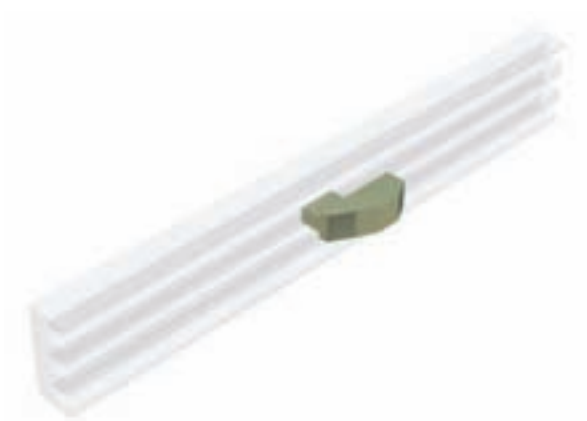
Cams in accordance with DIN 69639 except when marked "#".  
Material: steel with hardened and ground surface.



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)

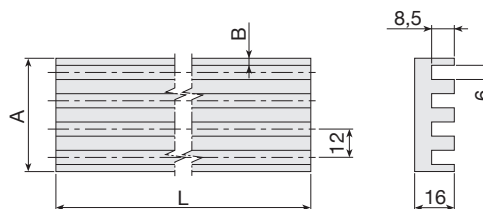
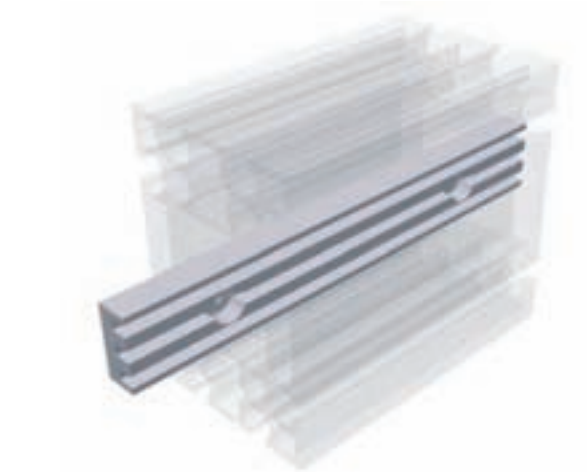
Cams in accordance with DIN 69639  
Material: steel with hardened and ground surface.



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.



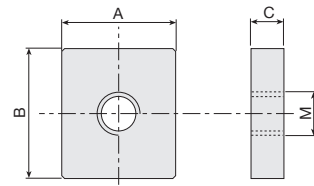
n°	B	A	L	Code
3	3	36	3,000	202.2138
4	5.5	53	3,000	202.2139
6	5.5	77	3,000	202.2140
8	5.5	101	3,000	202.2141

# Threaded inserts for small and medium profiles

## Inserts for base profiles 30/45/50/60

Material: galvanised steel.

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



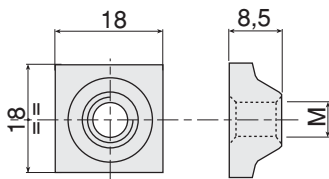
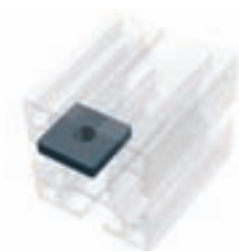
Thread	A-B-C Code	Thread	A-B-C Code
M3	<b>B32-30</b>	M4	<b>A32-40</b>
M4	<b>B32-40</b>	M5	<b>A32-50</b>
M5	<b>B32-50</b>	M6	<b>A32-60</b>
M6	<b>B32-60</b>	M8	<b>A32-80</b>
Spring	<b>211.1077</b>	Spring	<b>211.1061</b>

## Square nuts

Also suitable for profiles **STATYCA, VALYDA, LOGYCA, PRATYCA and SOLYDA.**

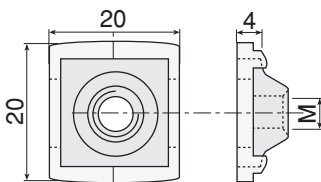
Material: galvanised steel.

Important: inserts must be inserted into the longitudinal slots before assembling.



Thread	Code 18x18	Code 20x20
M4	<b>209.0031</b>	<b>209.0023</b>
M5	<b>209.0032</b>	<b>209.0019</b>
M6	<b>209.0033</b>	<b>209.1202</b>
M8	<b>209.0034</b>	<b>209.0467</b>

Plastic compound spring for vertical positioning of insert.

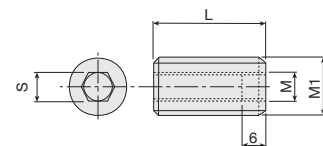


Spring	Code
Suitable for all inserts 18x18	<b>101.0732</b>

## Threaded bushings

Material: chrome-plated steel.

M14 or M16 threading is necessary at the end of the profiles.



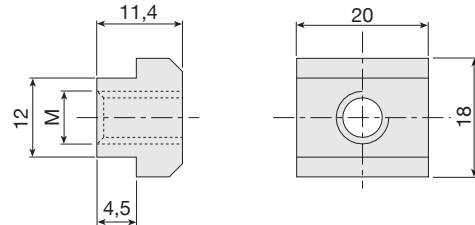
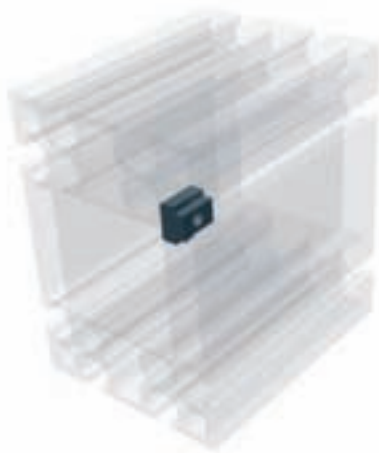
Profile	M1	M	S	L	Code
Base 30	14	10	10	25	<b>B33-21</b>
Base 30	14	8	8	25	<b>B33-28</b>
Base 30	14	6	6	25	<b>B33-26</b>
Base 45/50/60	16	10	10	25	<b>A33-20</b>
Base 45/50/60	16	8	8	25	<b>A33-28</b>
Base 45/50/60	16	6	6	25	<b>A33-26</b>



## Frontally insertable alignment plates

Material: galvanised steel.

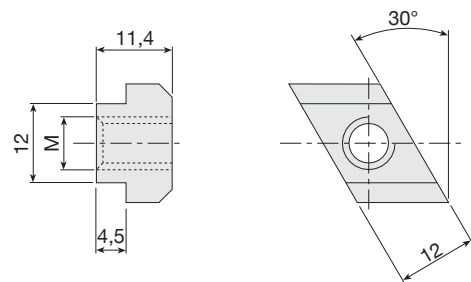
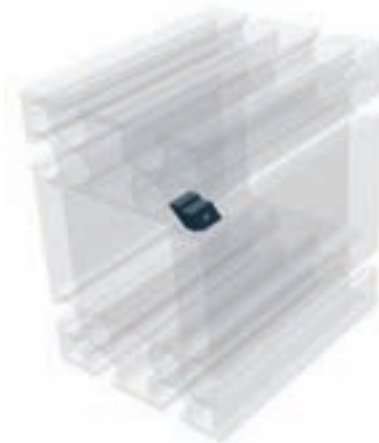
Important: inserts must be inserted into the T-slots before assembling.



Thread	Code
M5	215.1768
M6	215.1769
M8	215.1770
M10	215.2124

## Frontally insertable alignment plates

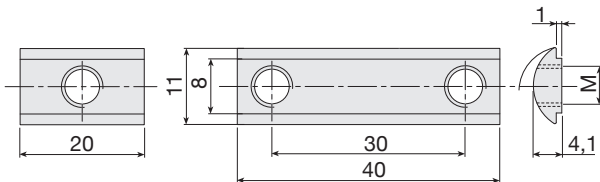
Material: galvanised steel.



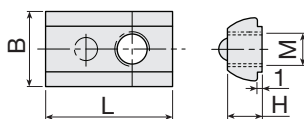
Thread	Code
M5	215.1771
M6	215.1772
M8	215.1773
M10	215.2125

## Inserts for base profiles 30/40/45/50/60 with spring, frontally insertable

Material: galvanised steel. With retention spring.



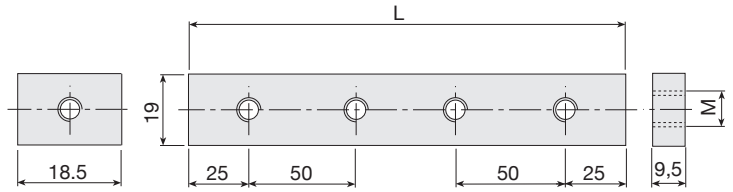
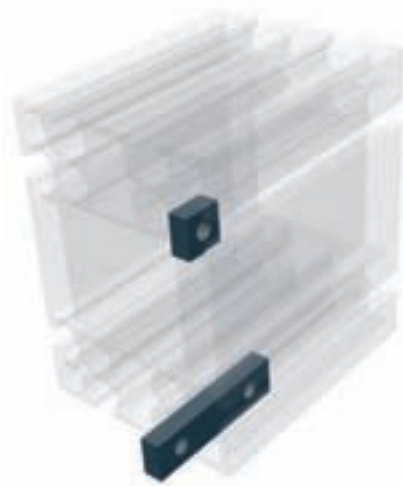
Base	B	H
30	11	4,1
40	13.6	5.9
45-60	14	7.8



Thread	N. holes	L	Base 30 Code	Base 40 Code	45-50-60 Code
M5	1	20	B32-55		A32-55
M6	1	22	B32-65		A32-65
M8	1	22	B32-85		A32-85
M6	2	40	B32-67		A32-67
M5	1	20		C32-55	
M6	1	20		C32-65	
M8	1	20		C32-85	
M6	2	40		C32-67	

## Threaded inserts

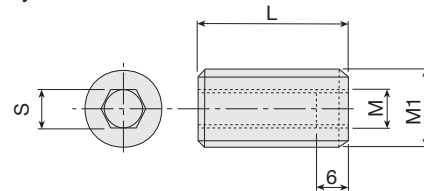
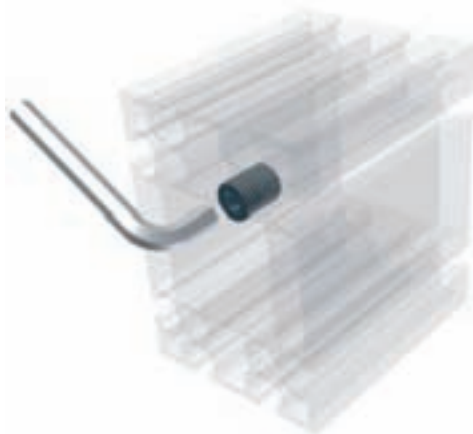
Also suitable for base-50 profiles, except A32-91 insert.  
Material: galvanised steel.



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

## Threaded bushings

Material: galvanised steel. M20 threading at the end of the profile is necessary.



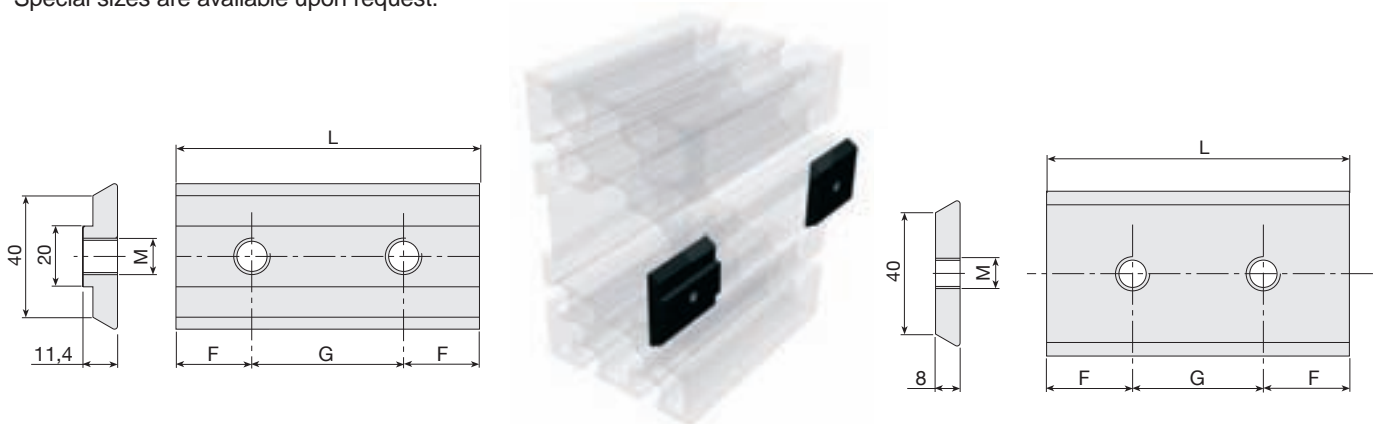
M1	M	S	L	Code
20	6	6	25	<b>207.1892</b>
20	8	8	25	<b>207.1893</b>
20	10	10	25	<b>207.1894</b>
20	12	12	25	<b>207.2288</b>

## 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.

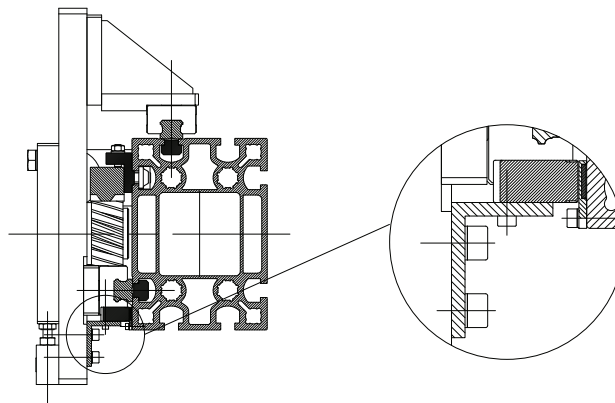
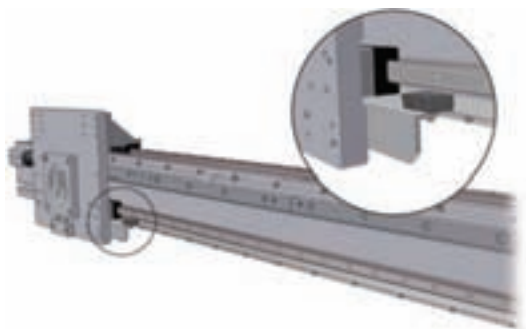


F	G	L	N° holes	M8	M10
25	-	50	1	<b>214.0388</b>	<b>214.0394</b>
25	50	100	2	<b>214.0389</b>	<b>214.0395</b>
25	50	200	4	<b>214.0391</b>	<b>214.0398</b>
25	50	300	6	<b>214.0393</b>	<b>214.0400</b>

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

**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)



**Machining code table**

**Machining for large profiles**

MC1.2	MC1.9	E01.5	MA1.9	2021753	2021146	2022184
2B	4B	4B	2A	4A	4A	2A
...-51/...	...-59/...	...-64/...	...-66/...	...-69/...	...-70/...	...-71/...
2A	2B	4A	4A	4A	4A	4A
...-69/...	...-70/...	...-71/...	...-72/...	...-72/...	...-72/...	...-72/...
4C	4C	4E	4E	4E	4E	4E
...-1/...	...-2/...	...-3/...	...-4/...	...-3/...	...-4/...	...-4/...

**KEY**

- A** Milling for PVS® housing on X axis.
- B** Milling for PVS® housing on Y axis
- C\*** Threading M20x25 for profiles with hole Ø17.5.

**E** M16x25 for profiles with hole Ø14.

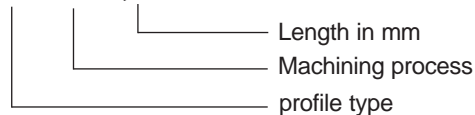
**M** To be added after the machining code if PVS assembly is required with the profile.

\* For square profiles processes 2 C are always performed on the same end in diametrically opposite positions.

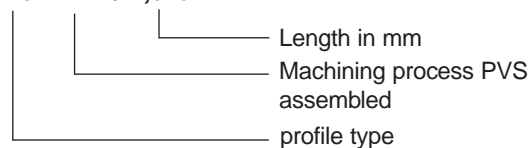
\*For cut-only profiles, omit the machining code and directly indicate the length.

**EXAMPLE OF ORDER:**

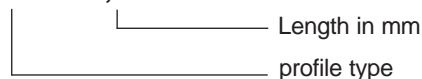
**E01-5 - 72 / 1,525**



**E01-5 - 72M / 1,525**



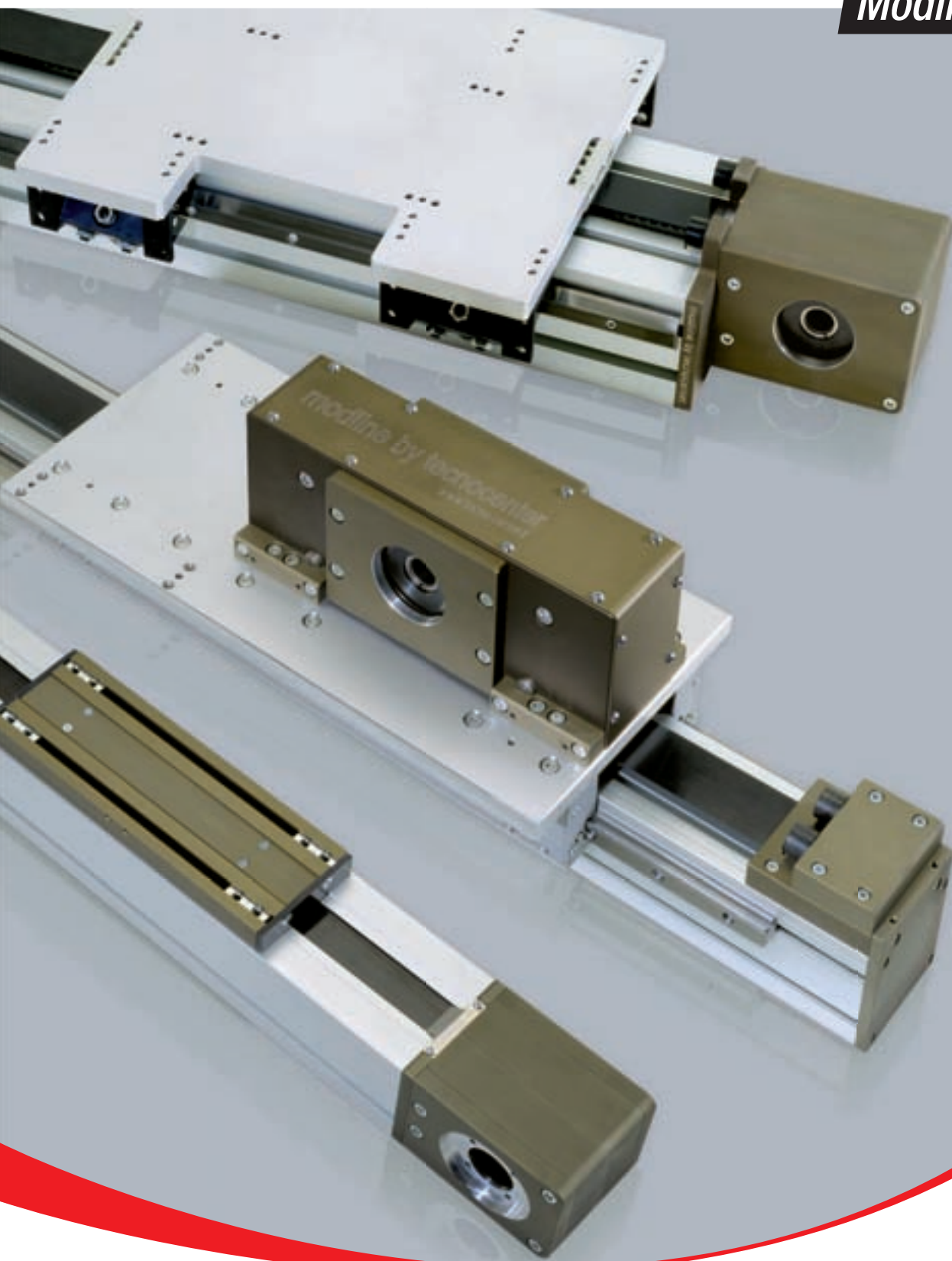
**2021146 / 1,525**



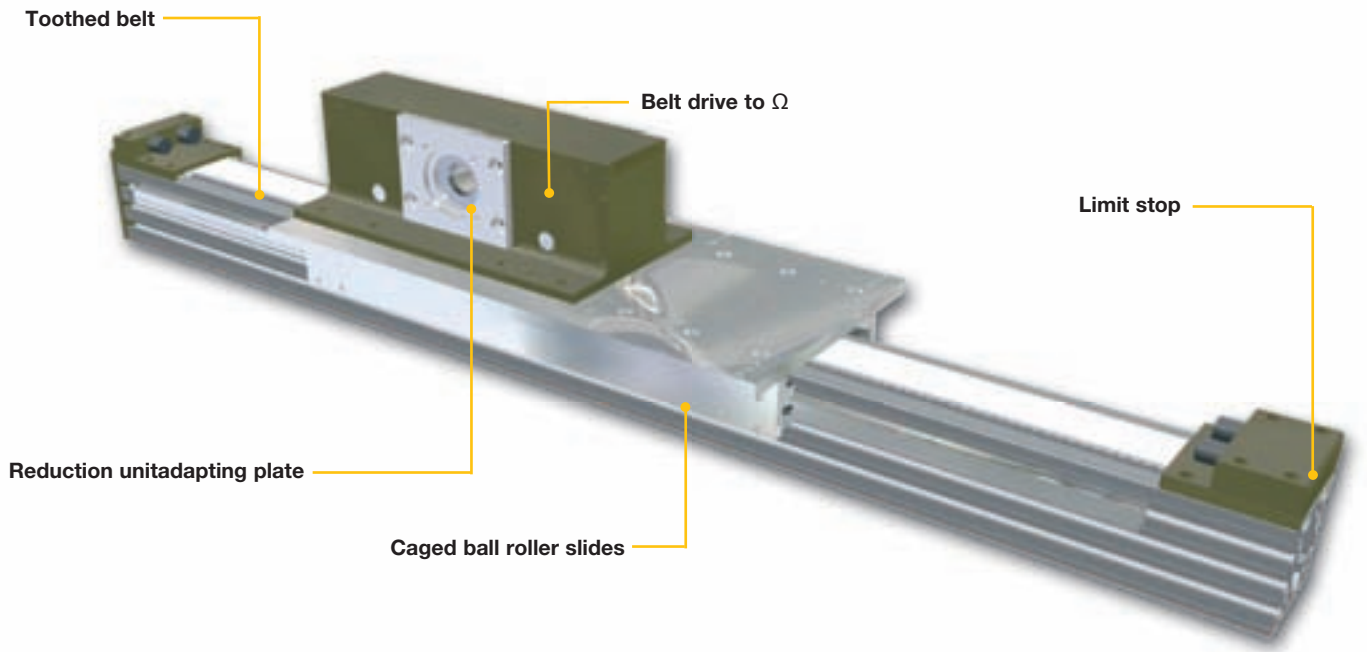
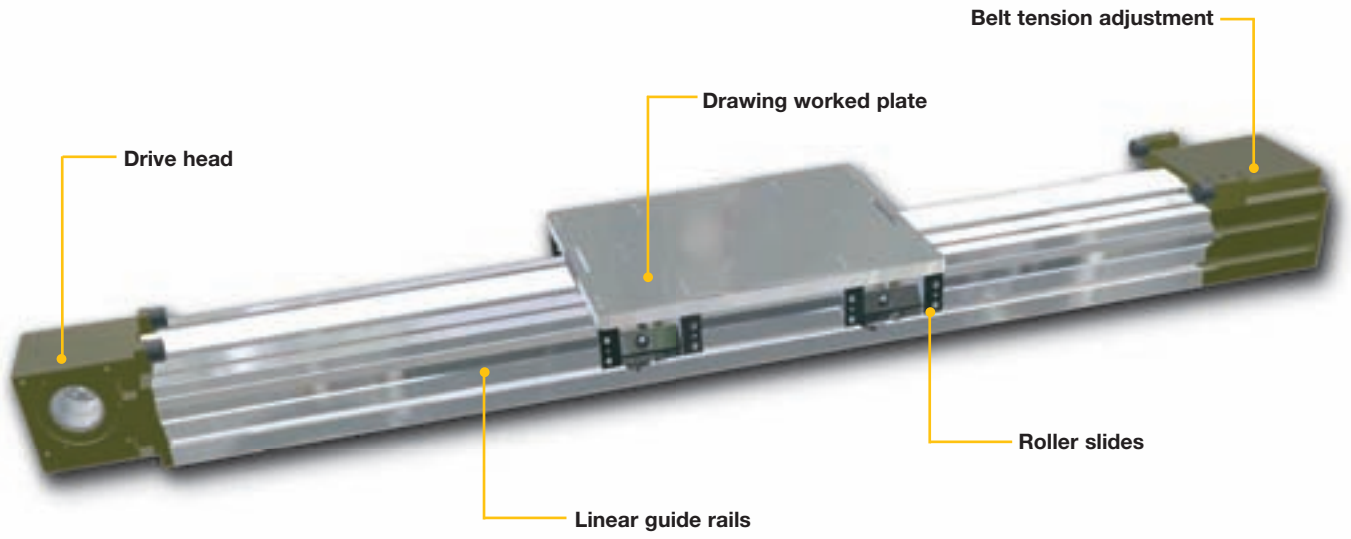


**ROLLON**<sup>®</sup>  
Linear Evolution

**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.

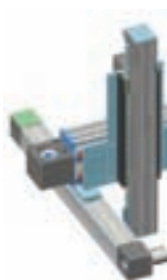
Our products stand out for their:

- high quality and **competitive performances** (profiles up to 12m)
- **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:**

- A complete 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

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# Construction Features

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## 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/mm<sup>2</sup>, 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/mm<sup>2</sup>, 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 safety 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, safety and/or 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.).

## 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 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  $\pm 0.03$  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

---

On request, we can supply systems complete with specific motor drives for industrial automation applications, suitable for specific handling tasks according to the customer's needs (moving loads, accelerations, speeds, cycle times, resolution, repeatability).

These 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 moving unit and electromechanical parts 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.

For each of these we can propose drives manufactured by primary producers marketed in Italy and abroad suitable for the calculated power ratings.

Rollon is able to support the customer in choosing complete systems equipped with axis control, with or without interpolation, with or without PLC, suitable for operating handling cycles and machine management. The customer has only to provide for piping and wiring.

### Application examples:

glue dispensing units

paint or resin distribution units

load/unload of manufacturing machines

pick and place systems

control and sensing instrument handling

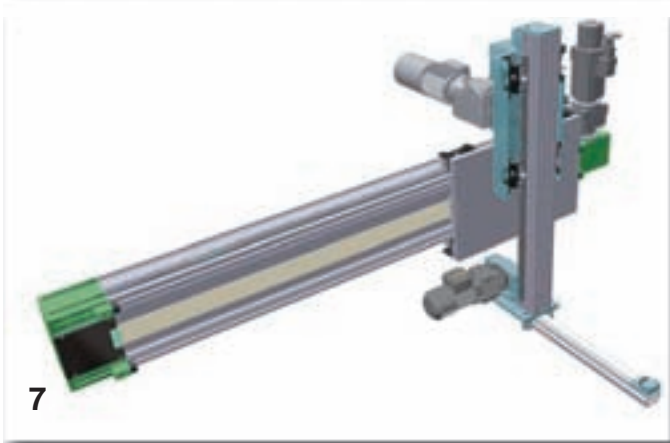
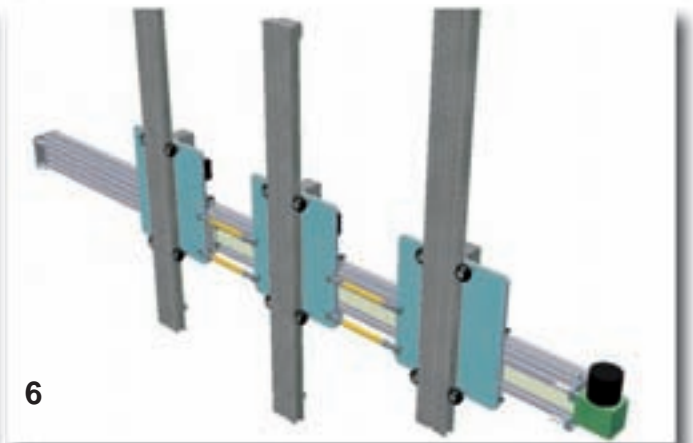
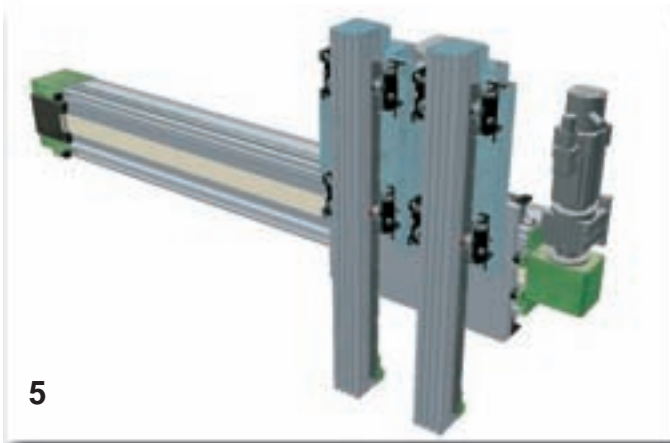
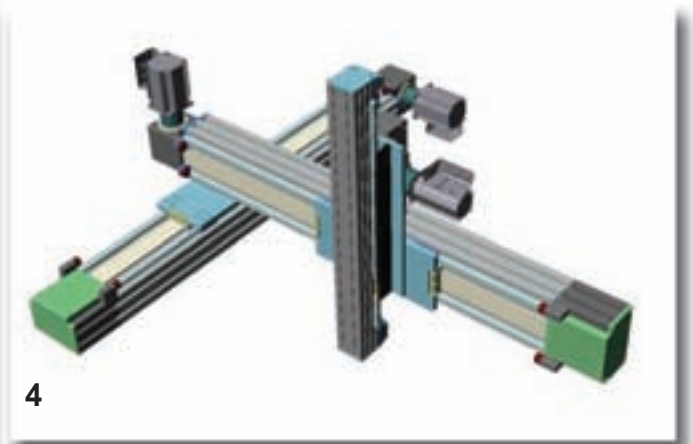
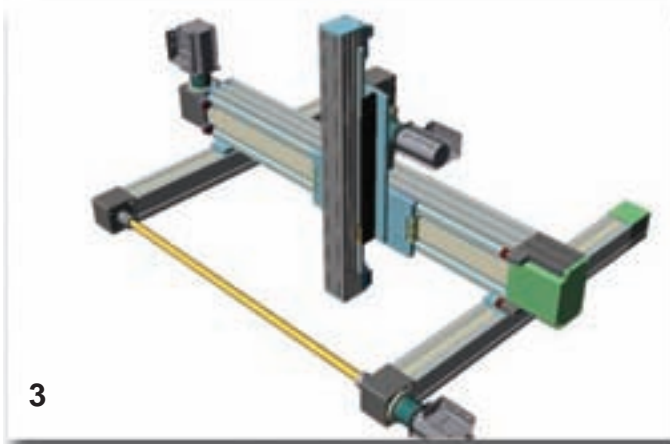
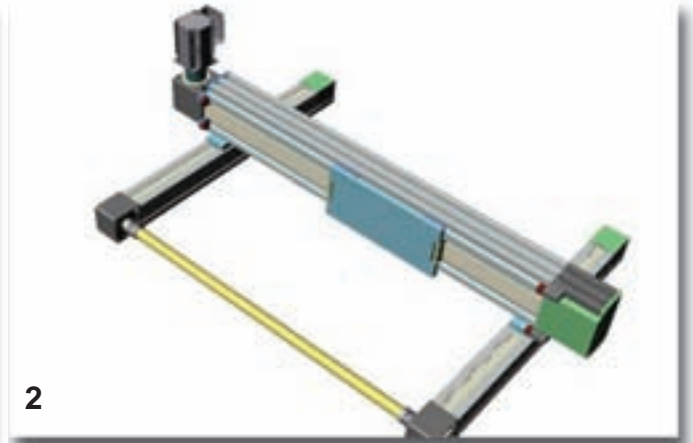
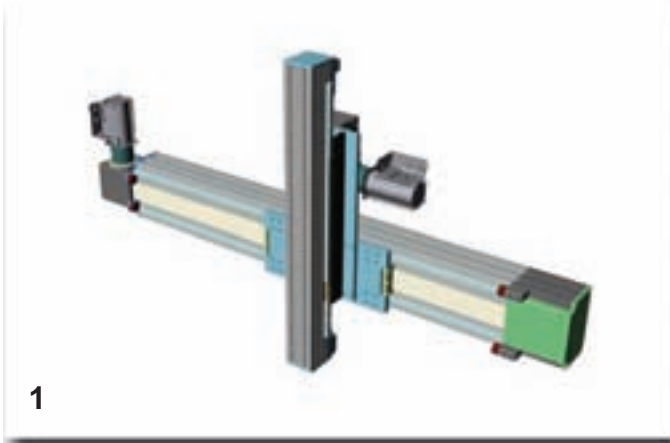
drilling PCB boards

cartesian robots with 2, 3 or more axes

## Tightening specifications

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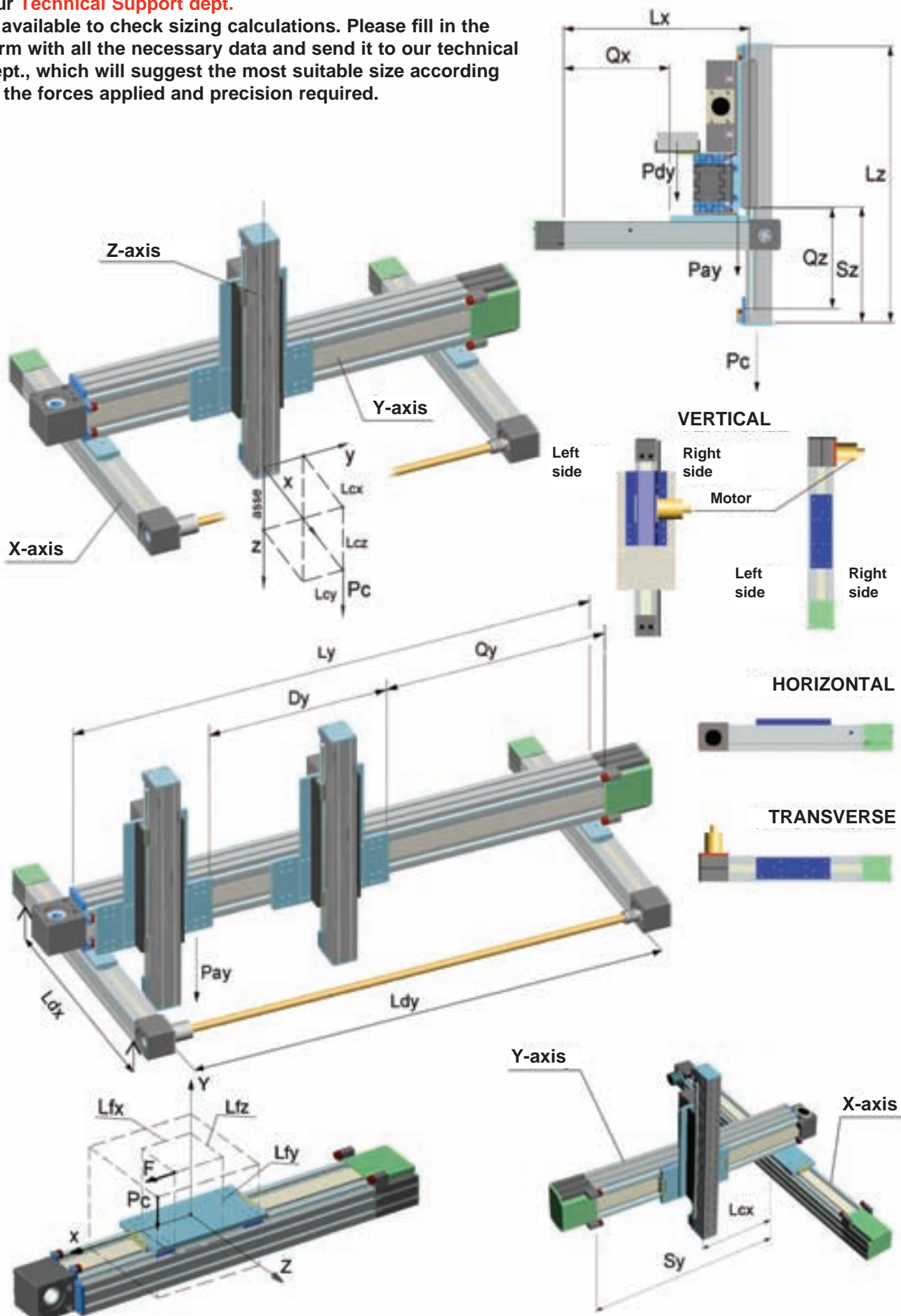
During set-up, make sure all parts are locked with the appropriate screws and with the right tightening torques.



M  
L

# 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

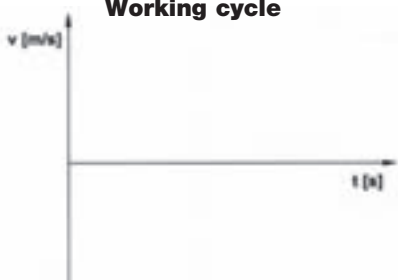
## MODLINE linear modules

ASSEMBLY SOLUTIONS (see page 5) no.

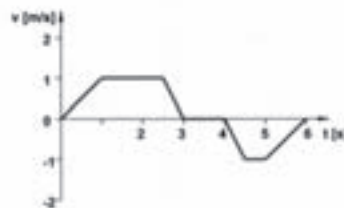
- Total length
- Total working load including EOAT (add Z axis for Y and X axes)
- Equipment weight on carriage (gearbox, cylinder, OPTIONAL)
- Weight distributed on the beam (energy chain)
- Profile supports
- Max. projection (any cantilever, the largest)
- Max. span
- Offset load's centre of gravity (X-axis)
- Offset load's centre of gravity (Y-axis)
- Offset load's centre of gravity (Z-axis)
- Any additional force
- Offset additional force (X-axis)
- Offset additional force (Y-axis)
- Offset additional force (Z-axis)
- Possible distance between the carriages
- Transmission performance
- Assembly: vertical= 90° - slope = 30°, 45°, 60° - horizontal
- Stroke
- Speed
- Acceleration
- Cycle time
- Positioning accuracy
- Repeatability
- Work environment (temperature and cleanliness)
- Daily working cycles
- Minimum service life requested

	Z-axis	Y-axis	X-axis			
Lz	<input type="text"/>	Ly	<input type="text"/>	Lx	<input type="text"/>	[mm]
Pc	<input type="text"/>	Py	<input type="text"/>	Px	<input type="text"/>	[kg]
Paz	<input type="text"/>	Pay	<input type="text"/>	Pax	<input type="text"/>	[kg]
Pdz	<input type="text"/>	Pdy	<input type="text"/>	Pdx	<input type="text"/>	[kg/m]
		n°		n°		
Sz	<input type="text"/>	Sy	<input type="text"/>	Sx	<input type="text"/>	[mm]
		Ldy		Ldx	<input type="text"/>	[mm]
Lcx	<input type="text"/>				<input type="text"/>	[mm]
Lcy	<input type="text"/>				<input type="text"/>	[mm]
Lcz	<input type="text"/>				<input type="text"/>	[mm]
F		F		F	<input type="text"/>	[N] +/-
Lfx	<input type="text"/>				<input type="text"/>	[mm]
Lfy	<input type="text"/>				<input type="text"/>	[mm]
Lfz	<input type="text"/>				<input type="text"/>	[mm]
Dz	<input type="text"/>	Dy	<input type="text"/>	Dx	<input type="text"/>	[mm]
η	<input type="text"/>				<input type="text"/>	
α=	<input type="text"/>				<input type="text"/>	
Qz	<input type="text"/>	Qy	<input type="text"/>	Qx	<input type="text"/>	
Vz	<input type="text"/>	Vy	<input type="text"/>	Vx	<input type="text"/>	[m/s]
Az	<input type="text"/>	Ay	<input type="text"/>	Ax	<input type="text"/>	[m/s <sup>2</sup> ]
Tz	<input type="text"/>	Ty	<input type="text"/>	Tx	<input type="text"/>	[s]
+/-	<input type="text"/>				<input type="text"/>	[mm]
+/-	<input type="text"/>				<input type="text"/>	[mm]
n°	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	[Km]

**Working cycle**



**Example working cycle**



**Notes:**.....  
 .....  
 .....  
 .....

# 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 < 1600 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

NB: for vertical 8X and 10X portals, compensate the load

From the table below, select the most suitable combination of Y-Z axes depending on 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

From the table below, select the most suitable combination of X-Y-Z axes depending on the load.

		Y-Z-axis									
X-axis	PA	2/1	3/1	4/1	5/2	6/2	8/3	6/4	8/6	10/6	10/8
	Load [kg.]	100	100	100	200	200	300	400	600	600	700
2X											
3X											
4X											
5X											
6X											
8X											
10X											

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 7 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.) portal

Check:  $P_{eff} = P_{max} \cdot (Lz - 1,600) / 1,000 \cdot q_z = 300 \cdot (2,900 - 1,600) / 1,000 \cdot 35 = 254.5 \text{ kg.} < di \text{ 300 kg.}$  Therefore select the larger size PA 6/4 (max. load capacity 400 kg.)

$M_{tot} \text{ PA 6/4 (Y+Z)} = M_{base} + (q_y \cdot \text{stroke}_y + q_z \cdot \text{stroke}_z) / 1,000 + Pc = 244 + (66 \cdot 4,000 + 48 \cdot 2,000) / 1,000 + 300 = 904 \text{ kg.}$

$Ptx = M_{tot} \text{ PA 6/4 (Y+Z)} \cdot 0.66 = 596.6 \text{ kg.}$

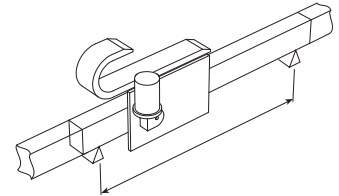
$Lx = \text{stroke}_x + 1,200 \text{ approx} = 5,000 + 1,200 = 6,200 \text{ mm}$

By analysing the table of X axes based on the load (Ptx) profile length (Lx) and deflection, it is possible to select two PA 6X linear axes

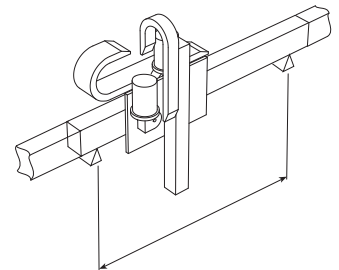
Chosen composition: n°1 PA 6/4 + n° 2 PA 6X

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.

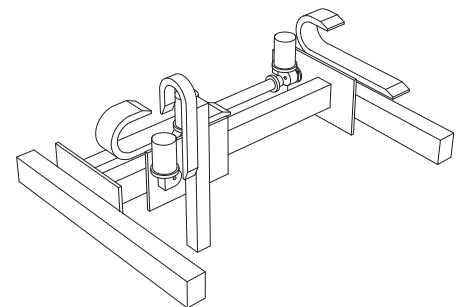
X-Axis



Y-Z-Axis



X-Y-Z-Axis





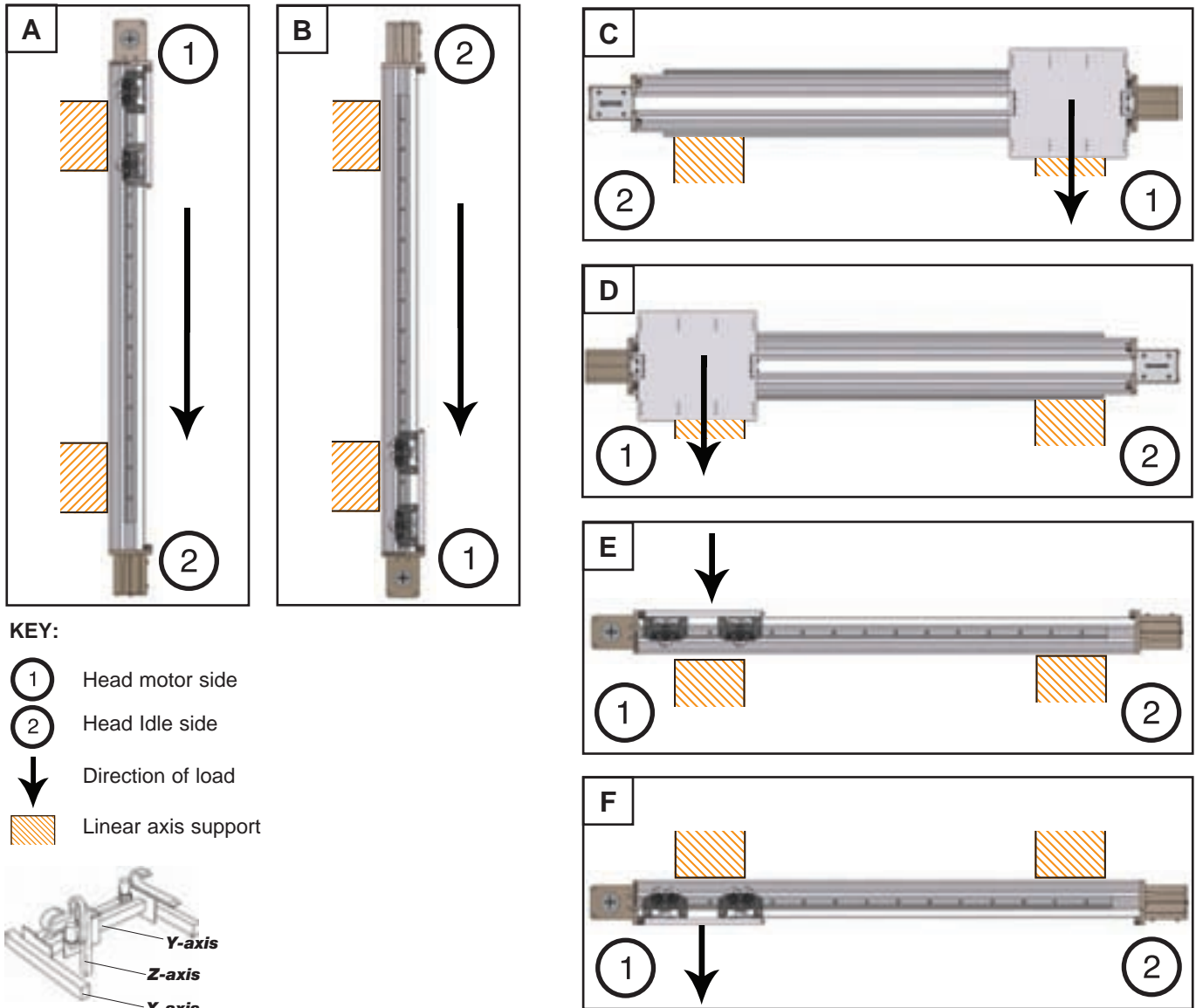


- 1 Multi-gripper handling system with belt drive
- 2 Panel handling system, construction industry
- 3 Tool handling system in the iron and steel industry
- 4 Pick and place system for storage battery production plant
- 5 Pick and place system for packaging plant
- 6 Pick and place system for breadboards
- 7 Pick and place system for production plant

M  
L

# Assembly positions and load direction

For rollers profiles.



## Simplified code setting of the module

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

# Order Code

**Modline**

Required Complete for special versions Accessories

Order code	Y	C	T	C	S	M	280	100	ATL	-	6000	8600	D	2	-	1200	FD32	FX	K75	-	-	R	-	-	-	-	-	12.40
Example	Y	C	T	C	S	M	280	100	ATL	-	6000	8600	D	2	-	1200	FD32	FX	K75	-	-	R	-	-	-	-	-	12.40

Axis direction **Y**  
 X  
 Y  
 Z

See page 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 Type of screw: pitch / accuracy -  
 Light belt T Pitch Accuracy class  
 Light belt normal series AT 5 ÷ 10 T7  
 Light belt: reinforced wobler ATL 20 ÷ 25 T5  
 50

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

**Additional accessories**

Articulated connecting tie rod - max. 3 metres	12
Gas shock absorbers with support	13
Shock absorbers 05 20 450 (in pairs)	14
Profile fastening brackets	17
Support posts	31
Magnetic tape positioning and head	33
Vernier scale (positioning plate)	35
Brake on caged ball roller slides	36
Rustproofing	37
Solenoid valve for anti-drop system (A-B)	38
Pneumatic cylinder included	39
Gearbox included	40
Pre-engineered for ENCODER connection	42
Protruding drive shaft on 1 side	43

**Additional accessories**

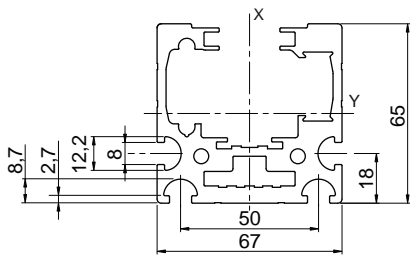
- Additional accessories
- Protection  
SF Bellows  
LI Stainless steel band for MC series
- Shaft torsional moment [Nm]  
20  
35  
70  
100  
190  
300  
420
- Connecting shaft  
A1/Centre distance length  
A2/Centre distance length  
A3/Centre distance length
- S Security lock-pin  
S Ø20  
S Ø32
- A/B Anti-drop brake device  
A Ø63 ÷ Ø125  
B Ø63 ÷ Ø125
- C Cylinder assembly  
C Ø32 ÷ Ø100
- R Gearbox assembly
- P Cam-holder + cams
- M Micro-switch present
- Energy chain width  
K50 - K75 - K100 - K150 - K200
- **FX** 2° Opposite flange

## Available upon request

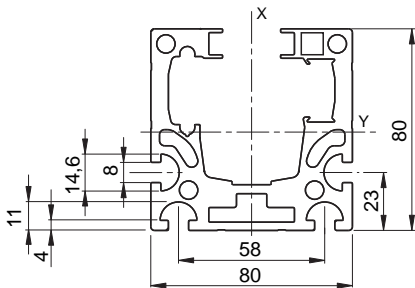
- Supply and assembly of cams and cam-holders for micro-switches, energy chains, etc.
- Assembly of optional accessories **SUPPLIED BY THE CUSTOMER**.
- Machining to specifications (drilling, milling) on the free surfaces of the plates or profile
- Customised applications (optional: structural inspections 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.

M  
L

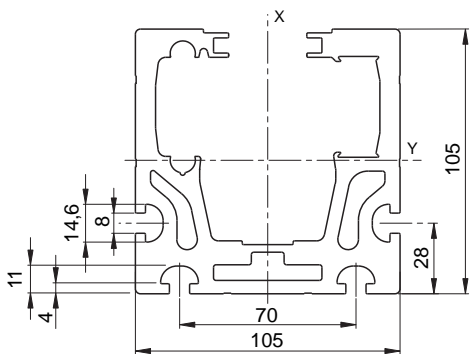
# Profile specifications



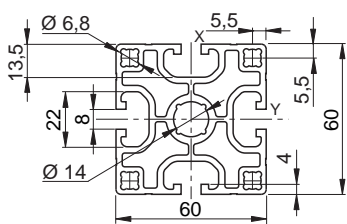
Profile	M 65x67	
Weight per metre	4.5	[kg/m]
Max. length	9	[m]
Moment of inertia I <sub>y</sub>	683,900	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	796,750	[mm <sup>4</sup> ]
Module	MCR/L/H 65	



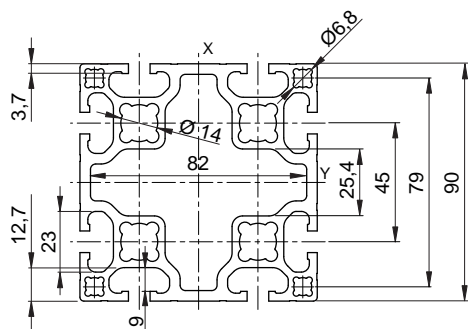
Profile	M 80x80	
Weight per metre	6.3	[kg/m]
Max. length	6	[m]
Moment of inertia I <sub>y</sub>	1,430,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	1,780,000	[mm <sup>4</sup> ]
Module	MCR/S/H 80 - MVR/S/T 80	



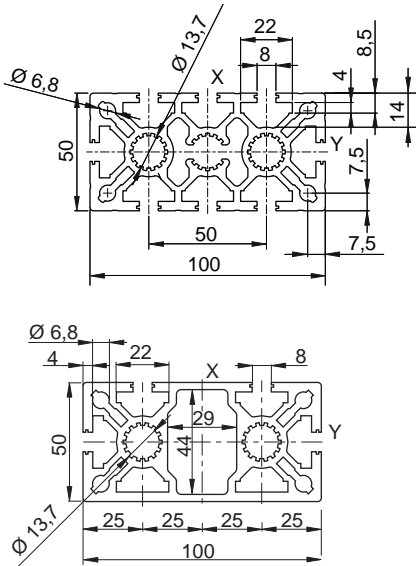
Profile	M 105x105	
Weight per metre	11	[kg/m]
Max. length	10.45	[m]
Moment of inertia I <sub>y</sub>	4,466,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	5,660,000	[mm <sup>4</sup> ]
Module	MCR/S/H - MVR/S/T 105	



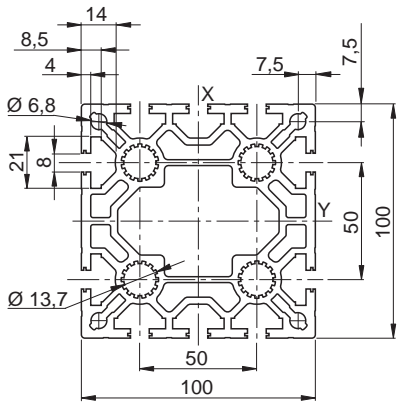
Profile (60x60)	F01-1	
Weight per metre	3.6	[kg/m]
Max. length	6	[m]
Moment of inertia I <sub>y</sub>	466,600	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	466,600	[mm <sup>4</sup> ]
Module	ZCG/L 60	



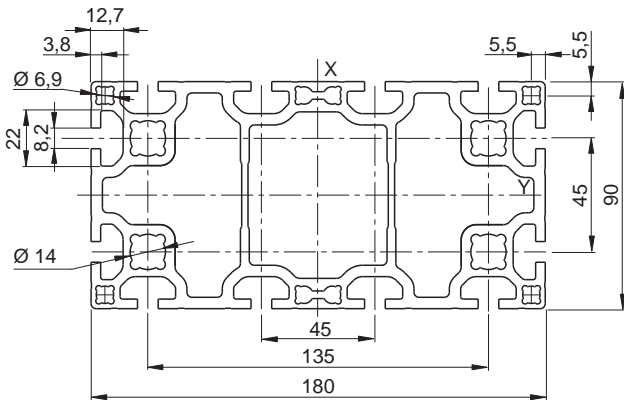
Profile (90x90)	E01-4	
Weight per metre	6	[kg/m]
Max. length	6	[m]
Moment of inertia I <sub>y</sub>	2,027,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	2,027,000	[mm <sup>4</sup> ]
Module	ZCG - ZCL - ZCRR 90	



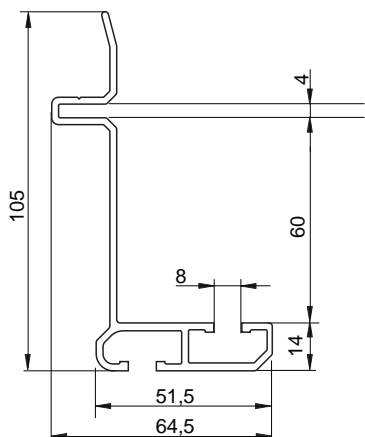
Profile (50x100)	MA 1-2	MA 1-4	
Weight per metre	5.3	5.2	[kg/m]
Max. length	6	6	[m]
Moment of inertia I <sub>y</sub>	502,800	543,100	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	1,986,600	2,036,700	[mm <sup>4</sup> ]
Module	ZCR/L 100H	TCG/TCS/H 100	



Profile (100x100)	MA 1-5	
Weight per metre	9.5	[kg/m]
Max. length	6	[m]
Moment of inertia I <sub>y</sub>	3,650,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	3,800,000	[mm <sup>4</sup> ]
Module	ZCR/L 100	

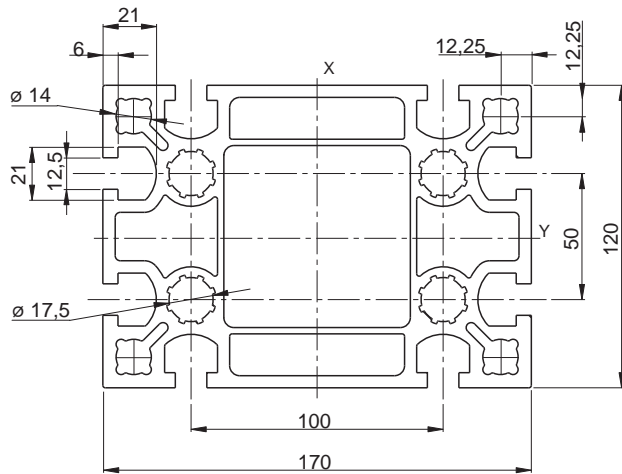


Profile (90x180)	E01-5	
Weight per metre	12.4	[kg/m]
Max. length	8	[m]
Moment of inertia I <sub>y</sub>	4,420,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	15,180,000	[mm <sup>4</sup> ]
Module	TCR/G/S/H/ 180	



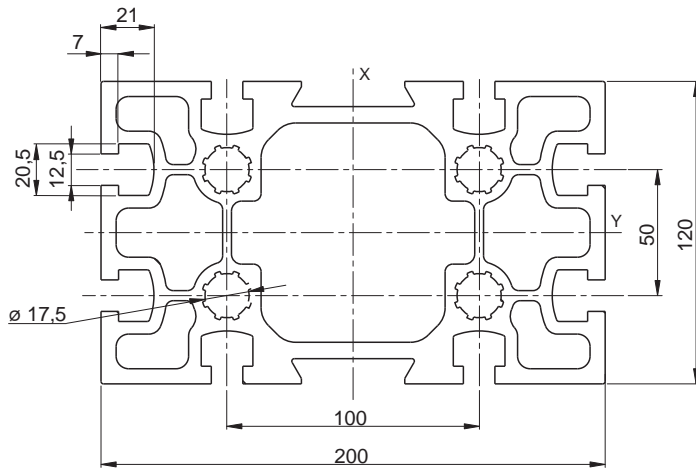
7400568 energy chain support profile		
Weight	1.5	kg/m
Available length	6	m

M  
L



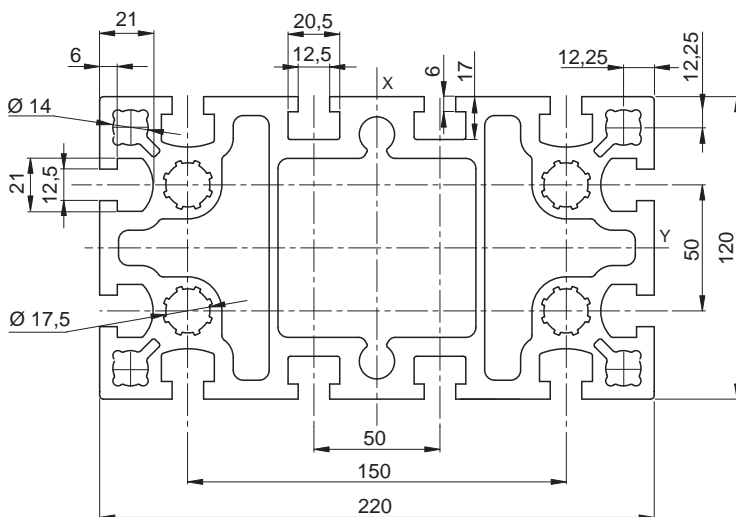
**Statyca (120x170) Code 202.1753**

Weight per metre	17	[kg/m]
Max. length	12	[m]
Moment of inertia I <sub>y</sub>	10,200,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	20,360,000	[mm <sup>4</sup> ]
Module	TCR/S/H 170 - ZCR/L 170	



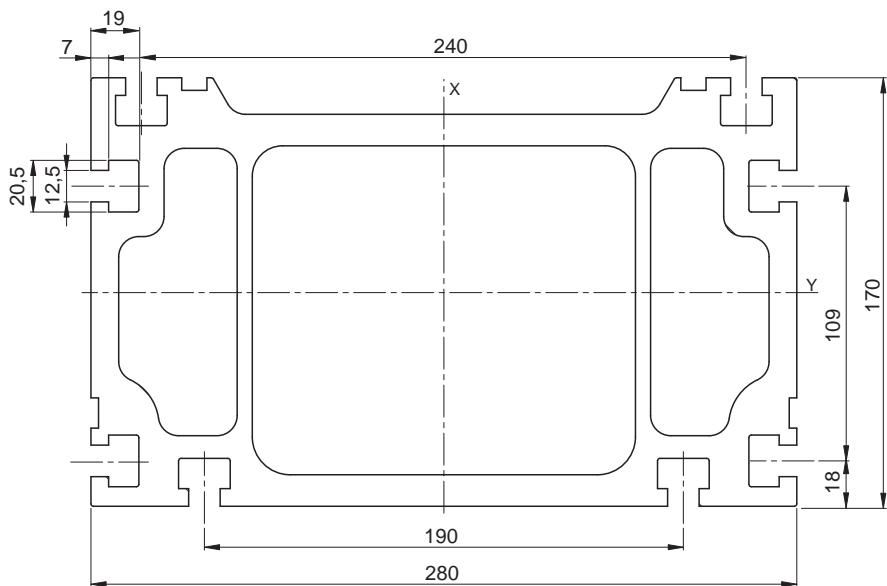
**Valyda (120x200) Code 202.1146**

Weight per metre	21	[kg/m]
Max. length	12	[m]
Moment of inertia I <sub>y</sub>	12,900,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	32,900,000	[mm <sup>4</sup> ]
Module	TCR/S/H 200	
Anodised up to	9	[m]



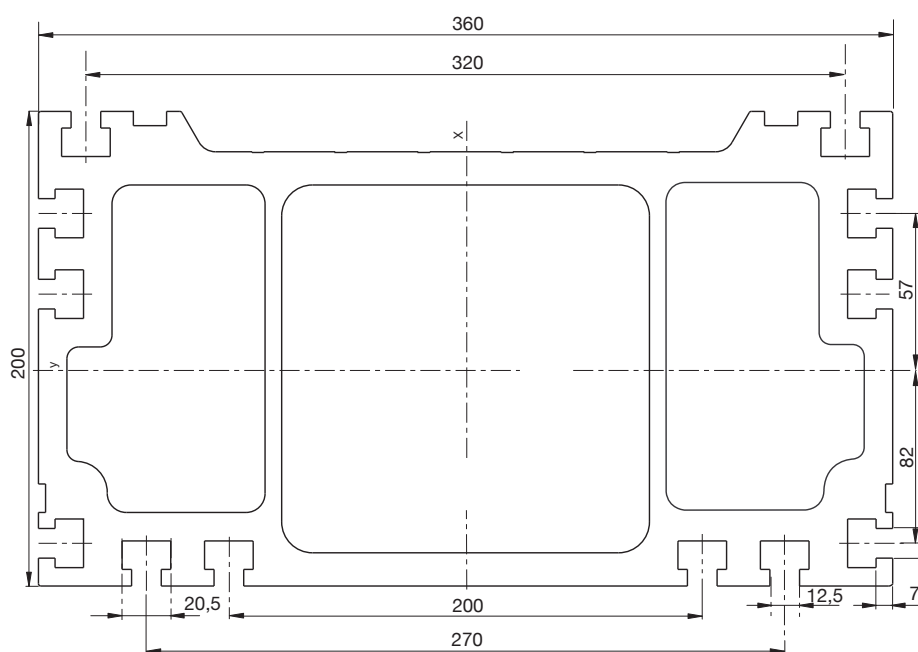
**Logyca (120x220) Code 202.2184**

Weight per metre	25	[kg/m]
Max. length	12	[m]
Moment of inertia I <sub>y</sub>	15,650,000	[mm <sup>4</sup> ]
Moment of inertia I <sub>x</sub>	46,550,000	[mm <sup>4</sup> ]
Module	TCR/S/H 220-ZCR/L/ 220	
Anodised up to	lung. 9	[m]



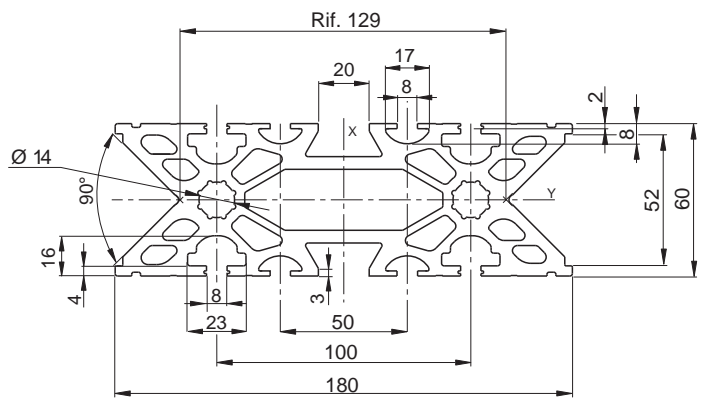
**Pratyca (170x280) Code 202.1147**

Weight per metre	40	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	50,288,000	[mm <sup>4</sup> ]
Moment of inertia Ix	134,103,000	[mm <sup>4</sup> ]
Module	TCR/RP/S/H 280	
Usually not anodised		



**Solyda (200x360) Code 202.0342**

Weight per metre	60	[kg/m]
Max. length	12	[m]
Moment of inertia Iy	318,687,000	[mm <sup>4</sup> ]
Moment of inertia Ix	105,533,000	[mm <sup>4</sup> ]
Module	TCRP/S/H 360	
Usually not anodised		



**SYS 1-G Code 302.0001**

Weight per metre	12	[kg/m]
Max. length	7.5	[m]
Moment of inertia Iy	1,600,000	[mm <sup>4</sup> ]
Moment of inertia Ix	12,350,000	[mm <sup>4</sup> ]
Module	ZCY180	
*Holes for M16 thread and for PVS connecting elements		

M  
L

# Series M Modules with belt drive

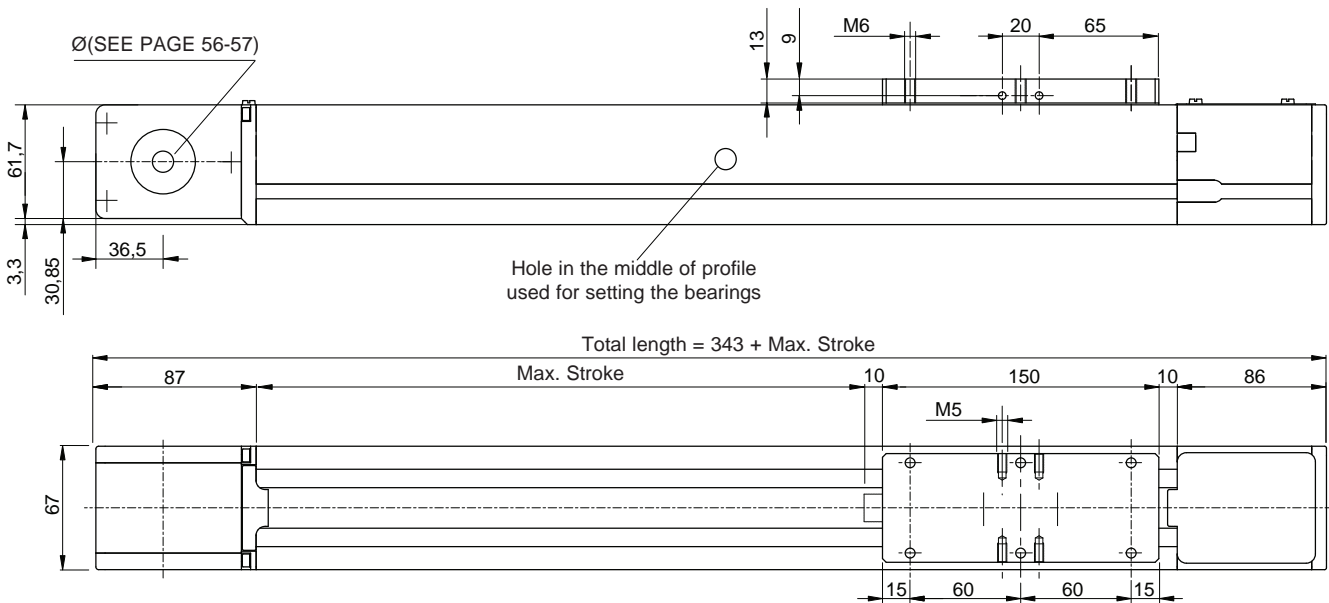
## MCR 65

Registered model

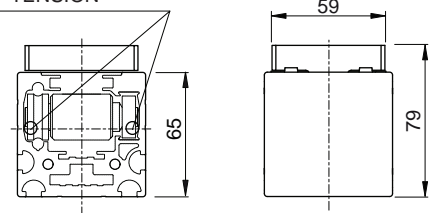
HARDENED GUIDE RAILS AND PROFILED ROLLERS

Option: lighter version with pulley seats integrated within the profile

Accessories: see page 11



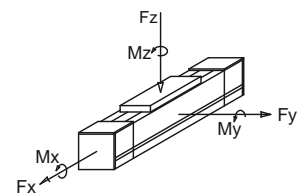
SCREWS FOR BELT TENSION



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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



F<sub>x</sub>= Max belt strength

Data	
Belt	32AT05
Slide	Rollers: 4 Ø 24 - 4 Ø 22 [mm]
Load bearing profile	65x67 (see page 12)
Pulley Ø	50.93 [mm]
Lead	160 [mm/rev]

Weights	
Inertia of the pulley	- [kgm <sup>2</sup> ]
Belt weight	0.22 [kg/m]
Carriage weight	1 [kg]
Base module (stroke=0)	M <sub>base</sub> =4.4 [kg]
1,000 mm profile	q=5.4 [kg]

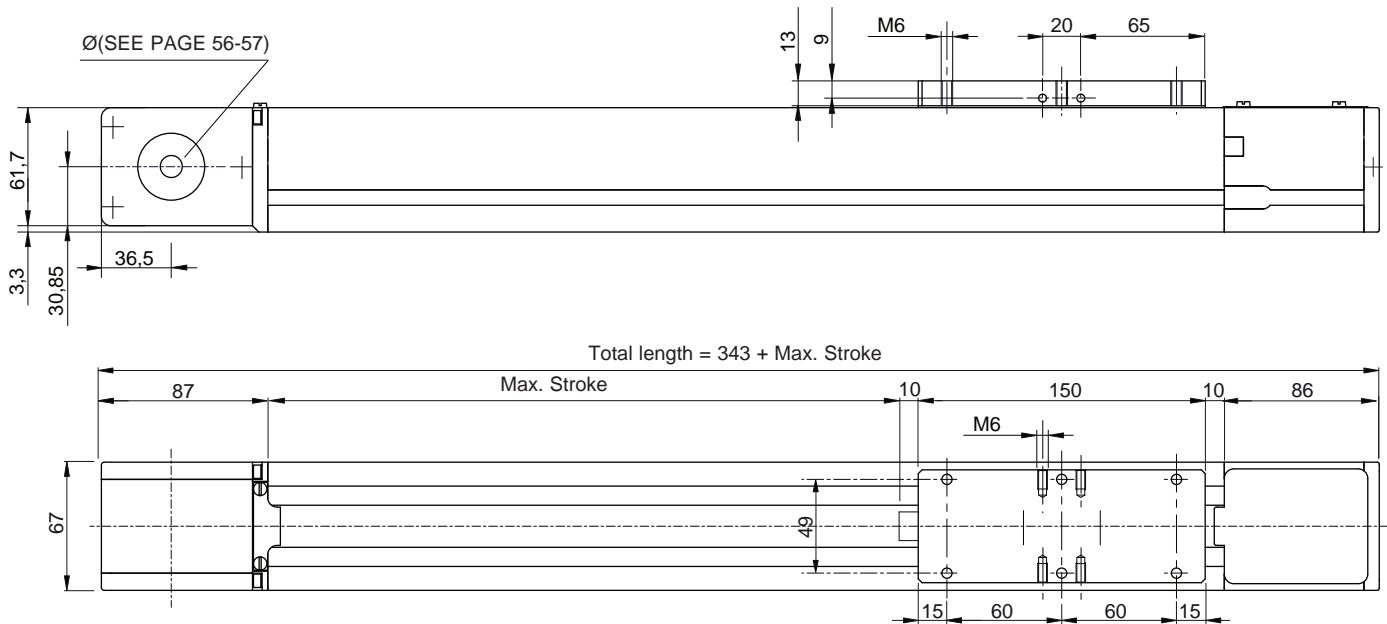
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]



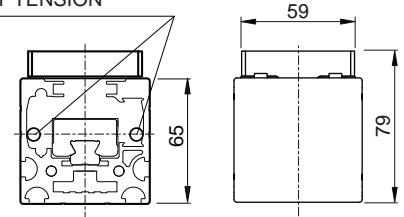
Registered model

Option: lighter version with pulley seats integrated within the profile

Accessories: see page 11



SCREWS FOR BELT TENSION

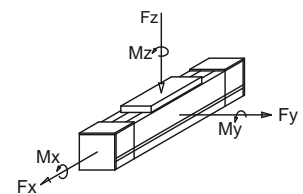


Performances	MCS 65	MCH 65	
Max. stroke	7,830	7,830	[mm]
Max. speed	5	3	[m/s]
Max. acceleration	50	30	[m/s <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
No load torque	-	-	[mm]

### Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]	F <sub>zB</sub> [N]
MCH 65	19	120	120	1,180	1,960	1,960	1,960
MCS 65	16	140	103	1,180	2,094	3,740	2,320

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



F<sub>x</sub>= Max belt strength

Data	
Belt	32AT05
Slide	2 caged balls roller slides15[mm]
Load bearing profile	65x67 (see page 12)
Pulley Ø	50.93 [mm]
Lead	160 [mm/rev]

Weights	
Inertia of the pulley	- [kgm <sup>2</sup> ]
Belt weight	0.22 [kg/m]
Carriage weight	1,1 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

# MCR 80

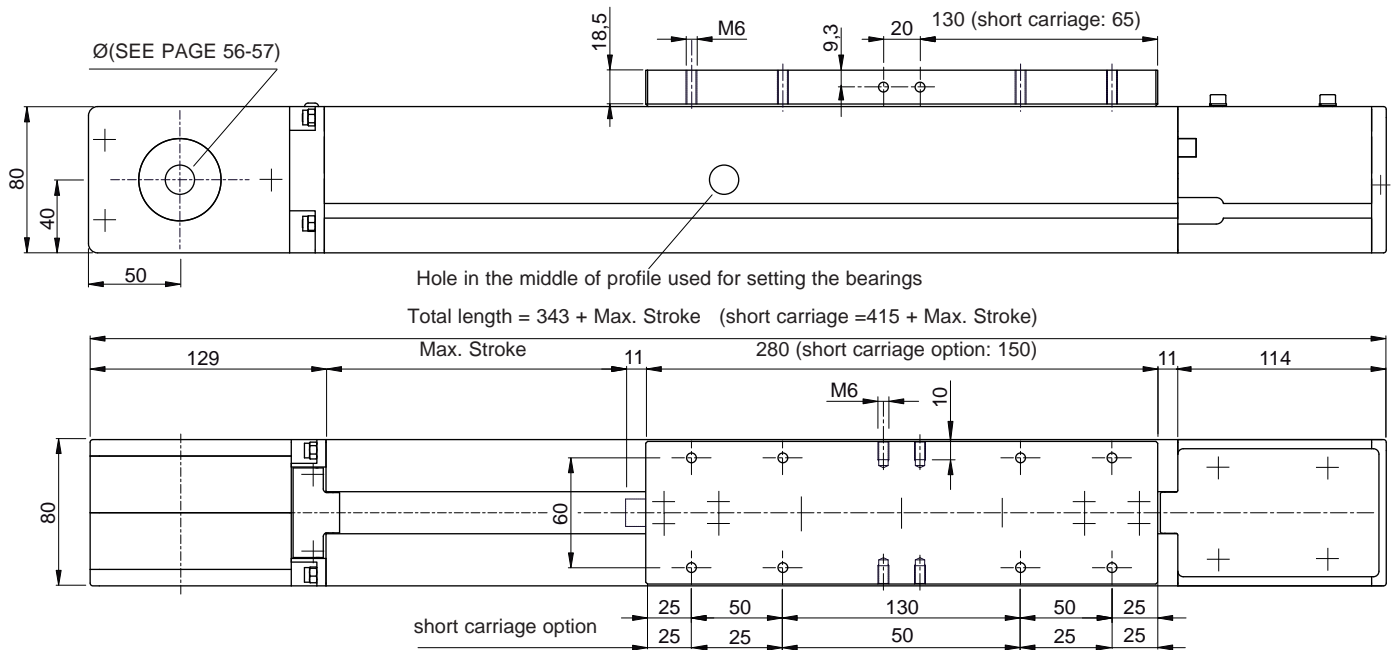
## HARDENED GUIDE RAILS AND PROFILED ROLLERS

Registered model

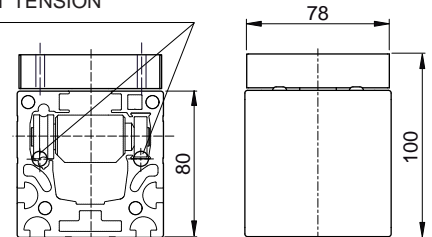
Option: version with additional belt protection (see page 66)

Option: short carriage version - code C

Accessories: see page 11



### SCREWS FOR BELT TENSION

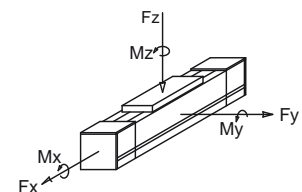


Performances	MCR 80	
Max. stroke	5,700	[mm]
Max. speed	5	[m/s]
Max. acceleration	20	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]
No load torque	0.7	[Nm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCR 80	51	200	80	2,150	850	1,400

Suggested working load conditions short carriage option						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCR 80...C	51	100	40	2,150	850	1,400

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



F<sub>x</sub> = Max belt strength

Data	
Belt	32AT10
Slide	Rollers: 4 Ø 24 - 4 Ø 22 [mm]
Load bearing profile	80x80 (see page 12)
Pulley Ø	70.03 [mm]
Lead	220 [mm/rev]

Weights	
Inertia of the pulley	0.0010 [kgm <sup>2</sup> ]
Belt weight	0.38 [kg/m]
Carriage weight	2 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

# MCS 80 e MCH 80

## GUIDE RAILS WITH CAGED BALL RUNNER BLOCKS

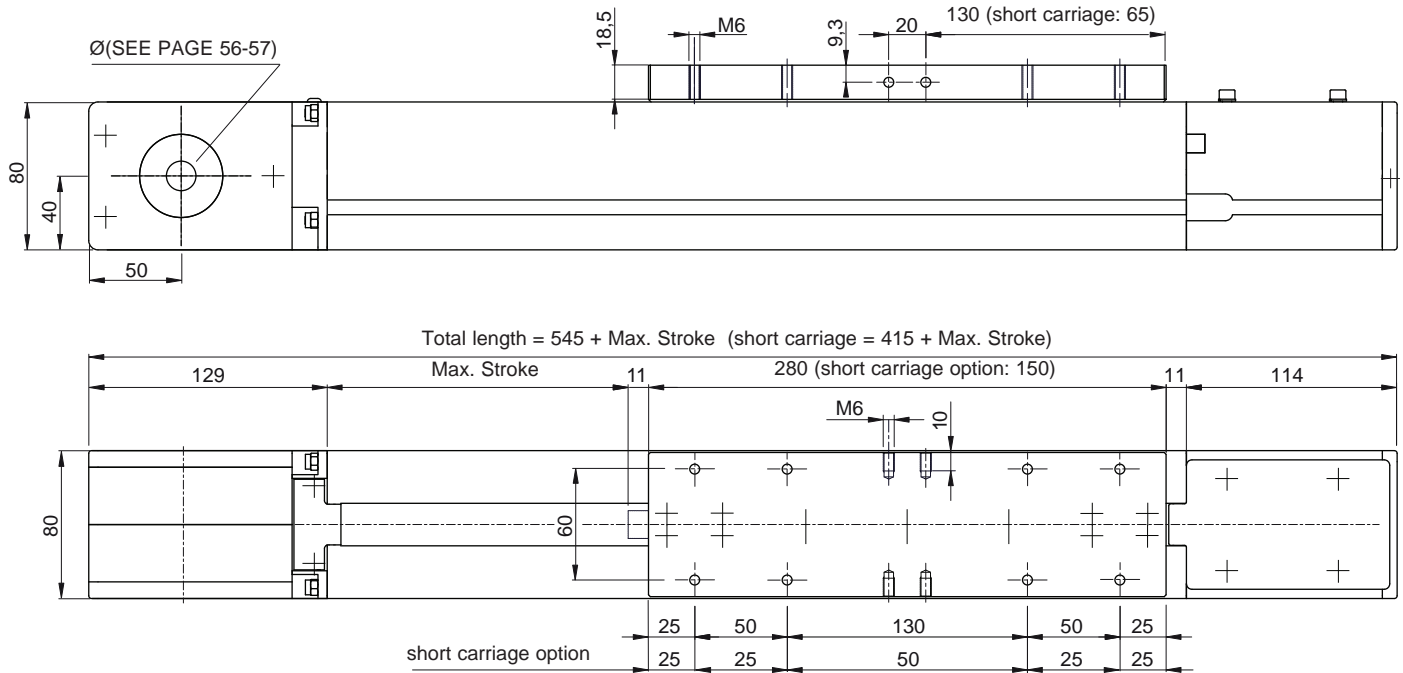
Modline

Registered model

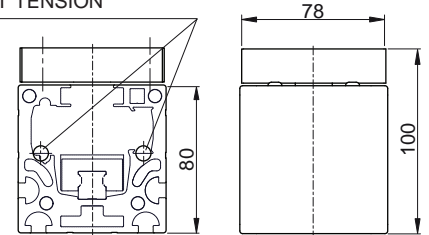
Option: version with additional belt protection (see page 66)

Option: short carriage version - code C

Accessories: see page 11



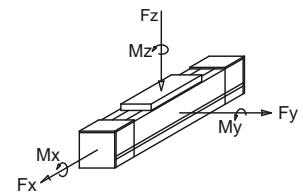
SCREWS FOR BELT TENSION



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCS 80	52	400	400	2,150	4,200	4,200
MCH 80	30	290	290	2,150	2,900	2,900

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCS 80...C	16.5	15	15	2,150	2,100	2,100
MCH 80...C	14	15	12	2,150	1,450	1,450



F<sub>x</sub> = 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

Data	MCS80 - MCH80
Belt	32AT10
Slide	2 caged ball roller slides size 15*
Load bearing profile	80x80 (see page 12)
Pulley Ø	70.03 [mm]
Lead	220 [mm/rev]
* Short carriage option	1 pad

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

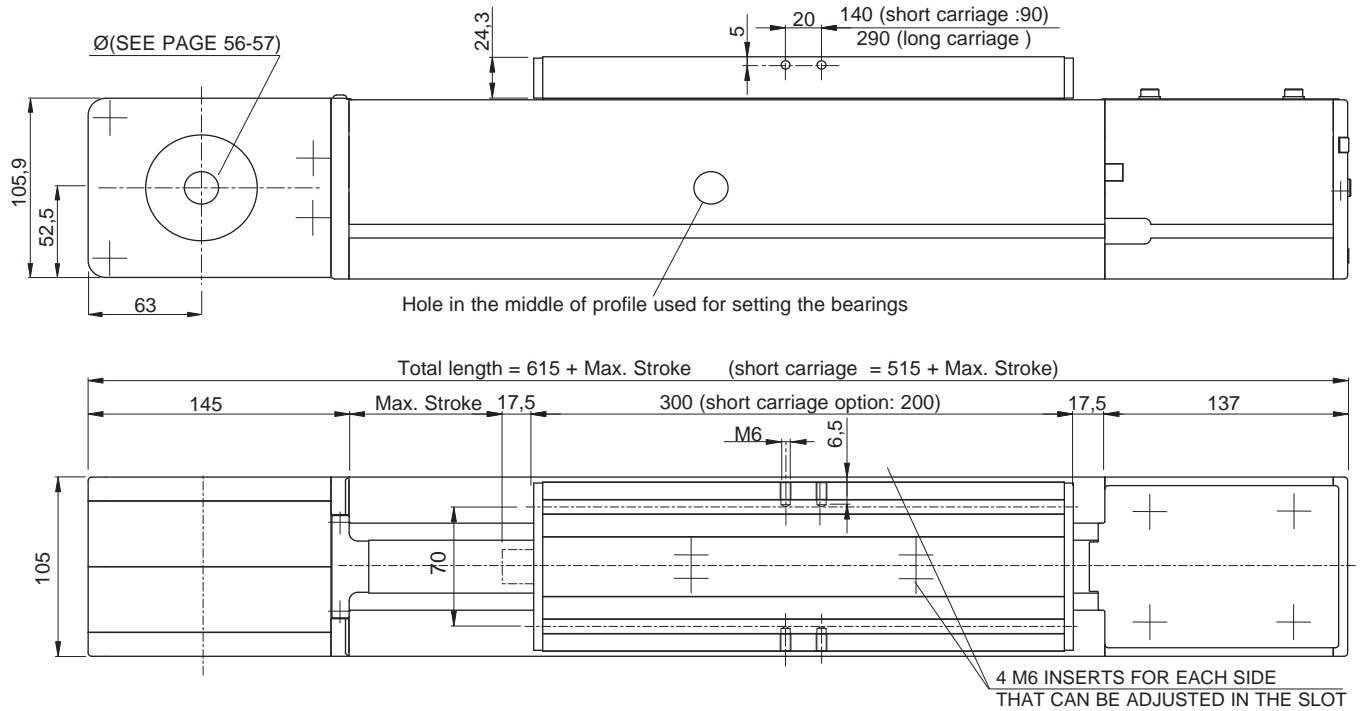
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot \text{stroke}_{max} / 1,000$  Stroke<sub>max</sub> [mm]

# MCR 105

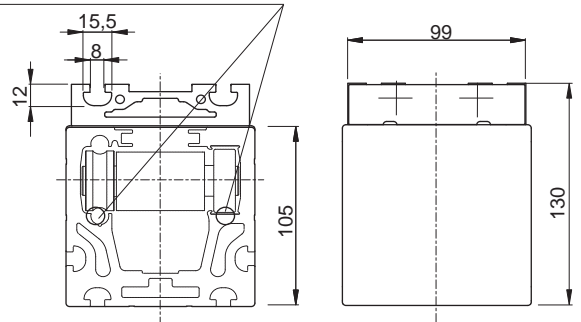
## HARDENED GUIDE RAILS AND PROFILED ROLLERS

Registered model

Option: version with additional belt protection (see page 66)  
 \*Option: short carriage version - (code C) or long carriage (code L)  
 Accessories: see page 11



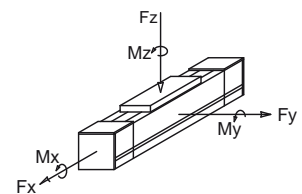
### SCREWS FOR BELT TENSION



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCR 105	185	580	220	3,300	1,500	2,950

Suggested working load conditions short carriage option						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCR 105...C	185	330	130	3,300	1,450	2,950



F<sub>x</sub> = 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

Data	
Belt	40AT10
Slide	Rollers: 4 Ø 37 - 4 Ø 35 [mm]
Load bearing profile	105x105 (see page 12)
Pulley Ø	92.31 [mm]
Lead	290 [mm/rev]

Weights		
Inertia of the pulley	0.0037	[kgm <sup>2</sup> ]
Belt weight	0.47	[kg/m]
Carriage weight	3.5	[kg]
Base module (stroke=0)	M <sub>base</sub> =16.5	[kg]
1,000 mm profile	q=13	[kg]

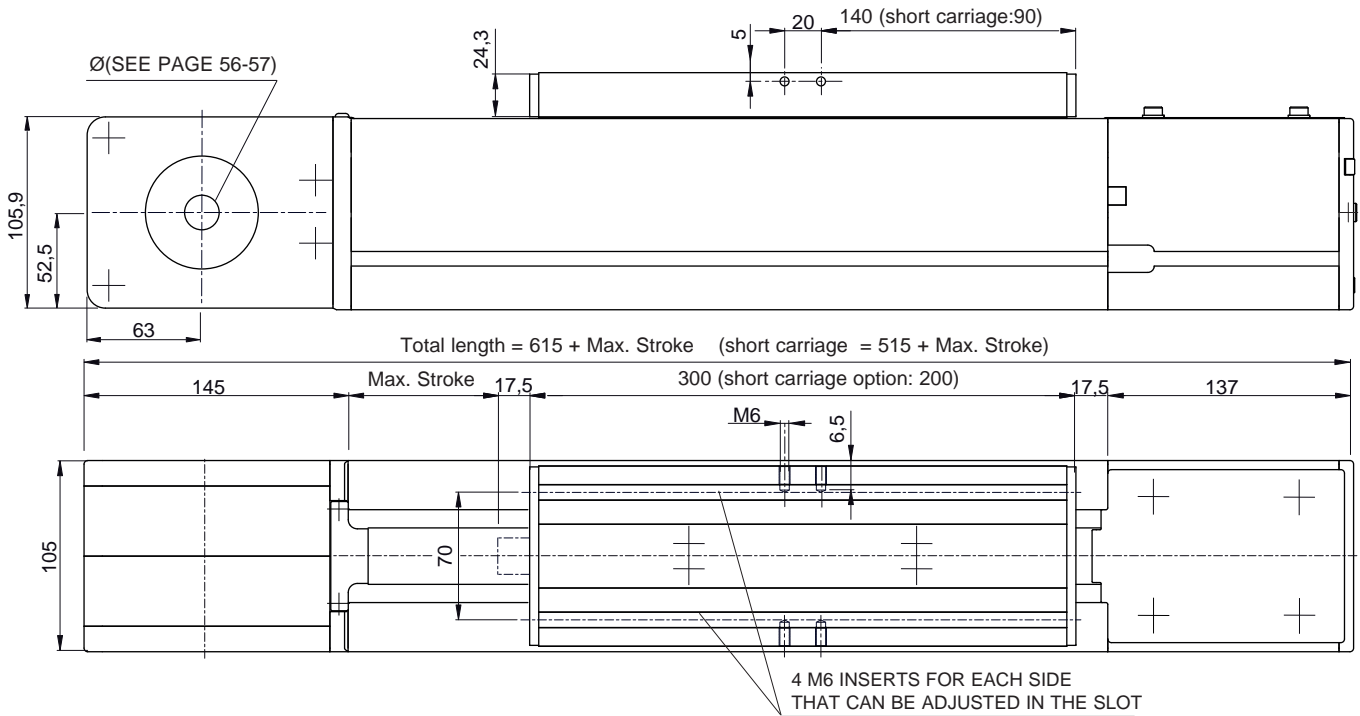
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]

Registered model

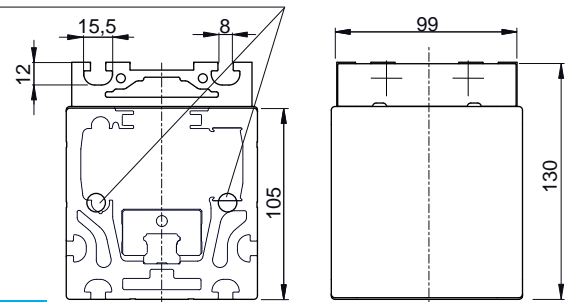
Option: version with additional belt protection (see page 66)

\*Option: short carriage version - (code C)

Accessories: see page 11



SCREWS FOR BELT TENSION



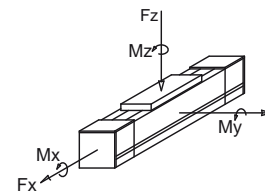
Performances	MCS 105	MCH 105	
Max. stroke	10,100	10,100	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
No load torque	1.5	1.5	[Nm]

### Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCS 105	156	800	800	3,300	9,550	9,550
MCH 105	116	600	600	3,300	6,030	6,030

### Suggested working load conditions short carriage option

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCS 105...C	51	52	52	3,300	4,777	4,777
MCH 105...C	36	30	30	3,300	3,018	3,018



F<sub>x</sub> = 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

### Constuctive data

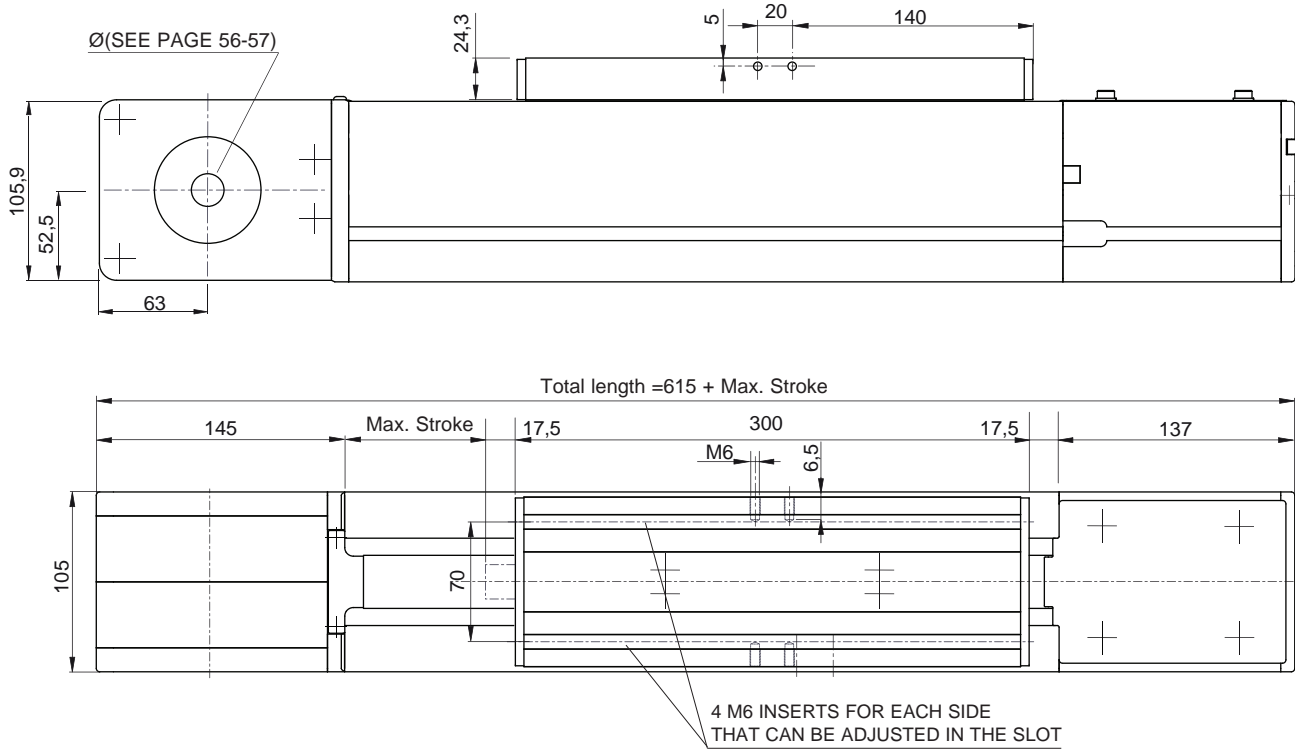
Belt	40AT10
Slide	2 caged ball roller slides size 20*
Load bearing profile	105x105 (see page 12)
Pulley Ø	92.31 [mm]
Lead	290 [mm/rev]

\* Short carriage option 1 pad

### Weights

Inertia of the pulley	0.0037	[kgm <sup>2</sup> ]
Belt weight	0.47	[kg/m]
Carriage weight	4.5	[kg]
Base module (stroke=0)	M <sub>base</sub> =18	[kg]
1,000 mm profile	q=14.3	[kg]

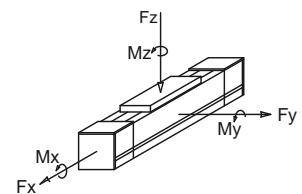
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MCHH 105 210	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



F<sub>x</sub>= Max belt strength

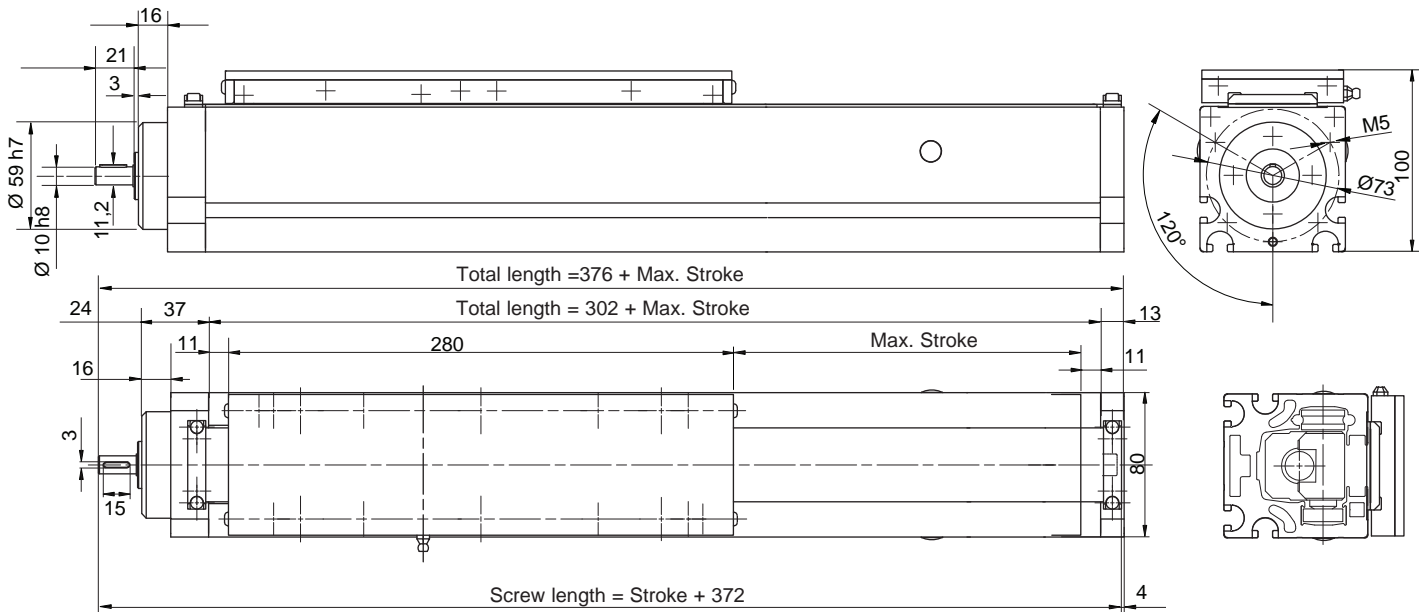
Data	
Belt	40ATL10
Slide	4 caged ball roller slides size 15
Load bearing profile	105x105 (see page 12)
Pulley Ø	92.31 [mm]
Lead	290 [mm/rev]

Weights	
Inertia of the pulley	0.0037 [kgm <sup>2</sup> ]
Belt weight	0.47 [kg/m]
Carriage weight	4.5 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

## MVR 80 - MTR 80

HARDENED GUIDES  
WITH CYLINDRICAL ROLLERS - TRAPEZOIDAL BALL SCREW



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

Performances	MVR 80		MTR 80	
Max. stroke		2,500		3,000 [mm]
Max. speed	Pitch 5	0.15	Pitch 4	0.10 [m/s]
	Pitch 10	0.30	Pitch 8	0.20 [m/s]
	Pitch 16	0.50		[m/s]
Max. acceleration		5	2	[m/s <sup>2</sup> ]
Repeatability		± 0,05	± 0,20	[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MVR 80	51	200	80	*1,600	850	1,400
MTR 80	51	200	80	*2,000	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.

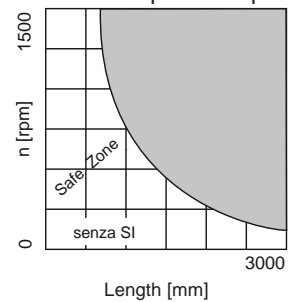
(\*) With a pitch of 5 mm

Data	
Slide	Rollers: 4 Ø24 - 4 Ø22 [mm]
Beam	80x80 (see page 12)
Ø screw	16 [mm]
Length of the screw	367+ <sub>max</sub> stroke [mm]

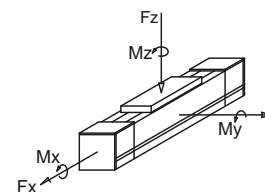
Weights	
Inertia of the worm	0.0003 • L. screw(m) [kgm <sup>2</sup> ]
Carriage weight	2.5 c.a. [kg]
Base module (stroke=0)	M <sub>base</sub> = 5.5 approx. [kg]
1,000 mm profile	q=8 approx. [kg]

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

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.

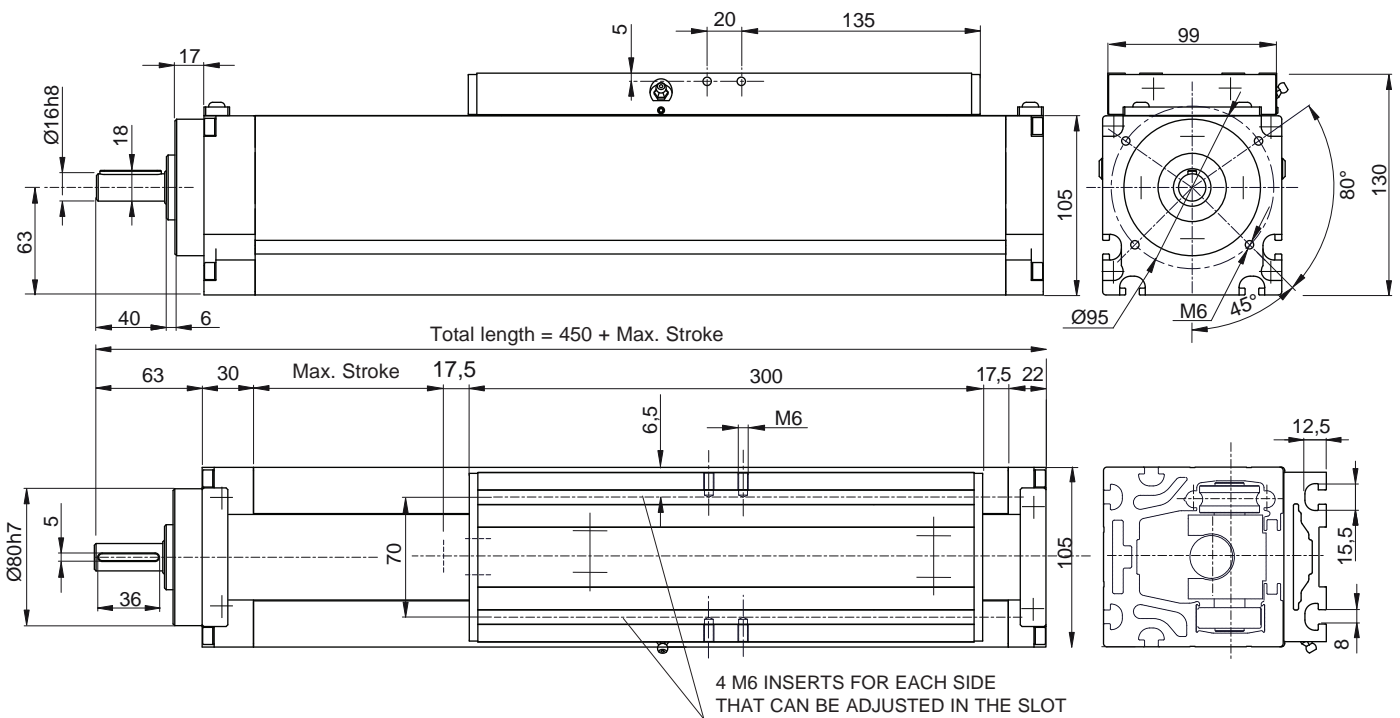


Fx= Max belt strength

# MVR 105 e MTR 105

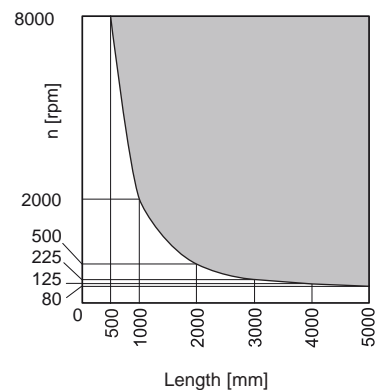
HARDENED GUIDES  
WITH CYLINDRICAL ROLLERS - TRAPEZOIDAL BALL SCREW

Registered model



Code	M	T	R				
V = Ball screw							
T = Trapezoidal 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	MTR 105	
Max. stroke	Pitch 5 - 10 = 4550	Pitch 25 = 5,150	[mm]
Max. speed	Pitch 5 [mm]	0.15 [m/s]	0.075 [m/s]
	Pitch 10 [mm]	0.30 [m/s]	0.15 [m/s]
	Pitch 25 [mm]	0.75 [m/s]	0.37 [m/s]
Max. acceleration		5	2 [m/s <sup>2</sup> ]
Repeatability		± 0.05	± 0.2 [mm]

### Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MVR 105	185	580	220	*2,000	1,500	2,950
MTR 105	185	580	220	*3,000	1,500	2,950

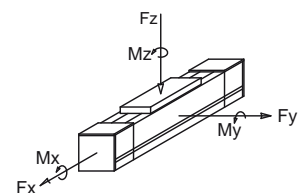
The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(\*) With a pitch of 5 mm

Data	
Slide	Rollers: 4 Ø 37 - 4 Ø 35 [mm]
Beam	105x105 (see page 12)
Ø screw	25 [mm]
Length of the screw	440+ <sub>max</sub> stroke [mm]

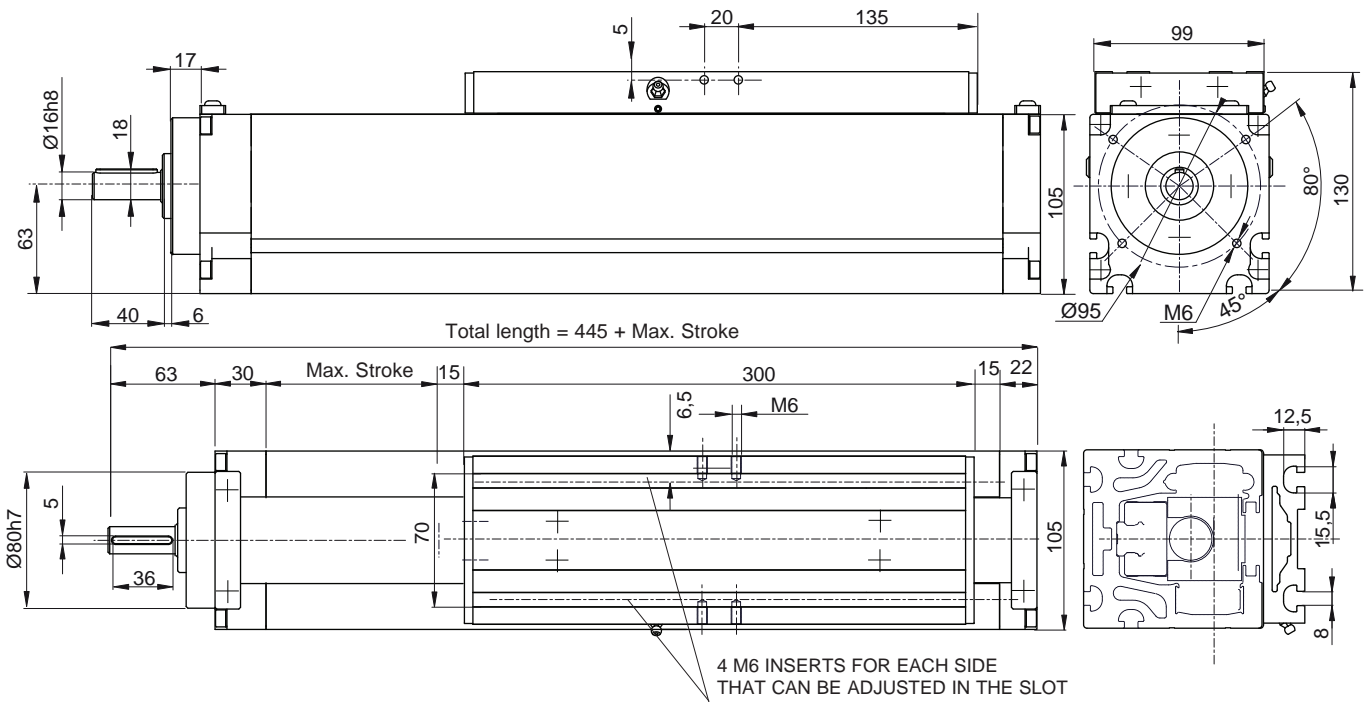
Weights	
Inertia of the worm	0.0003 • L. screw(m) [kgm <sup>2</sup> ]
Carriage weight	4 approx. [kg]
Base module (stroke=0)	M <sub>base</sub> =11 [kg]
1,000 mm profile	q=17.2 approx. [kg]

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



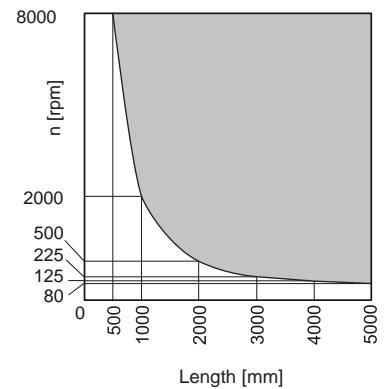
F<sub>x</sub> = Max belt strength





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							5-10-25-50
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	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 <sup>2</sup> ]
Repeatability		± 0.05	± 0.05	[mm]

**Suggested working load conditions**

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
MVS 105	156	800	800	3,000(*)	9,550	9,550
MVH 105	116	600	600	3,000(*)	6,030	6,030

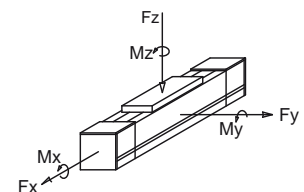
The values shown refer to maximum performance with each force acting individually. The dynamic data shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery.

(\*) With a pitch of 5 mm

Data	
Slide	2 caged ball roller slides size 20
Beam	105x105 (see page 12)
Ø screw	25 [mm]
Length of the screw	440+ <sub>max</sub> stroke [mm]

Weights	
Inertia of the worm	0.0003 • L. screw(m) [kgm <sup>2</sup> ]
Carriage weight	4 approx. [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

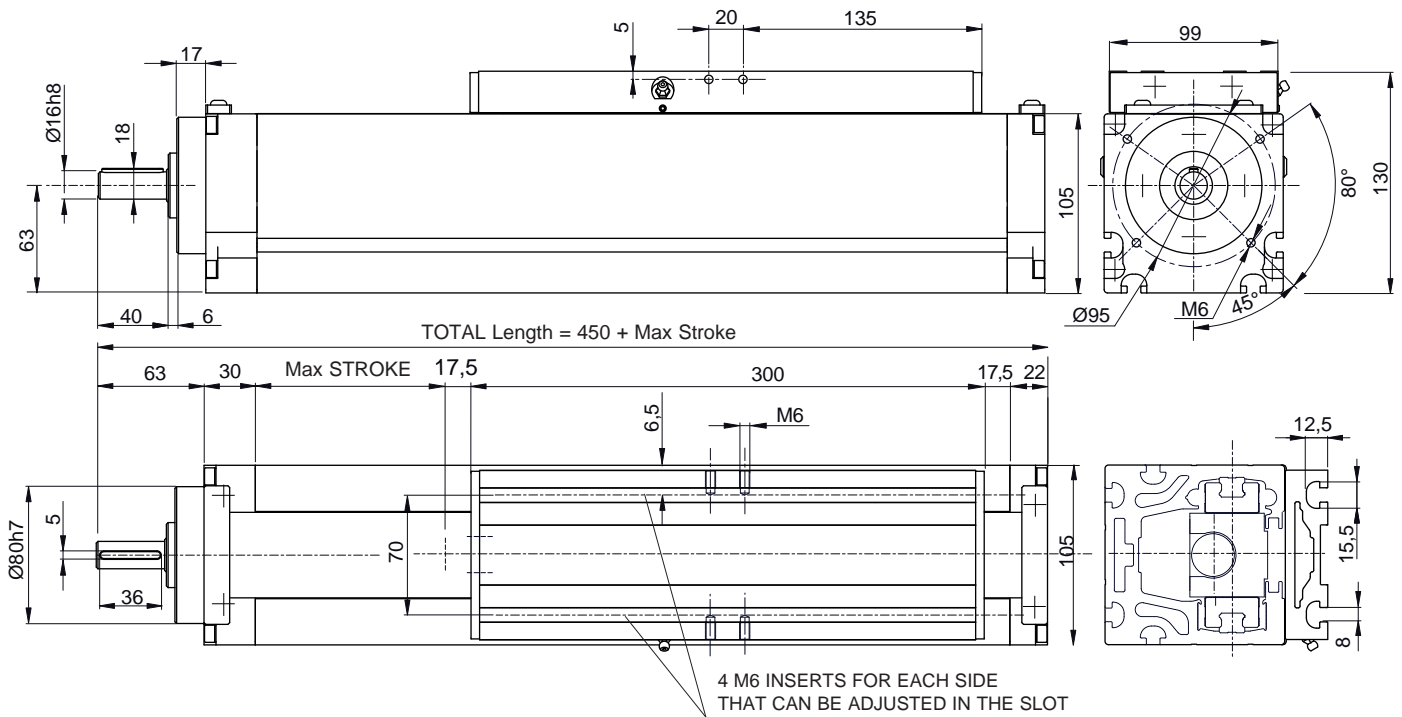


F<sub>x</sub> = Max belt strength

# MVHH 105

## GUIDE RAILS WITH CAGED BALL RUNNER BLOCKS - BALL SCREW

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

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 <sup>2</sup> ]
Repeatability			± 0,05		[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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.

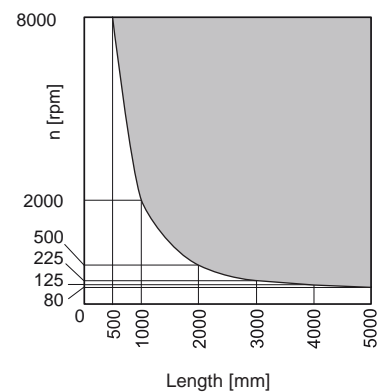
(\* ) With a pitch of 5 mm

Data	
Slide	4 caged ball roller slides size 15
Beam	105x105 (see page 12)
Ø screw	25 [mm]
Length of the screw	440+stroke <sub>max</sub> [mm]

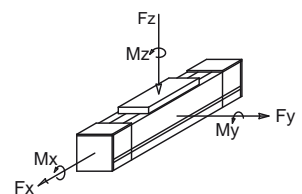
Weights	
Inertia of the worm	0,0003 • L. screw(m) [kgm <sup>2</sup> ]
Carriage weight	4 c.a. [kg]
Base module (stroke=0)	M <sub>base</sub> =13 [kg]
1,000 mm profile	q=17,5 approx. [kg]

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

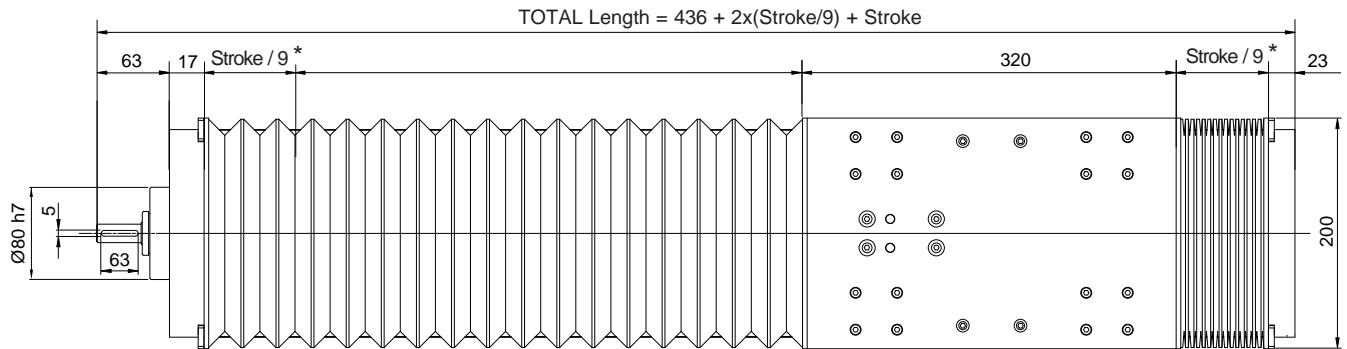
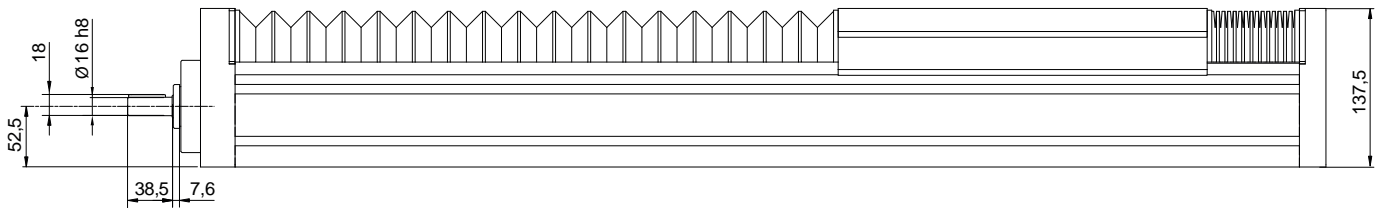
Critical Speed Graph



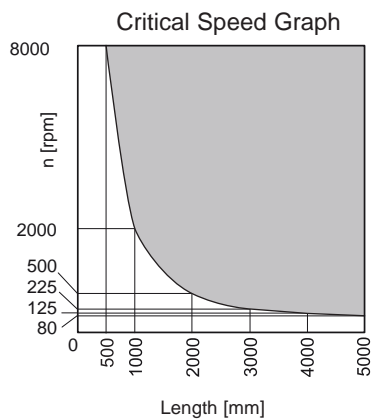
Max. stroke-speed limit over which some support bearings are required (SI) to avoid an excessive screw vibration. The working point marked inside the broken line is not recommended.



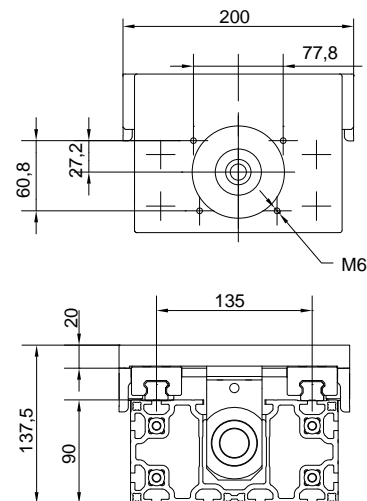
F<sub>x</sub> = Max belt strength



\*valore indicativo



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

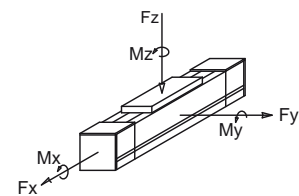
**Data**

Slide	4 caged ball roller slides size 20
Beam	E01-5 (see page 13)
Ø screw	25 [mm]
Bellow	heat-sealed, plastic

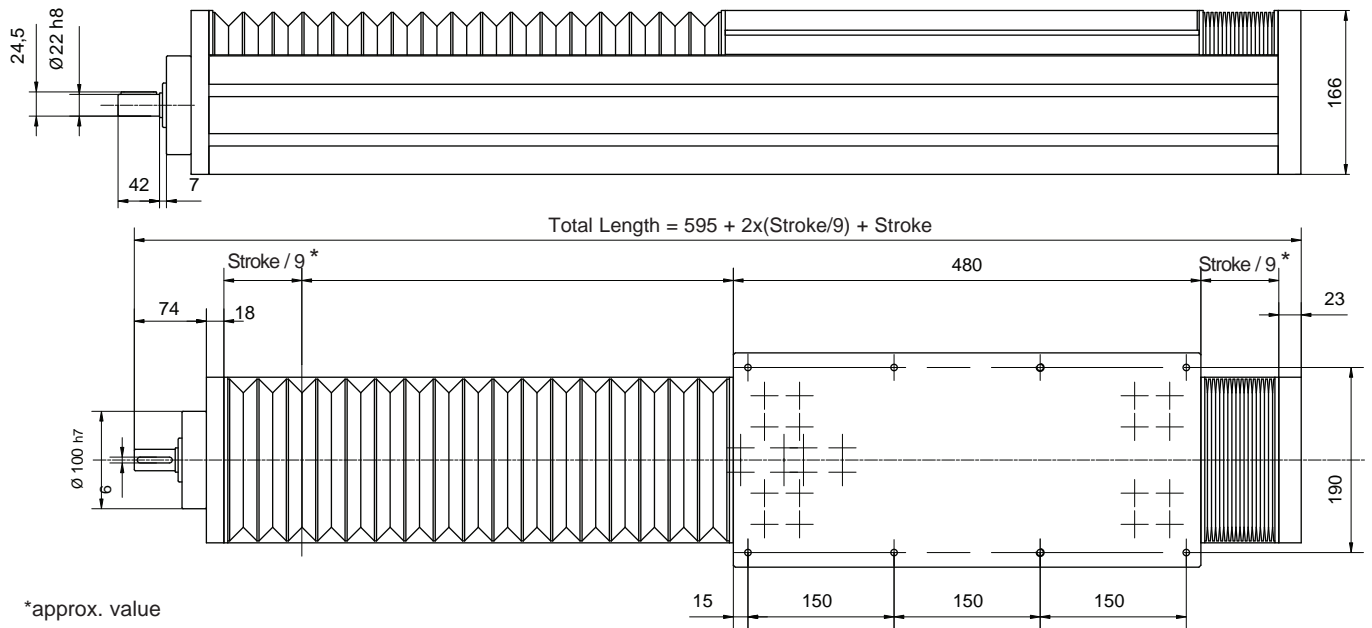
**Weights**

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

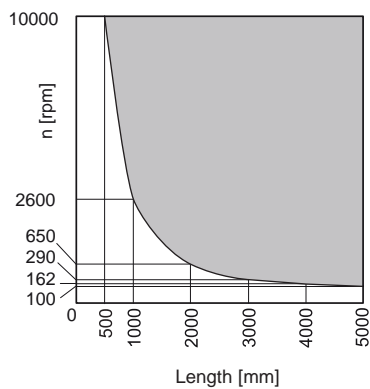
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]



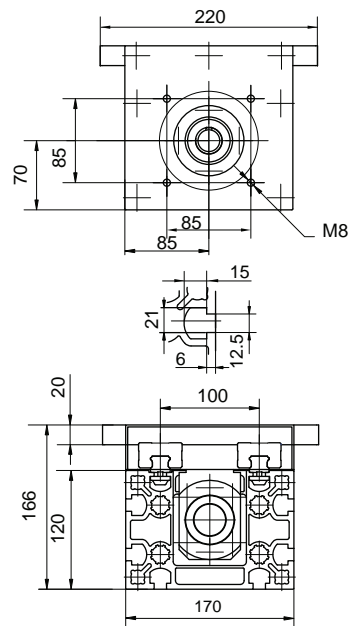
$F_x =$  Max belt strength



\*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.

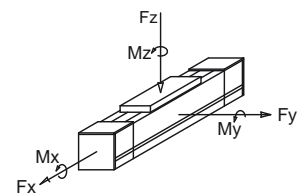


Performances		TVS 170	
Max. stroke		4,000	[mm]
Max. speed	Pitch 5	0.15	[m/s]
	Pitch 10	0.30	[m/s]
	Pitch 20	0.75	[m/s]
	Pitch 32	1.00	[m/s]

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)

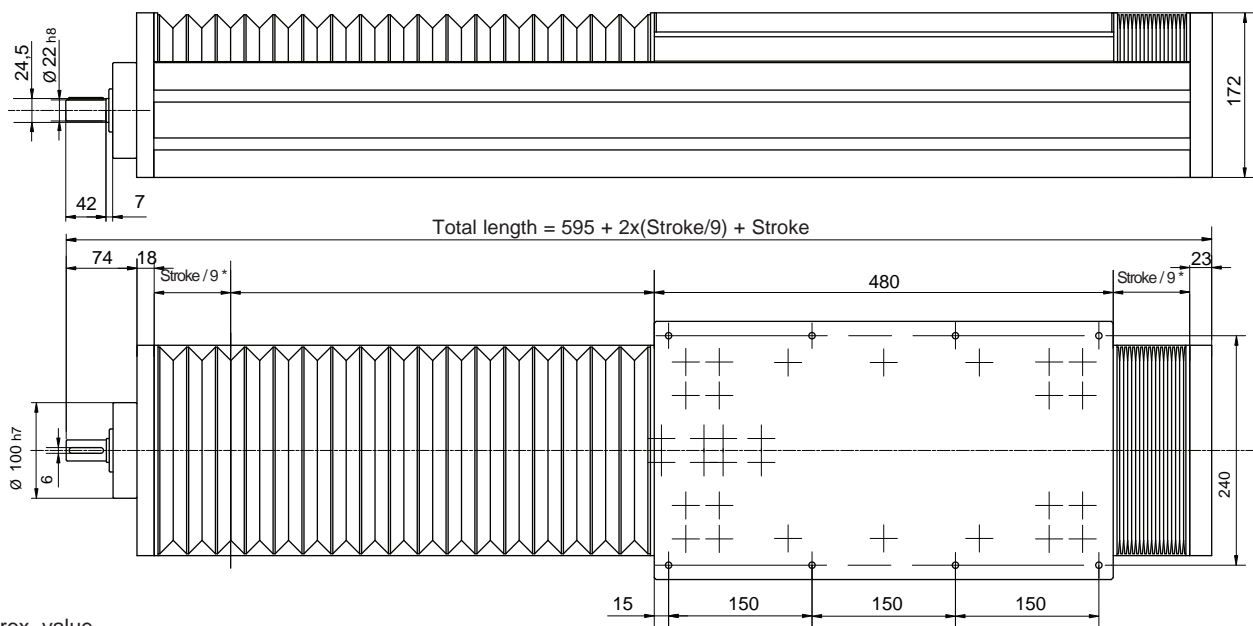


$F_x = \text{Max belt strength}$

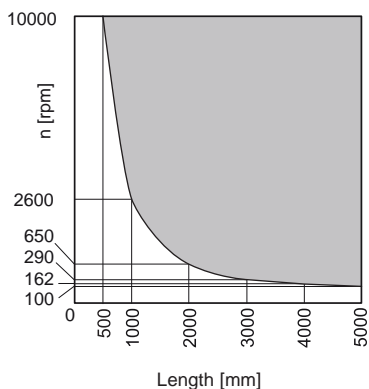
Data	
Slide	4 caged ball roller slides size 20
Beam	Statyca (see page 14)
Ø screw	32 [mm]
Bellow	heat-sealed, plastic

Weights	
Inertia of the worm	$0,0006 \cdot L \cdot \text{screw}(m)$ [kgm <sup>2</sup> ]
Carriage weight	11 [kg]
Base module (stroke=0)	$M_{\text{base}} = 36$ [kg]
1,000 mm profile	$q = 28$ [kg]

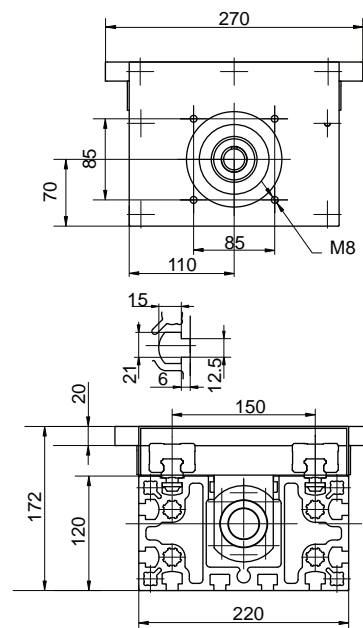
To calculate the module weight use the following formula:  $M = M_{\text{base}} + q \cdot \text{stroke}_{\text{max}} / 1,000$  Stroke<sub>max</sub> [mm]



\*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.

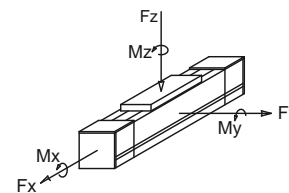


Performances		TVS 220	
Max. stroke		4,000	[mm]
Max. speed	Pitch 5 [mm]	0.15	[m/s]
	Pitch 10 [mm]	0.30	[m/s]
	Pitch 20 [mm]	0.75	[m/s]
	Pitch 32 [mm]	1.00	[m/s]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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



F<sub>x</sub> = Max belt strength

Data	
Slide	4 caged ball roller slides size 25
Beam	Logyca (see page 14)
Ø screw	32 [mm]
Bellow	heat-sealed, plastic

Weights	
Inertia of the worm	0.0006 • L. screw(m) [kgm <sup>2</sup> ]
Carriage weight	13 [kg]
Base module (stroke=0)	M <sub>base</sub> = 44 [kg]
1,000 mm profile	q = 37 [kg]

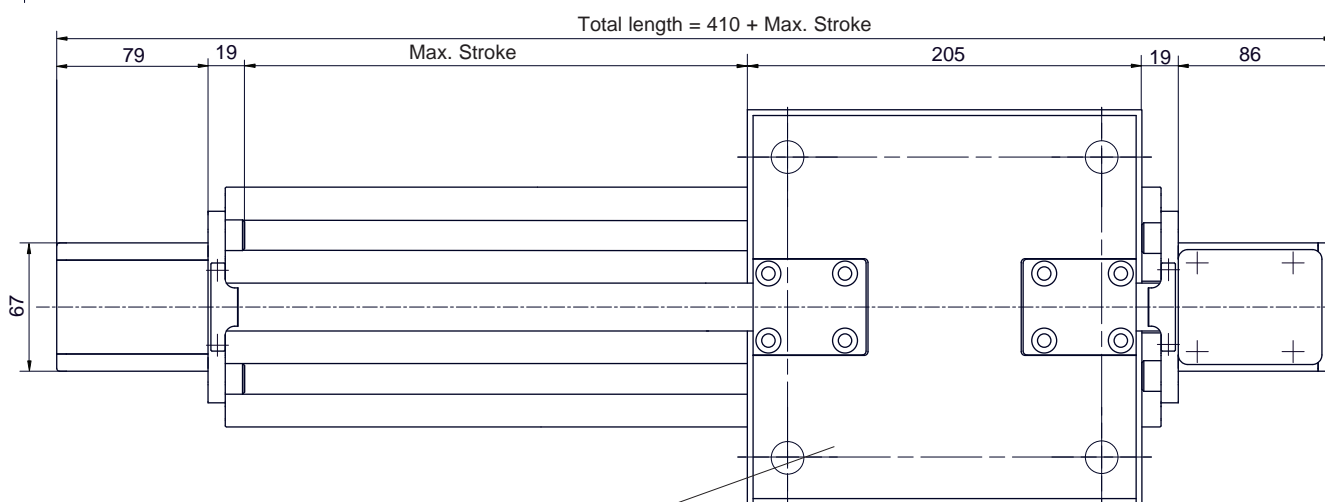
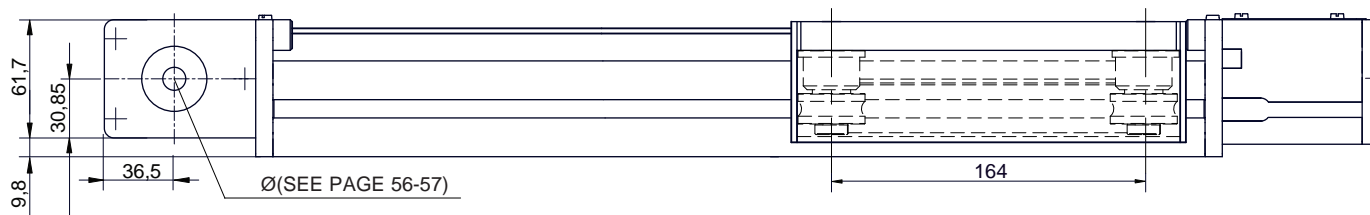
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot \text{stroke}_{max} / 1,000$  Stroke<sub>max</sub> [mm]

# Series T modules with belt drive

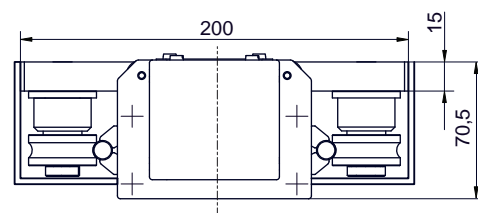
## TCG 100

HARDENED GUIDE RAILS AND CYLINDRICAL SHAPED ROLLERS

Registered model



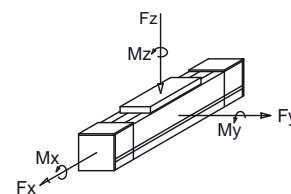
MACHINING ON REQUEST



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TCG 100	40	120	200	1,100	1,700	1,200

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



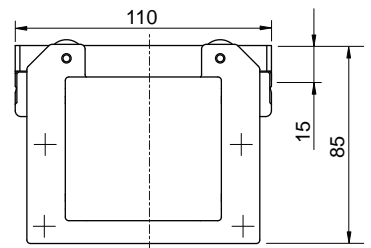
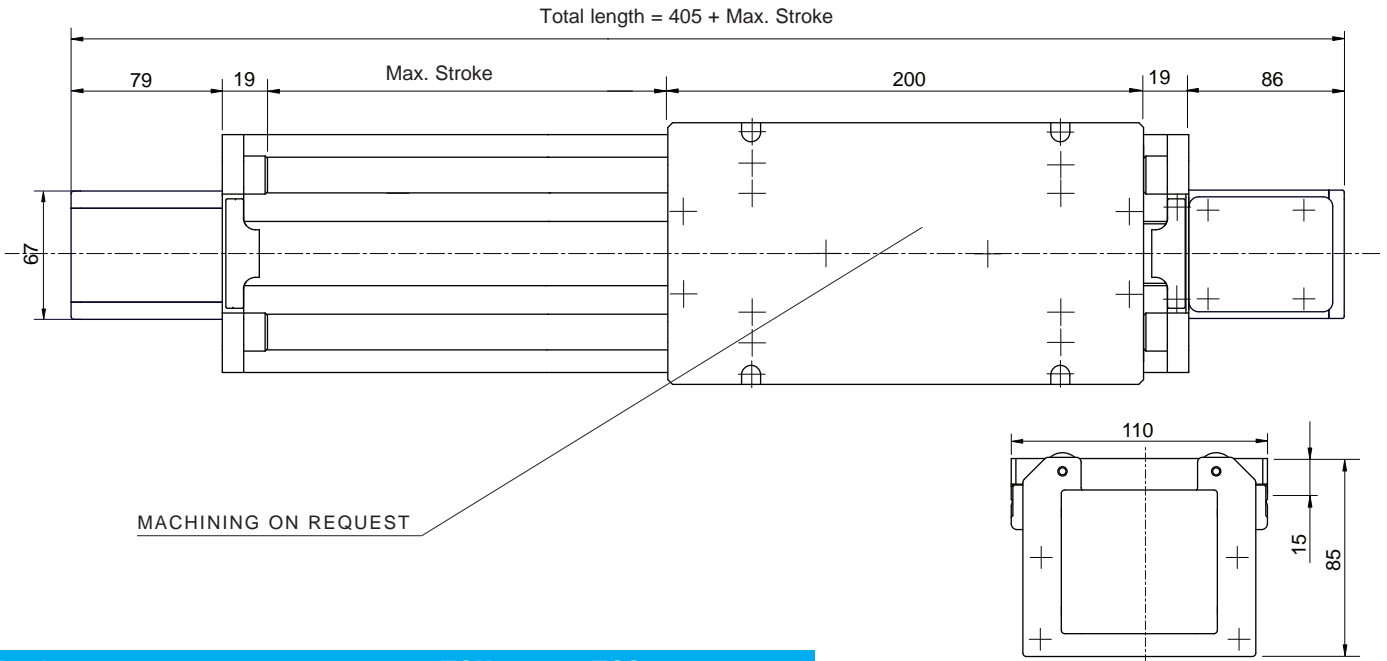
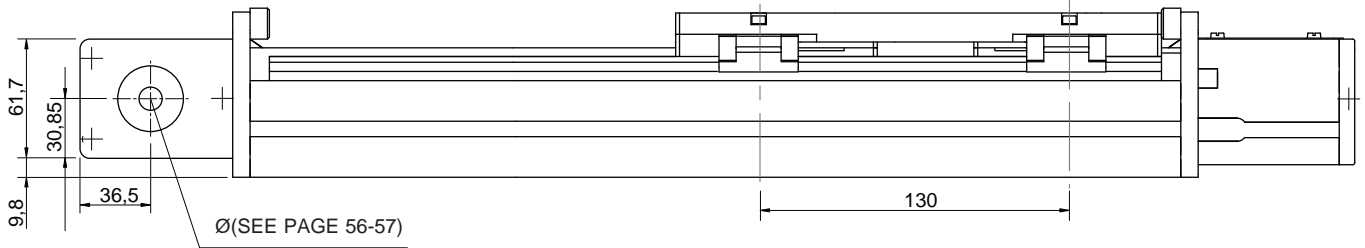
F<sub>x</sub>= Max belt strength

Assembly positions and load direction, see page 10

Data	
Belt	25AT5
Slide	4 shaped rollers Ø35[mm]
Load bearing profile	MA 1-4 (see page 13)
Pulley Ø	50.93 [mm]
Linear displacement per revolution	160 [mm]

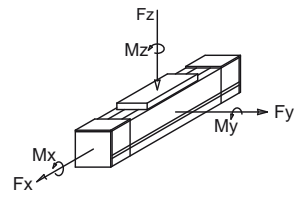
Weights	
Inertia of the pulley	- [kgm <sup>2</sup> ]
Belt weight	0.21 [kg/m]
Carriage weight	2.5 [kg]
Base module (stroke=0)	M <sub>base</sub> =6.4 [kg]
1,000 mm profile	q=8.3 [kg]

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [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 <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	-	-	[Nm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TCH 100	138	324	324	1,180	4,100	4,100
TCS 100	150	324	324	1,180	4,100	4,100



F<sub>x</sub>= 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

Data	
Belt	25AT5
Sliding	4 caged ball roller slides size15
Load bearing profile	MA 1-4 (see page 13)
Pulley Ø	50.93 [mm]
Linear displacement per revolution	160 [mm]

Weights		
Inertia of the pulley	-	[kgm <sup>2</sup> ]
Belt weight	0.21	[kg/m]
Carriage weight	2.6	[kg]
Base module (stroke=0)	M <sub>base</sub> =6.5	[kg]
1,000 mm profile	q=9.2	[kg]

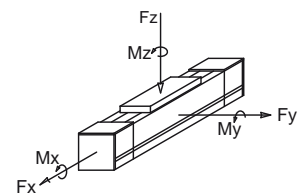
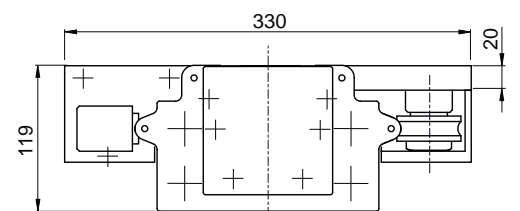
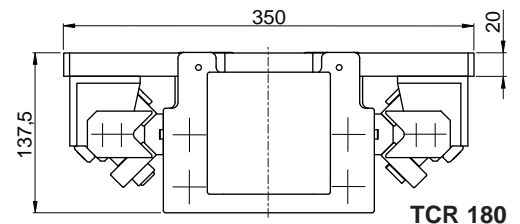
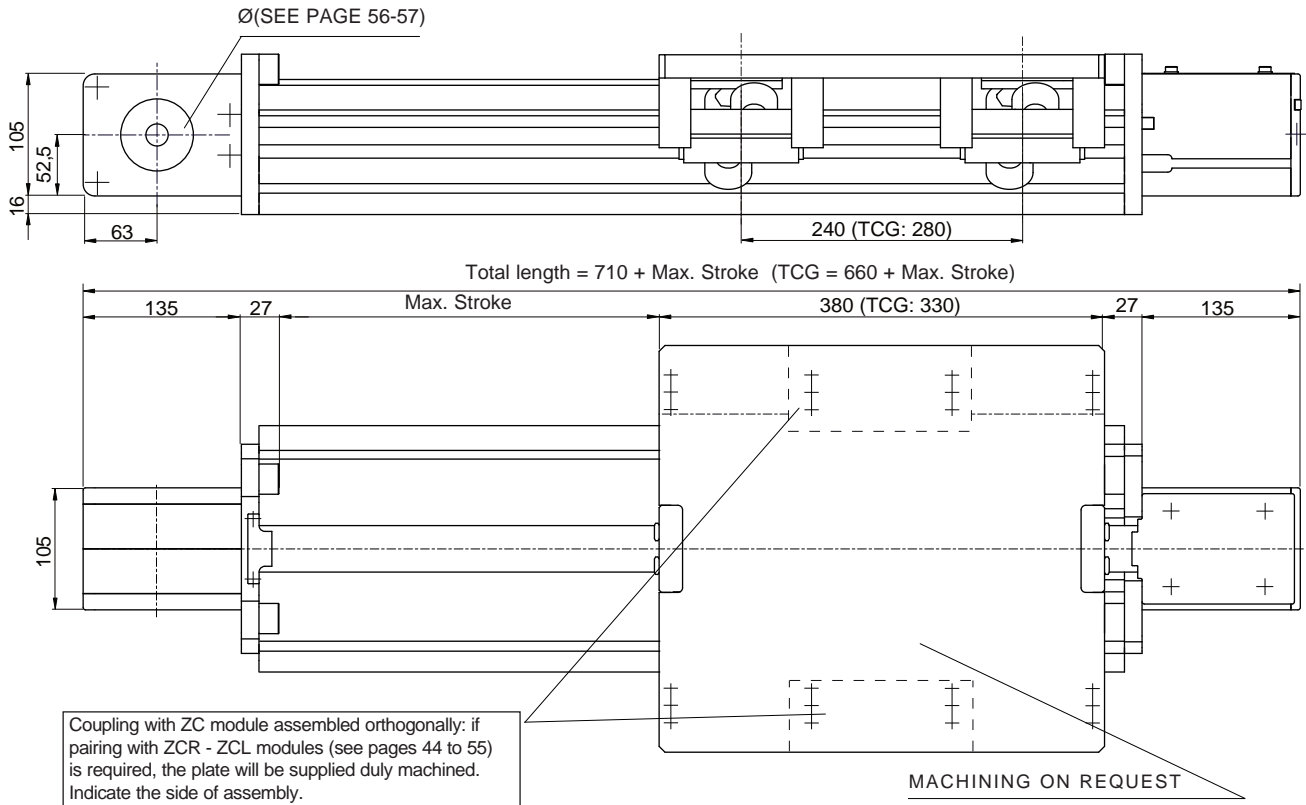
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]

# TCR 180 e TCG 180

WITH V-SHAPED GUIDE RAILS  
AND ROLLER SLIDES OR SHAPED ROLLERS

Registered model

Accessories: see page 11



$F_x$  = Max belt strength

Performances	TCR 180	TCG 180	
Max. stroke	7,480	7,540	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	20	20	[m/s <sup>2</sup> ]
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]
TCR 180	630	800	800	3,300	7,320	7,320
TCG 180	220	270	540	3,300	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

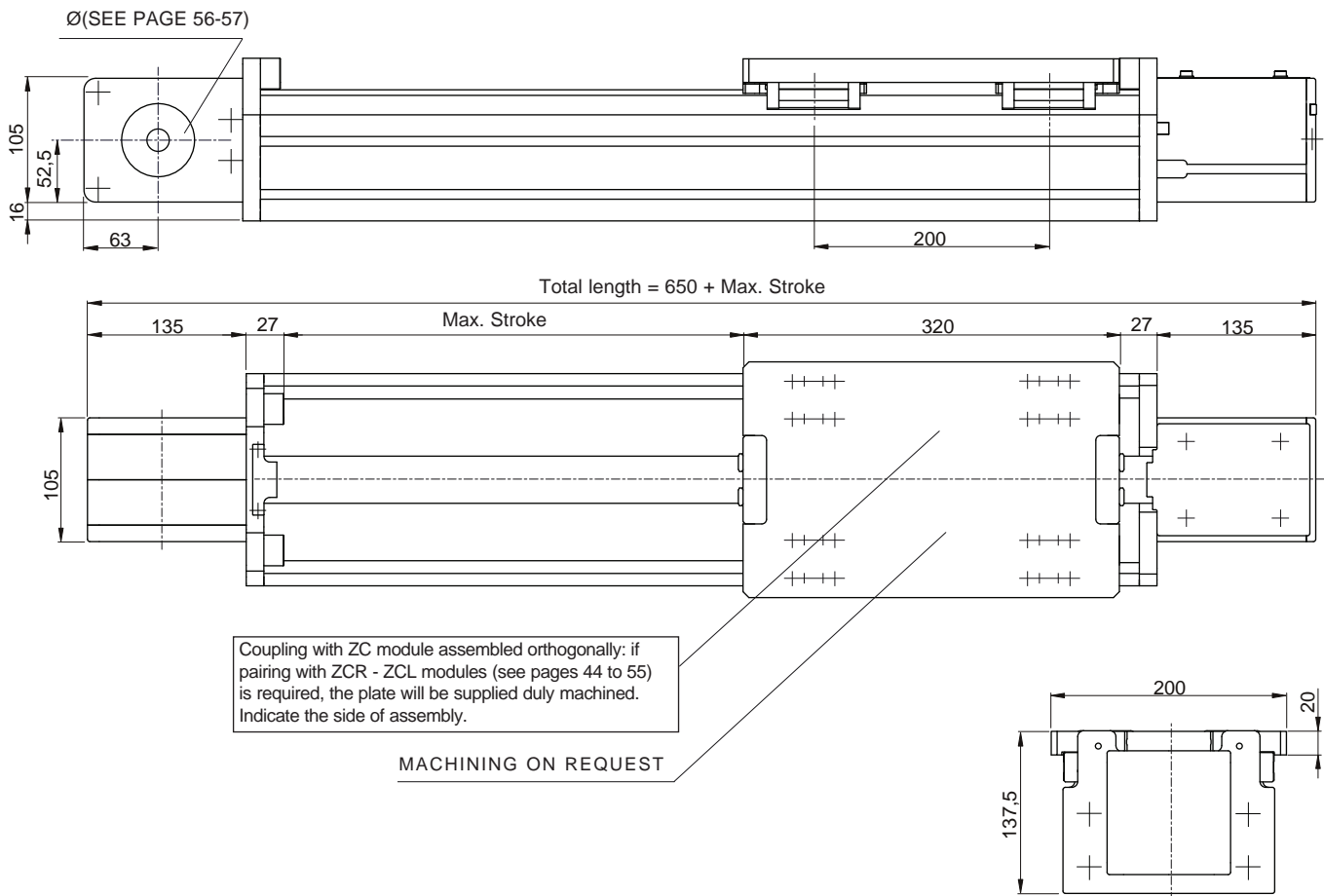
Assembly positions and load direction, see page 10

Data	TCR 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 13)
Pulley Ø	92.31	[mm]
Linear displacement per rev.	290	[mm]

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

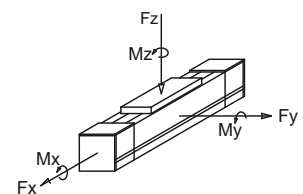
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]





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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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



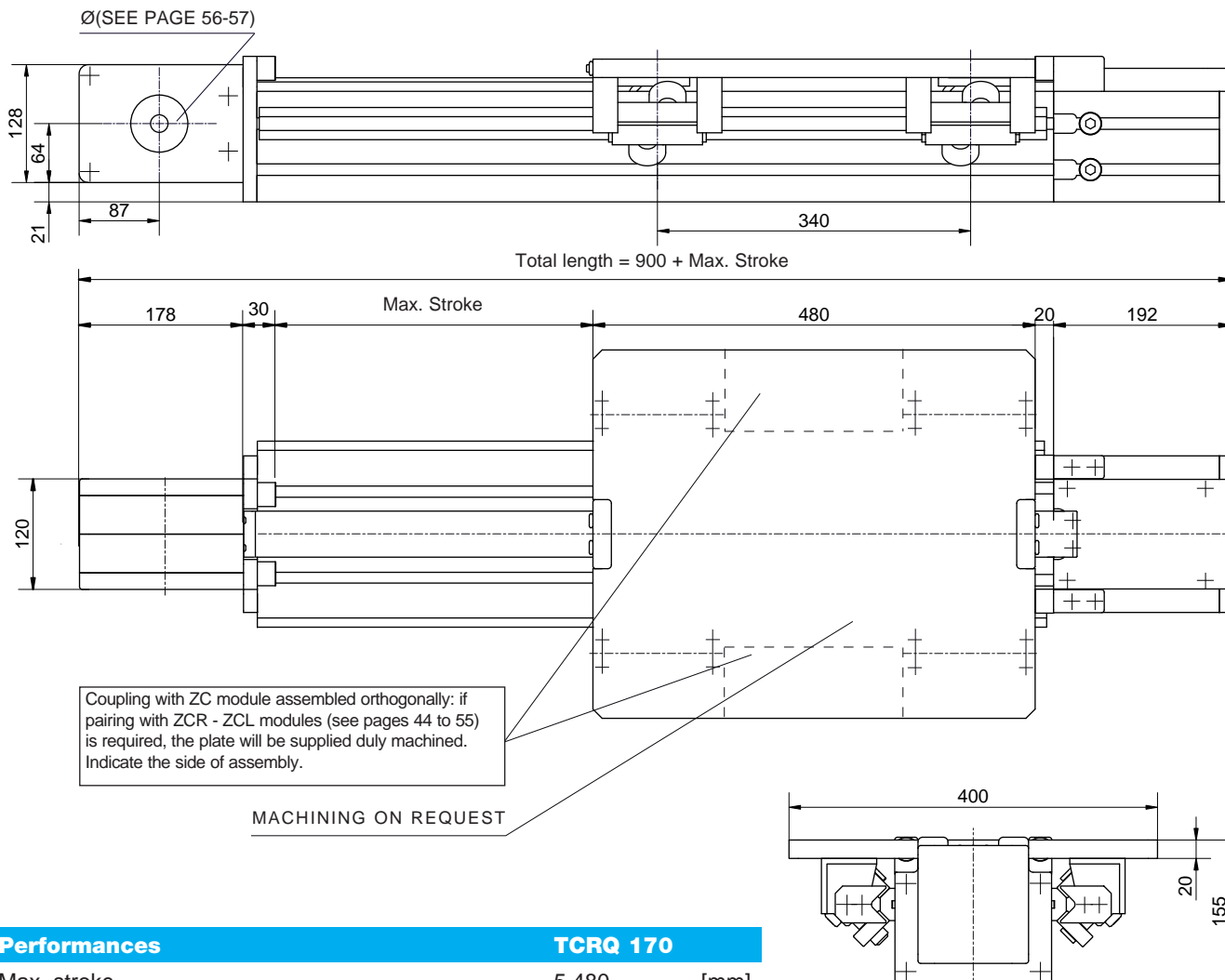
F<sub>x</sub>= Max belt strength

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

Data	TCH 180 - TCS 180	
Belt	40ATL10	
Slide	4 caged ball slides size 20	
Load bearing profile	E01-5	(see page 13)
Pulley Ø	92.31	[mm]
Linear displacement per rev.	290	[mm]

Weights	TCH 180 - TCS 180	
Inertia of the pulley	0.0037	[kgm <sup>2</sup> ]
Belt weight	0.55	[kg/m]
Carriage weight	6	[kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TCRQ 170	620	1,100	1,100	4,000	7,620	7,620

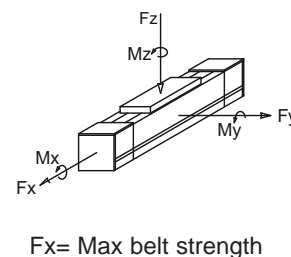
The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery. In case of peak forces acting together please ask the technical dept

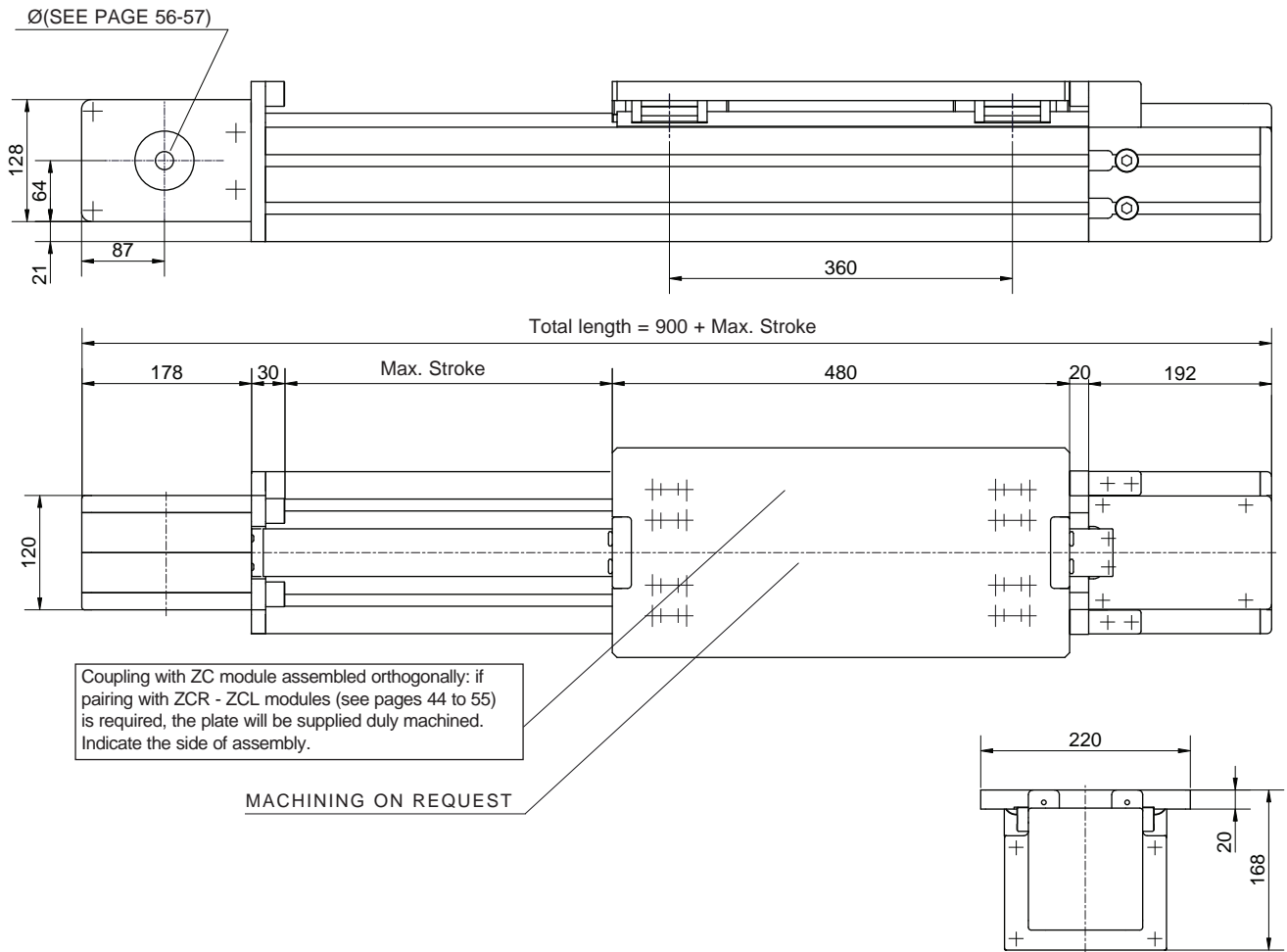
Assembly positions and load direction, see page 10

Data	
Belt	50ATL10
Slides	4 slides 2 rollers Ø40[mm]
Load bearing profile	Stayca (see page 14)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	
Inertia of the pulley	0.0053 [kgm <sup>2</sup> ]
Belt weight	0.68 [kg/m]
Carriage weight	14.6 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

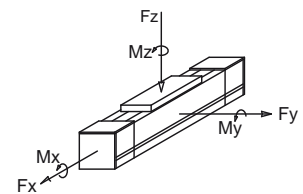




Performances	TCH 170	TCS 170	
Max. stroke	5,480	5,480	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	4.8	4.8	[Nm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

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

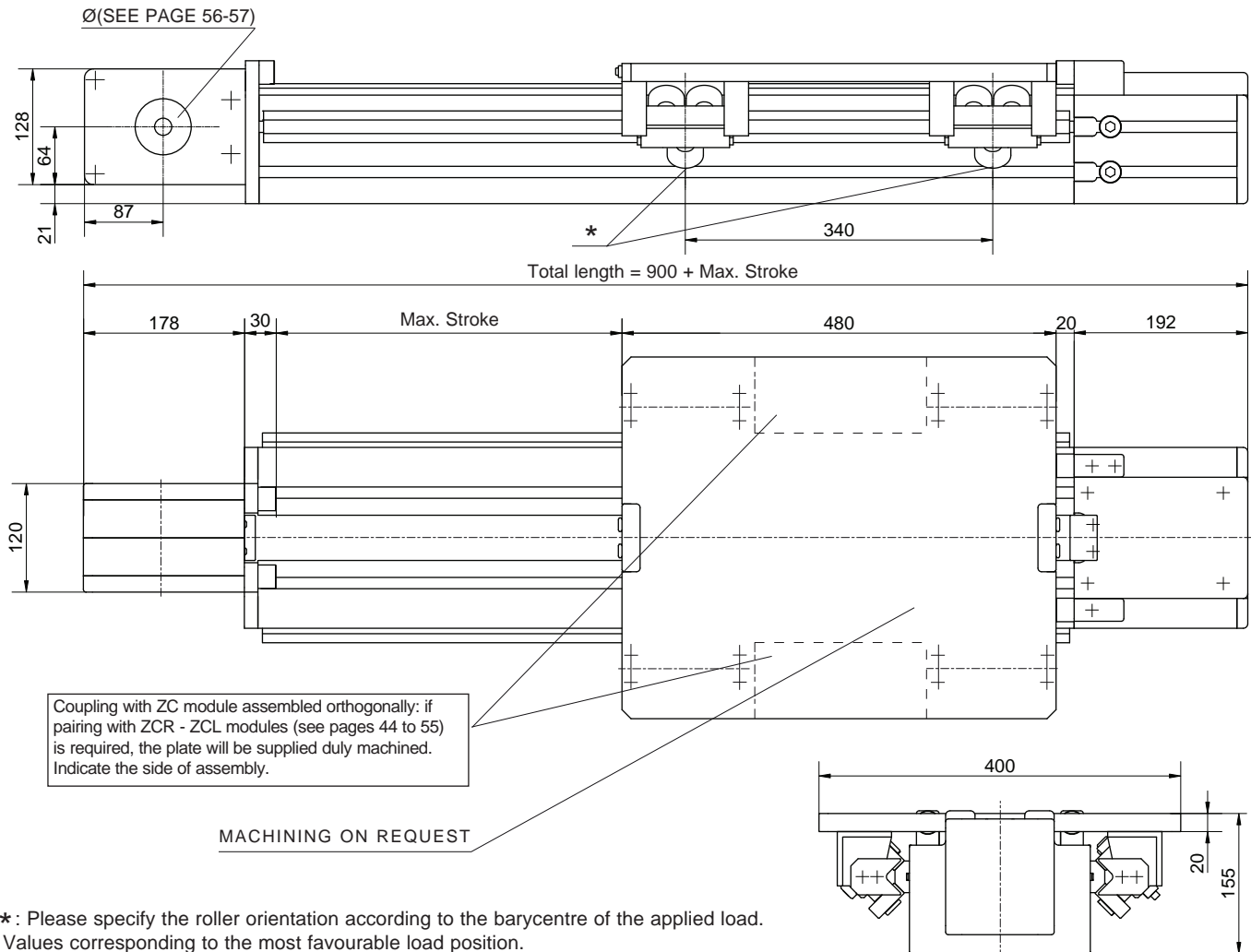


F<sub>x</sub>= Max belt strength

Data	TCH 170 - TCS 170
Belt	50ATL10
Slide	4 caged ball slides size 20
Load bearing profile	Stayca (see page 14)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	TCH 170 - TCS 170
Inertia of the pulley	0.0053 [kgm <sup>2</sup> ]
Belt weight	0.68 [kg/m]
Carriage weight	8.6 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]



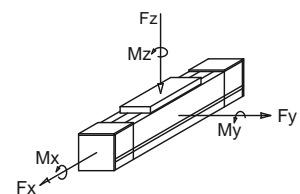
\*: Please specify the roller orientation according to the barycentre of the applied load. Values corresponding to the most favourable load position.

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

### Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TCRQ 200	1,300(*)	1,600(*)	1,300	4,000	7,620	12,500 (*)

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



F<sub>x</sub>= Max belt strength

### Assembly positions and load direction, see page 10

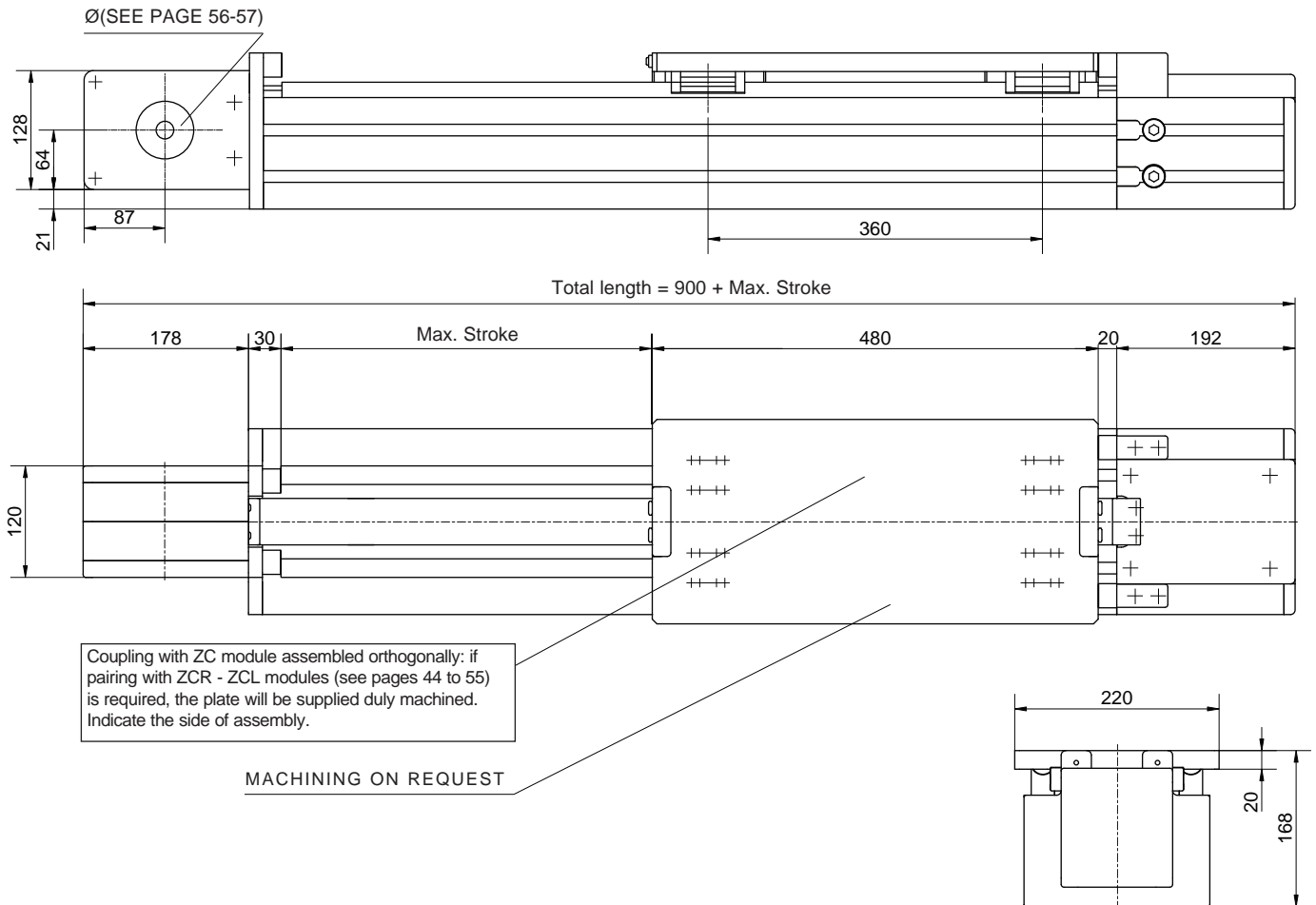
Data	
Belt	50ATL10
Slide	4 slides 3 roll. Ø40 [mm]
Load bearing profile	Valyda (see page 14)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	
Inertia of the pulley	0.0053 [kgm <sup>2</sup> ]
Belt weight	0.68 [kg/m]
Carriage weight	15 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

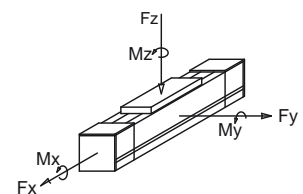
Registered model

Accessories: see page 11



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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



F<sub>x</sub>= 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

Data	TCH 200 - TCS 200
Belt	50ATL10
Slide	4 caged ball slides size 20
Load bearing profile	Valyda (see page 14)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

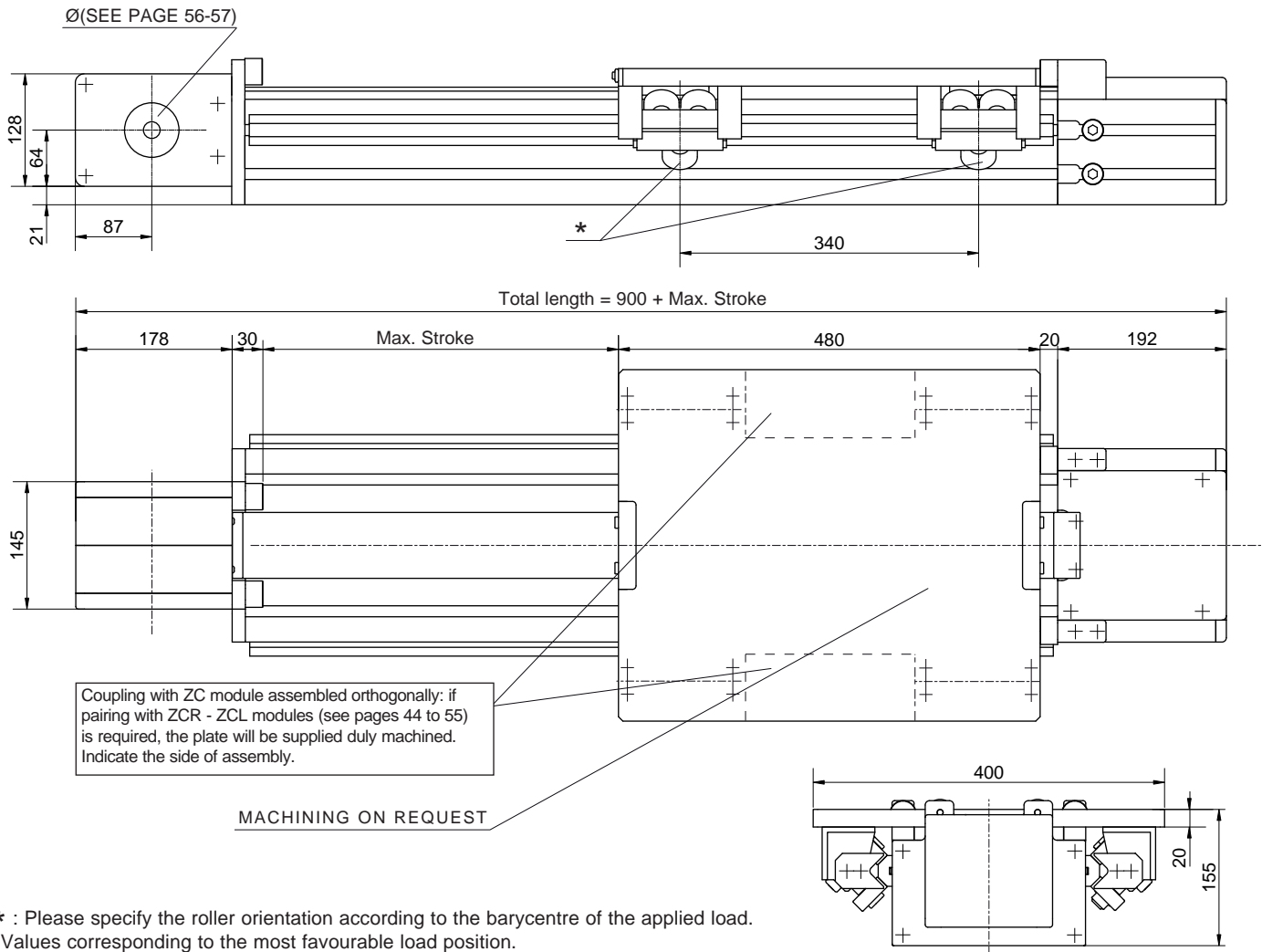
Weights	TCH 200 - TCS 200
Inertia of the pulley	0.0053 [kgm <sup>2</sup> ]
Belt weight	0.68 [kg/m]
Carriage weight	8,8 [kg]
Base module (stroke=0)	M <sub>base</sub> =42 [kg]
1,000 mm profile	q=27.5 [kg]

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

# TCRQ 220

Registered model

Accessories: see page 11

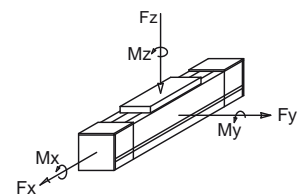


\* : Please specify the roller orientation according to the barycentre of the applied load. Values corresponding to the most favourable load position.

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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TCRQ220	1,400(*)	1,600(*)	1,300	6,000	7,620	12,500(*)

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



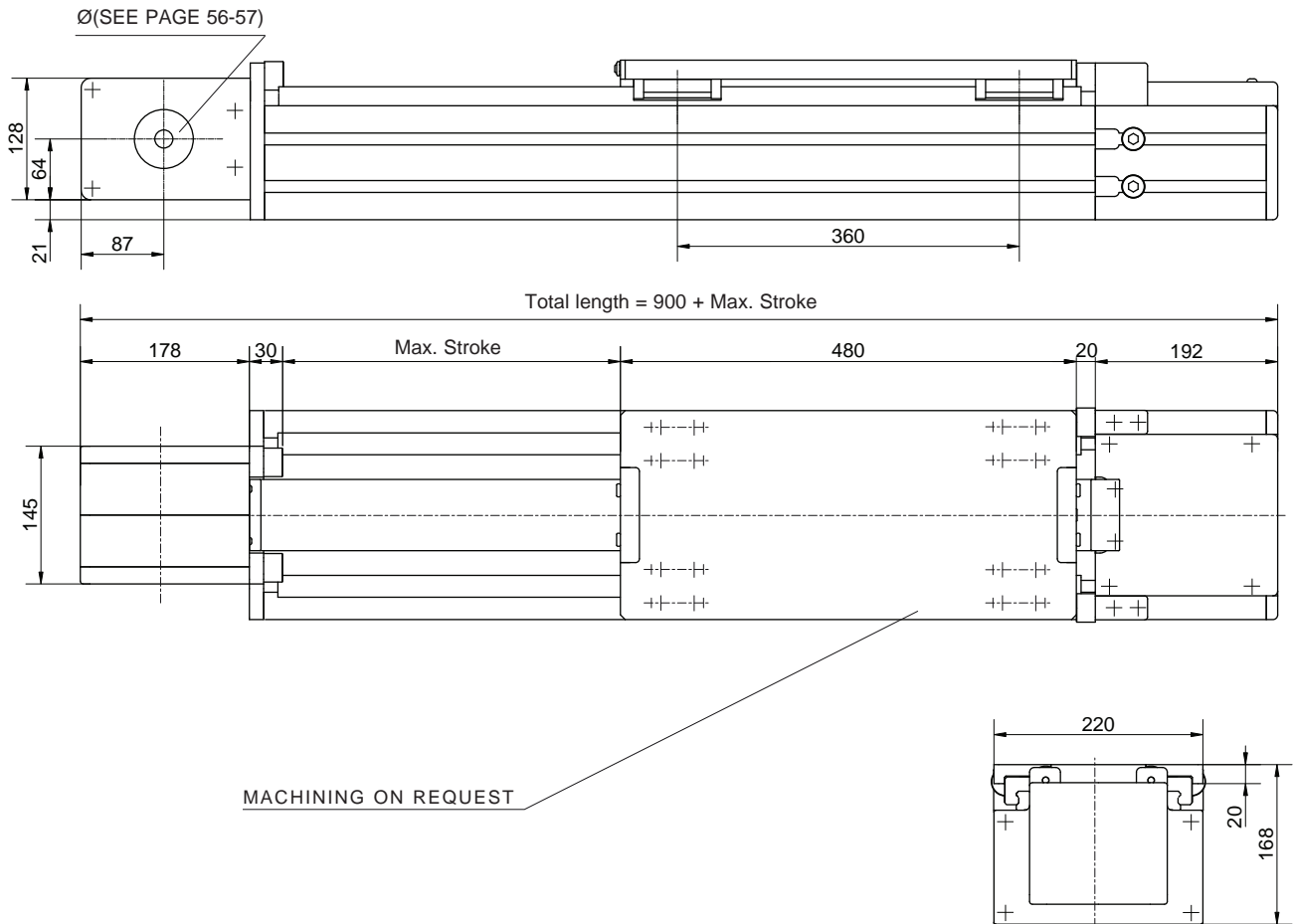
F<sub>x</sub>= Max belt strength

Assembly positions and load direction, see page 10

Data	
Belt	75ATL10
Slide	4 slides 3 roll. Ø 40[mm]
Load bearing profile	Logyca (see page 14)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

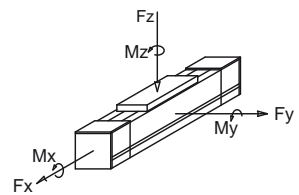
Weights	
Inertia of the pulley	0,0082 [kgm <sup>2</sup> ]
Belt weight	1,02 [kg/m]
Carriage weight	16 [kg]
Base module (stroke=0)	M <sub>base</sub> =54.6 [kg]
1,000 mm profile	q= 33.7 [kg]

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



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

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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



F<sub>x</sub> = 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

Data	TCH 220 - TCS 220
Belt	75ATL10
Slide	4 caged ball slides size 25
Load bearing profile	Logyca (see page 14)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	TCH 220 - TCS 220
Inertia of the pulley	0.0082 [kgm <sup>2</sup> ]
Belt weight	1.02 [kg/m]
Carriage weight	9.5 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]

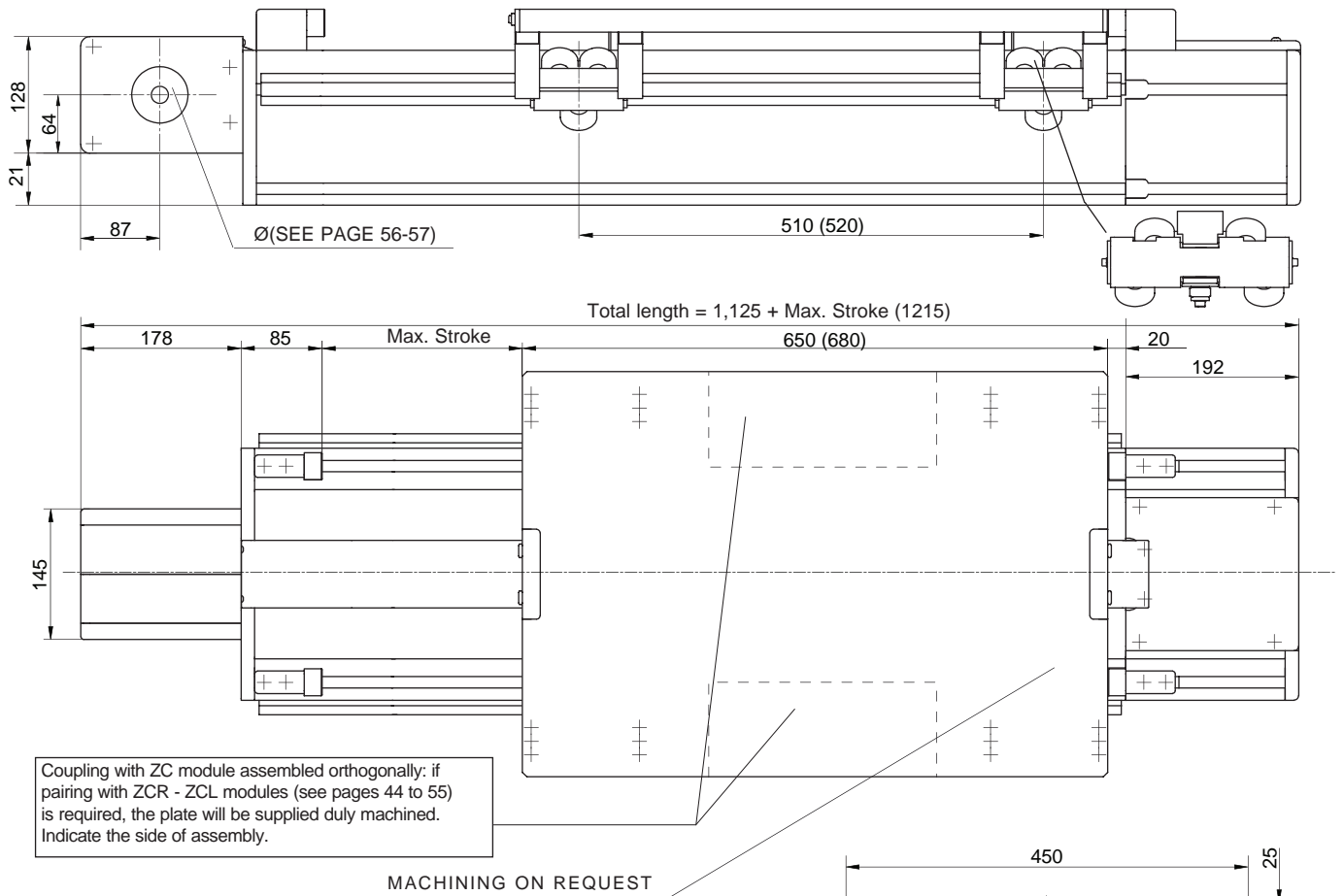
# TCRQ 280 (TCRP 280)

V-SHAPED GUIDE RAILS WITH ROLLER SLIDES

Registered model\*

RP= Heavy guide rails and roller slides - Ø52

Accessories: see page 11



\* Versions with a 100 mm belt are also available. (TCRE/TCREP)

## Performances TCRQ 280 (TCRP280)

Max. stroke	11,315	11,175	[mm]
Max. speed	7	5	[m/s]
Max. acceleration	20	10	[m/s <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	7.6	8.5	[Nm]

## Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

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

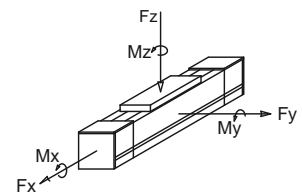
Assembly positions and load direction, see page 10

## 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 15)	
Pulley Ø	95.49 [mm]	
Linear displacement per rev.	300	[mm]

## Weights TCRQ 280 (TCRP 280)

Inertia of the pulley	0.0082	[kgm <sup>2</sup> ]
Belt weight	1.02	[kg/m]
Carriage weight	27	55 [kg]
Base module	M <sub>base</sub> =87	M <sub>base</sub> =122 [kg]
1,000 mm profile	q=48	q=56 [kg]



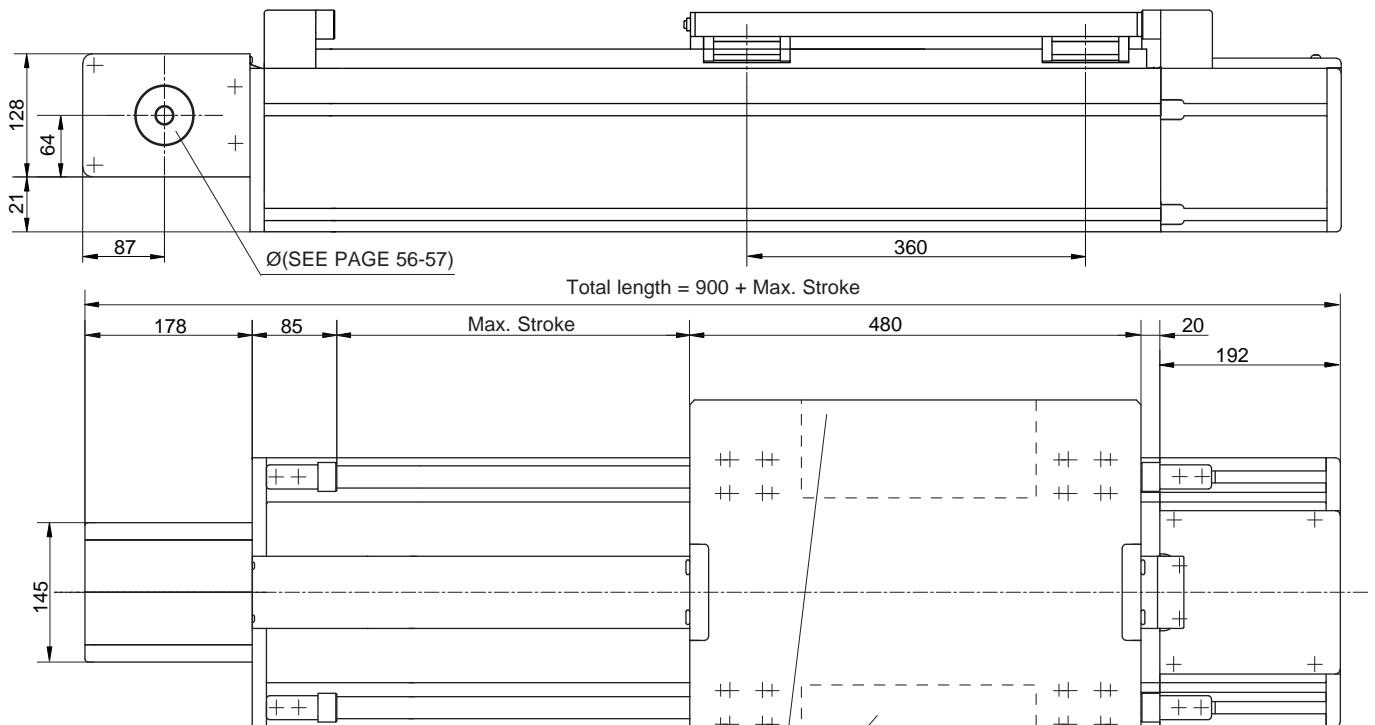
F<sub>x</sub>= Max belt strength

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



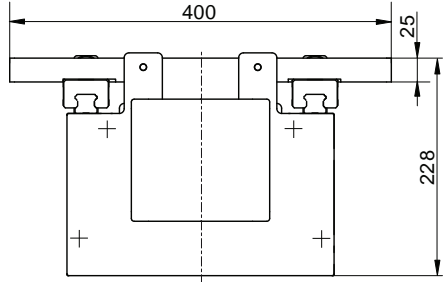
Registered model

Accessories: see page 11



Coupling with ZC module assembled orthogonally: if pairing with ZCR - ZCL modules (see pages 44 to 55) is required, the plate will be supplied duly machined. Indicate the side of assembly.

MACHINING ON REQUEST

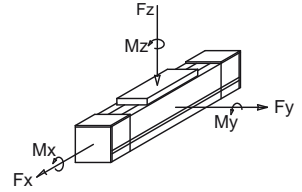


\* Versions with a 100 mm belt are also available. (TCSE 280)

Performances	TCH 280	TCS 280	
Max. stroke	11,480	11,485	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	8.3	8.3	[Nm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

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



F<sub>x</sub>= 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 15)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	TCH 280 - TCS 280
Inertia of the pulley	0.0082 [kgm <sup>2</sup> ]
Belt weight	1.02 [kg/m]
Carriage weight	18 [kg]
Base module (stroke=0)	M <sub>base</sub> =69 [kg]
1,000 mm profile	q= 47 [kg]

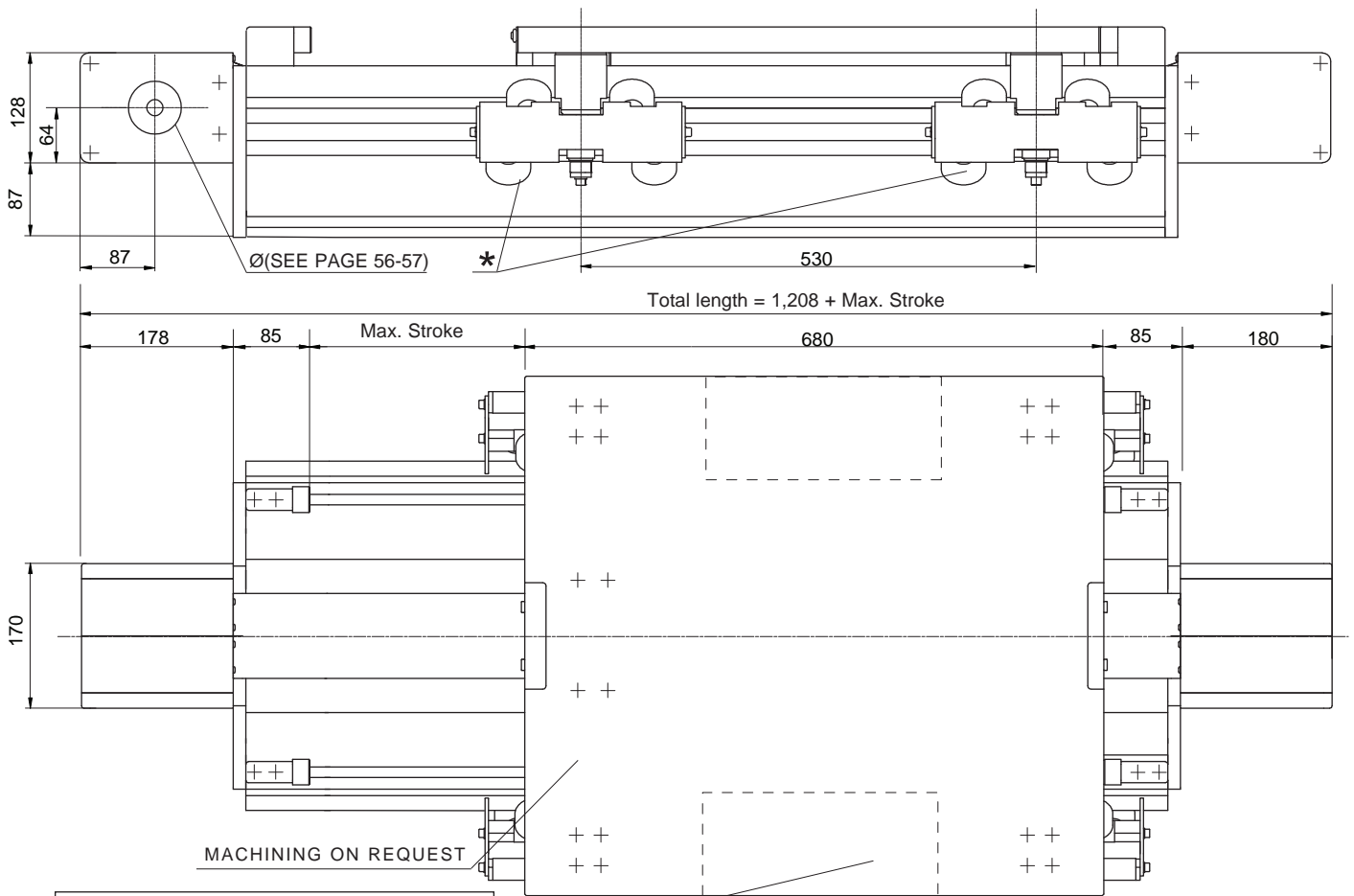
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]

# TCRP 360

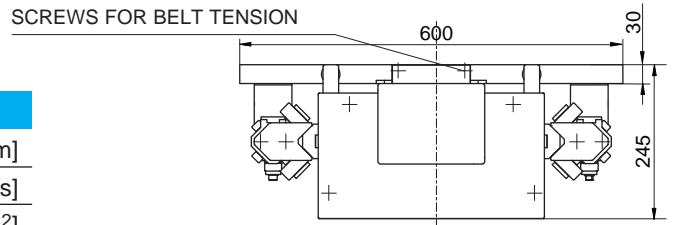
## V-SHAPED GUIDE RAILS WITH ROLLER SLIDES

Registered model

RP= Heavy guide rails and roller slides - Ø52  
Accessories: see page 11



Coupling with ZC module assembled orthogonally: if pairing with ZCR - ZCL modules (see pages 42 to 53) is required, the plate will be supplied duly machined. Indicate the side of assembly.



\* 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 <sup>2</sup> ]
Repeatability	± 0.1	[mm]
Loadless torque	8.5	[Nm]

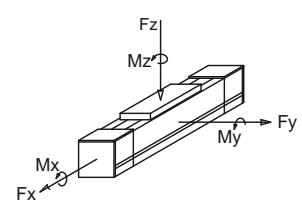
Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TCRP 360	4,900	5,300	5,300	8,000	25,400	25,400

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 10

Data	
Belt	100 ATL 10
Slide	4 slides 4 rollers Ø52 [mm]
Load bearing profile	Solyda (see page 15)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	
Inertia of the pulley	0.0082 [kgm <sup>2</sup> ]
Belt weight	1.02 [kg/m]
Carriage weight	55 [kg]
Base module (stroke=0)	M <sub>base</sub> =137 [kg]
1,000 mm profile	q=75 [kg]

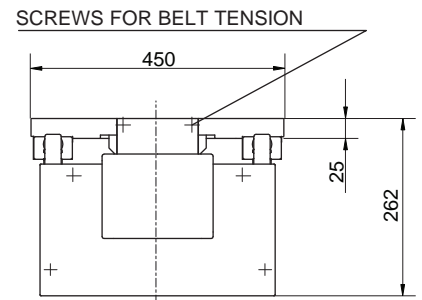
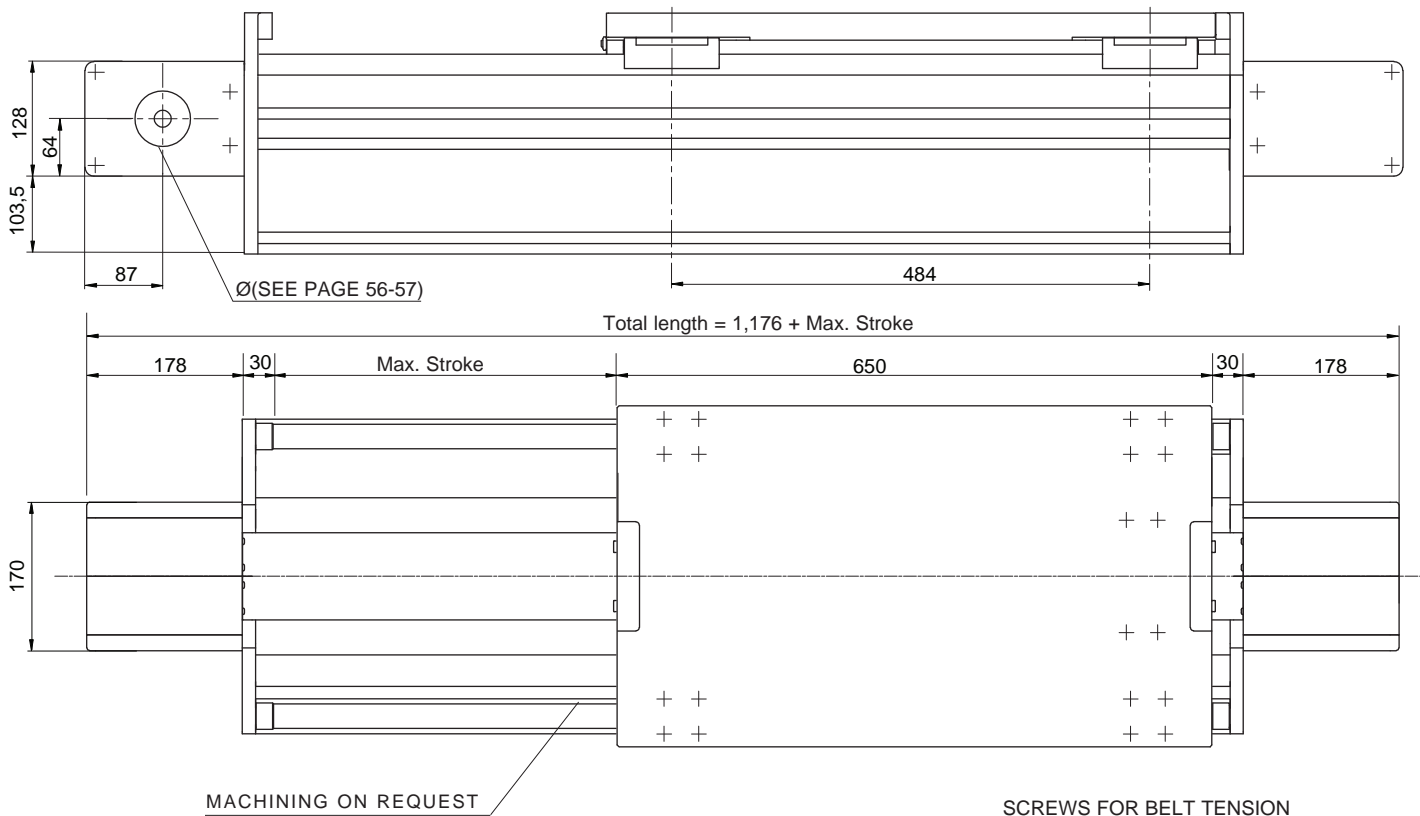


F<sub>x</sub>= Max belt strength

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

Registered model

Accessories: see page 11



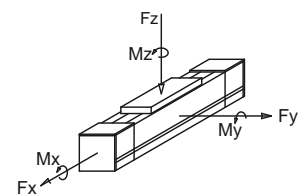
\* Versions with a 150 mm belt are also available. (TCSE360)

Performances	TCH 360	TCS 360	
Max. stroke	11,480	11,485	[mm]
Max. speed	5	5	[m/s]
Max. acceleration	50	50	[m/s <sup>2</sup> ]
Repeatability	± 0.1	± 0.1	[mm]
Loadless torque	8.3	8.3	[Nm]

### Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

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

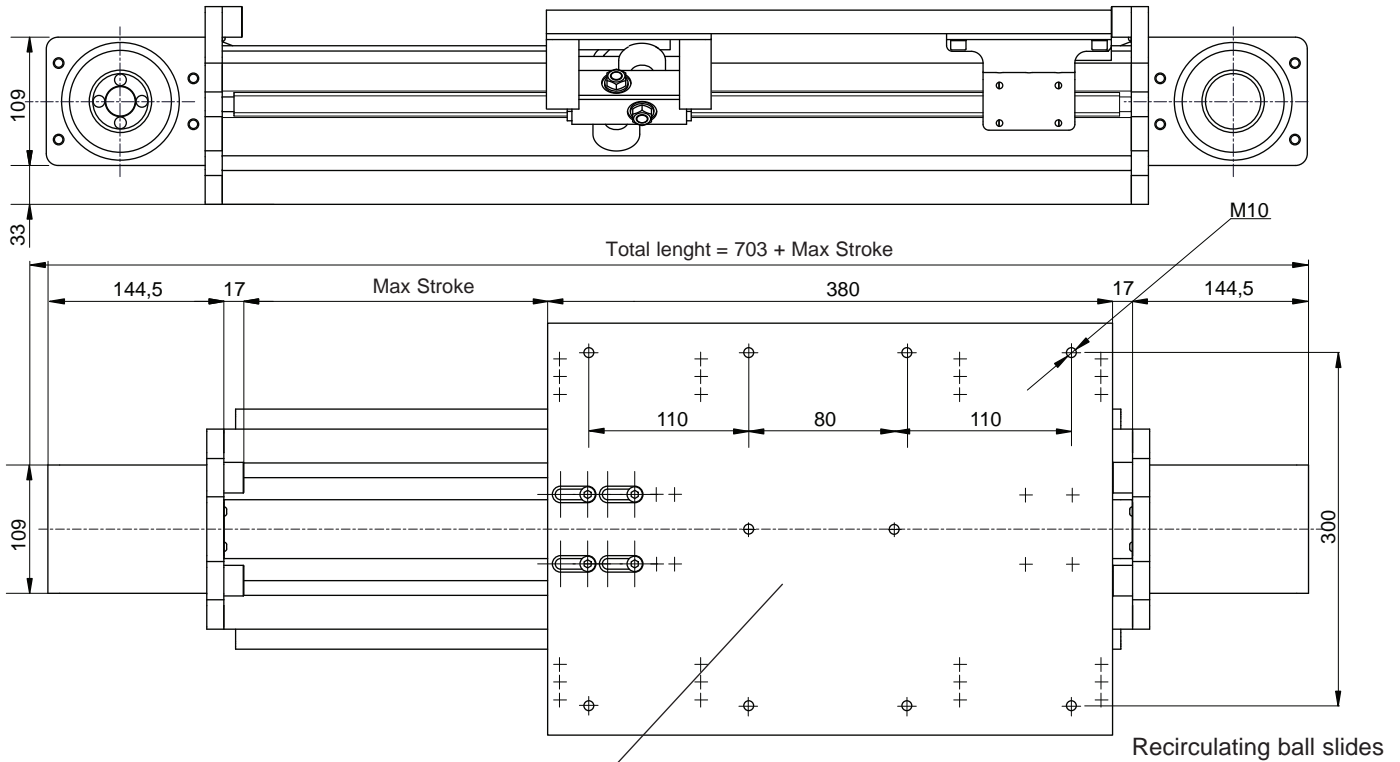


F<sub>x</sub>= Max belt strength

Data	TCH 360 - TCS 360
Belt	100 ATL 10
Slide	4 caged ball roller slides 30
Load bearing profile	Solyda (see page 15)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	TCH 360 - TCS 360
Inertia of the pulley	0.0082 [kgm <sup>2</sup> ]
Belt weight	1.02 [kg/m]
Carriage weight	28 [kg]
Base module (stroke=0)	M <sub>base</sub> =105 [kg]
1,000 mm profile	q= 70 [kg]

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



Coupling with ZC type module assembled at right angles: in the case of ZCR-ZCL unit assembly (see from pg. 44 to 55 of the Modline manual) the plate will be provided with notches and holes. Indicate the assembly side.

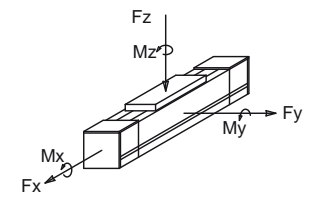
Performances	TECR 170	TECH 170	
Max stroke	5.560	5.560	[mm]
Max speed	5	4	[m/s]
Max acceleration	15	20	[m/s <sup>2</sup> ]
Repositioning accuracy	± 0.1	± 0.1	[mm]
Loadless torque	4.2	4.8	[Nm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
TECR 170	620	1.600	1.600	4.000	6.000	6.000
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.

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
Pulley Ø	95,49 [mm]
Linear displacement per revolution	300 [mm]

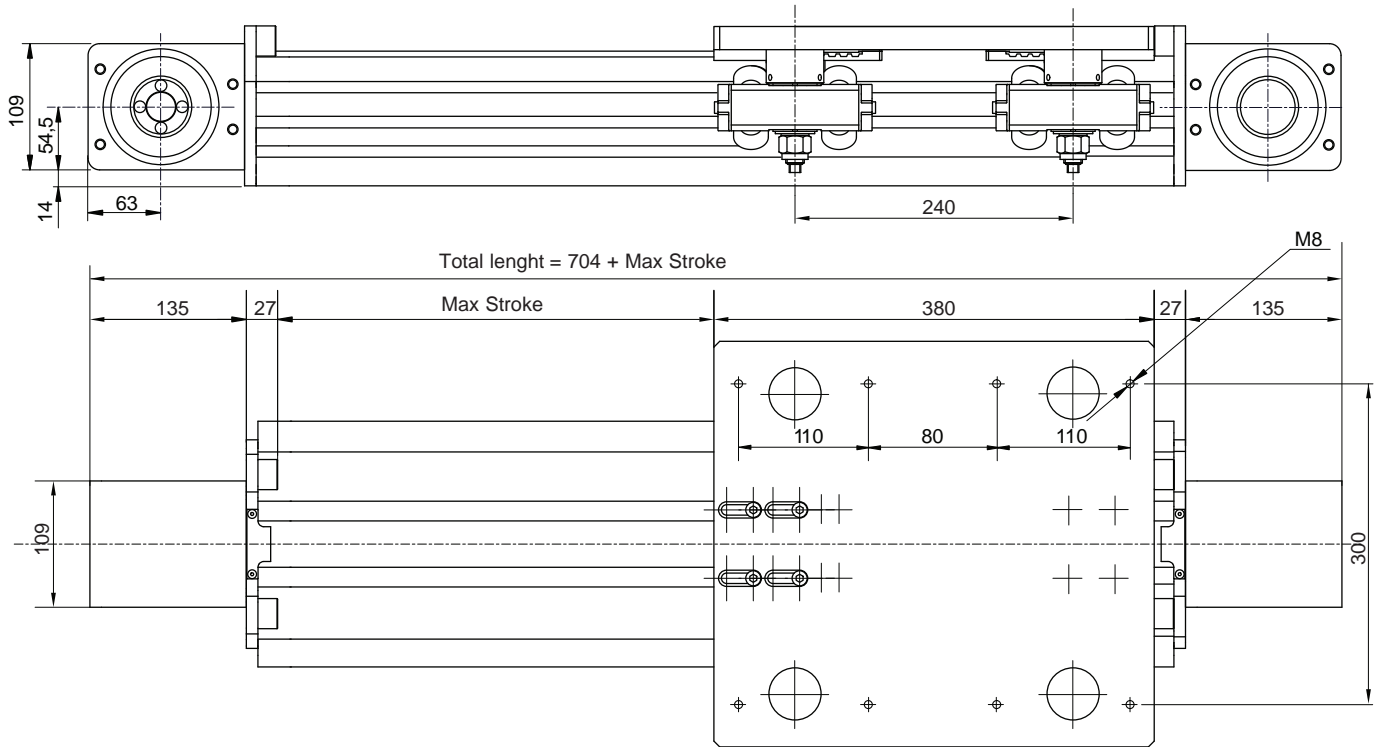
Weight	TECH 170 - TECR 170
Inertia of the pulley	0,0053 [kgm <sup>2</sup> ]
Belt weight	0,68 [kg/m]
Carriage weight	8,6 [kg]
Base module (corsa=0)	M <sub>base</sub> = 38 [kg]
1.000 mm profile	q=23 [kg]



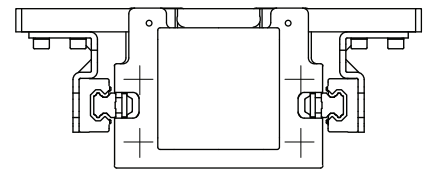
F<sub>x</sub>= Max belt strenght

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot \text{Stroke}_{max} / 1.000 \text{ Stroke}_{max} [\text{mm}]$

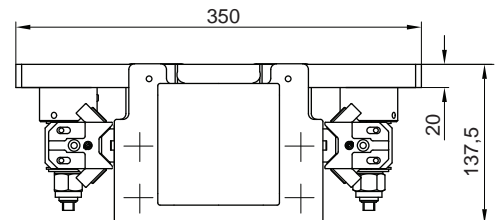
Patent pending



Recirculating ball slides



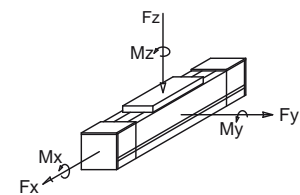
Roller slides



Performances	TECRR 180	
Max stroke	7.480	[mm]
Max speed	5	[m/s]
Max acceleration	20	[m/s <sup>2</sup> ]
Repositioning accuracy	± 0,1*	[mm]
Loadless torque	4,2	[Nm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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.

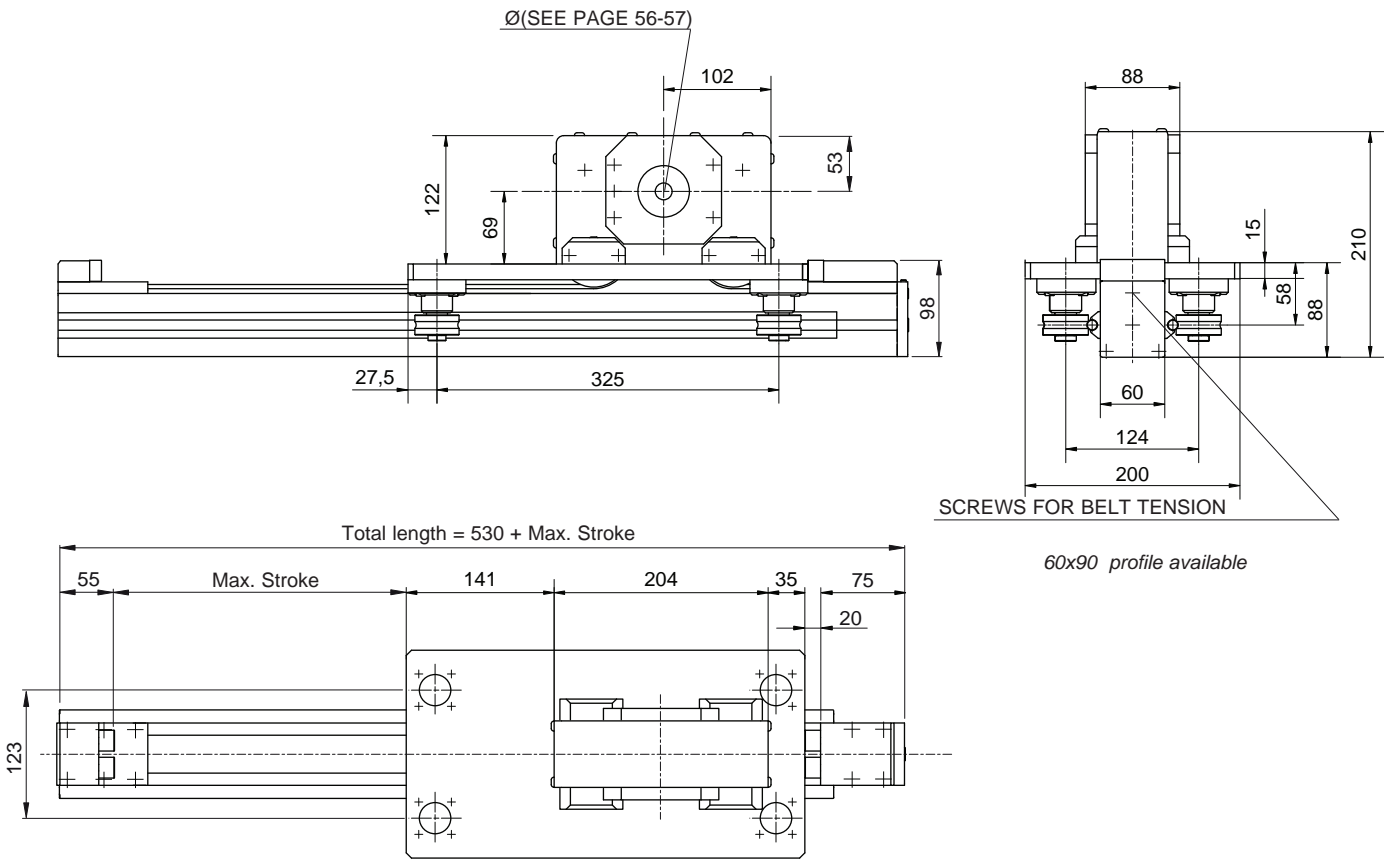


F<sub>x</sub>= Max belt strenght

Constructive data	
Belt	40ATL10
Sliding	4 slides 4 rollen Ø30 [mm]
Profile	180x90
Pulley Ø	92,31 [mm]
Linear displacement per revolution	290 [mm]

Weight	
Inertia of the pulley	0,0037 [kgm <sup>2</sup> ]
Belt weight	0,55 [kg/m]
Carriage weight	13 [kg]
Base module (stroke=0)	M <sub>base</sub> =33 [kg]
1.000 mm profile	q=16 [kg]

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot \text{Stroke}_{max} / 1.000 \text{ Stroke}_{max}$  [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	ZCG 60	
Max. stroke	5,470	[mm]
Max. speed	4	[m/s]
Max. acceration	20	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCG 60	60	200	340	2,000	2,100	1,500

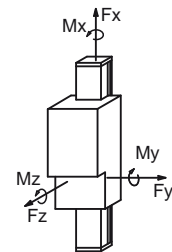
The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery. In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page 10

Data	
Belt	32AT10
Slide	4 shaped roller slides Ø 42 [mm]
Load bearing profile	F01-1 (see page 12)
Pulley Ø	70.03 [mm]
Linear displacement per rev.	220 [mm]

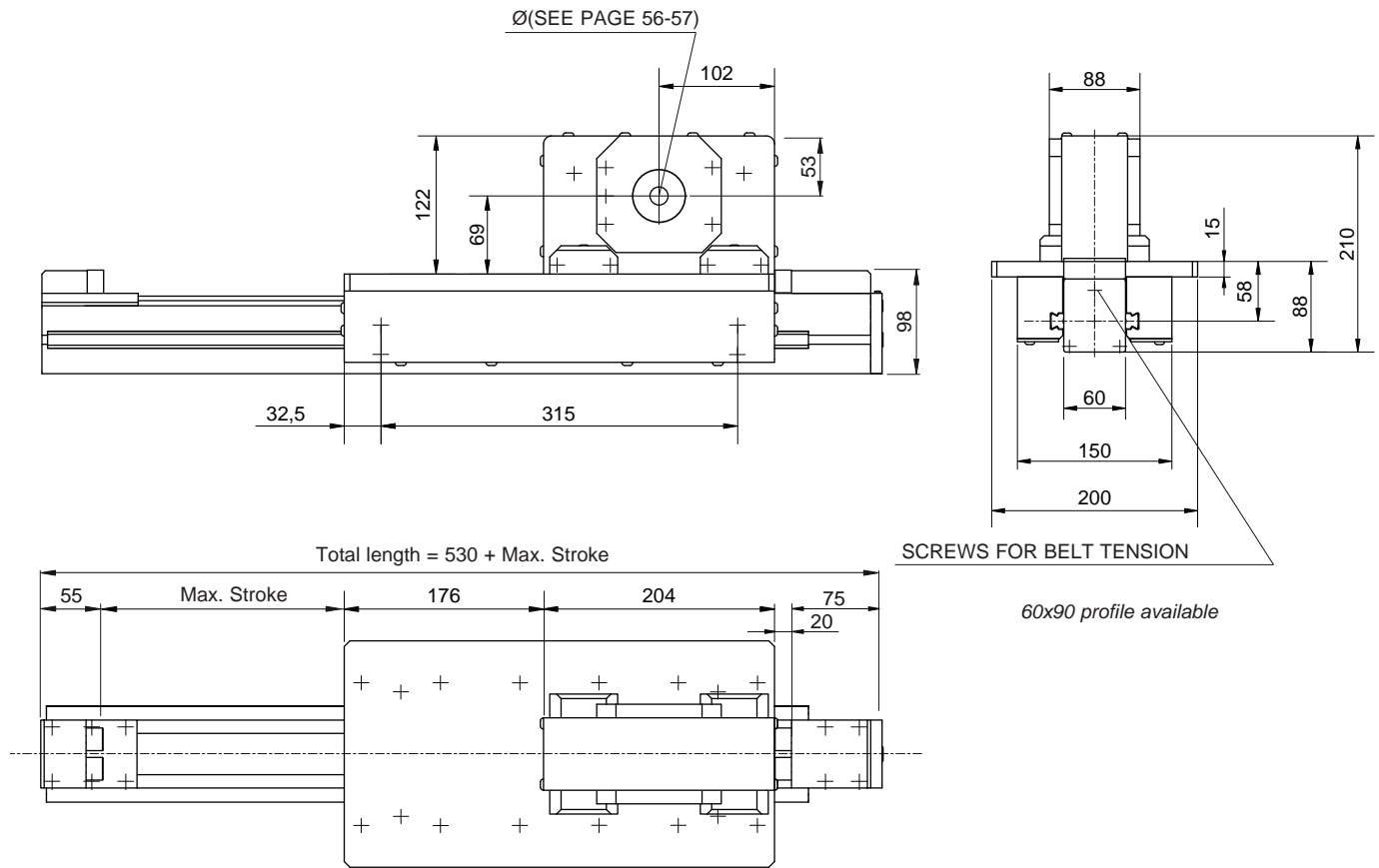
Weights	
Inertia of the pulley	0.0013 [kgm <sup>2</sup> ]
Belt weight	0.19 [kg/m]
Carriage weight	10 [kg]
Base module (stroke=0)	M <sub>base</sub> =14 [kg]
1,000 mm profile	q=6 [kg]

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



F<sub>x</sub>= Max belt strength

Accessories: see page 11



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 60	
Max. stroke	5,470	[mm]
Max. speed	4	[m/s]
Max. acceleration	40	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]

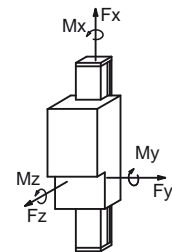
Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCL 60	151	570	630	2,000	4,180	3,740

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

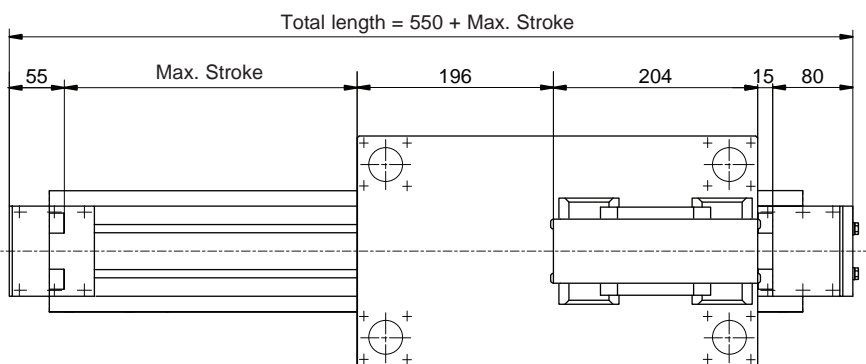
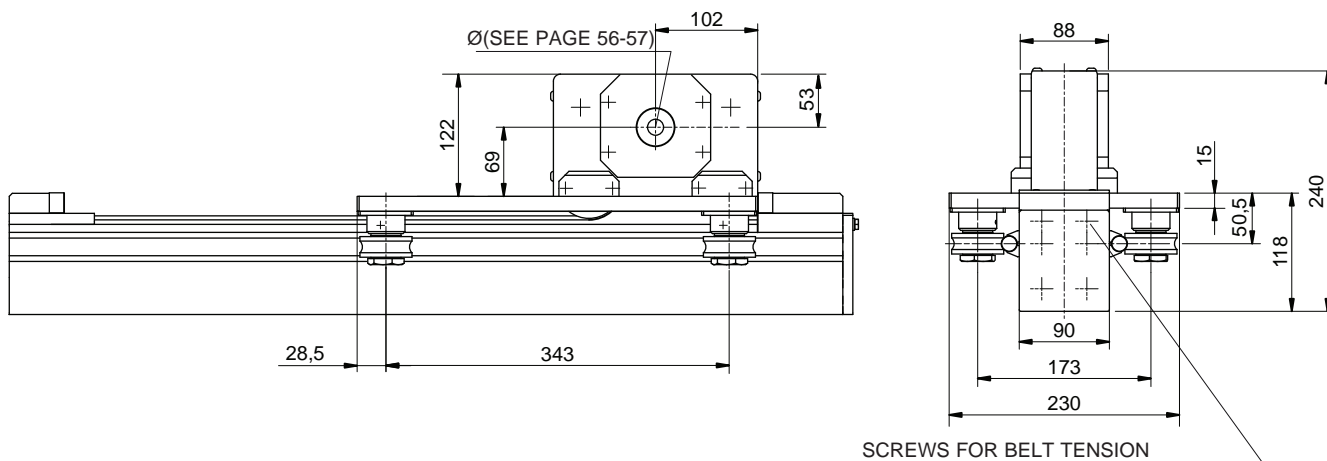
Data	
Belt	32AT10
Slide	4 caged ball roller slides 15
Load bearing profile	F01-1 (see page 12)
Pulley Ø	70.03 [mm]
Linear displacement per rev.	220 [mm]

Weights	
Inertia of the pulley	0.0013 [kgm <sup>2</sup> ]
Belt weight	0.19 [kg/m]
Carriage weight	11 [kg]
Base module (stroke=0)	M <sub>base</sub> =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<sub>max</sub> [mm]



F<sub>x</sub> = Max belt strength



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.

Performances	ZCG 90	
Max. stroke	5,450	[mm]
Max. speed	4	[m/s]
Max. acceleration	15	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCG 90	120	400	540	2,000	3,400	1,800

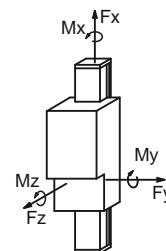
The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery. In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page 10

Data	
Belt	32AT10
Slide	4 shap. r. Ø52 - guide Ø16
Load bearing profile	E01-4 (see page 12)
Pulley Ø	70.03 [mm]
Linear displacement per rev.	220 [mm]

Weights	
Inertia of the pulley	0.0013 [kgm <sup>2</sup> ]
Belt weight	0.19 [kg/m]
Carriage weight	10.5 [kg]
Base module (stroke=0)	M <sub>base</sub> =16 [kg]
1.000 mm profile	q=8.5 [kg]

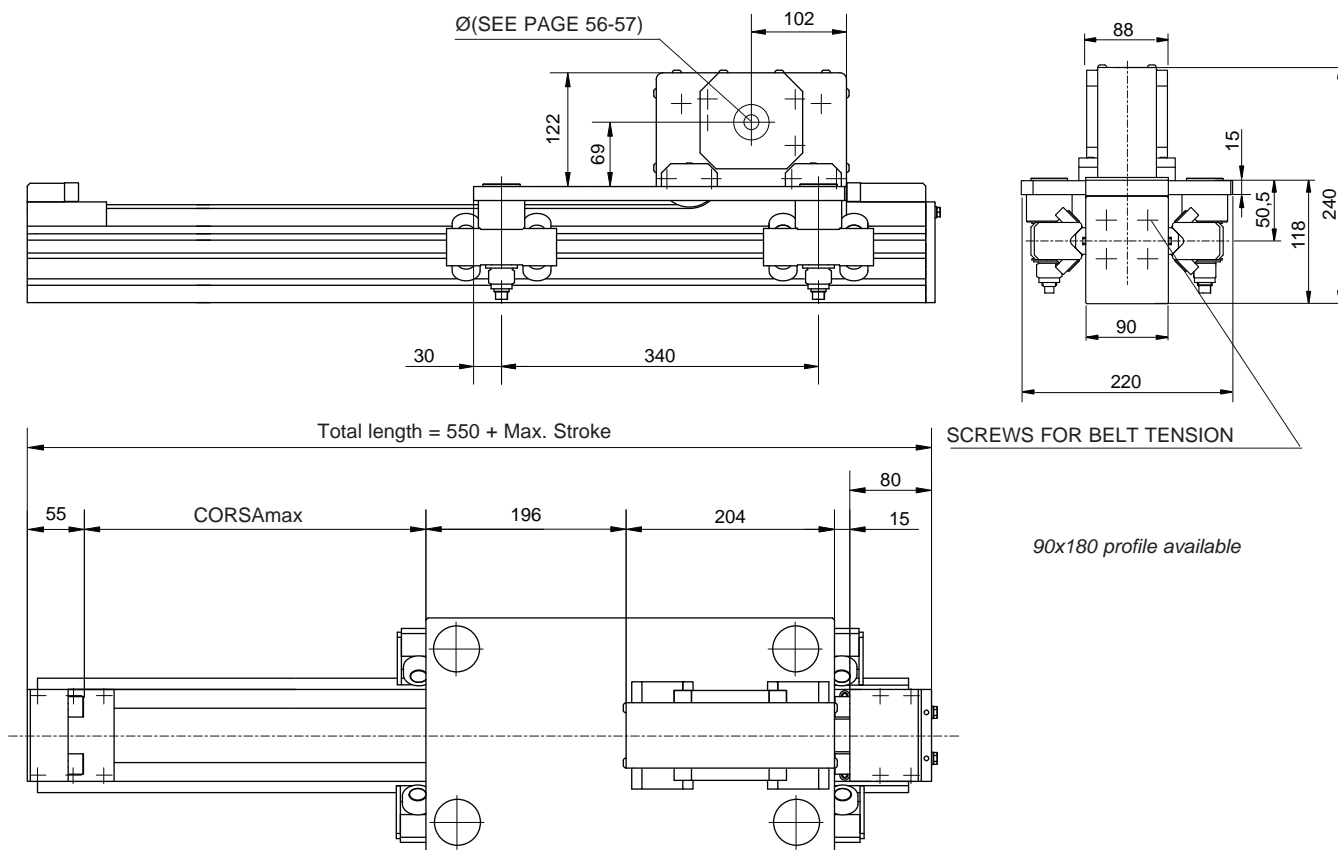
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]



F<sub>x</sub> = Max belt strength



Accessories: see page 11



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	ZCRR 90	
Max. stroke	5,450	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCRR 90	300	1,000	1,000	2,000	6,700	6,700

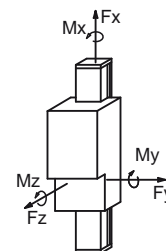
The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery. In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page 10

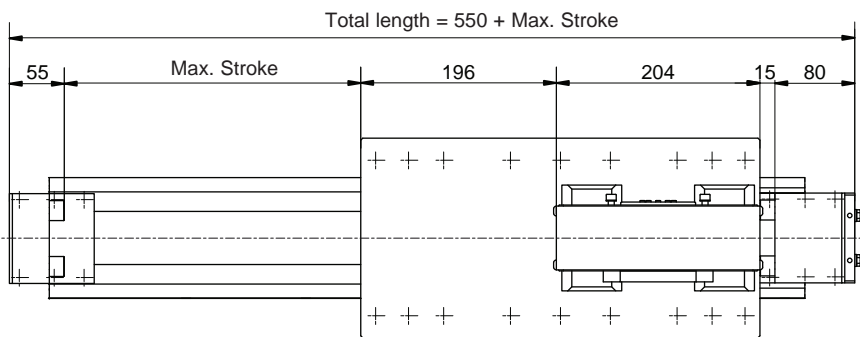
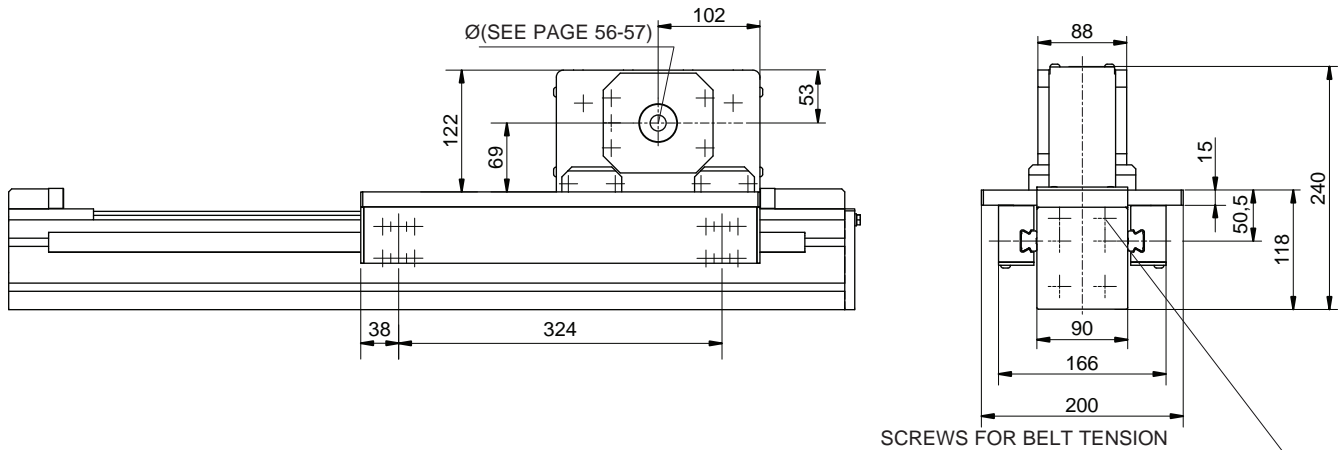
Data	
Belt	32 AT 10
Slide	4 slides 4 roll. Ø30 [mm]
Load bearing profile	E01-4 (see page 12)
Pulley Ø	70.03 [mm]
Linear displacement per rev.	220 [mm]

Weights		
Inertia of the pulley	0.0013	[kgm <sup>2</sup> ]
Belt weight	0.21	[kg/m]
Carriage weight	13	[kg]
Base module (stroke=0)	M <sub>base</sub> = 20	[kg]
1,000 mm profile	q=11.2	[kg]

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



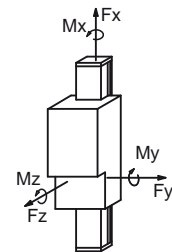
F<sub>x</sub> = Max belt strength



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.

Performances	ZCL 90	
Max. stroke	5,450	[mm]
Max. speed	4	[m/s]
Max. acceleration	20	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]



Fx= Max belt strength

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

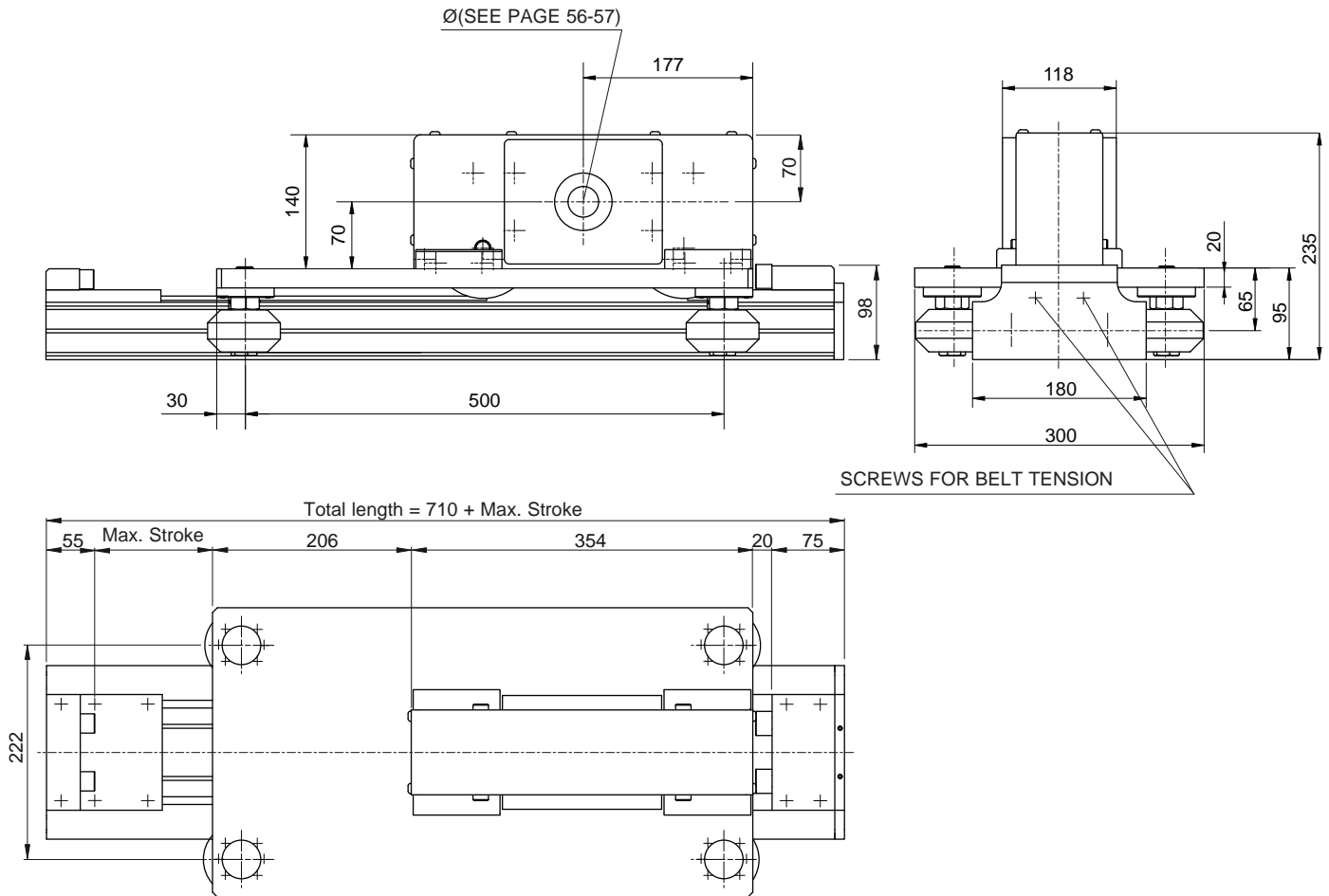
Data	
Belt	32AT10
Slide	4 caged ball roller slides 20
Load bearing profile	E01-4 (see page 12)
Pulley Ø	70.03 [mm]
Linear displacement per rev.	220 [mm]

Weights		
Inertia of the pulley	0.0013	[kgm <sup>2</sup> ]
Belt weight	0.19	[kg/m]
Carriage weight	11.5	[kg]
Base module (stroke=0)	M <sub>base</sub> =18.5	[kg]
1,000 mm profile	q=11.5	[kg]

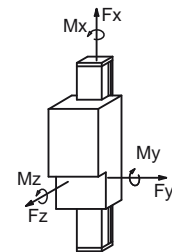
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]

Registered model

Accessories: see page 11



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 <sup>2</sup> ]
Repeatability	± 0.6	[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCY 180	220	350	280	3,000	2,400	1,800

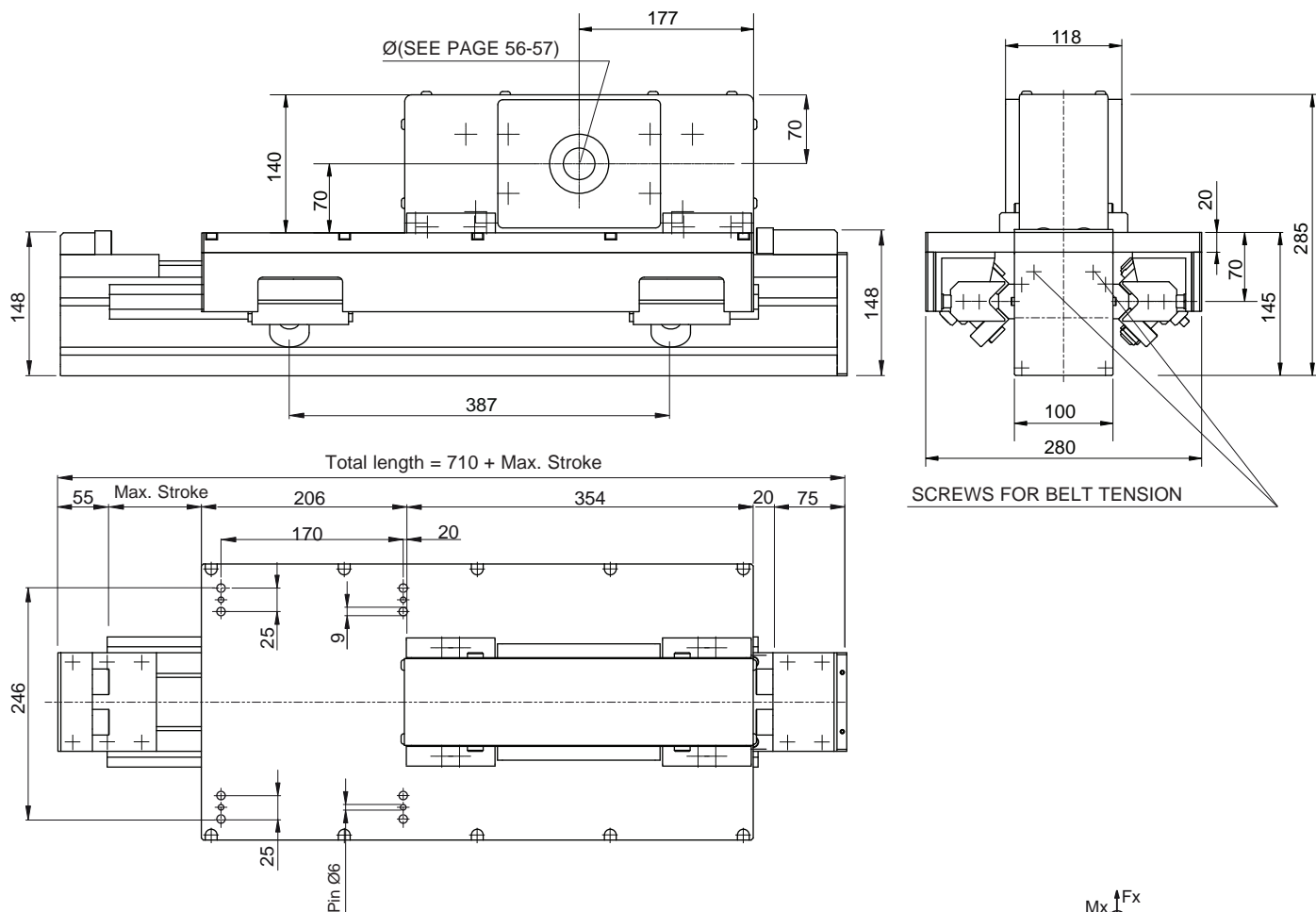
The dynamic values shown do not refer to the max. theoretical load capacity. They include a safety coefficient for automated machinery. In case of peak forces acting together please ask the technical dept

Assembly positions and load direction, see page 10

Data	
Belt	50ATL10
Slide	4 Rollers Ø 76 [mm]
Load bearing profile	Sys -1G (see page 15)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	
Inertia of the pulley	0.0067 [kgm <sup>2</sup> ]
Belt weight	0.34 [kg/m]
Carriage weight	23.2 [kg]
Base module (stroke=0)	M <sub>base</sub> =33.5 [kg]
1,000 mm profile	q=12.5 [kg]

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [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 <sup>2</sup> ]
Repeatability	± 0.1	[mm]

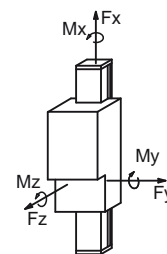
Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCRQ 100	360	1,200	1,200	4,000	7,320	7,320

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 10

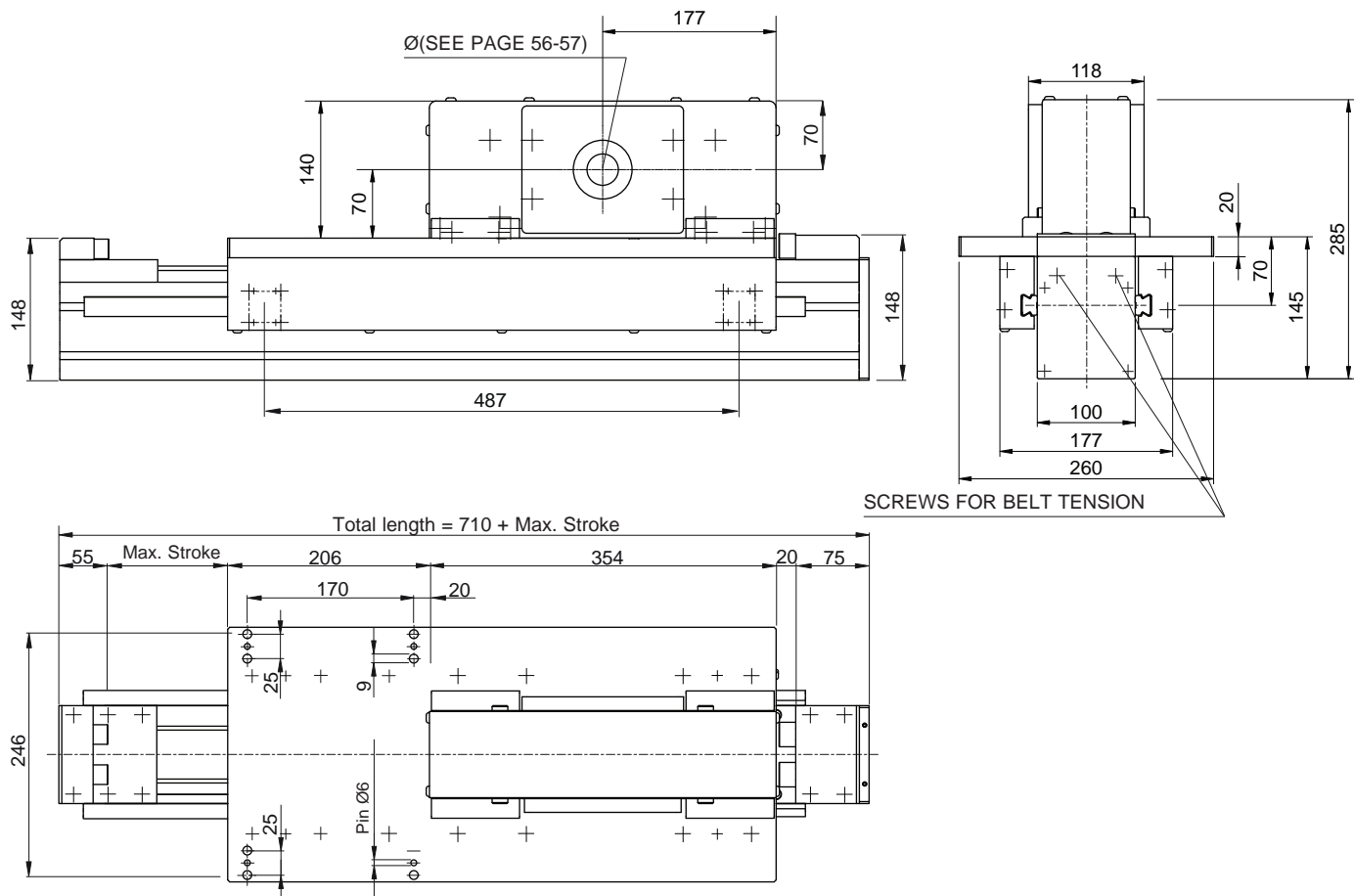
Data	
Belt	50 ATL 10
Slide	4 slides 2 roll. Ø 40[mm]
Load bearing profile	MA 1-5 (see page 13)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights	
Inertia of the pulley	0.0067 [kgm <sup>2</sup> ]
Belt weight	0.34 [kg/m]
Carriage weight	25 [kg]
Base module (stroke=0)	M <sub>base</sub> =36.5 [kg]
1,000 mm di profile	q=16.5 [kg]



F<sub>x</sub>= Max belt strength

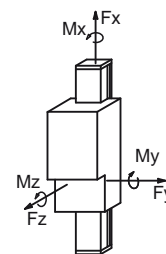
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]



SCREWS FOR BELT TENSION

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 100	
Max. stroke	5,300	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]



Fx= Max belt strength

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCL 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

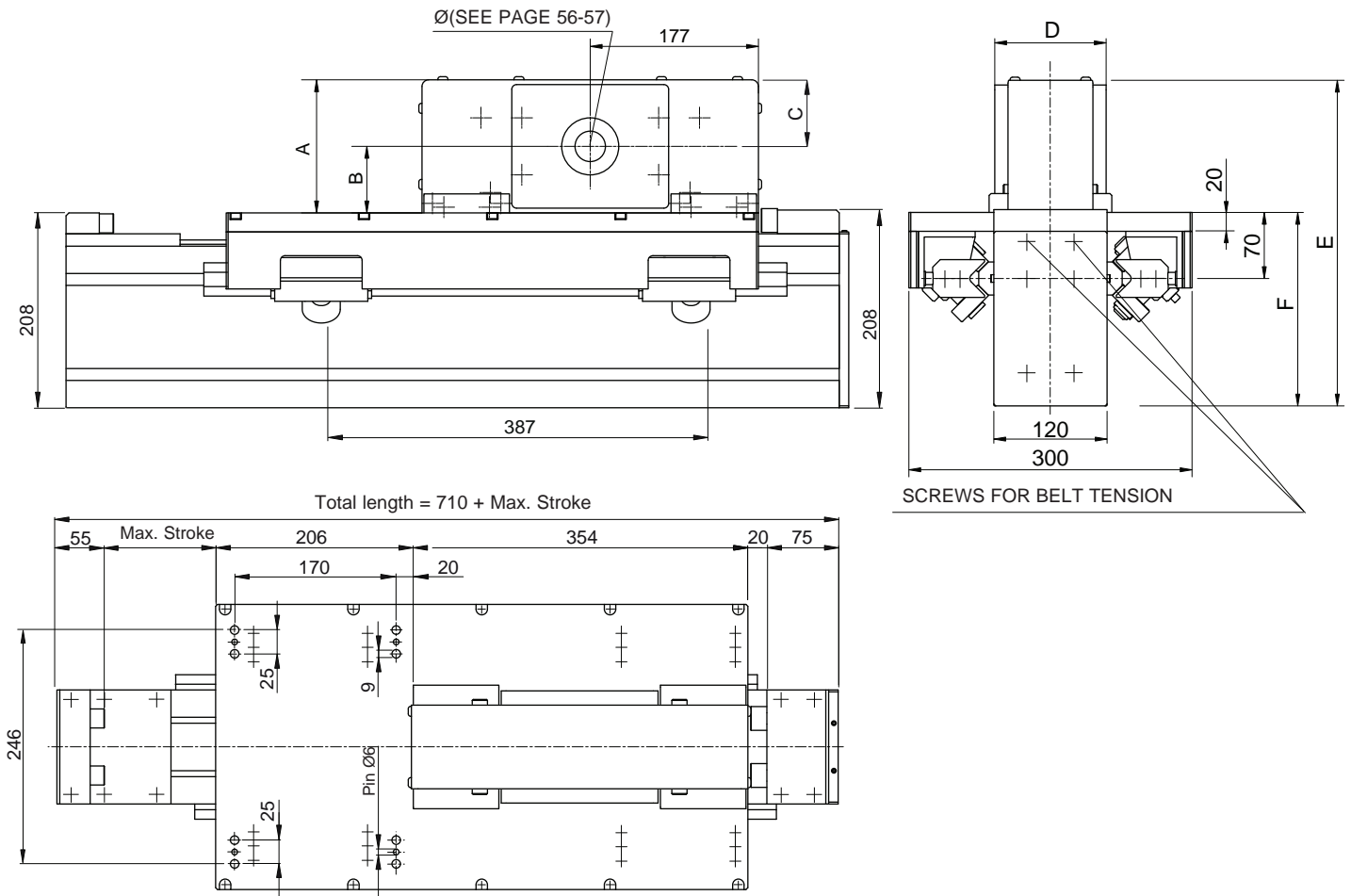
Data	
Belt	50 ATL 10
Slide	4 caged ball roller slides 20
Load bearing profile	MA 1-5 (see page 13)
Pulley Ø	95.49 [mm]
Linear displacement per rev.	300 [mm]

Weights		
Inertia of the pulley	0.0067	[kgm <sup>2</sup> ]
Belt weight	0.34	[kg/m]
Carriage weight	24.4	[kg]
Base module (stroke=0)	M <sub>base</sub> =36.6	[kg]
1,000 mm profile	q=15.2	[kg]

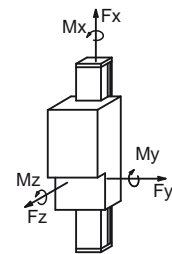
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]

# ZCRQ 170 - ZCERQ 170

OMEGA BELT DRIVE  
V-SHAPED GUIDE RAILS AND ROLLER SLIDES  
SUITABLE FOR VERTICAL AND HORIZONTAL ASSEMBLY



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.



F<sub>x</sub> = Max belt strength

## Performances ZCRQ 170 - ZCERQ 170

Max. stroke	5,300	[mm]
Max. speed	4	[m/s]
Max. acceleration	25	[m/s <sup>2</sup> ]
Repeatability	± 0.1	[mm]

## Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

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 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 14)	
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 <sup>2</sup> ]
Belt weight	0.34	0.51 [kg/m]
Carriage weight	27.6	32 [kg]
Base module (stroke=0)	M <sub>base</sub> =47	M <sub>base</sub> =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<sub>max</sub> [mm]

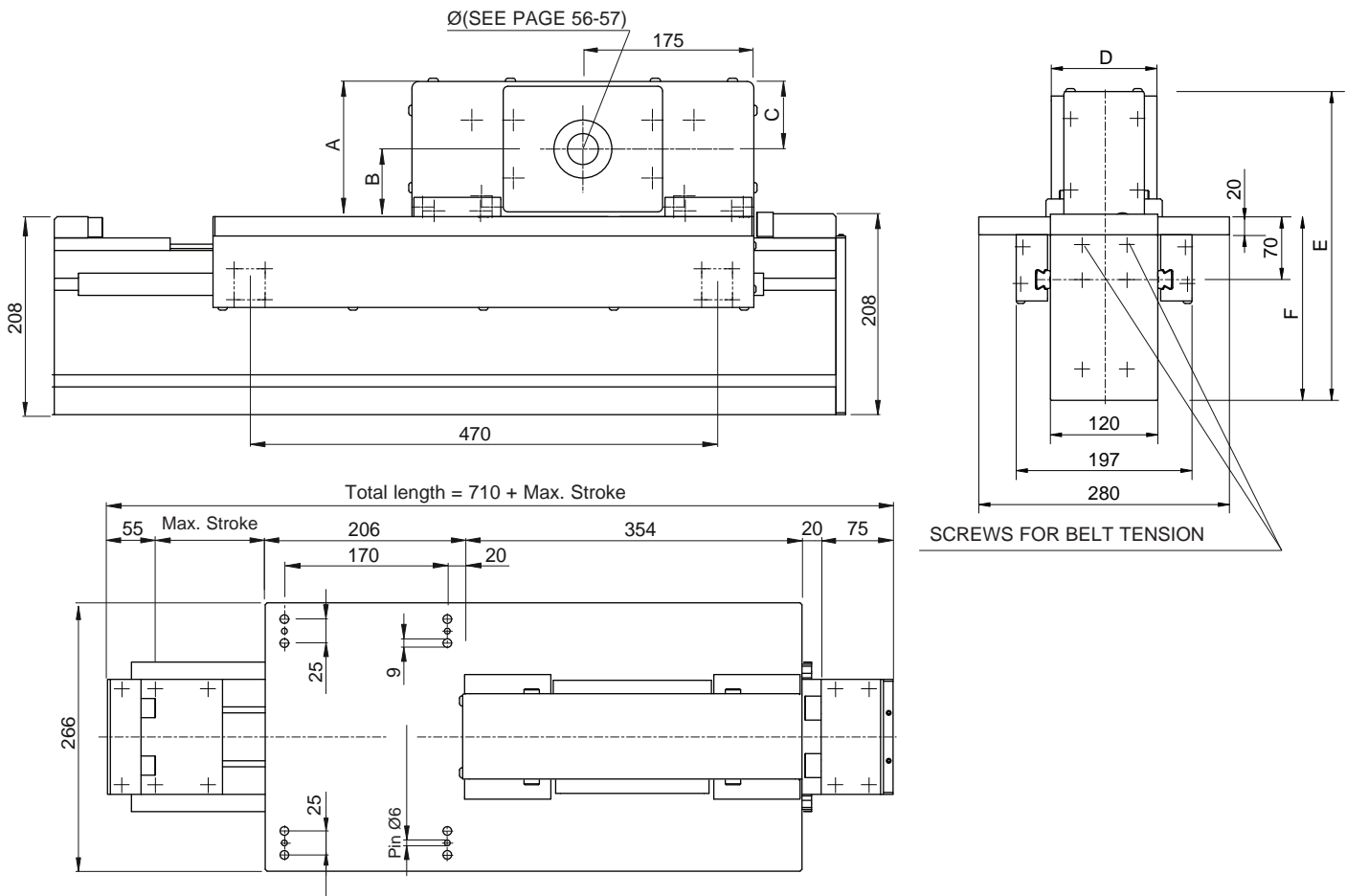
# ZCL 170 - ZCEL 170

## OMEGA BELT DRIVE GUIDE RAILS WITH CAGED BALL ROLLER SLIDES

Modline

SUITABLE FOR VERTICAL AND HORIZONTAL ASSEMBLY

Accessories: see page 11



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 <sup>2</sup> ]
Repeatability	± 0.1	[mm]

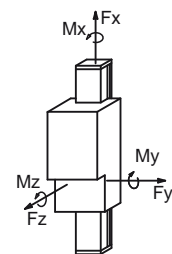
### Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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

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	ZCL 170	ZCEL 170
Belt	50 ATL 10	75 ATL 10
Slide	4 caged ball roller slides 25	
Load bearing profile	Statyca	(see page 14)
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 <sup>2</sup> ]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	27.6	31.6	[kg]
Base module (stroke=0)	M <sub>base</sub> =46.2	M <sub>base</sub> =50.2	[kg]
1,000 mm profile	q=24	q=24	[kg]



F<sub>x</sub> = Max belt strength

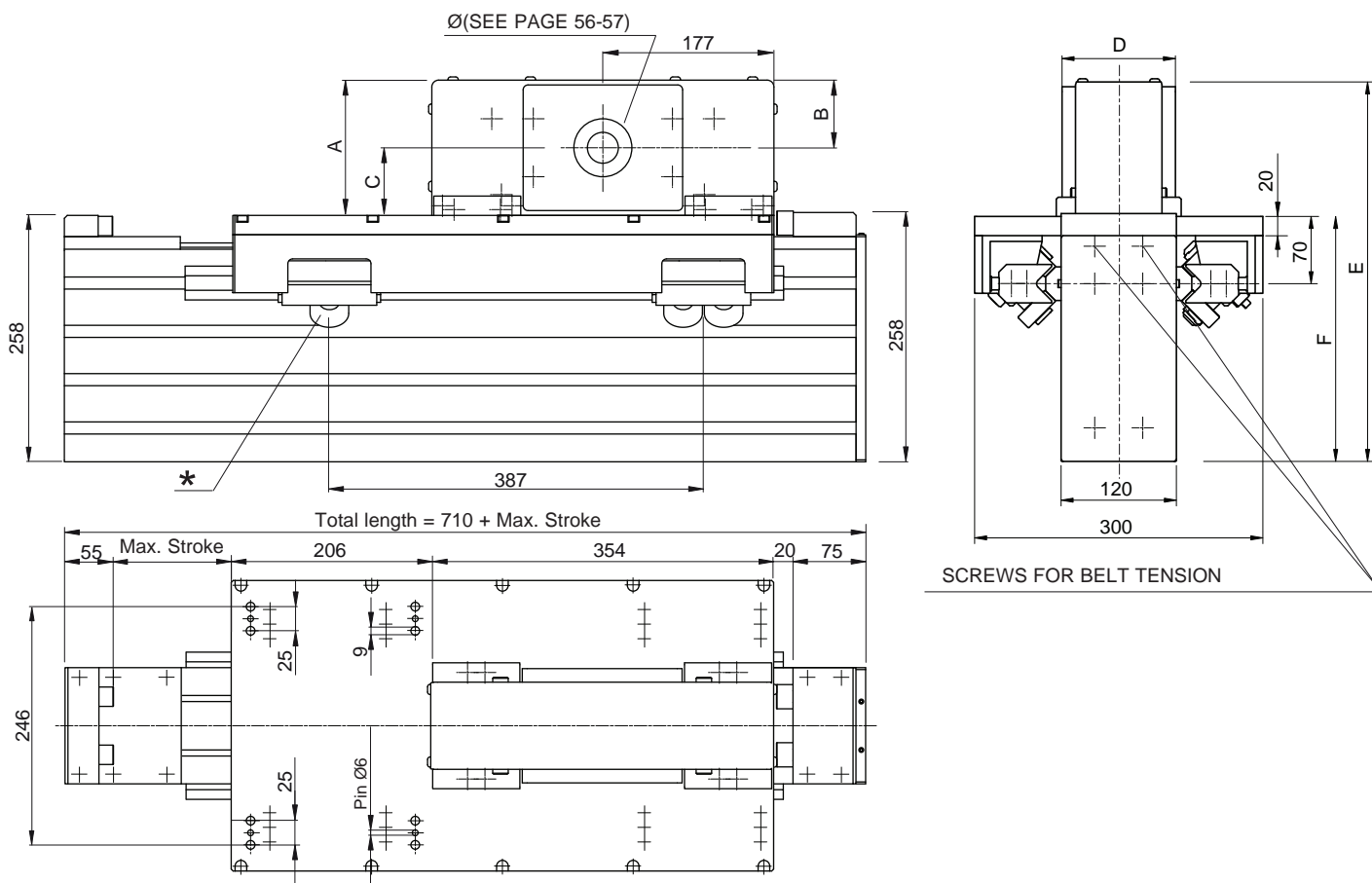
Belt	A	B	C	D	E	F
50	140	70	70	118	345	205
75	164	82	82	143	379	215

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

# ZCRQ 220 - ZCERQ 220

OMEGA BELT DRIVE  
V-SHAPED GUIDE RAILS AND ROLLER SLIDES

SUITABLE FOR VERTICAL AND HORIZONTAL ASSEMBLY  
Accessories: see page 11



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 <sup>2</sup> ]
Repeatability	± 0.1	[mm]

## Suggested working load conditions

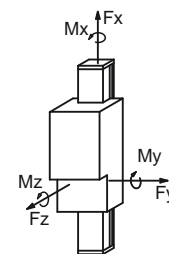
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZCRQ 220	440	1,900(*)	1,485	4,000	7,620	9,500(*)
ZCERQ 220	440	1,900(*)	1,485	6,000	7,620	9,500(*)

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 10

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 14)
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 <sup>2</sup> ]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	26	30	[kg]
Base module (stroke=0)	M <sub>base</sub> =52	M <sub>base</sub> =56	[kg]
1,000 mm profile	q=33.6	q=34	[kg]



F<sub>x</sub>= Max belt strength

Belt	A	B	C	D	E	F
50	140	70	70	118	395	255
75	164	82	82	143	429	265

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

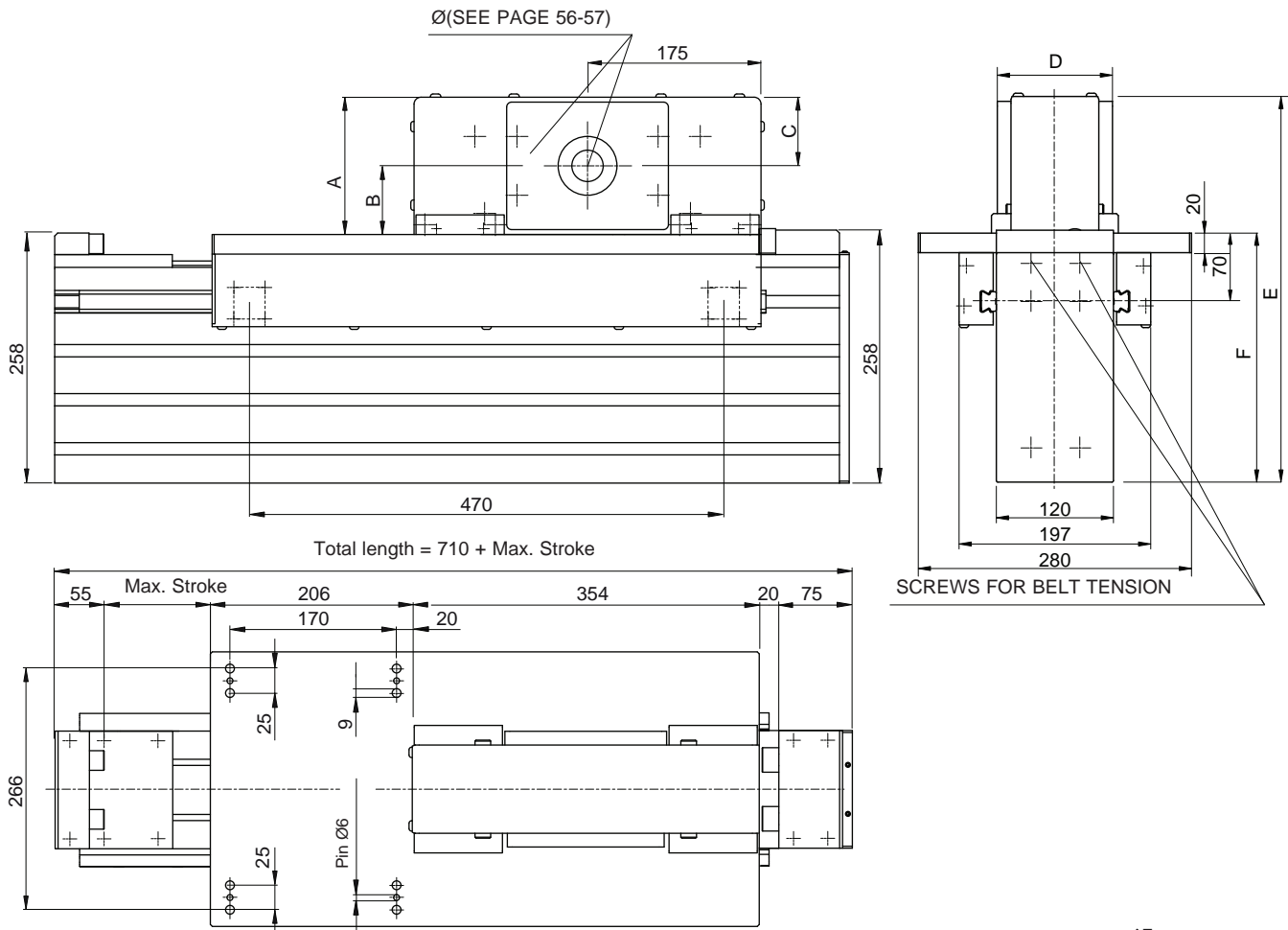


# ZCL 220 - ZCEL 220

OMEGA BELT DRIVE  
GUIDE RAILS WITH CAGED BALL ROLLER SLIDES

Modline

SUITABLE FOR VERTICAL AND HORIZONTAL ASSEMBLY  
Accessories: see page 11



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.

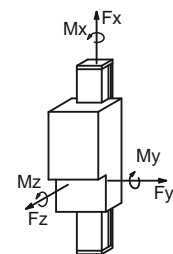
Performances		ZCL 220 - ZCEL 220	
Max. stroke	11,305	[mm]	
Max. speed	4	[m/s]	
Max. acceleration	25	[m/s <sup>2</sup> ]	
Repeatability	± 0.1	[mm]	

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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. They include a safety coefficient for automated machinery. In case of peak forces acting together please ask the technical dept

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 14)
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 <sup>2</sup> ]
Belt weight	0.34	0.51	[kg/m]
Carriage weight	27.5	37.5	[kg]
Base module (stroke=0)	M <sub>base</sub> =53	M <sub>base</sub> =57	[kg]
1,000 mm profile	q=32.3	q=32.7	[kg]



F<sub>x</sub>= Max belt strength

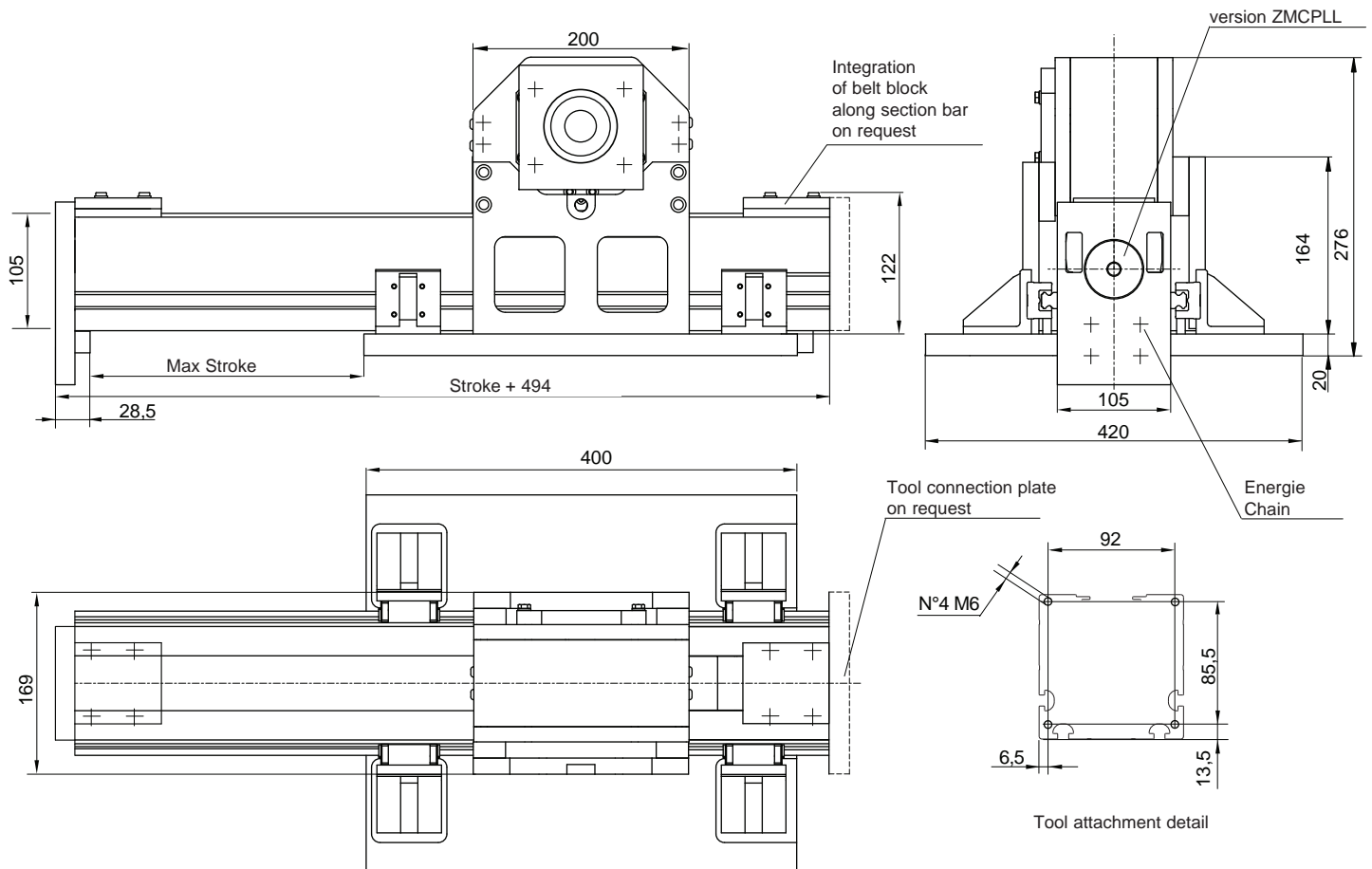
To calculate the module weight use the following formula:  $M = M_{base} + q \cdot stroke_{max} / 1,000$  Stroke<sub>max</sub> [mm]

# ZMCPLL 105 - ZMCLL 105

OMEGA BELT DRIVE SUITABLE FOR VERTICAL ASSEMBLY

Patent pending

LOAD COMPENSATION WITH INTEGRATED PNEUMATIC CYLINDER



## Performances ZMCPLL 105

Integrated pneumatic cylinder	Ø 50	[mm]
Maximum cylinder stroke	2000	[mm]
Max Speed	3	[m/s]
Maximum acceleration	25	[m/s <sup>2</sup> ]
Repositioning precision	± 0,1	[mm]

## Suggested working load conditions

Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [N]
ZMCPLL105	260	700	700	2.500	4.500	4.500

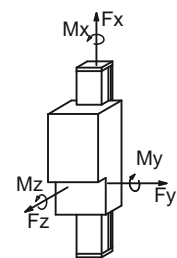
The dynamic values indicated do not correspond to maximum theoretical load capacities. They already take safety factors into account which are suitable for machinery in the automation sector. In the event of combined stress consult the technical support service.

## 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

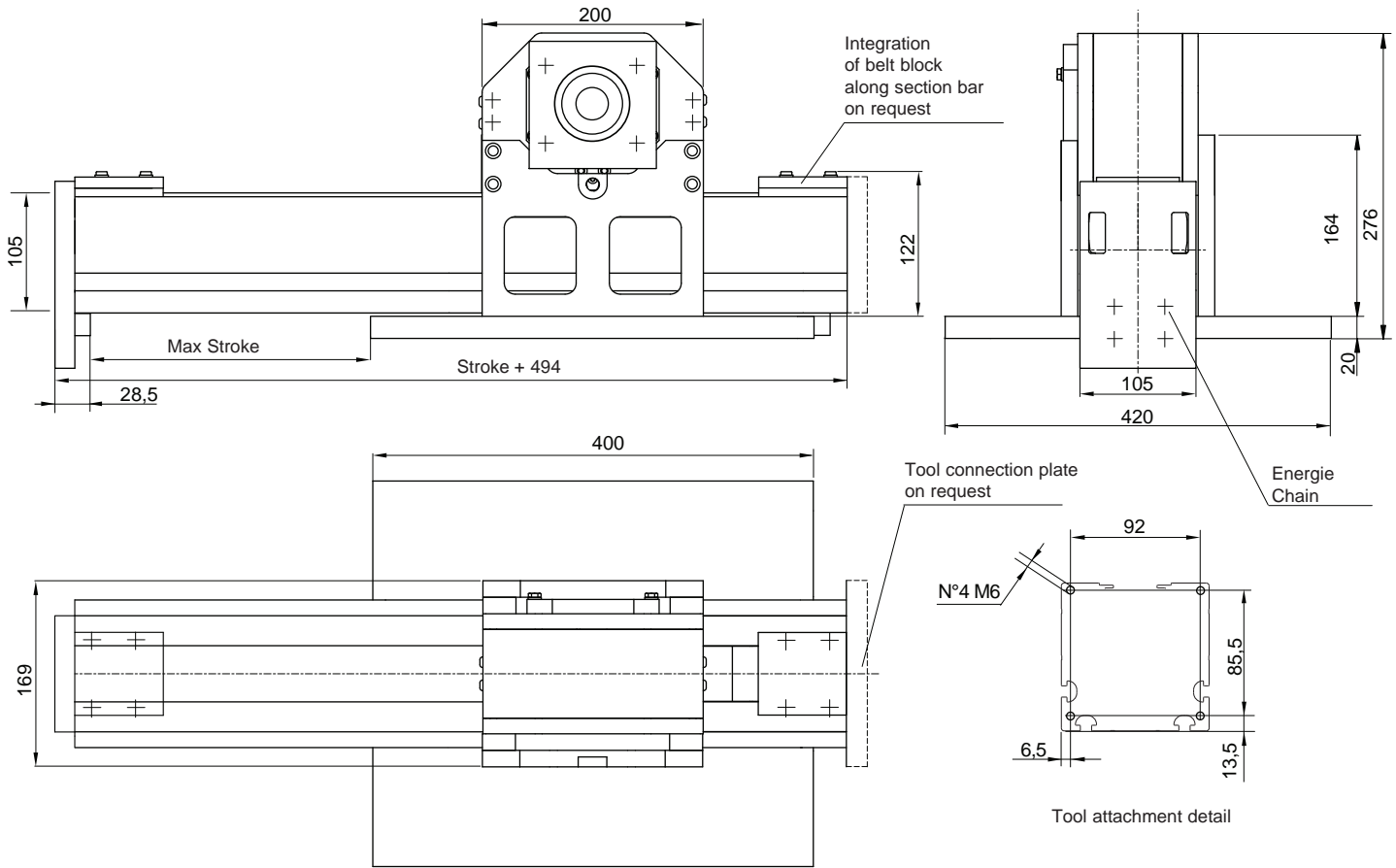
Inertia of the pulley	-	[kgm <sup>2</sup> ]
Belt weight	0,30	[kg/m]
Carriage weight	29	[kg]
Base Module (stroke=0)	M <sub>base</sub> = 37	[kg]
1.000 profile	q=15	[kg]



F<sub>x</sub>= Max belt strenght

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot \text{Stroke}_{max} / 1.000 \text{ Stroke}_{max} \text{ [mm]}$

Patent pending



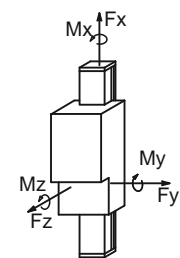
Performances	ZMCH 105	
Max Speed	3	[m/s]
Max Acceleration	25	[m/s <sup>2</sup> ]
Repositioning accuracy	± 0,1	[mm]

Suggested working load conditions						
Module	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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.

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 <sup>2</sup> ]
Belt weight	0,30 [kg/m]
Carriage weight	29 [kg]
Base module (stroke=0)	M <sub>base</sub> = 37 [kg]
1.000 mm profile	q=15 [kg]



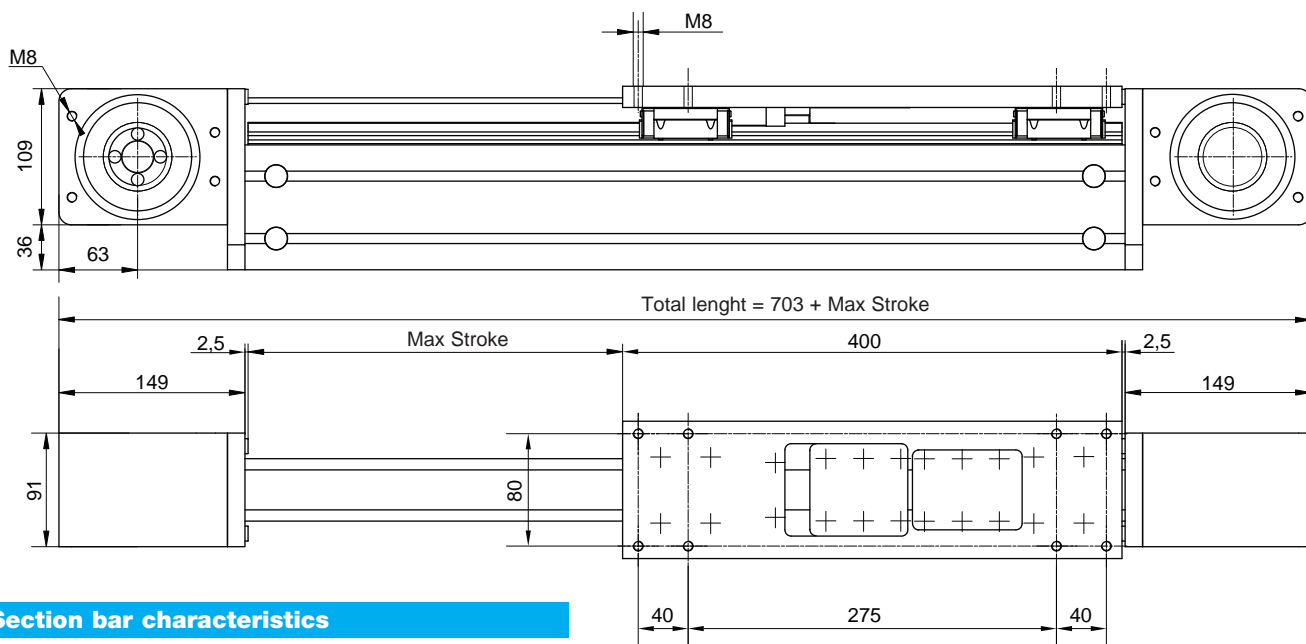
F<sub>x</sub> = Max belt strenght

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot Stroke_{max} / 1.000 \cdot Stroke_{max}$  [mm]

# SERIE K MODULES GEAR MOTOR ASSEMBLY POSSIBLE FROM EACH SIDE

## KCH 100/150/200

GEAR MOTOR ASSEMBLY POSSIBLE FROM EACH SIDE



### Section bar characteristics

Module	Mx	My	Weight [Kg]
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)  $\varnothing 14$  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)

### Performances

	KCH /...	
Max stroke	5.600	[mm]
Max speed	4	[m/s]
Max acceleration	50	[m/s <sup>2</sup> ]
Repositioning accuracy	$\pm 0,1^*$	[mm]
Loadless torque	-	[Nm]

\*on request  $\pm 0,05$

### Suggested working load conditions

Modulo	M <sub>x</sub> [Nm]	M <sub>y</sub> [Nm]	M <sub>z</sub> [Nm]	F <sub>x</sub> [N]	F <sub>y</sub> [N]	F <sub>z</sub> [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.

### Constructive data

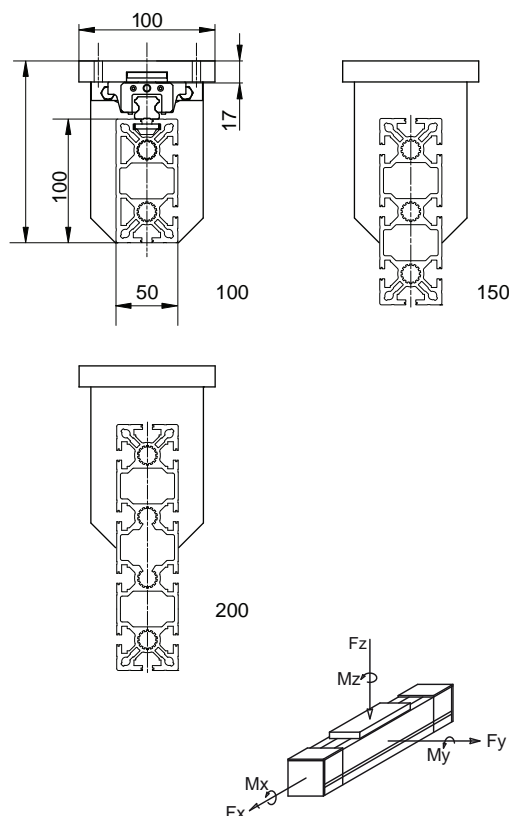
Belt	32AT10
Sliding	4 ball slides [mm]
Profile	50 x ...
Pulley $\varnothing$	70,03 [mm]
Linear displacement per revolution	220 [mm]
Colour	natural anodisation

### Weights

Inertia of the pulley	-	[kgm <sup>2</sup> ]
Belt weight	0,38	[kg/m]
Carriage weight	2,2	[kg]
Base module (stroke=0)	M <sub>base</sub> = 9	[kg]
1.000 mm profile	q=3 + profile	[kg]

To calculate the module weight use the following formula:  $M = M_{base} + q \cdot \text{Stroke}_{max} / 1.000 \text{ Stroke}_{max} \text{ [mm]}$

Sizes available

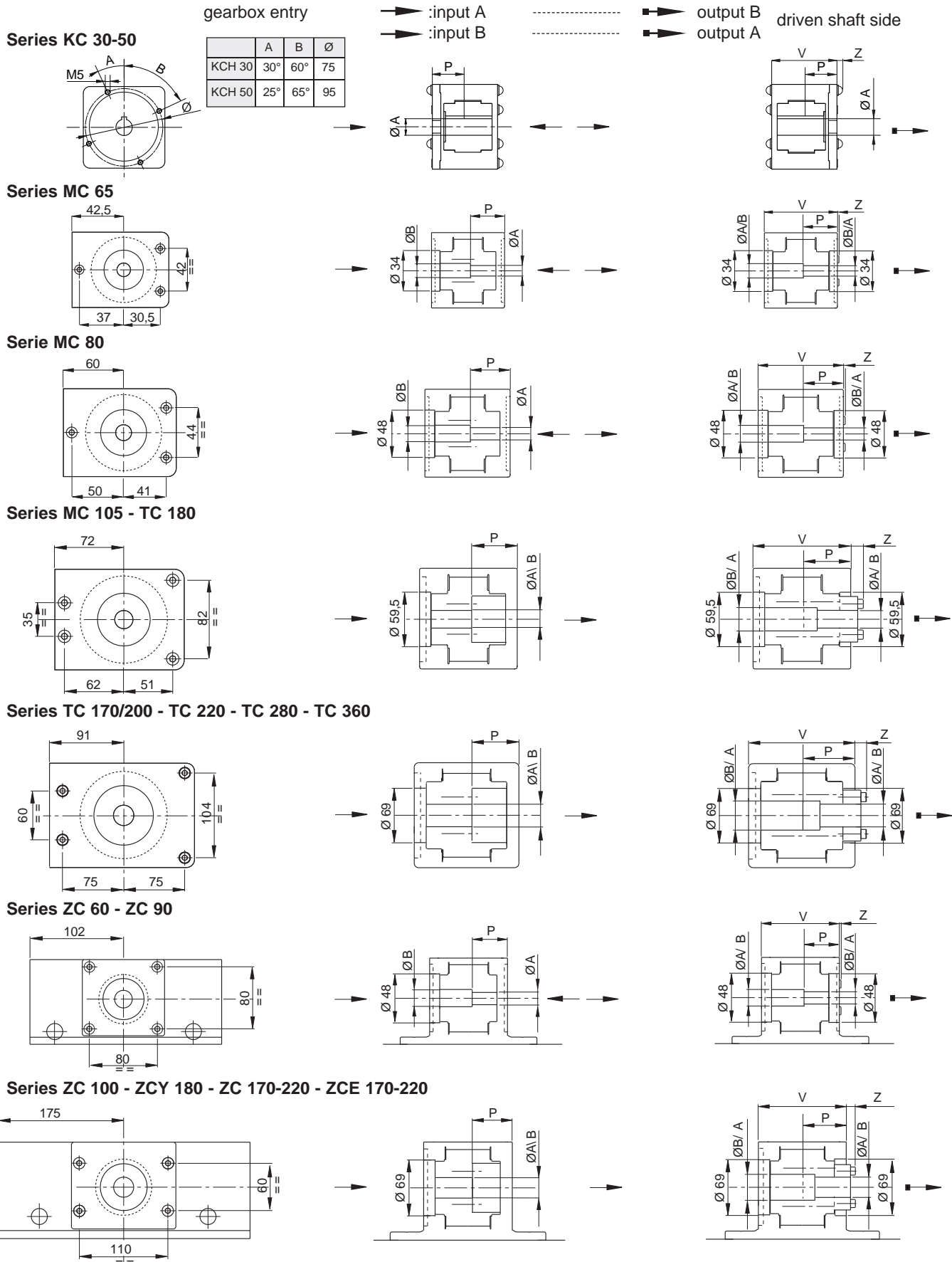


F<sub>x</sub> = Max belt strength

# 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 10 to identify the desired motor side (left or right); page 56 for shrink-disc and flange diameter and page 11 for the order code setting. Non-standard diameters are available upon request.



MLZ

Module	A Ø [mm]	B Ø [mm]	V [mm]	P [mm]	Z [mm]
KCH30 - KCH50	12H7		40	34	4
	14H7		68	34	4
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
TC 170 - TC 200		25H7	105	51	8
	25H7		117	54.5	12.5
TC 220 - TC 280 - TC 360		32H7	117	57.5	7
		40H7	142	79.5	12.5
	25H7		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	LP 050	35	12	44
KC 30-50	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.

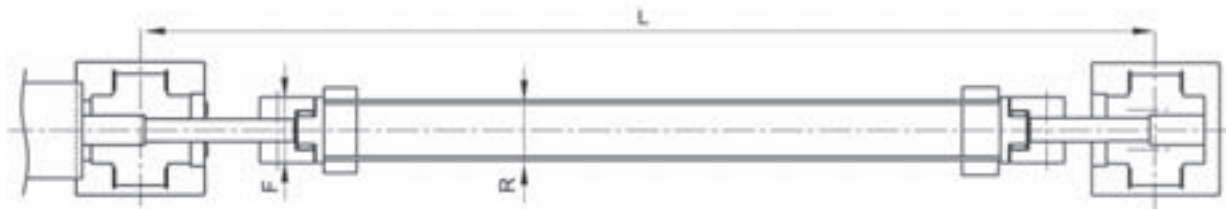
Some simplified solutions with solid shafts are available for low-speed applications and with "L" of up to 2,000 mm. If high-speeds and/or "L" of more than 2,000 mm are needed, please ask our technical dept. for the shaft scaling.

**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.**

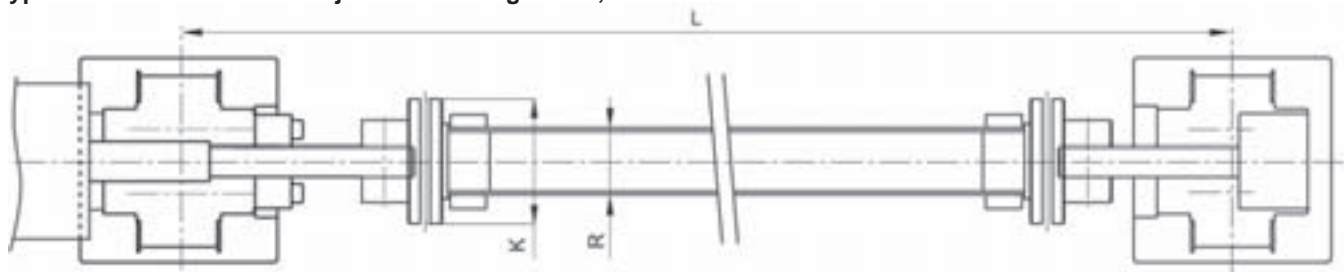
Tube material: 6060 aluminium alloy

The customer is responsible for ensuring compliance with accident prevention rules in relation to all rotating parts.

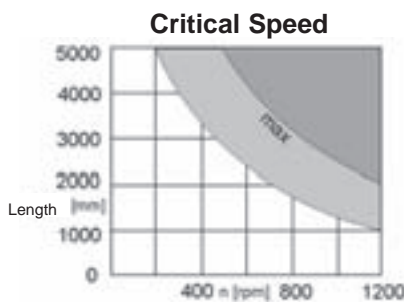
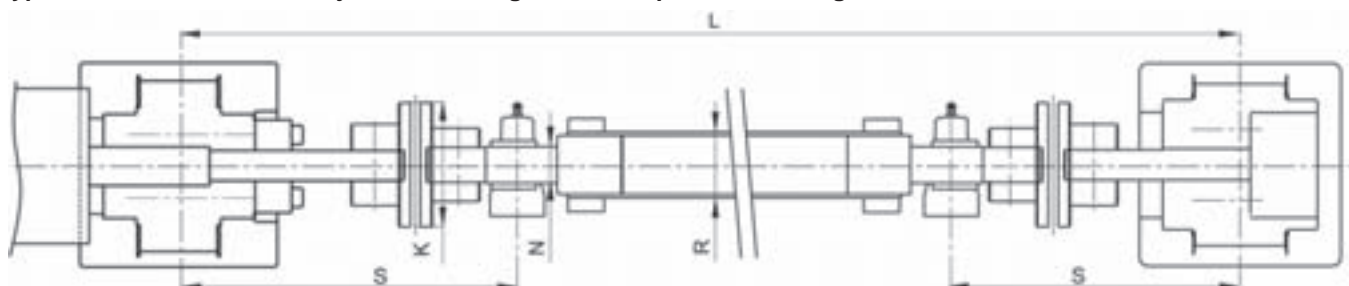
## Type 1 - Elastic joint connecting shafts, normally suitable for low-speeds



## 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. [Kg·m <sup>2</sup> ]	Type 1: Code/L	Type 2: Code/L	Type 3: Code/L
40	67	55	20	200	6,200	20	$0.0028 + 0.46 \times L \times 10^{-6}$	436.0948	436.0957	436.0965
50	81	65	25	235	6,300	35	$0.0092 + 0.66 \times L \times 10^{-6}$	436.0949	436.0958	436.0966
50	93	80	25	235	6,300	70	$0.0161 + 1.34 \times L \times 10^{-6}$	436.0951	436.0971	436.0974
70	104	95	25	235	6,400	100	$0.0293 + 2.93 \times L \times 10^{-6}$	436.0952	436.0960	436.0968
80	126	120	25	250	6,400	190	$0.0793 + 4.5 \times L \times 10^{-6}$	436.0955	436.0963	436.0984
90	143	-	-	-	6,500	300	$0.1456 + 6.53 \times L \times 10^{-6}$	-	436.0986	436.0987
110	185	-	-	-	6,000	420	$0.3499 + 12.3 \times L \times 10^{-6}$	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

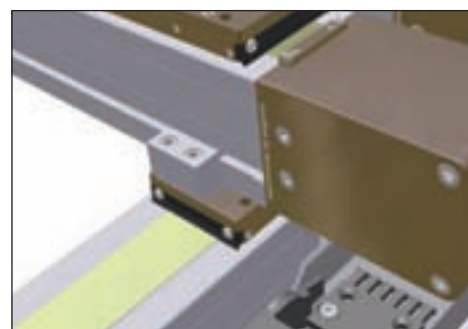
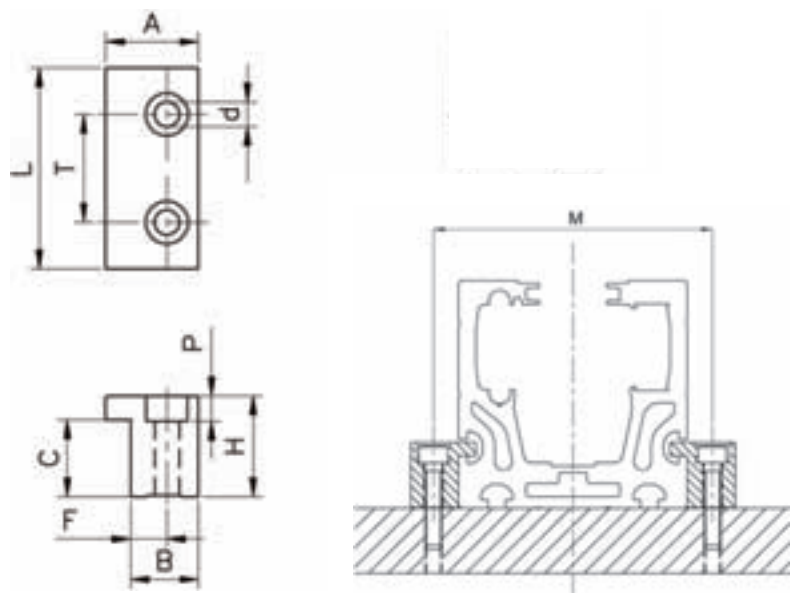
Roller	Cw [N]	C0w[N]	Fr amm.[N]	V max.
Ø30	5,000	3,000	1,350	7 m/s
Ø40	9,800	6,200	2,600	7 m/s
Ø52	15,800	10,500	4,400	6 m/s
Ø62	21,100	14,500	5,600	5 m/s

### 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	<b>406.0056</b>
Ø40 Concentric	0.22	<b>205.0464</b>
Ø40 Eccentric ( $\pm 0.75$ mm)	0.25	<b>205.0463</b>
Ø52 Concentric	0.4	<b>205.0163</b>
Ø62 Concentric	0.55	<b>205.0165</b>

## Mounting brackets

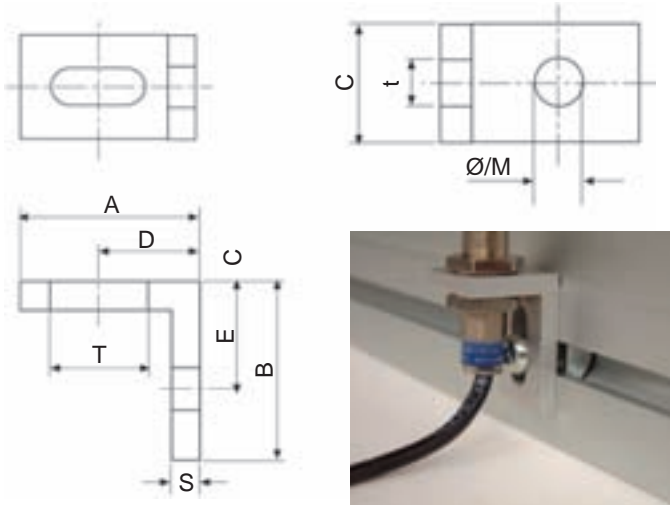


**Material:** aluminium alloy 6082

Module type	bxh	A	L	T	d	H	P	C	F	B	M	Code
KC 30	30x30	25	25	-	6.7	17	6.8	10.6	10	18	40	<b>415.1105</b>
MC 65	67x65	25	50	25	6.7	20	6.8	13.5	10	18	87	<b>415.0388</b>
MC 80	80x80	25	50	25	6.7	25	6.8	18.6	10	18	100	<b>415.0760</b>
KC 50, TC-ZC 100		25	50	25	6.7	27	6.8	20.6	10	18	120	<b>415.0764</b>
MC 105	105x105	30	50	25	9	30	9.5	23.6	12	22	129	<b>415.0761</b>
TC 180	180x90	30	50	25	9	25	9.5	18	12	25	204	<b>415.0773</b>
TC 170	120x170										198	
TC 200	120x200	30	90	50	11	40	11	28.3	14	25	228	<b>415.0762</b>
TC 220	120x220										248	
TC 280	170x280	30	90	50	11	20	11	11.3	14	25	308	<b>415.0763</b>
TC 280Vert. 280x170		30	90	50	11	20	11	13.5	14	25	198	<b>915.1174</b>



## Assembly brackets

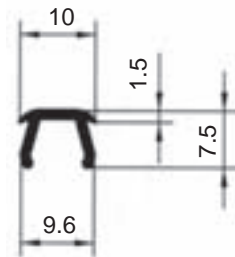


Material: natural, anodised anticorrosive alloy.

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	20x6.5	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

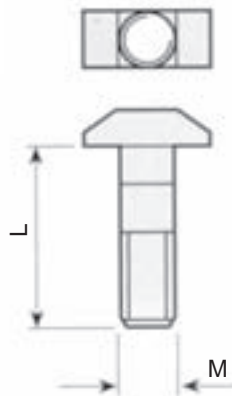


PVC filler strips, grey or black L=5,000 - 6,000 mm  
for any longitudinal 8 mm slot

Suitable for series: **KC 50, 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

## T Bolts



Assembly in longitudinal slots. Material: galvanised steel. Can be inserted through the profile slot.

Code A: **KC 50, MC 80-105, ZC 60-90-100-170, TC 100-180**  
Code B: **KC 30, MC 65**

M x L	Code B	M x L	Code A
M 6x15	B35-15	M8x20	A35-20
M 6x20	B35-20	M8x25	A35-20
M 6x30	B35-30	M8x30	A35-30
M 6x40	B35-40	M8x40	A35-40
		M8x60	A35-60

## Threaded inserts (suitable for the ZC series)



Ext. thread	Int. a	L	Key	Code
M16	M 6	25	6	A33-26
M16	M 8	25	8	A33-28
M16	M 10	25	10	A33-20
M20	M 6	25	6	207.1892
M20	M 8	25	8	207.1893
M20	M 10	25	10	207.1894
M20	M 12	25	12	207.2288

Suitable for ZC series

Material: galvanised steel

# Front insertable nuts and plates

## Spring nut

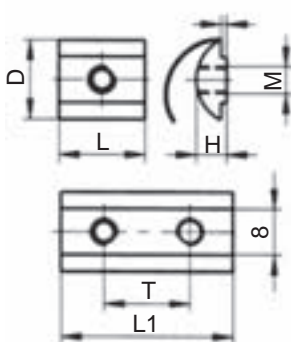


Plate suitable for every kind of module (8 mm slot).  
Material: nut in galvanised steel welded to the harmonic steel spring. The B series can also be inserted through the slot.

**Code A:** KC 50, MC 80-105, ZC 60-90-100-170, TC 100-180  
**Code B:** KC 30, MC 65

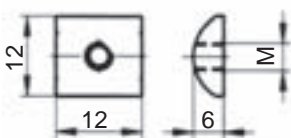
Single plate	Code A	Code B
M5	A32-55	B32-55
M6	A32-65	B32-65
M8	A32-85	B32-85

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

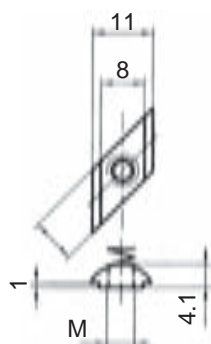
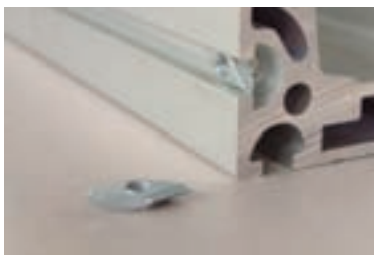


**Material:** galvanised steel.  
Insert through the end of the profile.  
Suitable for series:

KC 50, 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

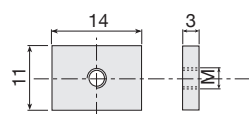
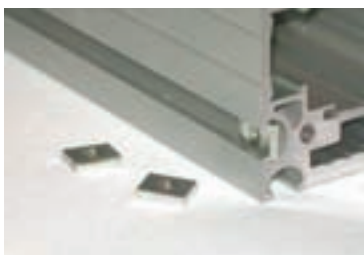


**Material:** galvanised steel, harmonic steel spring.  
To be inserted through the slot.  
Suitable for series:

KC 30, MC 65

Thread	Code B
M3	BD31-30
M4	BD31-40
M5	BD31-50
M6	BD31-60

## Simple Nut

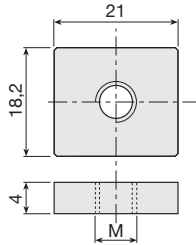
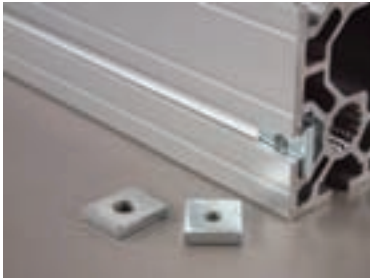


**Materiale:** galvanised steel.  
To be inserted through the slot. Suitable for series:

KC 30, MC 65

Thread	Code B
M4	B32.40
M5	B32.50
M6	B32.60

## Flat nut



**Material:** galvanised steel.  
 Insert through the end of the profile.  
 Retaining spring upon request.

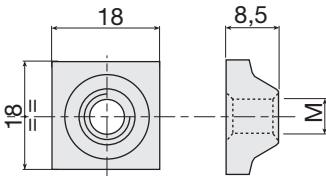
**TC-ZC 100, TC 180, ZCY 180**

Thread	Code
M4	A32-40
M5	A32-50
M6	A32-60
M8	A32-80
Molla	211.1061

## Semi-rounded threaded inserts with spring

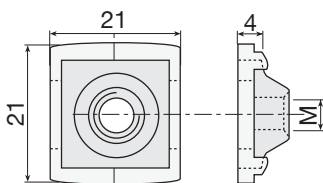
Threaded plate for base profile 45, 50 and 60. Material: galvanised steel.  
 Important: to be inserted through the longitudinal slots before assembling.

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

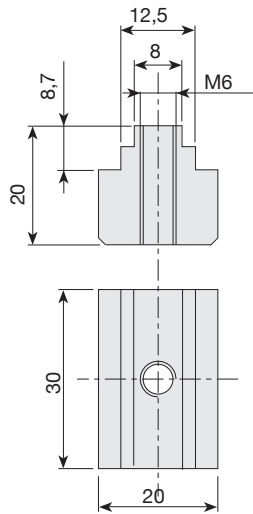
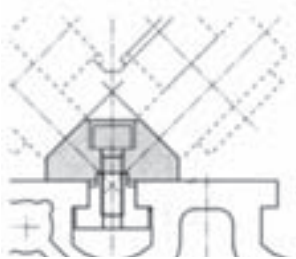
# Alignment nuts

## Nuts for steel guide rails

**Material:** galvanised steel.

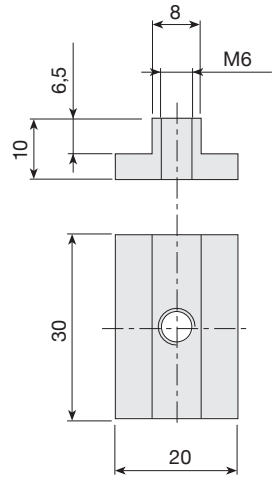
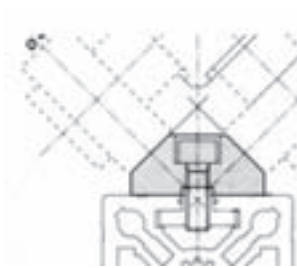
**Code 209.1855**

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**

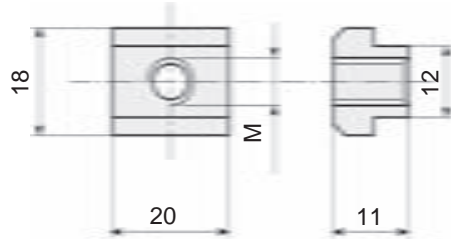
Alignment nuts.  
V-shaped guide rail: 35x16  
Profile with slot 8 mm.  
Series: **TC-ZC 100, TC 180**



## Alignment nut for slot 12.5 mm



**Material:** galvanised steel. Suitable for series:  
**TC 170-200-280-360 and ZC 170-220**

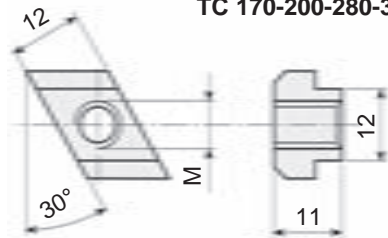


Thread	Code
M5	215.1768
M6	215.1769
M8	215.1770
M10	215.2124

## Alignment nut for slot 12.5 mm front insertable

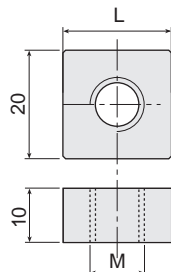


**Material:** galvanised steel. Suitable for series:  
**TC 170-200-280-360 and ZC 170-220**



Thread	Code
M5	215.1771
M6	215.1772
M8	215.1773
M10	215.2125

## Threaded nuts and plates

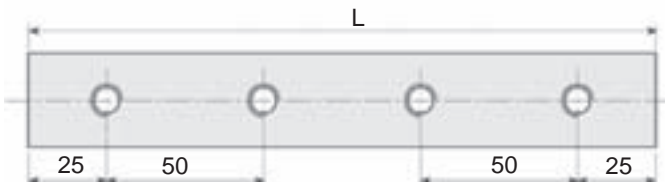


M12 (CH19) hexagonal-head screws can be used as stud bolts in profiles with 12.5 mm slots.

**Material:** galvanised steel. Suitable for series:  
**TC 170-200-220-280-360 and ZC 170-220**

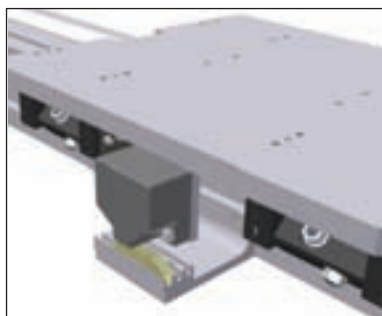
Thread	Type	L	Code
M10	1-hole plate	40	215.0477
M12	1-hole plate	40	209.1281
M10	1-hole plate	20	209.1277
M10	2-holes plate*	80	209.1776
M10	3-holes plate*	150	209.1777
M10	4-holes plate*	200	209.1778
M10	5-holes plate*	250	209.1779
M10	6-holes plate*	300	209.1780
M10	7-holes plate*	350	209.1781

\* Hole centre-distance: 50 mm.





Mechanical and inductive micro-switches on MC series.



Multi-channel micro-switch on TC series.



Mechanical and inductive micro-switches on MC series.

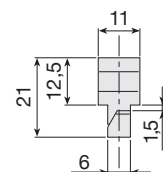
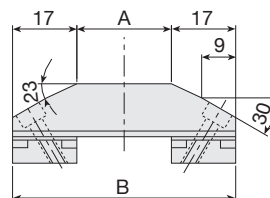
**Micro-switches and brackets are supplied according to the needs of the application.**

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

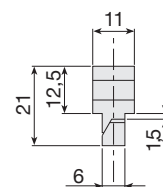
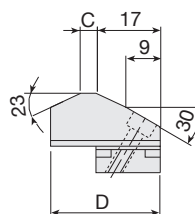
Cams in accordance with DIN 69639 except when marked "#".  
Material: steel with hardened and ground surface.



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

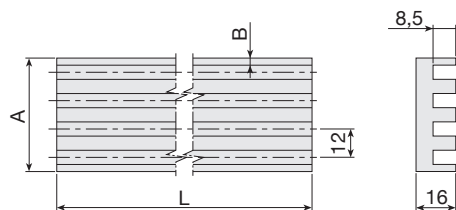
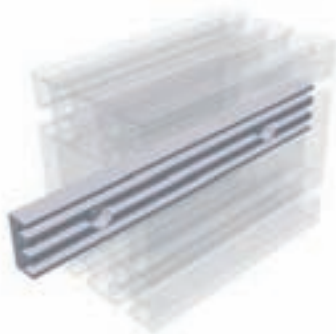
Cams in accordance with DIN 69639  
Material: steel with hardened and ground surface.



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

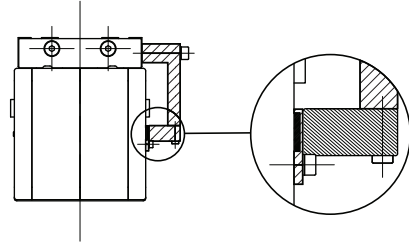


n°	B	A	L	Code
3	3	36	2,000	202.2138
4	5.5	53	3,000	202.2139
6	5.5	77	3,000	202.2140
8	5.5	101	3,000	202.2141

# Special Options

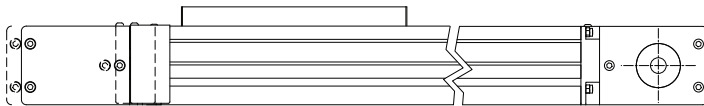
## Reader system with magnetic scale and sensor

The magnetic scale is applied to the body of the module using a supporting and protective profile.  
Precision of between  $\pm 0.015$  and  $\pm 0.05$  mm  
Max speed =  $4 \div 10$  m/s (depending on the type)



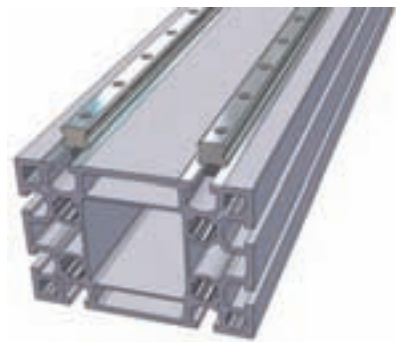
## Twin drive head

Version with drive head on both sides.



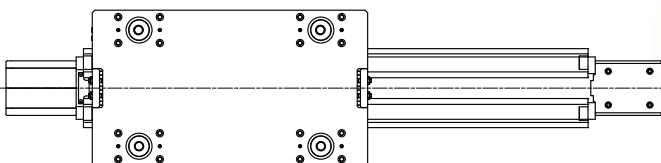
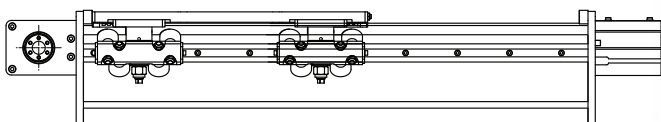
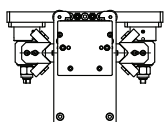
## Precision profile machining

Profiles can be machined along their entire length, to provide the required precision or according to application specifications.  
**Example:** for linear motors.



## Rotatable load-bearing profile to fully exploit the moment of inertia

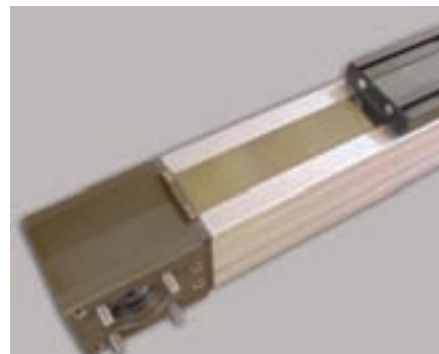
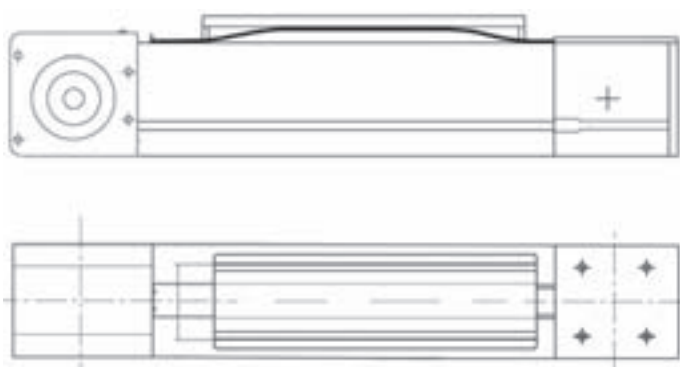
The load-bearing profile can be rotated in order to change the overall dimensions, or to fully exploit the moment of inertia.



## Belt protection for series MC 65 - 80 - 105

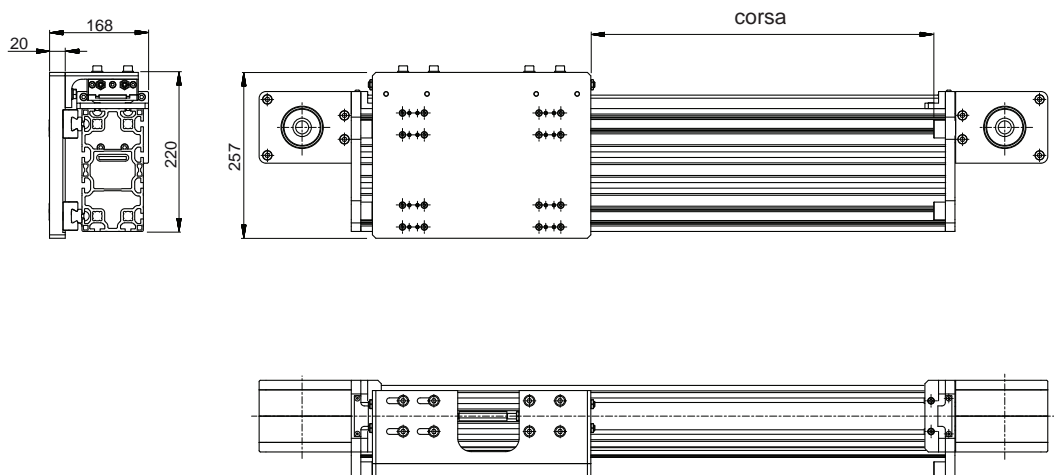
Guard system consisting of a magnetic stainless steel foil to protect the belt from dust and external agents (code: LI), which is attached to the profile.

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°

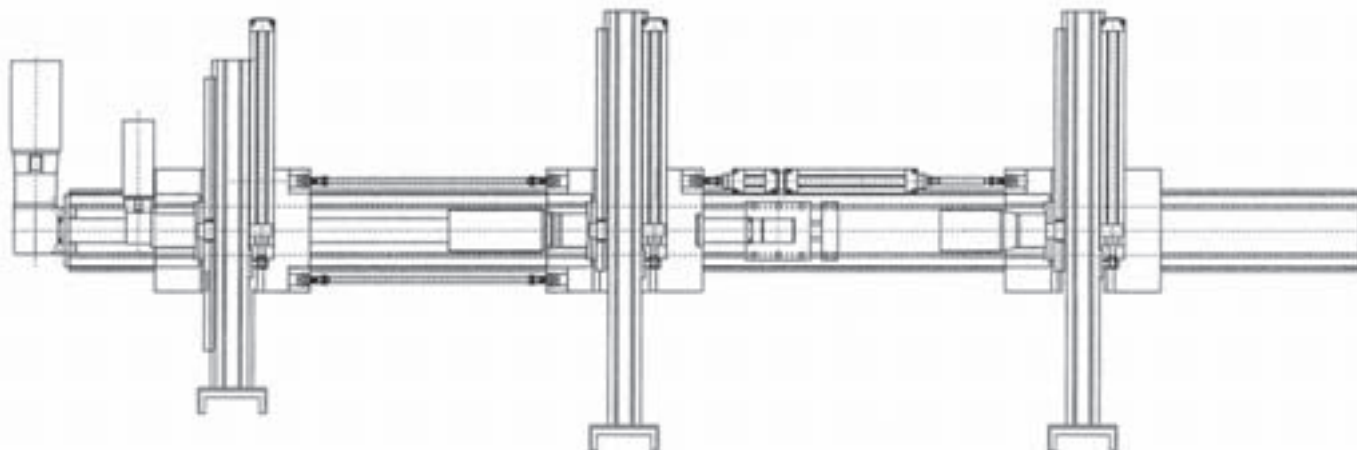
In some applications which involve the use of high speeds and accelerations, the assembly of linear units having a vertical pulley axis and a centre-distance of more than 4 m may force the toothed belt and result in the need for premature maintenance. In this case we suggest you mount the pulleys and 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)**

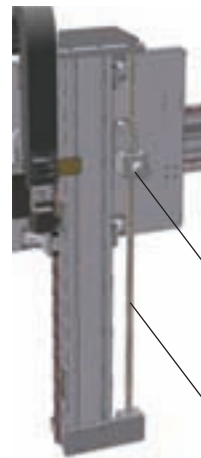
Special feature: note the compensating cylinders and the horizontal cylinder for the different travel of carriage no. 3.



# Anti-drop safety device with pneumatic brake system

Anti-drop safety 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 safety 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.

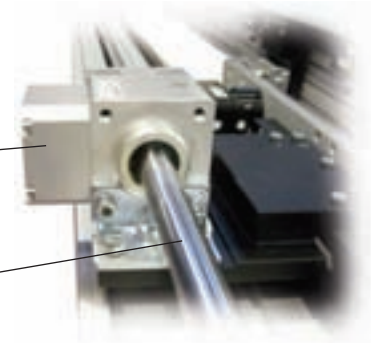


**Type A**  
Static

**Type B**  
Dynamic,  
for free-falling  
loading

Pneumatic  
braking device

Hardened  
chrome-plated  
cylindrical rod



## 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.

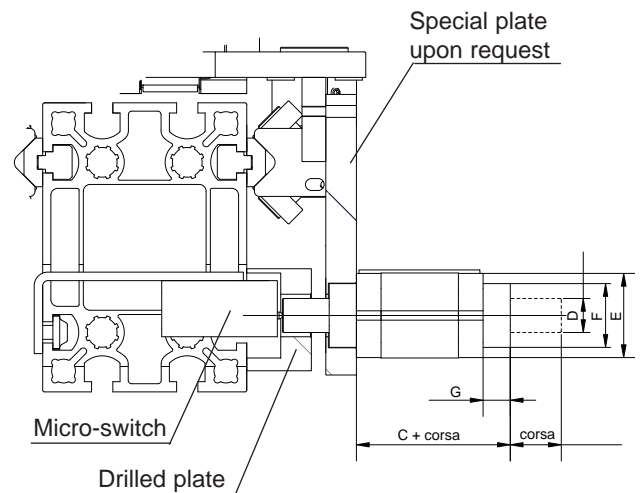
## 1- Dynamic rod blocking device

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	/ ...

# Safety lock-pin (stopper cylinders)

Lock-pin devices, available in two sizes, suitable to block the vertical axes in the safety position during horizontal movements. (e.g.: maintenance). The safety 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



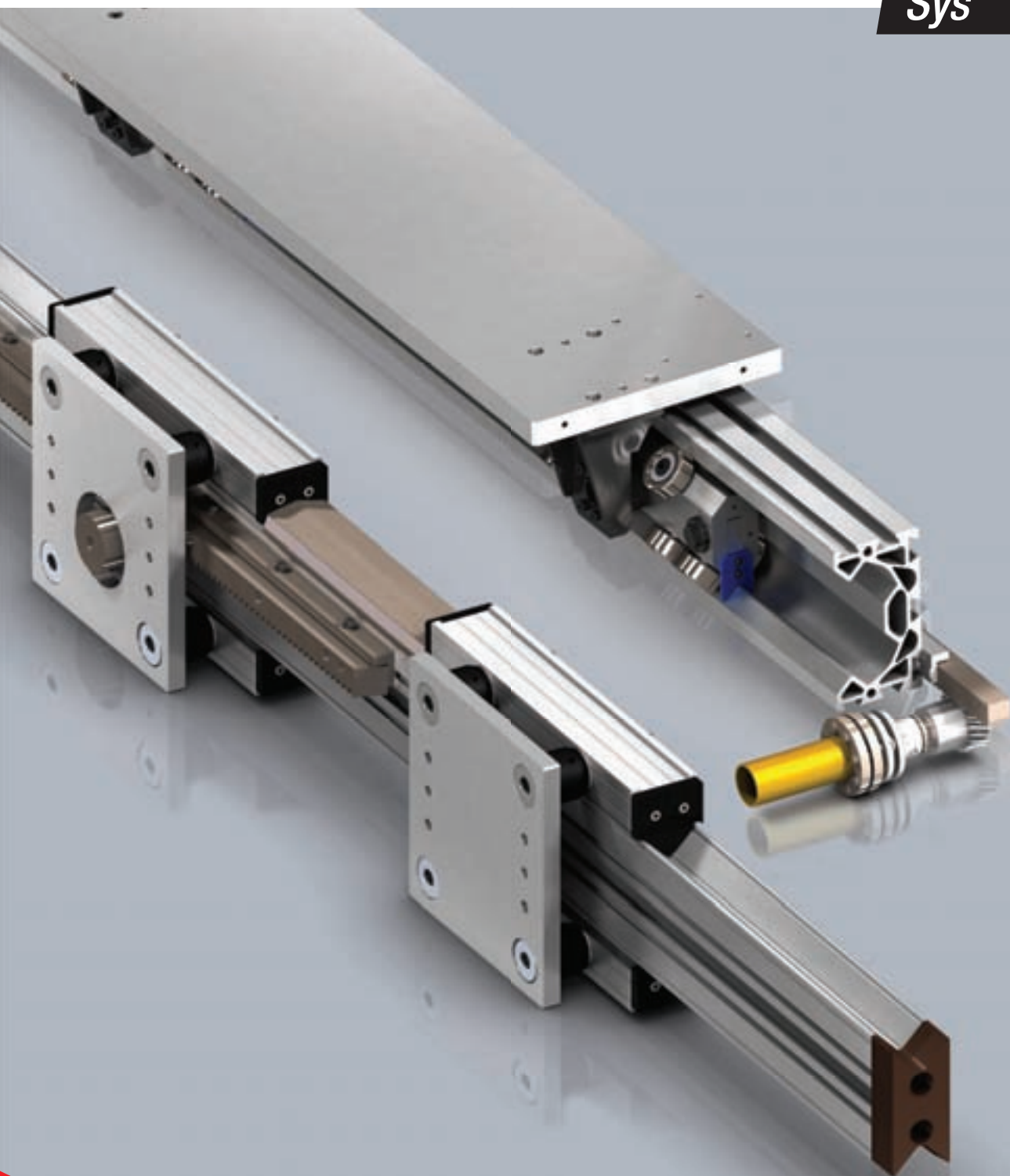
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1010732	67	2112129	69	4360952	63	A35-30	65	MA1-5	13	TCS 200	37
2020342	15	2112130	69	4360955	63	A35-40	65	MCH 105	21	TCS 220	39
2021146	14	2112131	69	4360957	63	A35-60	65	MCH 65	17	TCS 280	41
2021147	15	2112132	69	4360958	63	A39-25/5000	65	MCH 80	19	TCS 360	43
2021753	14	2112133	69	4360960	63	A39-25/6000A	65	MCHH 105	22	TVH 180	27
2022138	69	2112134	69	4360963	63	A39-26/5000	65	MCR 105	20	TVS 170	28
2022139	69	2112135	69	4360965	63	B30-53	65	MCR 65	16	TVS 220	29
2022140	69	2112136	69	4360966	63	B30-54	65	MCR 80	18	ZCEL 170	55
2022141	69	2150477	68	4360968	63	B30-55	65	MCS 105	21	ZCEL 220	57
2022184	14	2151768	68	4360971	63	B30-56	65	MCS 65	17	ZCERQ 170	54
2050163	64	2151769	68	4360974	63	B30-63	65	MCS 80	19	ZCERQ 220	56
2050165	64	2151770	68	4360984	63	B30-64	65	MTR 105	24	ZCG 60	46
2050463	64	2151771	68	4360986	63	B30-65	65	MTR 80	23	ZCG 90	48
2050464	64	2151772	68	4360987	63	B30-66	65	MVH 105	25	ZCL 100	53
2071892	65	2151773	68	7400568	13	B32-40	66	MVHH 105	26	ZCL 170	55
2071893	65	2152124	68	9151174	64	B32-50	66	MVR 105	24	ZCL 220	57
2071894	65	2152125	68	A30-54	65	B32-55	66	MVR 80	23	ZCL 60	47
2072288	65	2360018	72	A30-55	65	B32-60	66	MVS 105	25	ZCL 90	50
2090019	67	2360019	72	A30-56	65	B32-65	66	TCG 100	30	ZCRQ 100	52
2090023	67	2360021	72	A30-64	65	B32-67	66	TCG 180	32	ZCRQ 170	54
2090298	68	2360022	72	A30-65	65	B32-85	66	TCH 100	31	ZCRQ 220	56
2090467	67	3020001	15	A30-66	65	B35-15	65	TCH 170	35	ZCRR 90	49
2091202	67	4060056	64	A30-76	65	B35-20	65	TCH 180	33	ZCY 180	51
2091277	68	4150388	64	A30-86	65	B35-30	65	TCH 200	37	ZMCPLL 105	58
2091281	68	4150760	64	A32-40	67	B35-40	65	TCH 220	39	ZMCLL 105	58
2091776	68	4150761	64	A32-50	67	BD31-30	66	TCH 280	41	ZMCH 105	59
2091777	68	4150762	64	A32-55	66	BD31-40	66	TCH 360	43	KCH 100	60
2091778	68	4150763	64	A32-60	67	BD31-50	66	TCRQ 170	34	KCH 150	60
2091779	68	4150764	64	A32-65	66	BD31-60	66	TCRQ 180	32	KCH 200	60
2091780	68	4150773	64	A32-67	66	E01-4	12	TCRQ 200	36	TECRQ 170	44
2091781	68	4151105	64	A32-80	67	E01-5	13	TCRQ 220	38	TECH 170	44
2091855	68	4360144	63	A32-85	66	F01-1	12	TCRQ 280	40	TECRR 180	45
2092431	66	4360145	63	A33-20	65	M 65X67	12	TCRP 280	40	TECH 180	45
2092432	66	4360146	63	A33-26	65	M 80X80	12	TCRP 360	42		
2092433	66	4360948	63	A33-28	65	M 105X105	12	TCS 100	31		
2111061	67	4360949	63	A35-20	65	MA1-2	13	TCS 170	35		
2112128	69	4360951	63	A35-25	65	MA1-4	13	TCS 180	33		

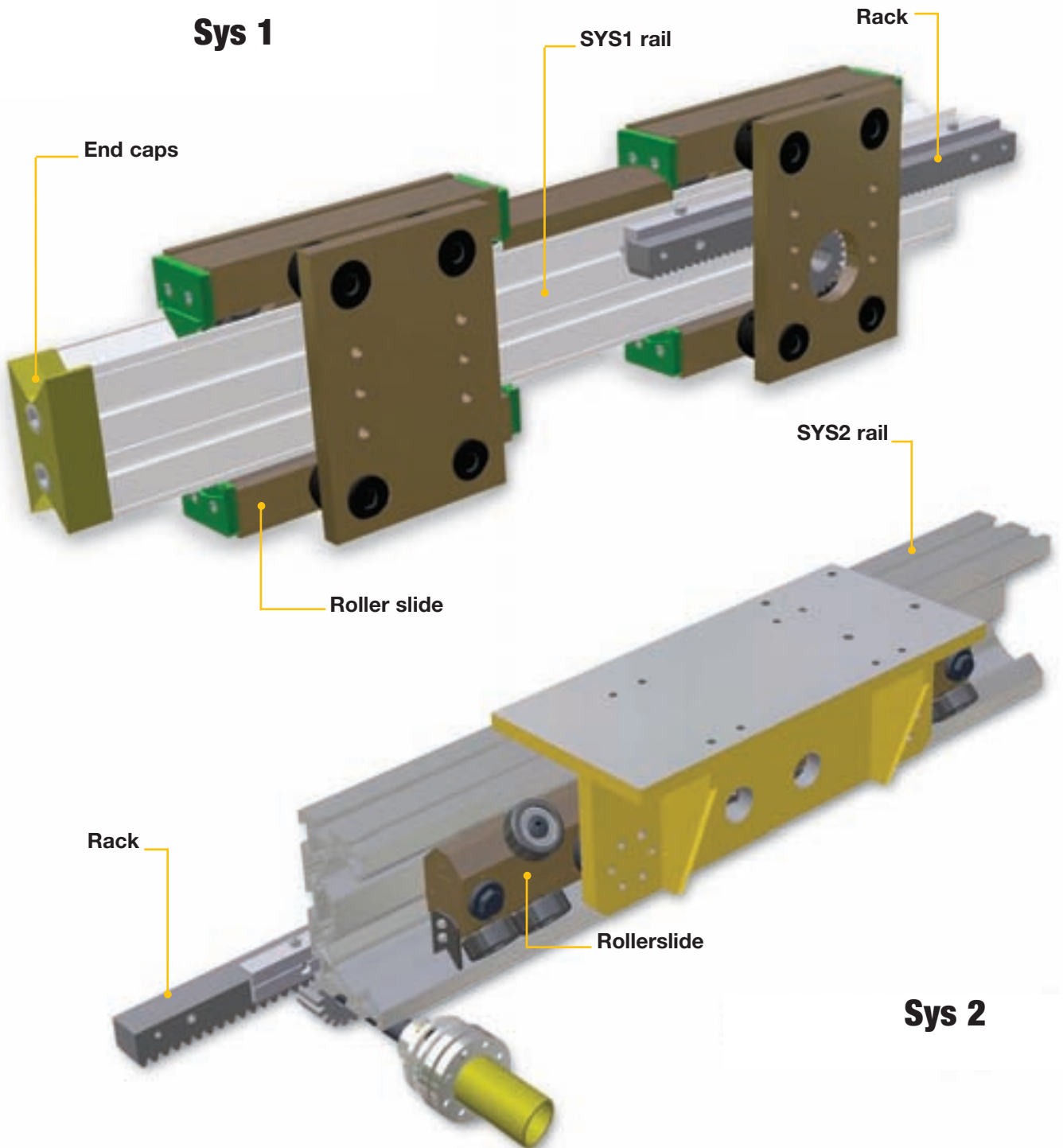


**ROLLON**<sup>®</sup>  
*Linear Evolution*

Sys



## Sys 1



The **Sys** linear transfer system consists of higher mechanical performances aluminium alloy rail with deepened surface and light alloy extruded roller slides.

Innovative features are:

- extremely small section sizes
- modularity of the system achieved by structural profiles and wide range of accessories
- special profile section to protect sliding tracks and roller
- slow friction lame contact roller
- high resistance polyamide roller surface
- customizable solutions for the applied loads

Applications such as handling units, Cartesian robots and **lift and shift** systems are implemented in the following sectors: wood working industry, **body in white welding** lines, white goods industry, **pipng and sheet metal** working industry.

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### 03-2015 edition

This publication cancels any previous one.

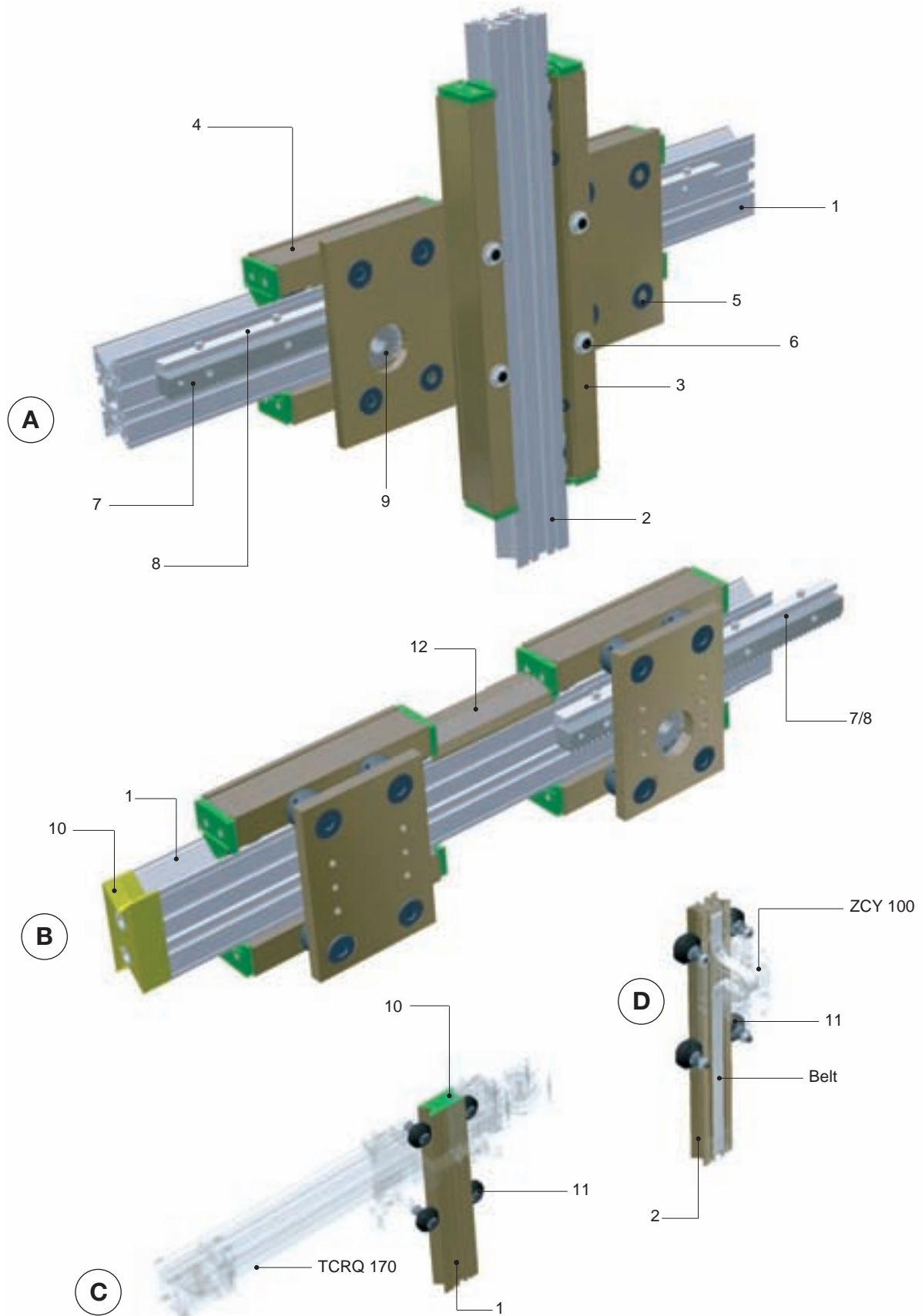
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# Sys 1

## Assembly solutions



### **“A” Assembly (fixed rail / moving carriage):**

This example represents a typical 2-axis system completely manufactured with SYS1 products.

The horizontal traverse is made of a pinion/rack drive, handling a carriage composed of a plate and 4 roller slides. On the plate there is the pinion through hole.

For this kind of system we can supply motor adapter plate and shafts.

The vertical axis is pneumatically operated (not shown).

On demand we can supply cylinder supports as well.

### **“B” Assembly (moving rail / fixed carriage):**

This example represents a system operated by a pinion/rack drive.

The rail runs on roller slides, which can be mounted on plates or fixed structural works.

#### **Legend:**

- 1 – SYS1-M rail (see page 8)
- 2 – SYS1-P rail (see page 8)
- 3 – Roller slides L=600mm (see page 11)
- 4 – Roller slides L=290mm (see page 10)
- 5 – Type D assembly pins (see page 13)
- 6 – Type A assembly pins (see page 13)
- 7 – Rack (see page 20-21)
- 8 – Rack fixing plate (see page 20)
- 9 – Toothed pinion
- 10 – End cap (see page 28)
- 11 – Ø76 shaped rollers (see page 17)
- 12 – Guard profile (see page 30)

### **“C” Assembly:**

This example again shows a 2-axis system realised by coupling two Rollon products.

The horizontal axis is composed of a TCRQ 170 linear module (see Modline catalogue).

The vertical axis is pneumatically operated.

### **“D” Assembly:**

This example represents a ZCY100 linear unit (see Modline catalogue).

This module is composed of a SYS rail sliding on rollers, it is toothed belt operated.

# Sizing request form

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

Date: .....Request n°.....

Filled in by.....

Company.....

Address.....

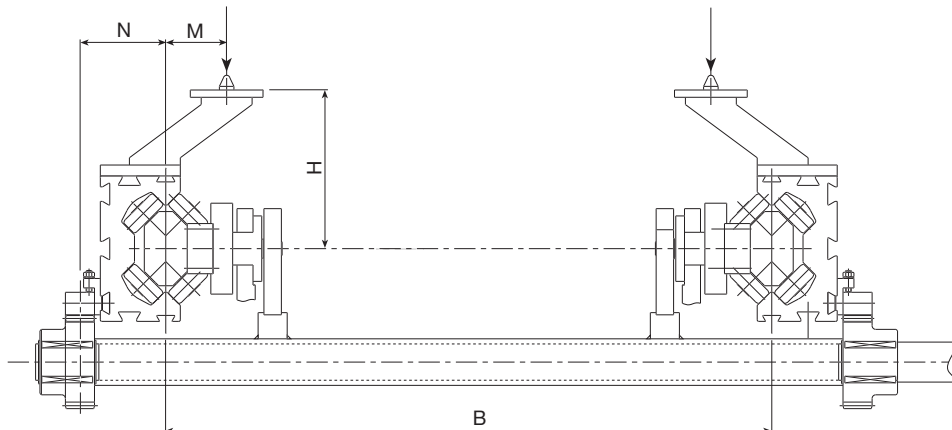
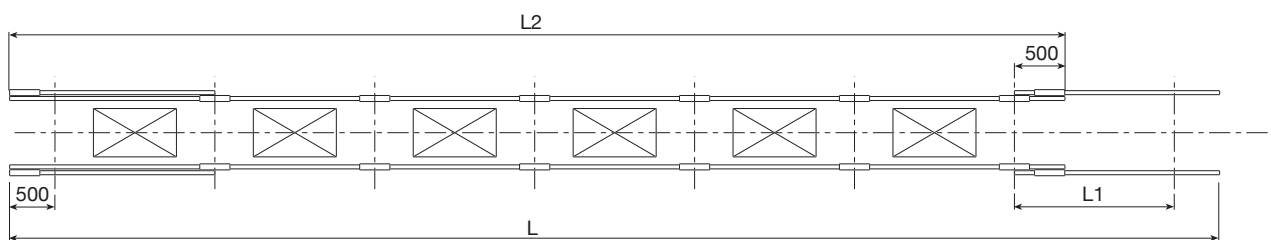
Phone .....Fax.....

E-mail .....

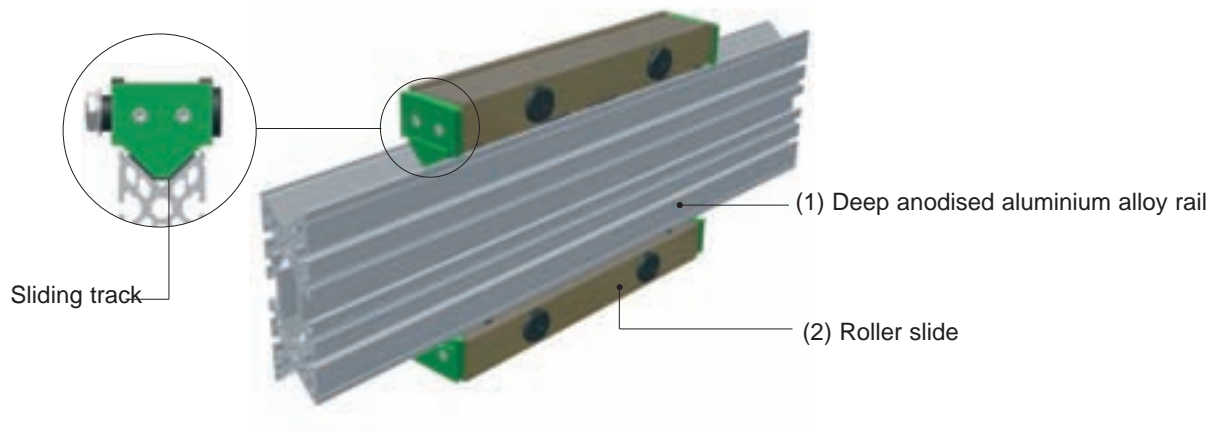
## Lift and shift system with moving rail

### SIZING TEMPLATE

Applied load	<input type="text"/>	[Kg]
No. of stations, loading/unloading included	<input type="text"/>	
Total system length	L	[m]
Distance between stations	L1	[m]
Rail length	L2	[m]
Number of the part-holder arms on each rail side	R	
Part-holder arm weight	S	[Kg]
Total load on one rail	P	[Kg]
Distance between rail Y-axis and applied load	M	[mm]
Weight distributed on the rail (e.g.: 50x50 rack)	C	[kg/m]
Distance between rail Y-axis and applied distributed weight	N	[mm]
No. of the rail supports incl. extremity roller slides		
Distance between rail X-axis and applied load	H	[mm]
Number of rail sides		
Distance between rails	B	[mm]
Translation speed	V	[m/s]
Acceleration	a	[m/s <sup>2</sup> ]
Transport time (one way)	t	[s]







**SYSTEMa** was conceived to offer the market competitive and easy to use products.

It is used in handling and transfer systems and consists of light aluminium alloy rails (1) and low-friction roller slides (2). The peculiar feature of this rail is its geometry, that has been developed to optimize torsion performances and reduce reaction stresses on roller slides, with “competitive benefits” accordingly.

In detail, the sliding track configuration allows the system, with an equal torque applied to the rail, to minimize the roller reactions, compared to similar applications with the same overall dimensions, therefore:

- With an equal outside and overhanging load, the number of roller slides decreases as does the cost.
- With an equal roller slides number, the outside applied load and/or the projection can be increased.

The sliding tracks are built to protect the rolling elements and to minimize the width.

This allows the transfer system to be installed close to manufacturing sites.

Besides, the light alloy gives the rails a good mechanical resistance and protects them against aggressive external agents.

**SYSTEMa**'s assembly possibilities are:

- Moving rail and fixed roller slides
- Fixed roller slides and moving rail

These two solutions, single or combined, can solve many problems; particularly, there is a possibility to produce Cartesian robots, palletizers and portal systems.

Some interesting applications have been realised in automation and robotics fields, plastic moulding, light industry, wood and rubber industry, painting, textile and handling fields.

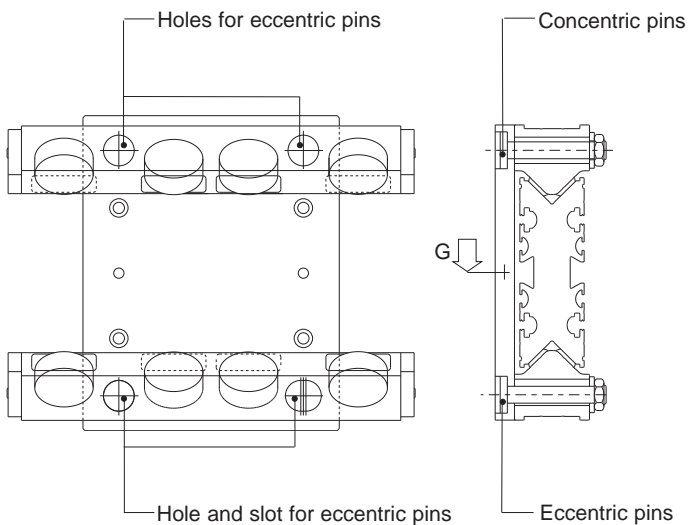
# Assembly specifications

## A - Features

This translation system consists of a plate, where roller slides with concentric and eccentric pins are fixed.

The eccentric pins are fitted for adjusting backlash between roller slides and track and have a circular identification mark (1).

The plate is supplied with machining for pin assembly: through holes for concentric pins and hole and slot for eccentric ones.

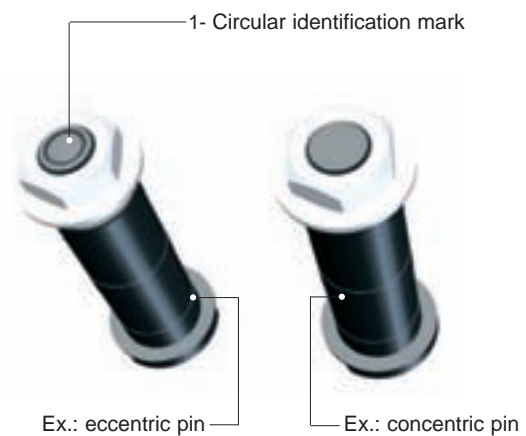


## B - Alignment

Sliding tracks have to be perfectly aligned.

## C - Rack assembly

With rack drive it is very important to guarantee the exact parallelism between the sliding system and the rack axis.



## D - Roller slide: assembly and adjustment

- 1) Check the alignment and set in contact the concentric pin roller slides and the rail.
- 2) Take up backlashes: operate on the eccentric pins fixed on the through hole first, then on the one fixed on the slot.
- 3) Repeat the adjustment.
- 4) Rotate the reachable rollers with a finger: they must slide without roller slide advancing.

The mean load condition is easily achieved and can damage the plastic coating.

For the simultaneous assembly of several roller slides in one system, it is possible that not all rollers can remain in contact with the rails, because of the rail natural deformation.

In this case it is not advisable to act on the eccentric pins. It is important to check the smoothness capacity of the whole system, which should be high; if not, loosen the pins and repeat the adjustment. While assembling, ensure that the rollers and the rail surfaces are not dirtied by foreign bodies (oil, grease, chips, etc). Always use scrapers or protections (see page 30).

## E - Rail protection

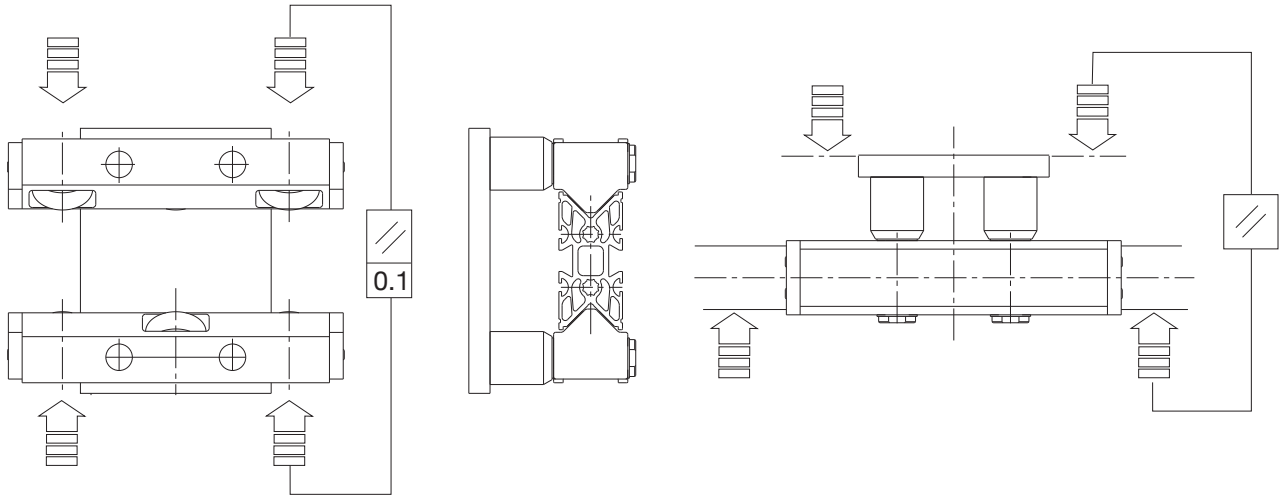
The roller slides are provided with spring scrapers, in order to keep the sliding surface clean and to avoid the roller meeting any obstacle while moving.

If this does not meet the customer's requirements, we can supply on demand other track protections, such as bellows, toothed belts or protecting straps.

It is possible to use the guard profile to protect the area between two roller slides (code 302.0147 – see page 30), always available in stock.

## F - Tightening specifications

Make sure all parts are blocked with proper screws, in compliance with the prescribed tightening torque standards.



**WARNINGS**

The mean load condition is easily achieved and can damage the plastic coating.  
 To realise a moving carriage with 1 plate and 2 x 3-roller slides, rollers should be symmetrically positioned, respect to the connecting plate.  
 Check the correct parallelism between the two roller slide opposite plane surfaces and between the roller slide connecting plates and the rail (primary control for the correct 3+3-roller slide assembly), and then block the eccentric pins without moving them.

The adjustment of D and E executions (foreseen for one hole roller slides) should be made by acting on the eccentric pin gradually, until the roller contact is reached, without reaching the mean load capacity.  
 Ensure that rollers keep their low-friction features, and then assemble the scrapers, allowing a minimal back-lash with the rail.

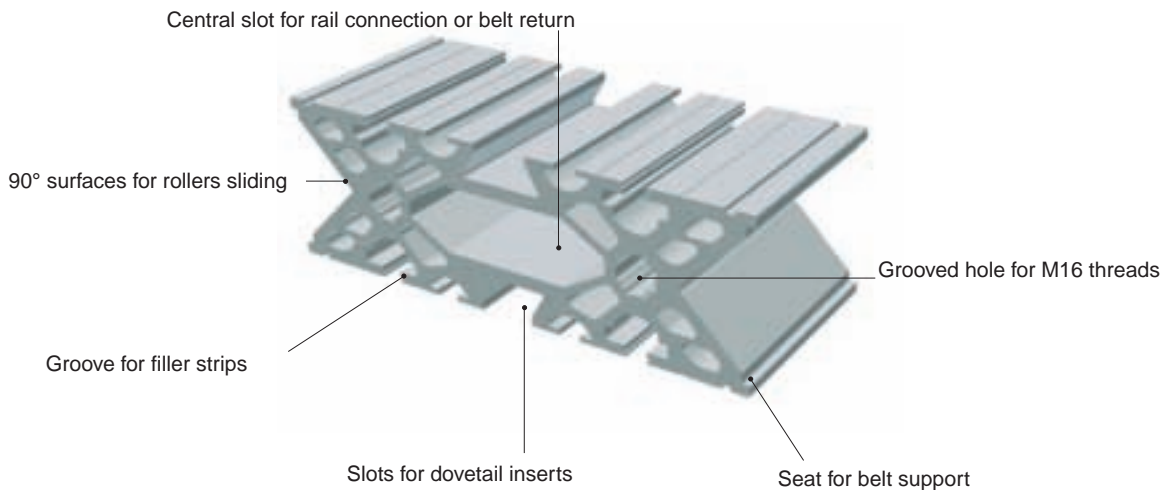
**Rail description**

The symmetrical rail section was developed to achieve maximum rigidity. It is provided with slots that can be used with a wide range of accessories always available in stock. The rail surface is chemically treated, in order to obtain considerable hardness above all on roller sliding tracks, guaranteeing its long-life (a silver anodised rail for light applications is available on demand).

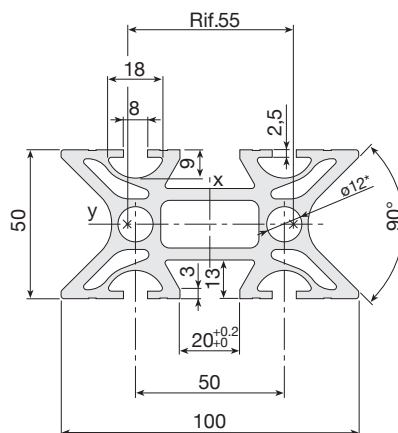
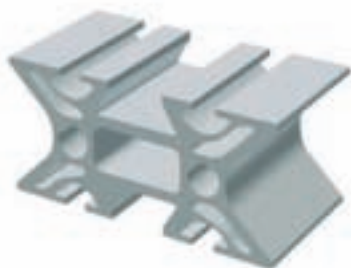
**Specifications**

Material:	hard. and temp. racks light alum. alloy (AlMgSi)
Quality:	F = 25
Tolerances:	1/2 UNI 3879
Tear resistance:	R = 245 - 270 N/mm <sup>2</sup>
Yelding point:	Rp = 215 - 240 N/mm <sup>2</sup>
Hardness:	HB = 70 - 90

Surface treatments:  
 Deep anodizing ( bronze coloured ) – thickness > 0,055 mm,  
 or silver coloured anodizing - thickness > 0,015 mm (on demand)

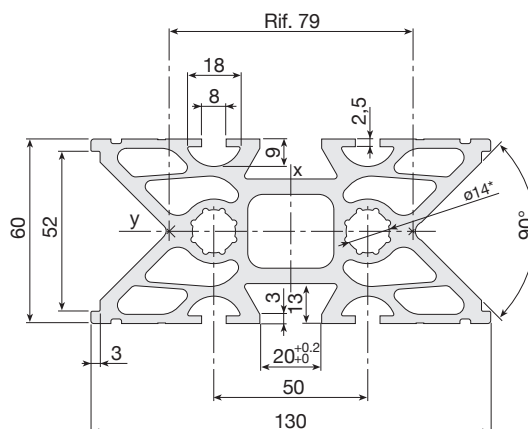
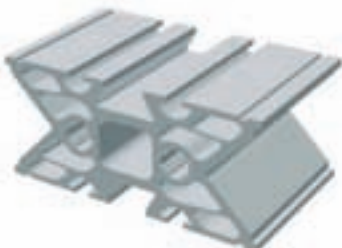


# Rail specifications



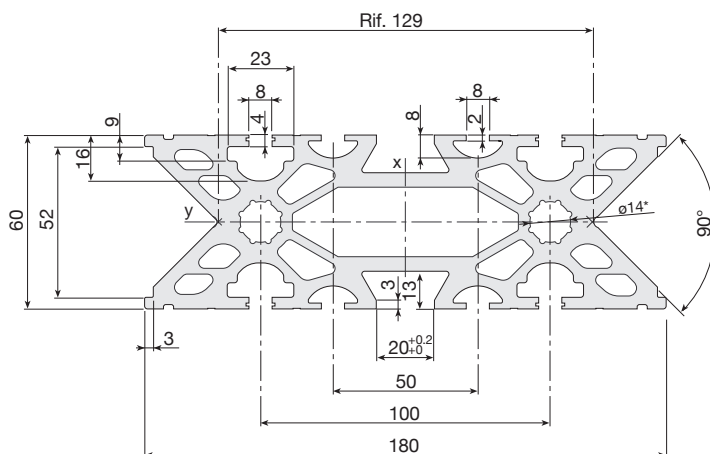
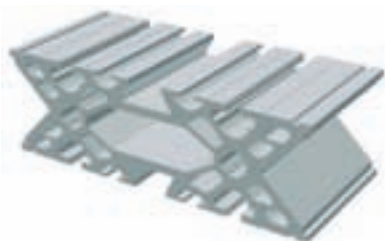
SYS1-P	Code 302.0714	
Size	50x100	mm
Weight	4,7	Kg/m
Max. length	7,5	m
Moment of inertia (Ix)	1.430.000	mm <sup>4</sup>
Moment of inertia (Iy)	450.000	mm <sup>4</sup>
Bending section mod. (Wx)	28.600	mm <sup>3</sup>
Bending section mod. (Wy)	18.000	mm <sup>3</sup>

\*Holes for M14 thread and PVS® connectors



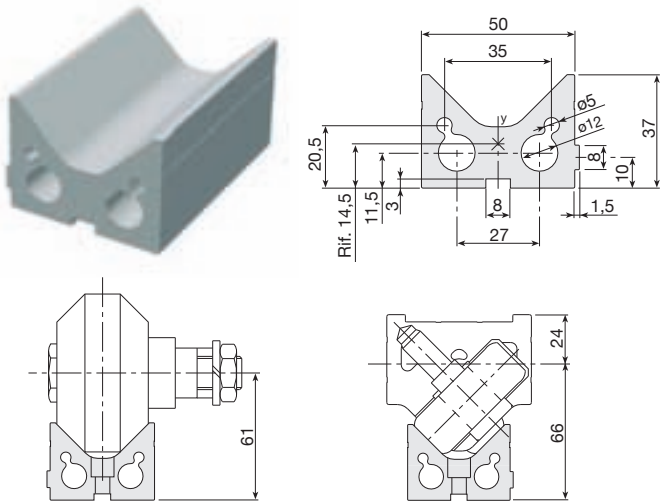
SYS1-M	Code 302.0113	
Size	60x130	mm
Weight	7,8	Kg/m
Max. length	7,5	m
Moment of inertia (Ix)	3.560.000	mm <sup>4</sup>
Moment of inertia (Iy)	1.005.000	mm <sup>4</sup>
Bending section module (Wx)	54.708	mm <sup>3</sup>
Bending section module (Wy)	33.500	mm <sup>3</sup>

\*Holes for M16 thread and PVS® connectors



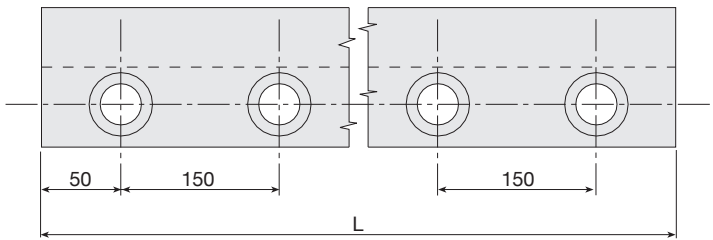
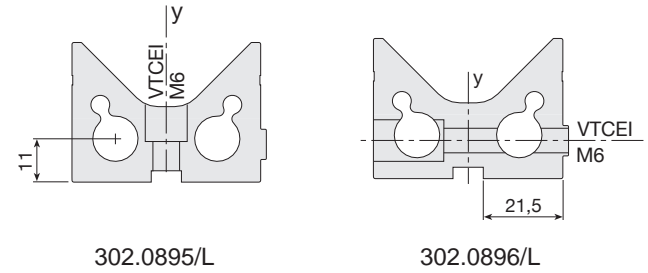
SYS1-G	Code 302.0001	
Size	60x180	mm
Weight	12	Kg/m
Max. length	7,5	m
Moment of inertia (Ix)	12.350.000	mm <sup>4</sup>
Moment of inertia (Iy)	1.600.000	mm <sup>4</sup>
Bending section module (Wx)	137.220	mm <sup>3</sup>
Bending section module (Wy)	53.330	mm <sup>3</sup>

\*Holes for M16 thread and PVS® connectors



SYS1-H	Code 302.0552	
Weight	3,2	Kg/m
Max. length	6	m
Moment of inertia (Ix)	103.500	mm <sup>4</sup>
Moment of inertia (Iy)	292.000	mm <sup>4</sup>

## Special machining on demand



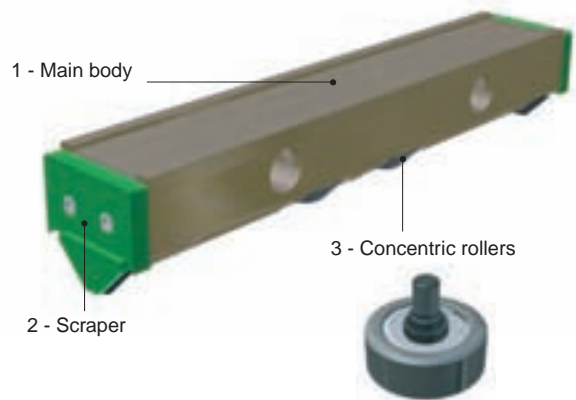
## Roller slide description

The main body (1) is made of a high strength aluminium alloy; it can be delivered with 2, 3, 4 and 6 concentric rollers (3) and equipped with scraper (2).

The roller slide is provided with double-sphere ring gear bearings (5), lubrication-free, and neoprene O-rings, to ensure the lowest friction coefficient. The roller external surface is covered with a low-friction plastic material, which guarantees the maximum noise reduction and lowest possible rail wear. Roller slides are mounted on a base plate by concentric and eccentric pins. It is very important to fix eccentric pins on the lowest load side.

A 4-roller slide version with central assembly pin is also available. This pin allows a well balanced load distribution on each bearing through a slight oscillation (type 7).

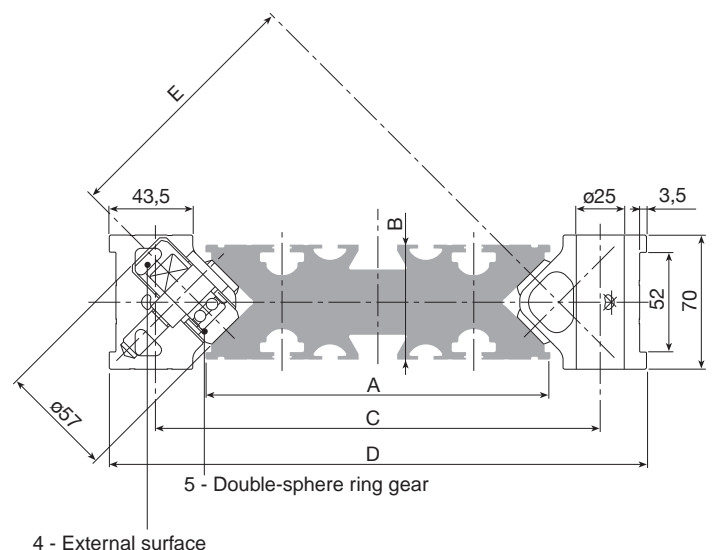
Type D and E pins (see page 13) are generally used in mounting double-rail assemblies, in order to compensate any parallel error.



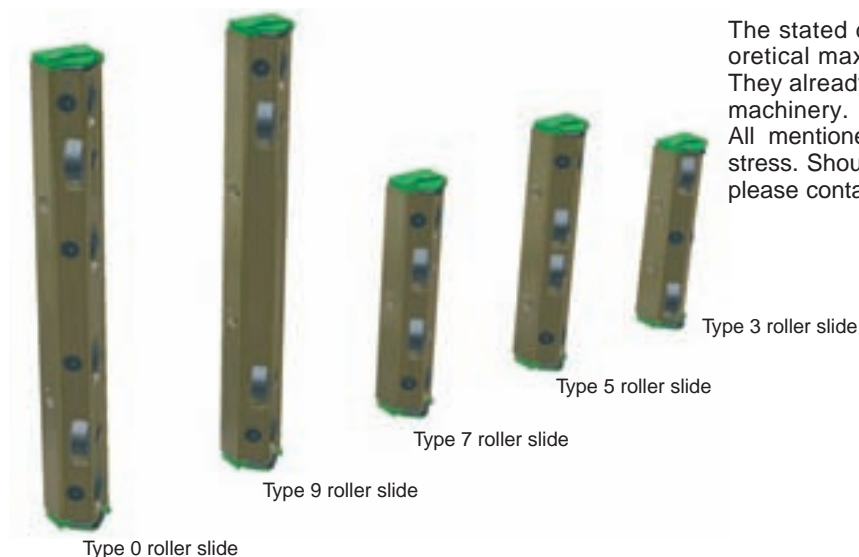
Type	A	B	C	D	E
SYS 1-P	100	50	158	206	81
SYS 1-M	130	60	182	230	98
SYS 1-G	180	60	232	280	134

## Roller specifications

Specifications		
Cw	10.400	N
C0w	6.600	N
Admissible Fr	1.400	N
Max. speed	5	m/s



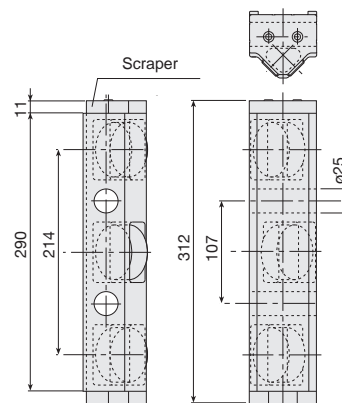
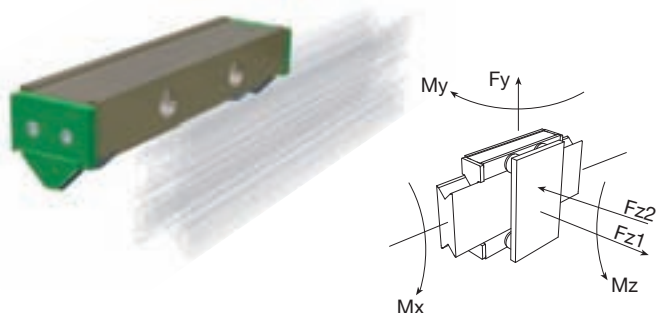
# Roller slide size



The stated dynamic values do not correspond to the theoretical max. load capacities. They already consider safety factors proper for automation machinery. All mentioned data refer to the peak efficiency of each stress. Should more peak stresses occur at the same time, please contact our technical dept.

## Type 3

3-roller slide, fixed assembly with 2 pins  
centre-distance: 107mm  
**ATTENTION:** please refer to “Warnings” on page 7 for a correct assembly.



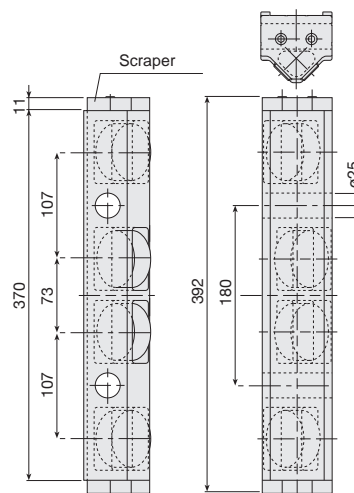
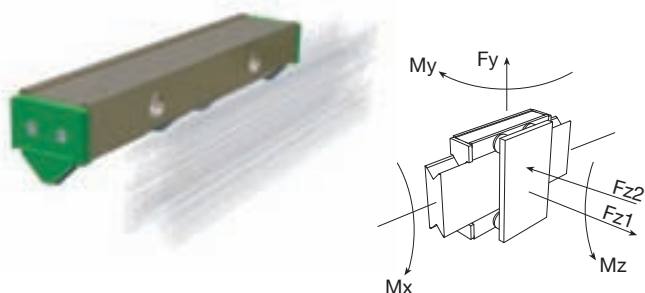
	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_y$ [N]	$F_{z1}$ [N]	$F_{z2}$ [N]
SYS1-M	257	128	128	2000	2000	3950
SYS1-G	343	128	128	2000	2000	3950

## Specifications

Number of rollers	3
Weight	about 3 Kg
Spare part	Code 304.0716

## Type 5

4-roller slide, fixed assembly with 2 pins  
centre-distance: 180mm



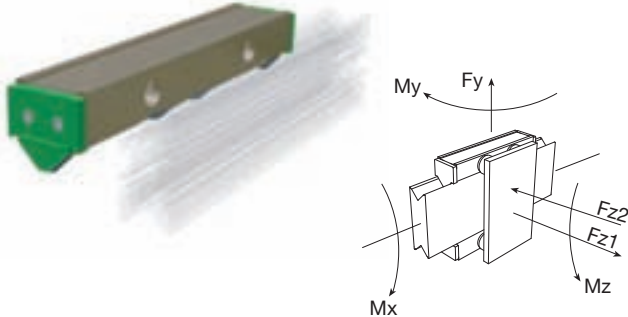
	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_y$ [N]	$F_{z1}$ [N]	$F_{z2}$ [N]
SYS1-M	257	355	315	3950	3950	3950
SYS1-G	343	355	315	3950	3950	3950

## Specifications

Number of rollers	4
Weight	about 4 Kg
Spare part	Code 304.0717

### Alternative version

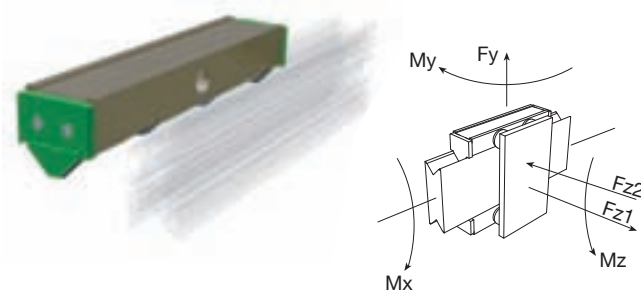
Roller slide with alternate rollers for vertical and/or overhanging horizontal rail applications  
 (Please state plate, pins and roller slide apart).  
 Position the roller slide properly while assembling.



	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_y$ [N]	$F_{z1}$ [N]	$F_{z2}$ [N]
SYS1-M	257	567	315	3950	3950	3950
SYS1-G	343	567	315	3950	3950	3950

### Type 7

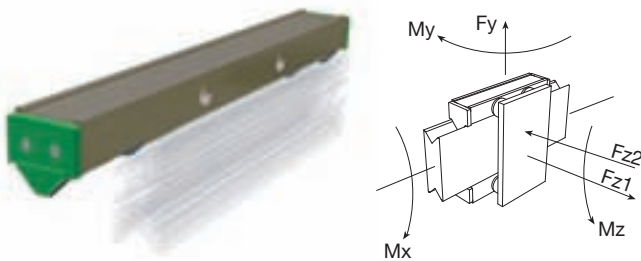
4-roller slide, assembly with 1 self-aligning pin.



	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_y$ [N]	$F_{z1}$ [N]	$F_{z2}$ [N]
SYS1-M	257	355	-	3950	3950	3950
SYS1-G	343	355	-	3950	3950	3950

### Type 9

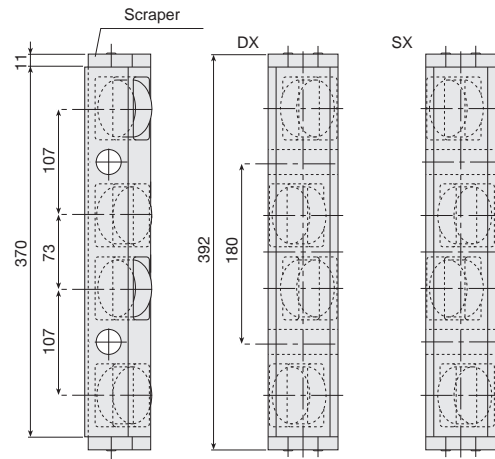
4-roller slide, fixed assembly with 2 pin  
 centre-distance: 180mm



	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_y$ [N]	$F_{z1}$ [N]	$F_{z2}$ [N]
SYS1-M	257	878	668	3950	3950	3950
SYS1-G	343	878	668	3950	3950	3950

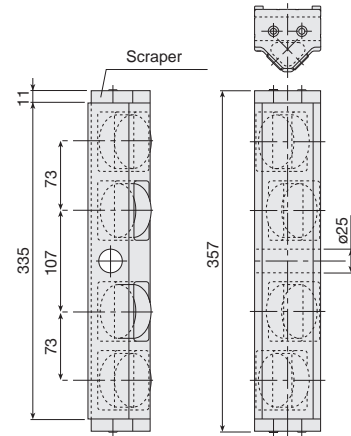
#### Specifications

Number of rollers	4
Weight	about 6,5 Kg
Spare part	Code 304.0719



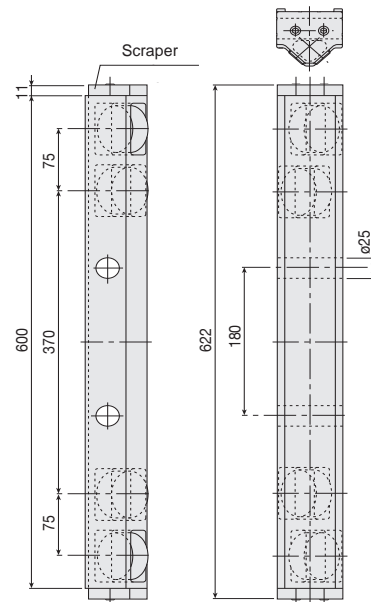
#### Components

Right roller slide	Code 304.0837
Left roller slide	Code 304.0866



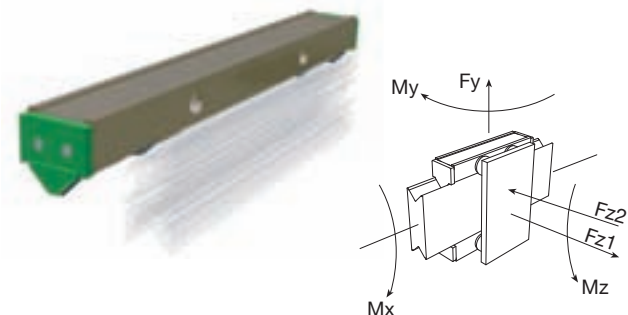
#### Specifications

Number of rollers	4
Weight	about 4 Kg
Spare part	Code 304.0718



## Type 0

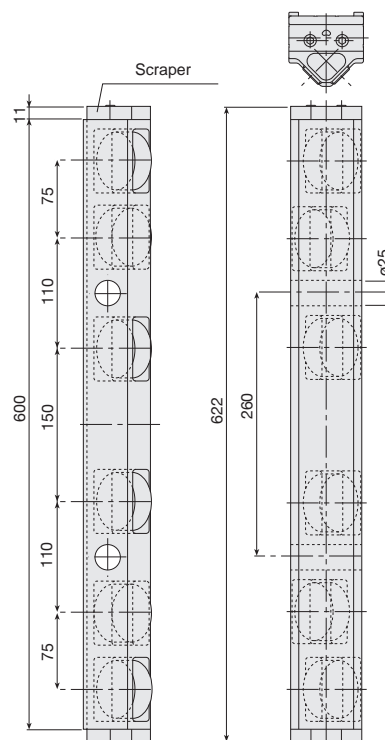
6-roller slide, fixed assembly with 2 pins  
 centre-distance: 260mm  
 On request it is possible to ask for this roller slide equipped  
 with 4 external rollers only (code 304.0934).



	$M_{x1}$ [Nm]	$M_{x2}$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_y$ [N]	$F_{z1}$ [N]	$F_{z2}$ [N]
SYS1-M	257	411	950	668	3950	6317	3950
SYS1-G	343	548	950	668	3950	6317	3950

### Specifications

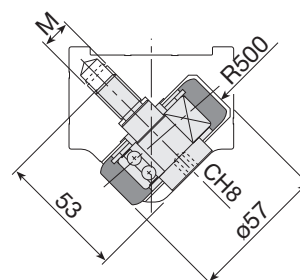
Number of rollers	6
Weight	about 7 Kg
Spare part	Code 304.0720



## Spare part pin with roller



In case of maintenance, by reassembling the pin, do not  
 lubricate the thread and apply a **tightening torque of max  
 55 Nm.**



### Components

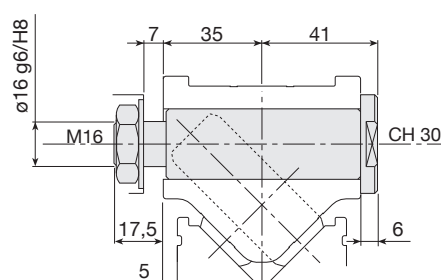
Spare part pin with $\varnothing 57$ roller	Code 305.0958
Spare part with stainless steel pin	Code 305.0951

## Assembly pins

### Type N assembly pins



Material: blued steel. Special executions on demand.  
 Some versions are also available in AISI 303 stainless steel  
**ATTENTION:** please refer to "Warnings" on page 7 for  
 a correct assembly.

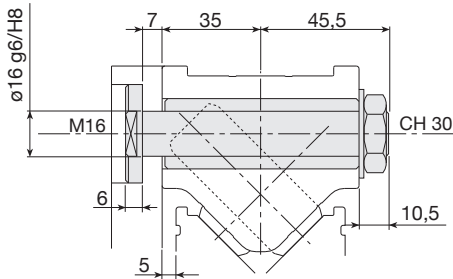


### Specifications

Weight	0,4 Kg circa
Concentric	Code 336.1001
Eccentric	Code 336.1002



### Type A assembly pins

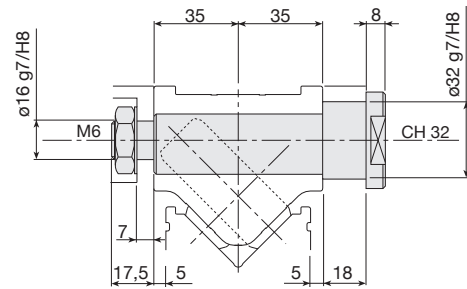


#### Specifications

Weight	about 0,4 Kg
Concentric	Code 336.0701
Eccentric	Code 336.0702

### Type F assembly pins

For double plate carriage.

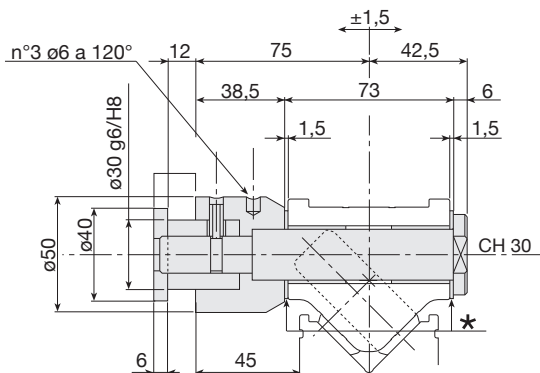


#### Specifications

Weight	about 0,5 Kg
Concentric	Code 336.0738
Eccentric	Code 336.0739

### Type D self-aligning pins

For parallelism error compensation ( $\pm 1,5$  mm).



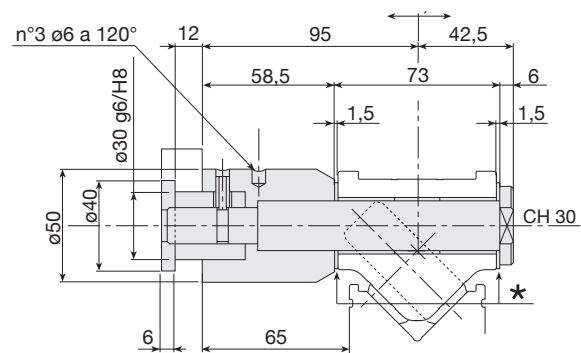
\* **NB:** remove the two washers to obtain a roller slide self-alignment of  $\pm 1,5$ mm.

#### Specifications

Weight	about 1,3 Kg
Concentric	Code 336.0707
Eccentric	Code 336.0708

### Type E self-aligning pins

For parallelism error compensation ( $\pm 1,5$  mm).



\* **NB:** remove the two washers to obtain a roller slide self-alignment of  $\pm 1,5$ mm.

#### Specifications

Weight	about 1,6 Kg
Concentric	Code 336.0709
Eccentric	Code 336.0710

# Connecting plates

Material: 6082 aluminium alloy.

**ATTENTION:** eccentric pins must be mounted on the side with the lower load.

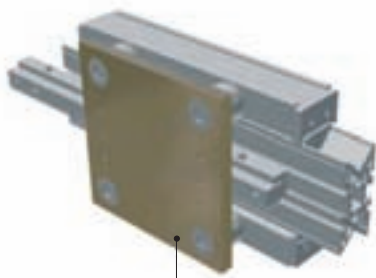


Plate for type D-E pins

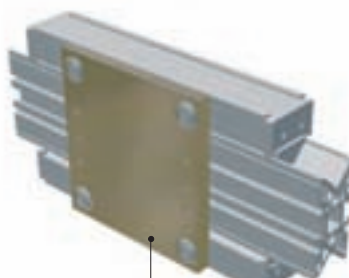


Plate for type A-N pins

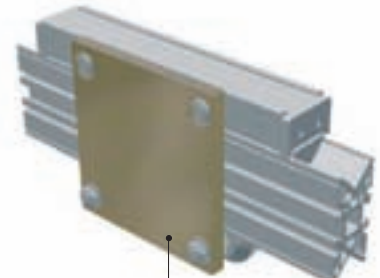


Plate for type A-N pins and V-shaped rollers

## Plate for type D-E pins

When a “fixed carriage/moving rail” application is required, where the load (P) is applied onto the bar, please arrange pins as shown in figure no.1.

When a “moving carriage/ fixed rail” application is required, where the load (P) is applied onto the carriage, please arrange pins as shown in figure no. 2

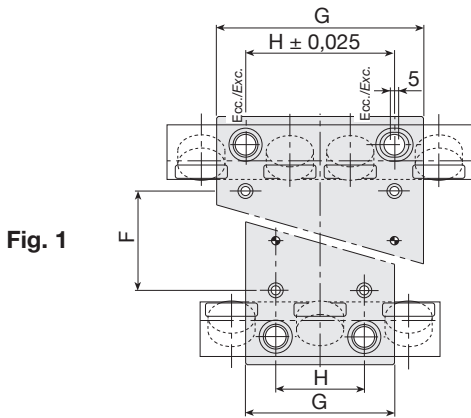


Fig. 1

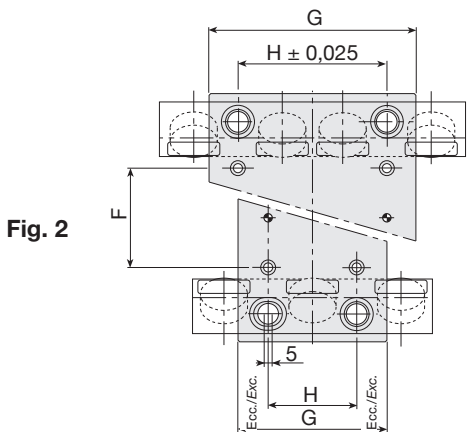
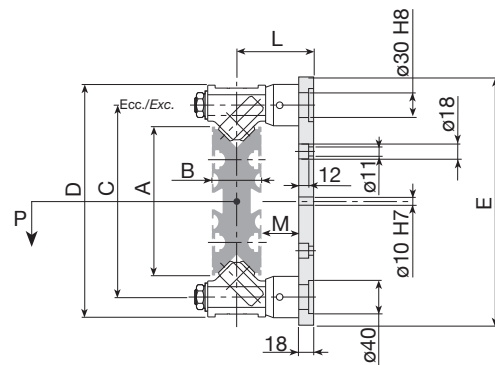
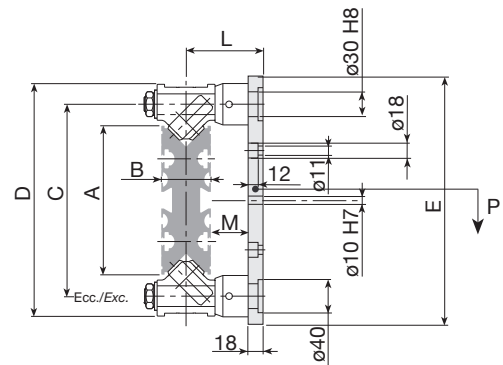


Fig. 2

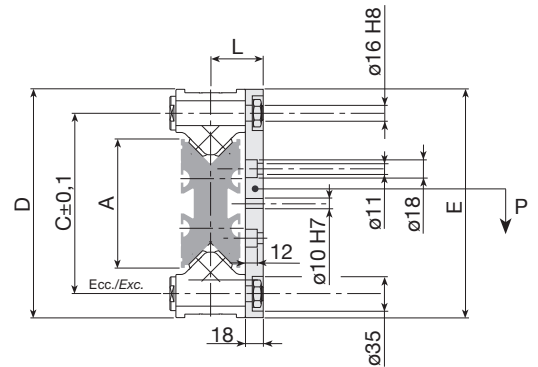
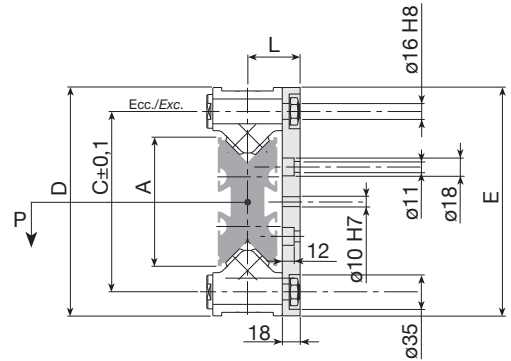
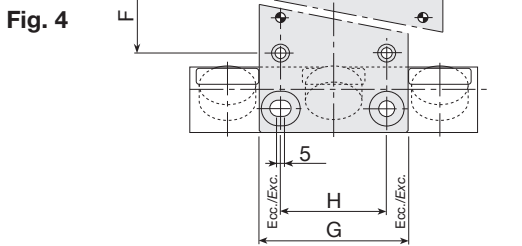
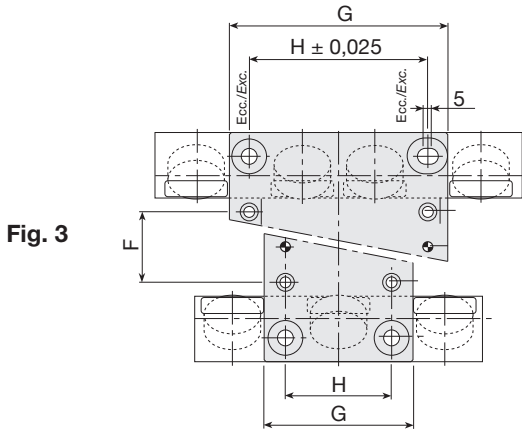


Roller slide	Pins	Rail	A	B	C	D	E	F	G	H	L	M	Plate
Type 5-9	D	SYS1-M	130	60	182	230	250	70	250	180	93	45	315.0660
Type 5-9	D	SYS1-G	180	60	232	280	300	100	250	180	93	45	315.0659
Type 5-9	E	SYS1-M	130	60	182	230	250	70	250	180	113	65	315.0660
Type 5-9	E	SYS1-G	180	60	232	280	300	100	250	180	113	65	315.0659
Type 3	D	SYS1-M	130	60	182	230	250	70	180	107	93	45	315.0662
Type 3	D	SYS1-G	180	60	232	280	300	100	180	107	93	45	315.0661
Type 3	E	SYS1-M	130	60	182	230	250	70	180	107	113	65	315.0662
Type 3	E	SYS1-G	180	60	232	280	300	100	180	107	113	65	315.0661

**Plate for type A-N pins**

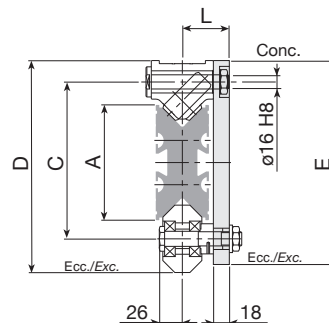
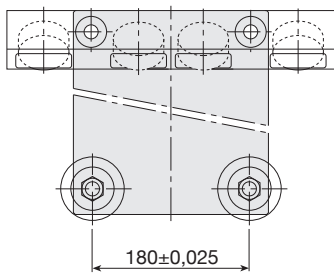
When a “fixed carriage/moving rail” application is required, where the load (P) is applied onto the bar, please arrange pins as shown in figure no. 3.

When a “moving carriage/ fixed rail” application is required, where the load (P) is applied on the carriage, please arrange pins as shown in figure no. 4



Roller slide	Pins	Rail	A	B	C	D	E	F	G	H	L	M	Plate
Type 5-9	A-N	SYS1-M	130	60	182	230	230	70	220	180	53	5	315.0656
Type 5-9	A-N	SYS1-G	180	60	232	280	280	100	220	180	53	5	315.0655
Type 3	A-N	SYS1-M	130	60	182	230	230	70	150	107	53	5	315.0658
Type 3	A-N	SYS1-G	180	60	232	280	280	100	150	107	53	5	315.0657

**Plate for type A-N pins and V-shaped rollers**



Roller slide	Pins	Rail	A	B	C	D	E	F	G	H	L	Plate
Type 5-9 + shaped roll.	A-N	SYS1-M	130	60	177	239	230	-	220	180	53	315.1032
Type 5-9 + shaped roll.	A-N	SYS1-G	180	60	227	289	280	-	220	180	53	315.1031

# Order code table

## Roller slides and pins



			3	5	7	9	0
	<b>N</b>	con.	304.0243	304.0245	-	304.0726	304.0727
		exc.	304.0303	304.0305	-	304.0728	304.0729
	<b>A</b>	con.	304.0203	304.0205	-	304.0601	304.0602
		exc.	304.0263	304.0265	-	304.0617	304.0618
	<b>D</b>	con.	304.0221	304.0223	304.0225	304.0607	304.0608
		exc.	304.0281	304.0283	304.0285	304.0623	304.0624
	<b>E</b>	con.	304.0229	304.0231	304.0233	304.0609	304.0610
		exc.	304.0289	304.0291	304.0293	304.0625	304.0626
	<b>F</b>	con.	304.0237	304.0239	-	304.0611	304.0612
		exc.	304.0297	304.0299	-	304.0627	304.0628

## Roller slides equipped with pins and plate



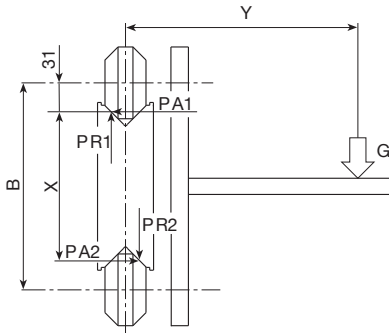
		Rail	3	5	9
	<b>N</b>	SYS1-M	304.0423	304.0425	304.0735
		SYS1-G	304.0363	304.0365	304.0734
	<b>A</b>	SYS1-M	304.0383	304.0385	304.0641
		SYS1-G	304.0323	304.0325	304.0633
	<b>D</b>	SYS1-M	304.0401	304.0403	304.0644
		SYS1-G	304.0341	304.0343	304.0636
	<b>E</b>	SYS1-M	304.0409	304.0411	304.0645
		SYS1-G	304.0349	304.0351	304.0637
	<b>F</b>	SYS1-M	304.0417	304.0419	304.0646
		SYS1-G	304.0357	304.0359	304.0638

# Profiled Rollers

Sys

Material: black high-resistance polyamide coating.  
Eccentric or concentric blued steel pin.

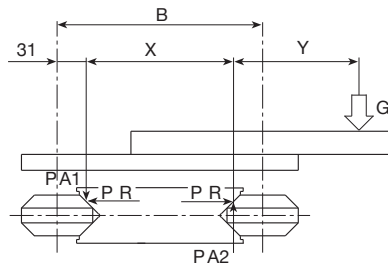
**On demand:** white polyacetic coating (high hardness);  
longer pins.



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

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

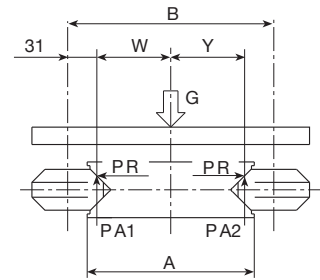
$$P_{R2} = P_{A2}$$



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

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

$$X = A - 20 \text{ mm}$$



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

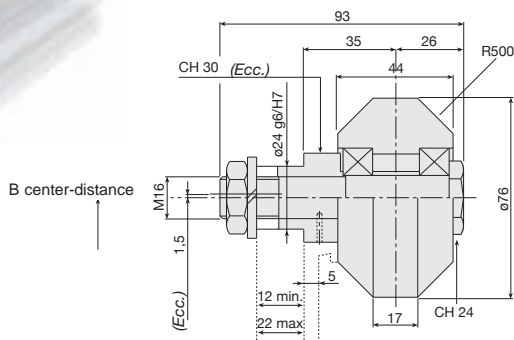
$$P_{A2} = G - P_{A1}$$

## B center-distances

SYS1-H	SYS1-P	SYS1-M	SYS1-G	Code
61	148	172	222	305.0730/1
61	148	172	222	305.0732/3
61	148	172	222	305.0747/8
57	140	164	214	305.1570/1

## Ø76 shaped rollers

Material: high-resistance black polyamide coating.  
Eccentric or concentric blued steel pin.



### Middle version roller (radial bearings)

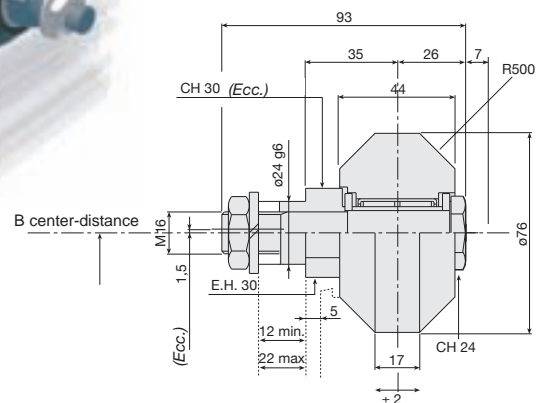
Type	Weight [kg]	PR [N]	PA [N]	Speed [m/s]	Code
Ecc.	0,6	800	200	2	305.0730
Conc.	0,6	800	200	2	305.0731

### Heavy version roller (skew contact bearings)

Type	Weight [kg]	PR [N]	PA [N]	Speed [m/s]	Code
Ecc.	0,6	1200	500	2	305.0732
Conc.	0,6	1200	500	2	305.0733

## Ø76 V-shaped self-aligning rollers

External coating with ±3 mm end float.  
For parallel rail application.  
To be coupled with shaped roller (see page 17).



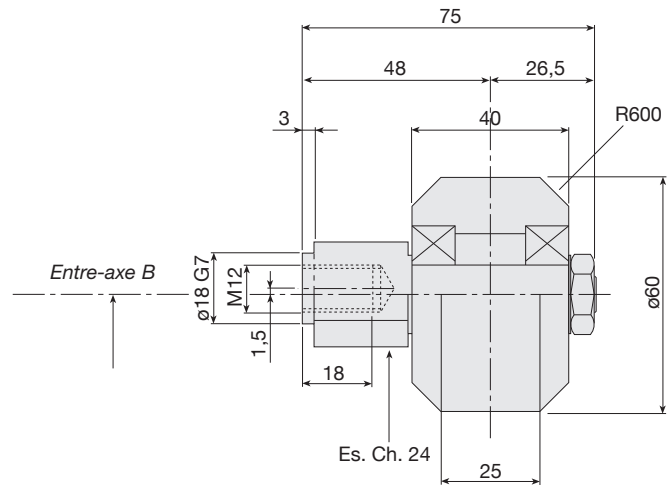
### Floating roller

Type	Weight [kg]	PR [N]	PA [N]	Speed [m/s]	Code
Ecc.	0,6	1400	0	2	305.0748
Conc.	0,6	1400	0	2	305.0747

S  
Y

## Ø60 V-shaped rollers

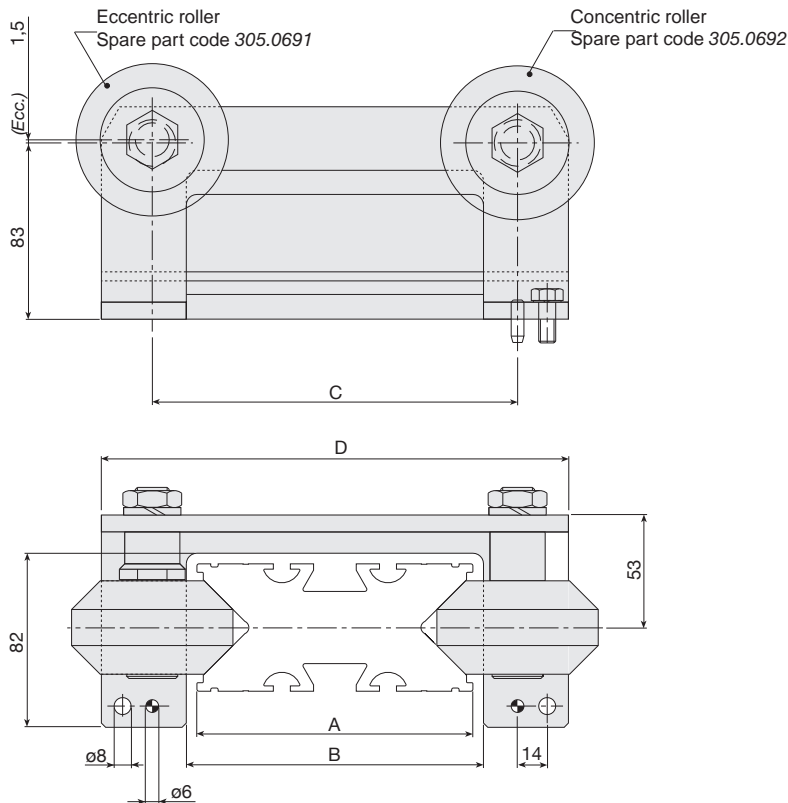
Material: high-resistance black polyamide coating.  
 Drilled, threaded, chromium plated steel enbloc pin.  
 Clamping screw not included.



Type	Weight [kg]	PR [N]	PA [N]	Speed [m/s]	Code
Ecc.	0,5	500	120	2	305.1570
Conc.	0,5	500	120	2	305.1571

## Angular support

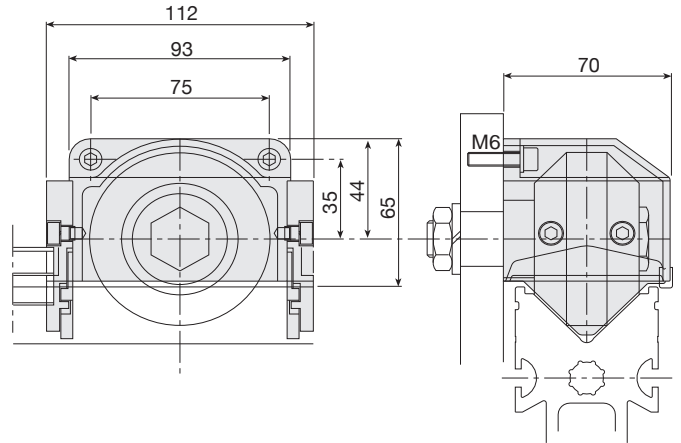
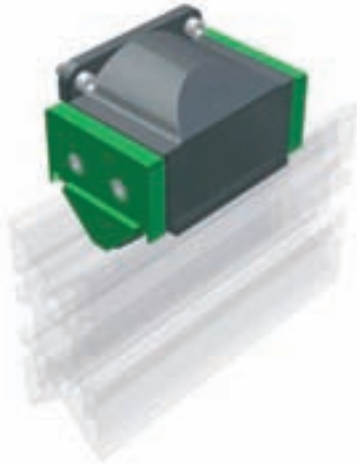
Angular support complete with 2 V-shaped rollers for SYS1 rails. Suitable for applications with rail mounted orthogonally respect to the plate plane.



Rail	A	B	C	D	Weight [Kg]	Code
SYS1-P	100	110	148	195	1,6	304.1017
SYS1-M	130	140	172	220	1,8	304.0476
SYS1-G	180	190	222	270	2	304.0667

## Code 312.1572

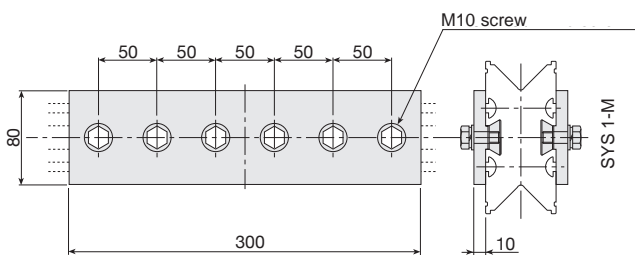
Ø76 shaped roller guard in black stiffened plastic material, complete with grooved scraper for guard profile. (see page 30).



## Rail connecting plates

### SYS1-M connecting plate

Material: bronze coloured anodized 6082 aluminium alloy.



### Double connecting plate

Complete set

Code

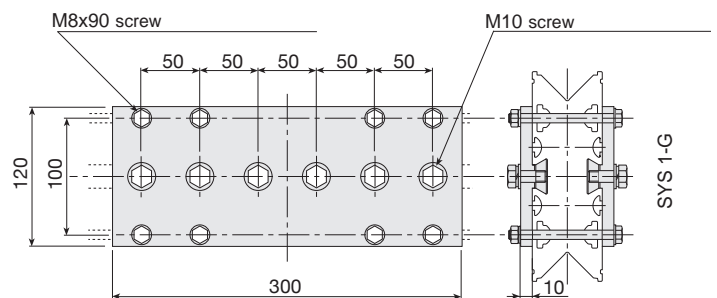
336.0198

Single plate

315.0724

### SYS1-G connecting plate

Material: bronze coloured anodized 6082 aluminium alloy.



### Double connecting plate

Complete set

Code

336.0188

Single plate

315.0713

N.B.: Please ask for code ...-62/... or ...-63/... to get the rail drilled (see page 31)

### On demand

#### Plate for built in screws and nuts

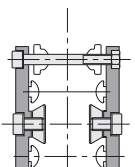
Double plate

Code

336.0879

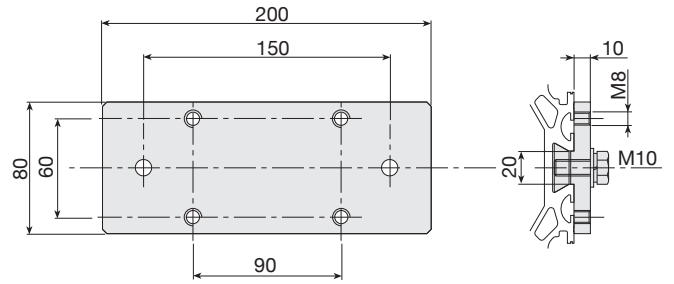
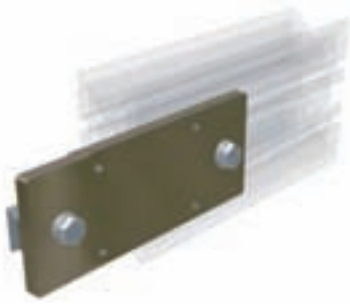
Single plate

315.0882



# Accessory fixing plate

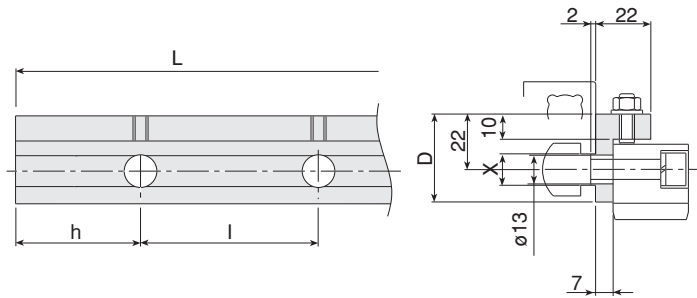
Material: bronze coloured anodized 6082 aluminium alloy.



For SYS1 rail	Code
Complete set	336.0666
Single plate	315.0185

# Rack fixing plate

Obtained by extrusion.  
Material: natural anodized 6082 aluminium alloy.

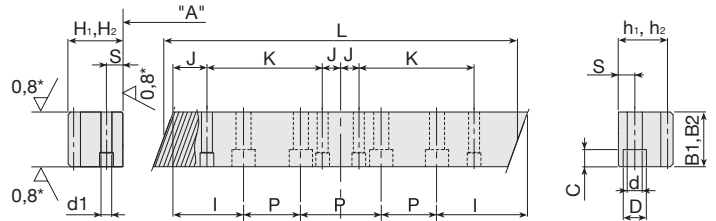


Module	D	L	l	h	Hole no.	X	Code
2	35	50	-	25	1	8	315.0005
2	35	243	126,1	56,35	2	8	215.0025
2	35	491	126,1	56,35	4	8	215.0026
3	35	50	-	25	1	8	315.0583
3	35	243	126,1	56,35	2	8	215.2368
3	35	491	126,1	56,35	4	8	215.2137
3	35	50	-	25	1	20	315.0578
3	35	243	126,1	56,35	2	20	315.0001
3	35	491	126,1	56,35	4	20	315.0002
4	39	243	125,3	57,55	2	20	315.0003
4	39	491	125,3	57,55	4	20	315.0004



## Helical Teeth (right-hand 19° 31' 42", press. angle 20°)

- KBD CK 45: normalized, milled
- KTD CK 45: normalized, induction hardened teeth
- KFD CK 45: normalized, hardened teeth, 3 ground sides
- KSD CK 45: normalized, hardened, induction, ground teeth and sides
- KRD AISI 984: induction hardened alloyed steel, ground sides and teeth



\*machining of surfaces **NOT** available on version KBD - KTD

Treatment	Rs	Hardness	Quality	Precision
KBD CK 45	650 N/mm <sup>2</sup>	-	Q8	0,085mm/300mm
KTD CK 45	650 N/mm <sup>2</sup>	≥ HRC 56	Q9	0,085mm/300mm
KSD CK45	> 650 N/mm <sup>2</sup>	≥ HRC 56	Q6	0,025mm/300mm
KRD AISI 9840	> 900 N/mm <sup>2</sup>	HRC 60 c.a.	Q6	0,025mm/300mm

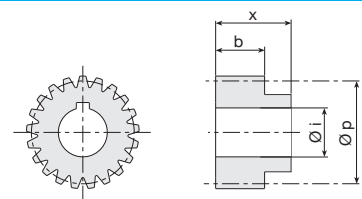
Mod.	H <sub>1</sub>	H <sub>2</sub>	B <sub>1</sub>	B <sub>2</sub>	L	I	J	d	D	C	d1(H7)	S	h <sub>1</sub>	h <sub>2</sub>	P	K	p.[kg]	Code
2	25	24	25	24	500	62,5	35	7	11	7	6	8	23	22	125	430	2,2	<b>211.2429</b>
2	25	24	25	24	1000	62,5	35	7	11	7	6	8	23	22	125	430	4,3	<b>211.2363</b>
3	30	29	30	29	500	62,5	35	10	15	9	8	9	27	26	125	430	3,0	<b>211.2367</b>
3	30	29	30	29	1000	62,5	35	10	15	9	8	9	27	26	125	430	6,1	<b>211.2351</b>
4	40	39	40	39	500	62,5	35	10	15	9	8	12	36	35	125	430	5,5	<b>211.2366</b>
4	40	39	40	39	1000	62,5	35	10	15	9	8	12	36	35	125	430	10,9	<b>211.2349</b>

Code 211.2426 / BD

Teeth and treatment features

## Pinion Gears

- ND Pinion with helical teeth
- RD Pinion with ground helical teeth



Type	Material	Surf. treat.	RS	Quality	Hardness
ND	Special steel	tempered and hardened	>900 N/mm <sup>2</sup>	Q8	HRC 50
RD	16MnCr5	temp. induction-hardened	>900 N/mm <sup>2</sup>	Q7	HRC 60

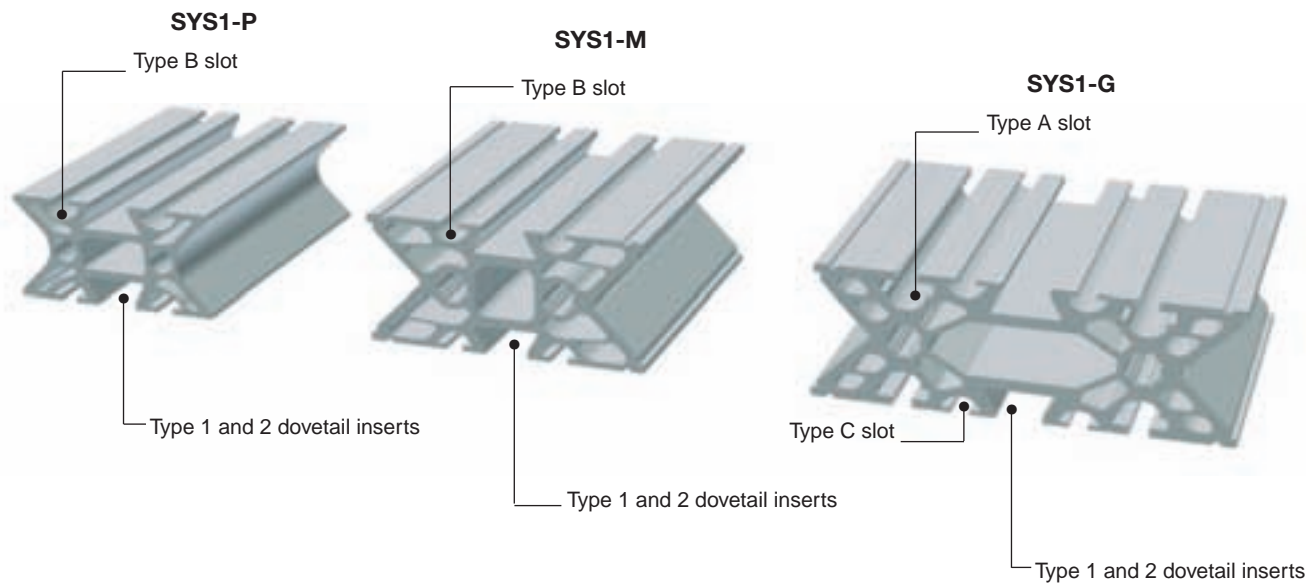
### Helical tooth pinion

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

Code 201.0007 / ND / 25 — Øi

Teeth and treatment features

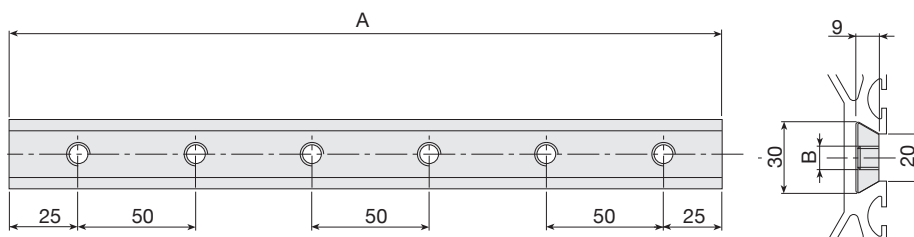
# Slot details



## Dovetail inserts

### Dovetail insert

Material: C40 blued - M8 and M10 holes.  
Special lengths on demand.



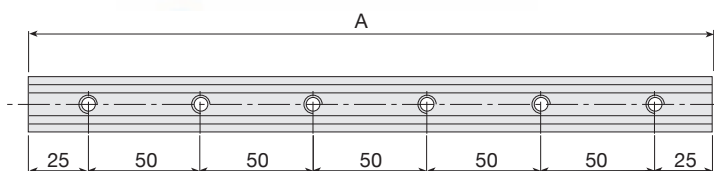
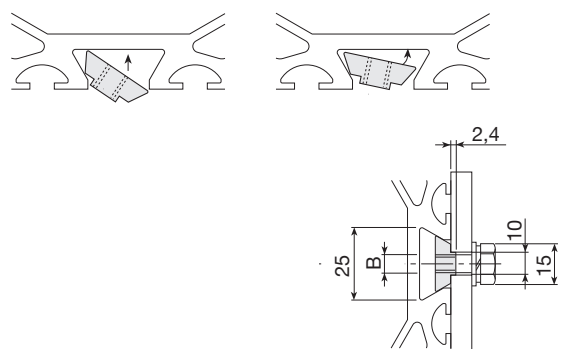
A	B	Hole no.	Code
50	M8	1	314.0170
150	M8	3	314.0172
300	M8	6	314.0175
50	M10	1	314.0164
150	M10	3	314.0166
300	M10	6	314.0169

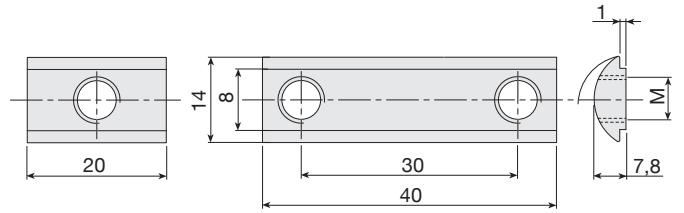
### Dovetail centering insert (type 2)

**NB:** All dovetail centering inserts can be frontally inserted into the bigger slot.



A	B	Hole no.	Code
50	M8	1	314.0178
300	M8	6	314.0183





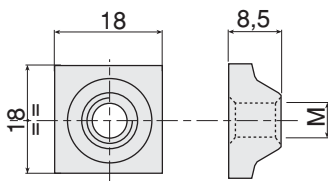
Thread	Hole no.	L	Code
M5	1	20	A32-55
M6	1	20	A32-65
M8	1	20	A32-85
M6	2	40	A32-67

## Square nuts and spring

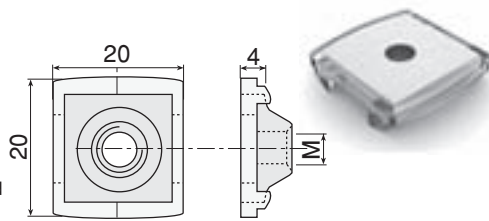
Also suitable for profiles **STATYCA, VALYDA, LOGYCA, PRATYCA and SOLYDA.**

Material: galvanised steel.

Important: inserts must be inserted into the longitudinal slots before assembling.



Square nut

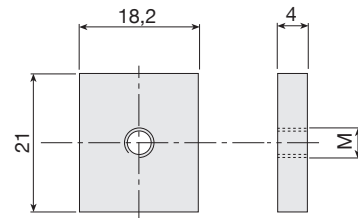


Plastic compound spring

Thread	Code 18x18	Code
<b>Spring</b>	<b>101.0732</b>	
M4	209.0031	209.0023
M5	209.0032	209.0019
M6	209.0033	209.1202
M8	209.0034	209.0467

## Flat inserts

Material: zinc plated steel.

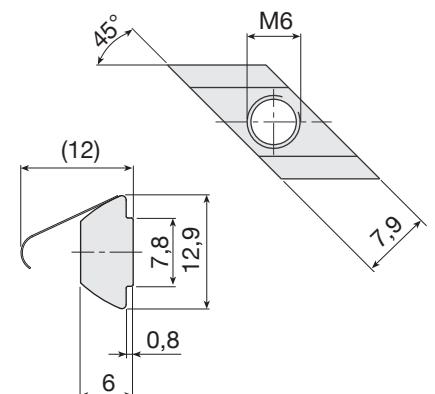


Thread	Code
M4	A32-40
M5	A32-50
M6	A32-60
M8	A32-80
Spring	211.1061

## Spring nuts

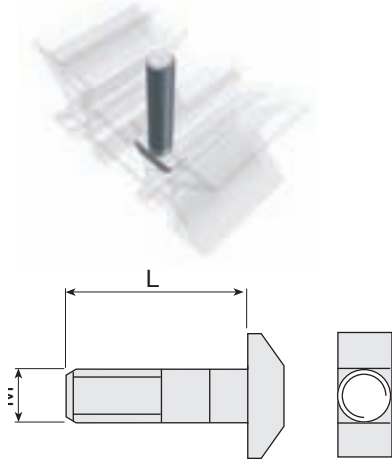
For universal assembly. Can be frontally inserted into the slot, even after assembly. Material: zinc plated steel.

Thread	Code
M3	AC31-30
M4	AC31-40
M5	AC31-50
M6	AC31-60
Spring	AC31-90



## T-bolts

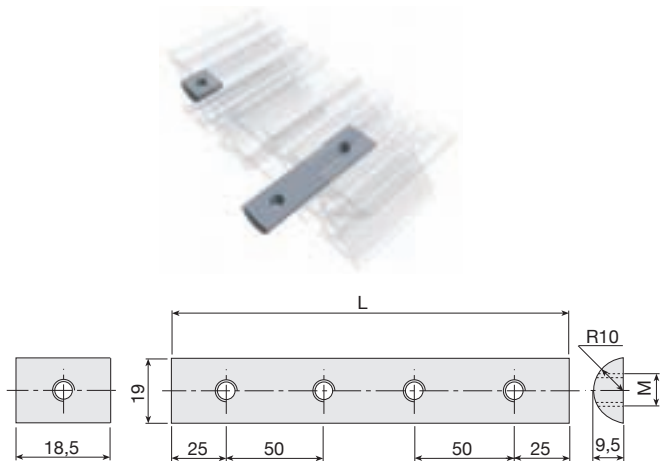
Suitable for 8mm slots. Can be frontally inserted, even after assembly. Material: zinc plated steel.



M x L	Code
M8x20	A35-20
M8x25	A35-25
M8x30	A35-30
M8x40	A35-40
M8x60	A35-60

## Half-round threaded inserts

Material: zinc plated steel.

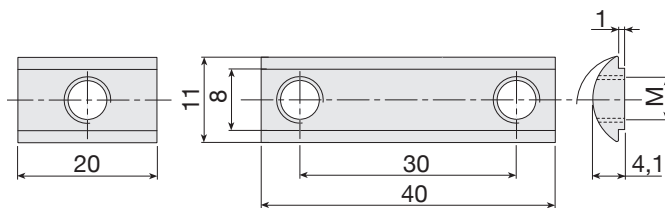


Thread	Hole no.	L	Code
M6	1	18.5	A32-61
M8	1	18.5	A32-81
M8	2	80	A32-82
M8	3	150	A32-83
M8	4	200	A32-84
M8	5	250	A32-89
M8	6	300	A32-86
M8	7	350	A32-87

## Type B-C slots

### Steel threaded inserts

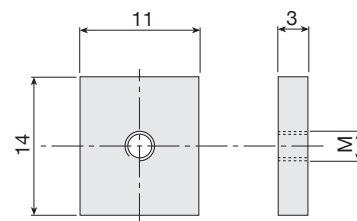
Material: zinc plated steel; harmonic steel spring.



Thread	Hole no.	L	Code
M5	1	20	B32-55
M6	1	20	B32-65
M8	1	20	B32-85
M6	2	40	B32-67

### Flat inserts

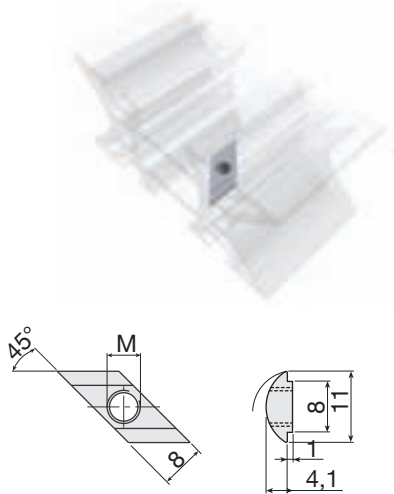
Material: zinc plated steel.



Thread	Code
M3	B32-30
M4	B32-40
M5	B32-50
M6	B32-60
Spring	211.1077

### Spring nuts

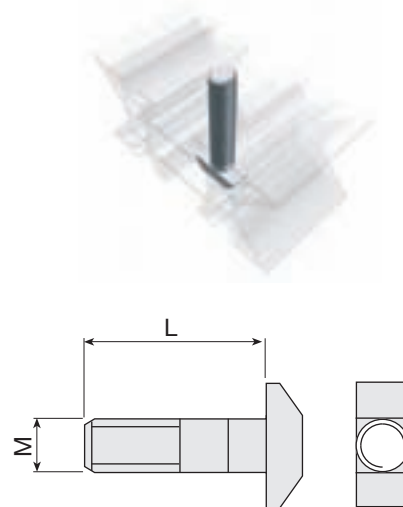
For universal assembly. Can be frontally inserted into the slot, even after assembly. Material: zinc plated steel.



Thread	Code
M3	BD31-30
M4	BD31-40
M5	BD31-50
M6	BD31-60
Spring	BD31-90

### T-bolts

Suitable for 8mm slots. Can be frontally inserted, even after assembly. Material: zinc plated steel.



M x L	Code
M6x15	B35-15
M6x20	B35-20
M6x30	B35-30
M6x40	B35-40

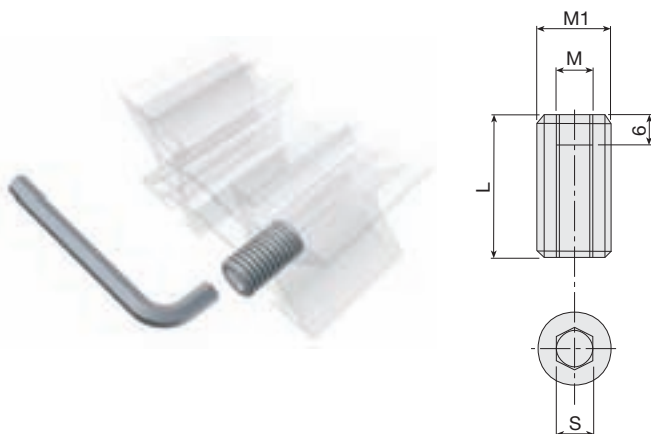
## Threaded Inserts

Material: chromium plated steel.

Ask for M14 or M16 thread.

SYS1-P : M14 thread (B33-.. series)

SYS1-M,G: M16 thread (A33-.. series)

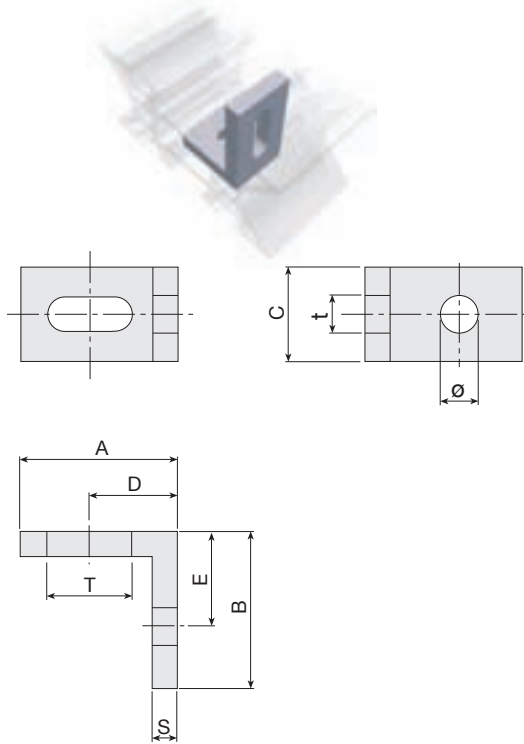


Rail	M1	M	S	L	Code
SYS1-P	14	10	10	25	B33-21
SYS1-P	14	8	8	25	B33-28
SYS1-P	14	6	6	25	B33-26
SYS1-M / G	16	10	10	25	A33-20
SYS1-M / G	16	8	8	25	A33-28
SYS1-M / G	16	6	6	25	A33-26

# Assembly brackets

## Through hole bracket

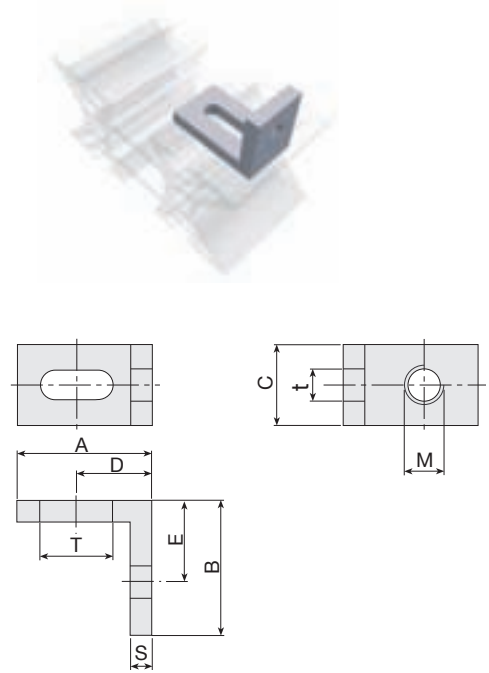
Through hole bracket for mounting additional equipment.  
Material: natural anodized 6060 aluminium alloy.



A	B	C	D	E	S	T x t	Ø	Code
45	45	20	25	25	5	15 x 6.5	6	A30-76
35	25	20	19	15	5	20 x 6.5	4	A30-54
35	25	20	19	15	5	20 x 6.5	5	A30-55
35	25	20	19	15	5	20 x 6.5	6	A30-56
25	25	15	14	15	4	13.5 x 5.5	3	B30-53
25	25	15	14	15	4	13.5 x 5.5	4	B30-54
25	25	15	14	15	4	13.5 x 5.5	5	B30-55
25	25	15	14	15	4	13.5 x 5.5	6	B30-56

## Threaded hole bracket

Threaded hole bracket for mounting additional equipment.  
Material: natural anodised 6060 aluminium alloy.

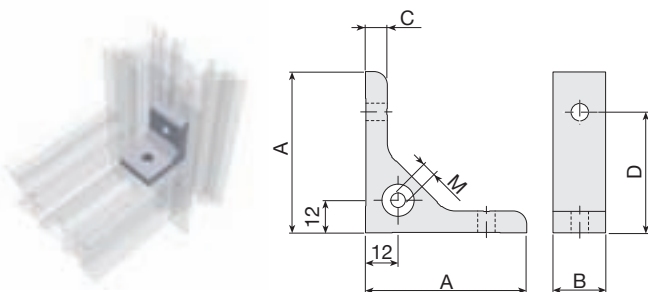


A	B	C	D	E	S	T x t	M	Code
45	45	20	25	25	5	15 x 6.5	M6	A30-86
35	25	20	19	15	5	20 x 6.5	M4	A30-64
35	25	20	19	15	5	20 x 6.5	M5	A30-65
35	25	20	19	15	5	20 x 6.5	M6	A30-66
25	25	15	14	15	4	13.5 x 5.5	M3	B30-63
25	25	15	14	15	4	13.5 x 5.5	M4	B30-64
25	25	15	14	15	4	13.5 x 5.5	M5	B30-65
25	25	15	14	15	4	13.5 x 5.5	M6	B30-66

## Accessory fixing bracket

Bracket mainly used to fix accessories and to reinforce frames realised with profiles.

Material: natural anodized 6060 aluminium alloy.

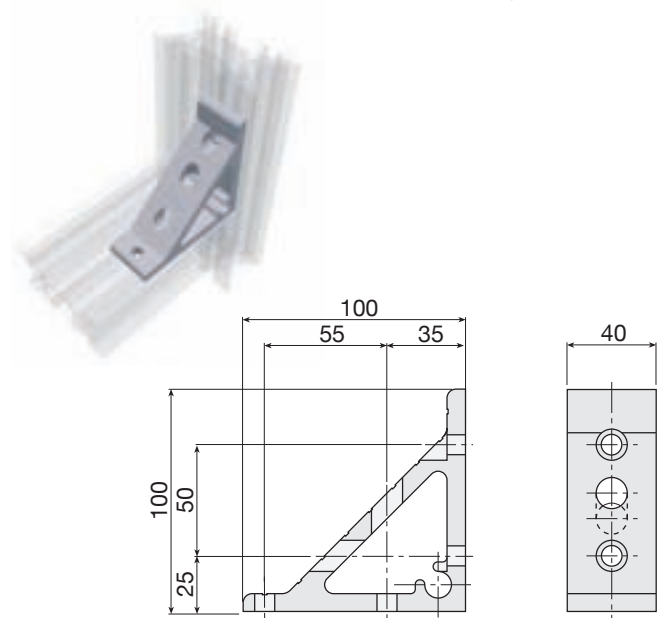


A	B	C	D	E	Ø	M	Code
60	20	8	45	-	6,5	-	B30-10
60	20	8	45	-	6,5	M6	B30-20
60	30	8	45	-	9	-	A30-10
60	30	8	45	-	9	M6	A30-20
38	30	8	25	-	9	-	A30-00
31	20	6	20	-	6,5	-	C30-00

## Code 213.0756

Bracket for rail connection.

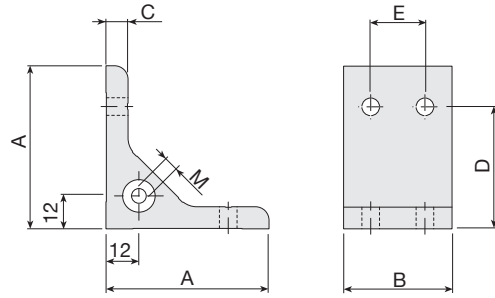
Material: natural anodized 6060 aluminium alloy.



### Threaded hole bracket

Bracket for rail connection.

Material: natural anodized 6060 aluminium alloy.

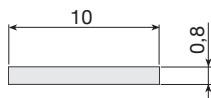


A	B	C	D	E	Ø	M	Code
38	80	8	25	50	9	-	A30-02
31	60	6	20	40	6,5	-	C30-02

## Filler strips

### Aluminium filler strips

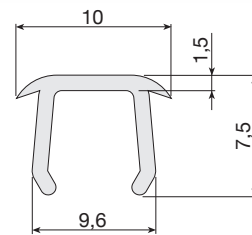
Aluminium filler strips L=1000 mm are used to blank out the longitudinal SYS1-G "A" slots.



Description	Code
Black	A39-10
Natural anodized	A39-10 ALU

### PVC filler strips

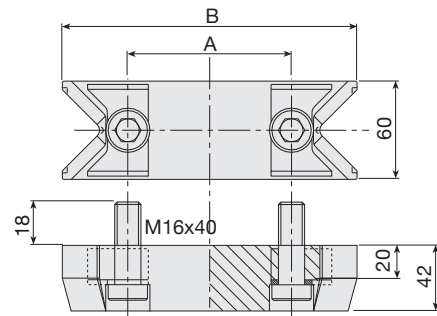
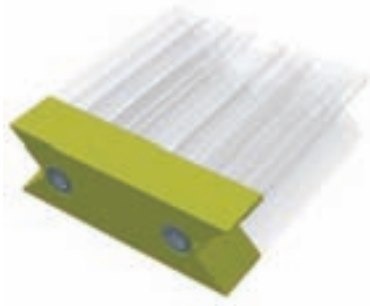
Grey or black PVC filler strips L= 5000mm suitable for any 8 mm longitudinal slots.



Description	Code
Grey	A39-25/5000
Black	A39-26/5000

## Guide end parts

Guide end parts for the rail fitting in the roller slides (degree 15°). Yellow plastic material (hardness: 95° Shore), complete with assembling accessories.

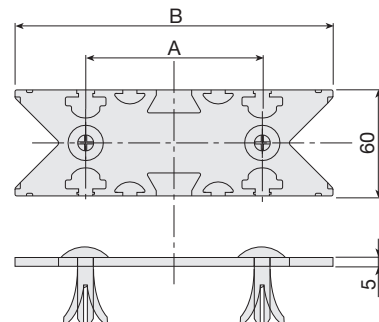


Rail	A	B	Code
SYS1-P	50	100	336.1069
SYS1-M	50	130	312.0159
SYS1-G	100	180	312.0158

NB: holes on rail ends should be threaded M16.

## End caps

Green polymer material, complete with assembling accessories.

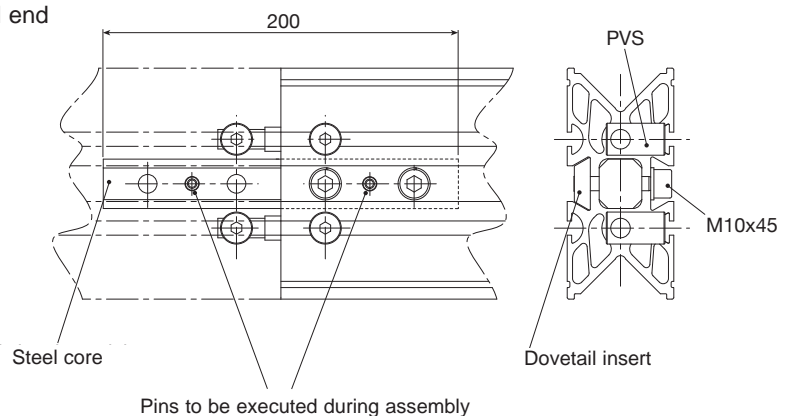


Rail	A	B	Code
SYS1-P	50	100	312.0846
SYS1-M	50	130	312.0679
SYS1-G	100	180	312.0680

## Rail Extension Kits

### Code 336.0597

Complete group for SYS1-G and SYS1-M rail extension (without side projections on the rail). Please ask for code ...-60/... or ...-61/... to get the rail end drilled (see page 31).





PVS® connectors are used to mount plates or accessories to the rail end.

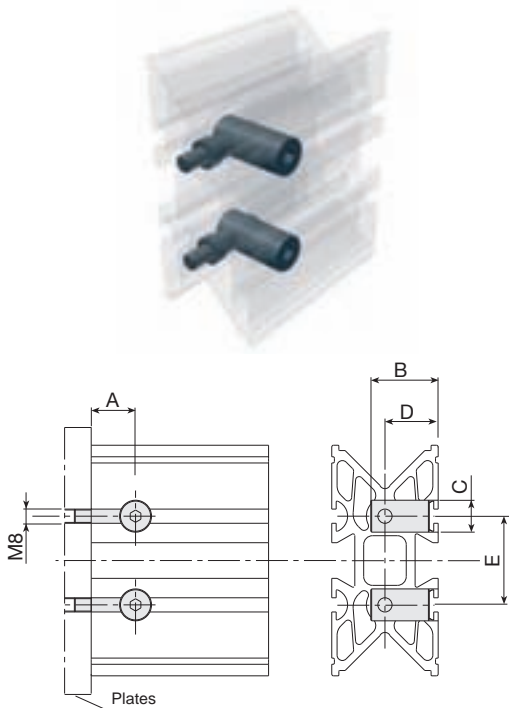
They are manufactured in zinc plated steel.

To use PVS® connectors, rails should be drilled.

Please ask for machining code 33 or 34 (see page 31).

## Threaded connectors

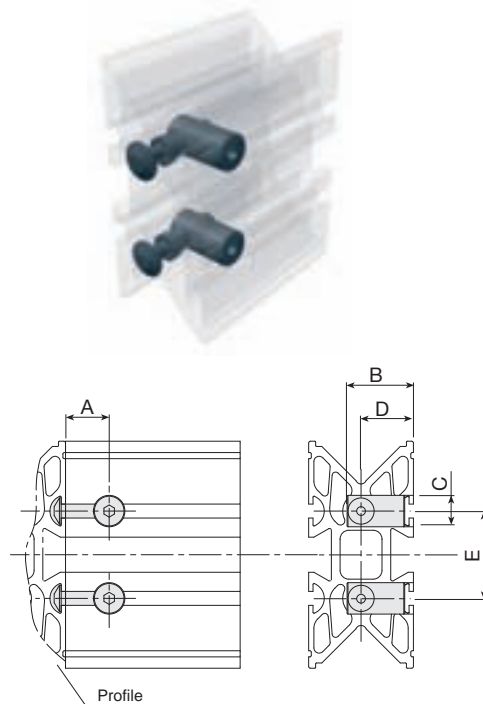
PVS® for rail / plate at 90° assembly.



Rail	A	B	C	D	E	Code
SYS1-P	25	33	15	25	50	B20-60
SYS1-M	25	38	18	30	50	A20-60
SYS1-G	25	38	18	30	100	A20-60

## Standard connectors

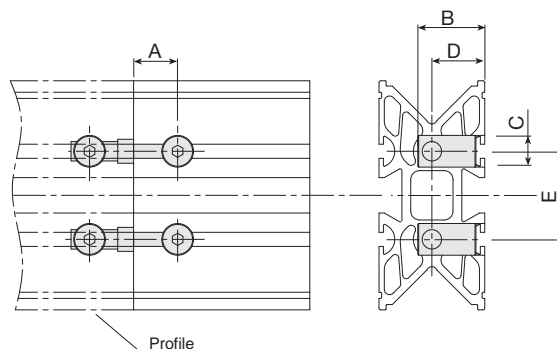
PVS® for rail / rail at 90° assembly.



Rail	A	B	C	D	E	Code
SYS1-P	25	33	15	25	50	B20-90
SYS1-M	25	38	18	30	50	211.1617
SYS1-G	25	38	18	30	100	A20-90

## Rail extension connectors

PVS® for rail / rail assembly.



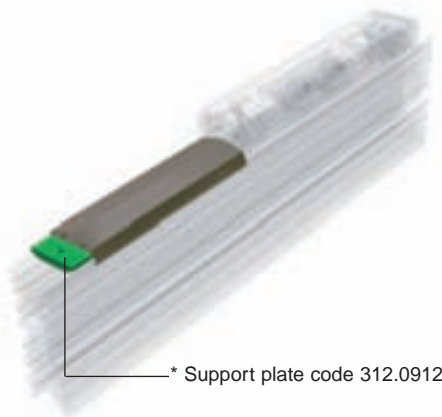
Rail	A	B	C	D	E	Code
SYS1-P	25	33	15	25	50	B24-00
SYS1-M	25	38	18	30	50	A24-00
SYS1-G	25	38	18	30	100	A24-00

# Guard profiles

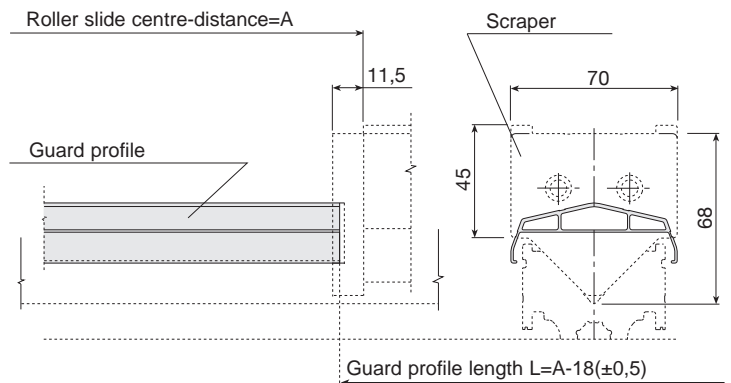
## Guard profile code 302.0147 / length

Material: bronze anodized aluminium alloy (max. L=7 m)

\*Guard profile longer than 3 m should be mounted with a support plate in intermediate position.



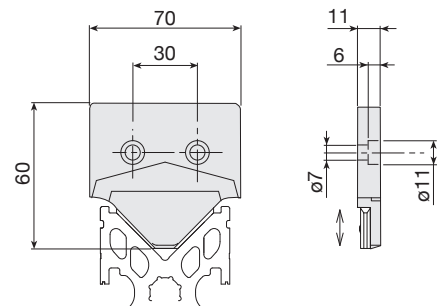
\* Support plate code 312.0912



## Spring scraper code 312.1026

With grooved seat for guard profile.

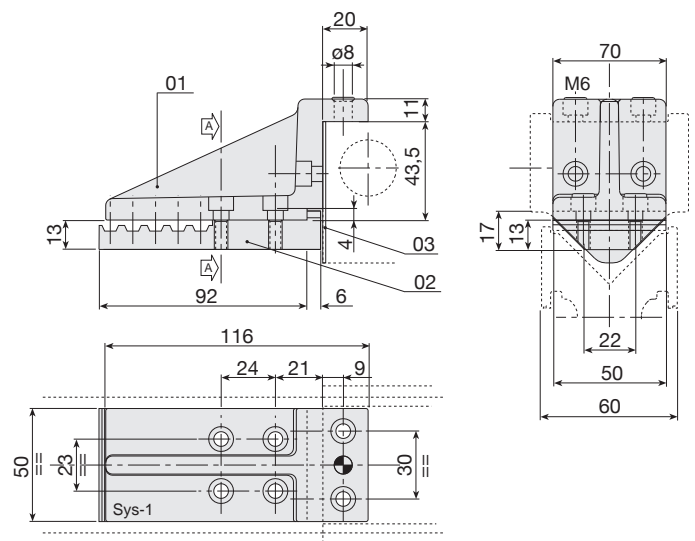
Material: green coloured plastic.



# Belt assembly

This device is used to fix the toothed belt to the roller slide and is provided with toothed plate and special scraper.

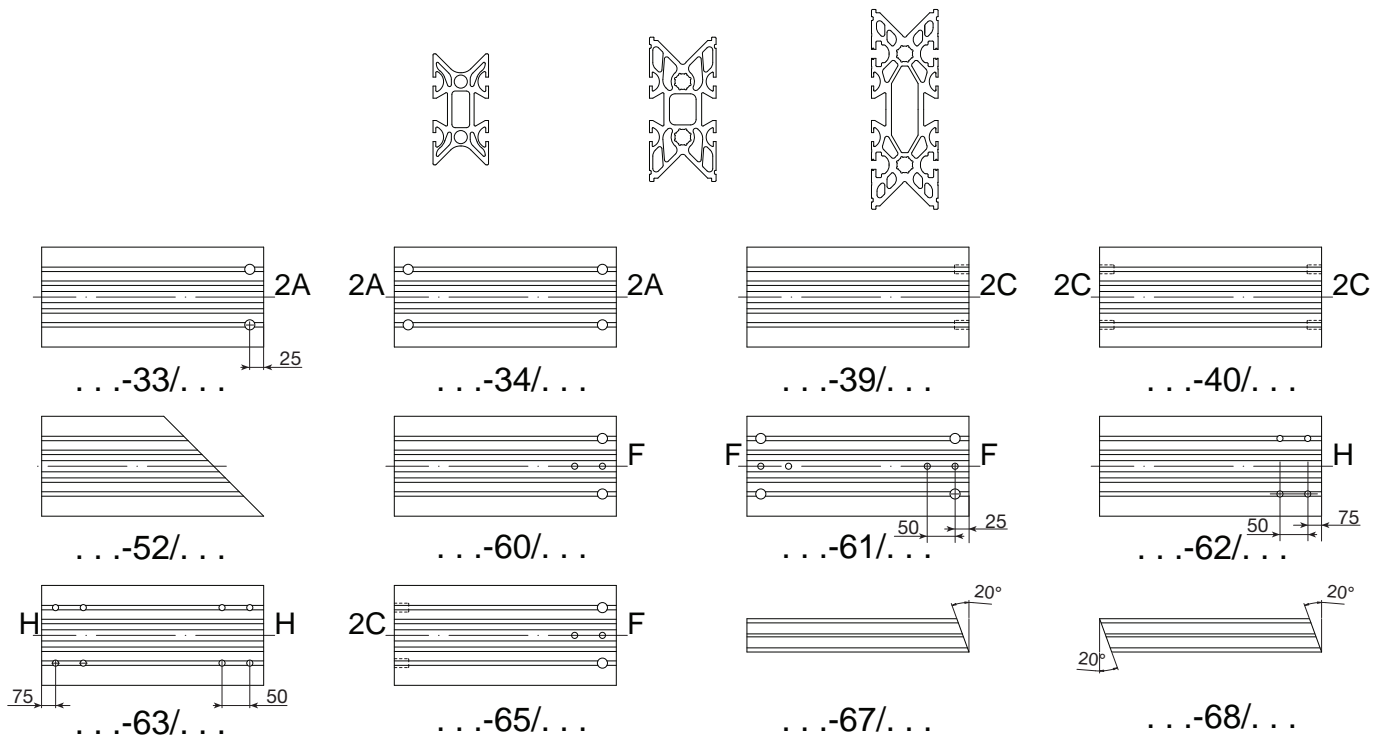
**N.B. Please ask for roller slide presetting.**



## Complete belt fixing group Code 336.0007

01	Belt fixing bracket	313.0884
02	Toothed plate for 50AT10 belt	315.0885
03	Special scraper (1,5 mm thickness)	312.0935

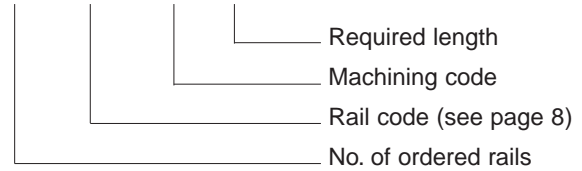
## Standard machining on rails



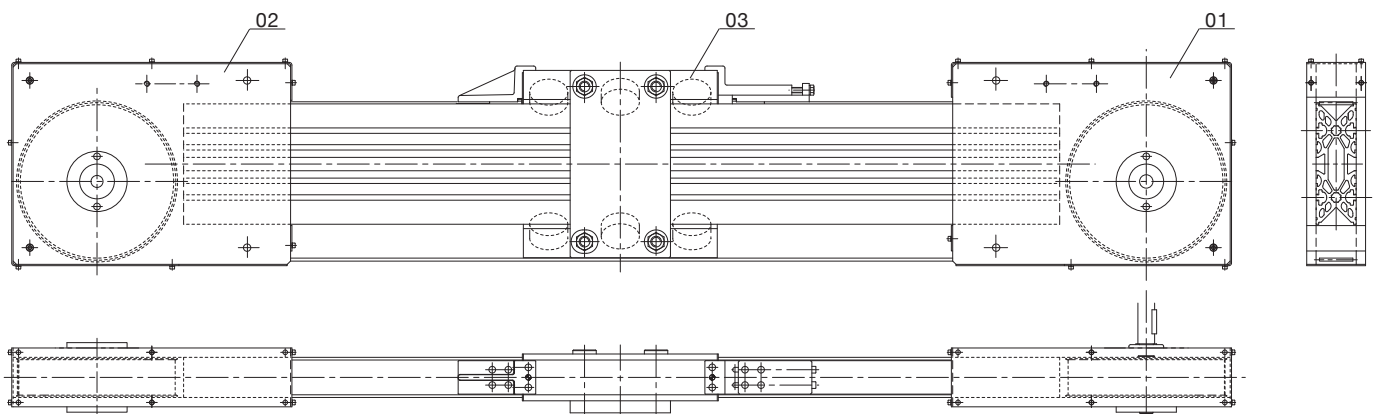
- A** Milling for Ø15 or Ø18 PVS® (see rails)
- C** M14 or M16 threads (see rails)
- F** Drilling to rails connection, code 336.0597
- H** Drilling to rails connection, code 336.0597

### ORDER CODE EXAMPLE:

2 - 3020001 - 60 / 2500

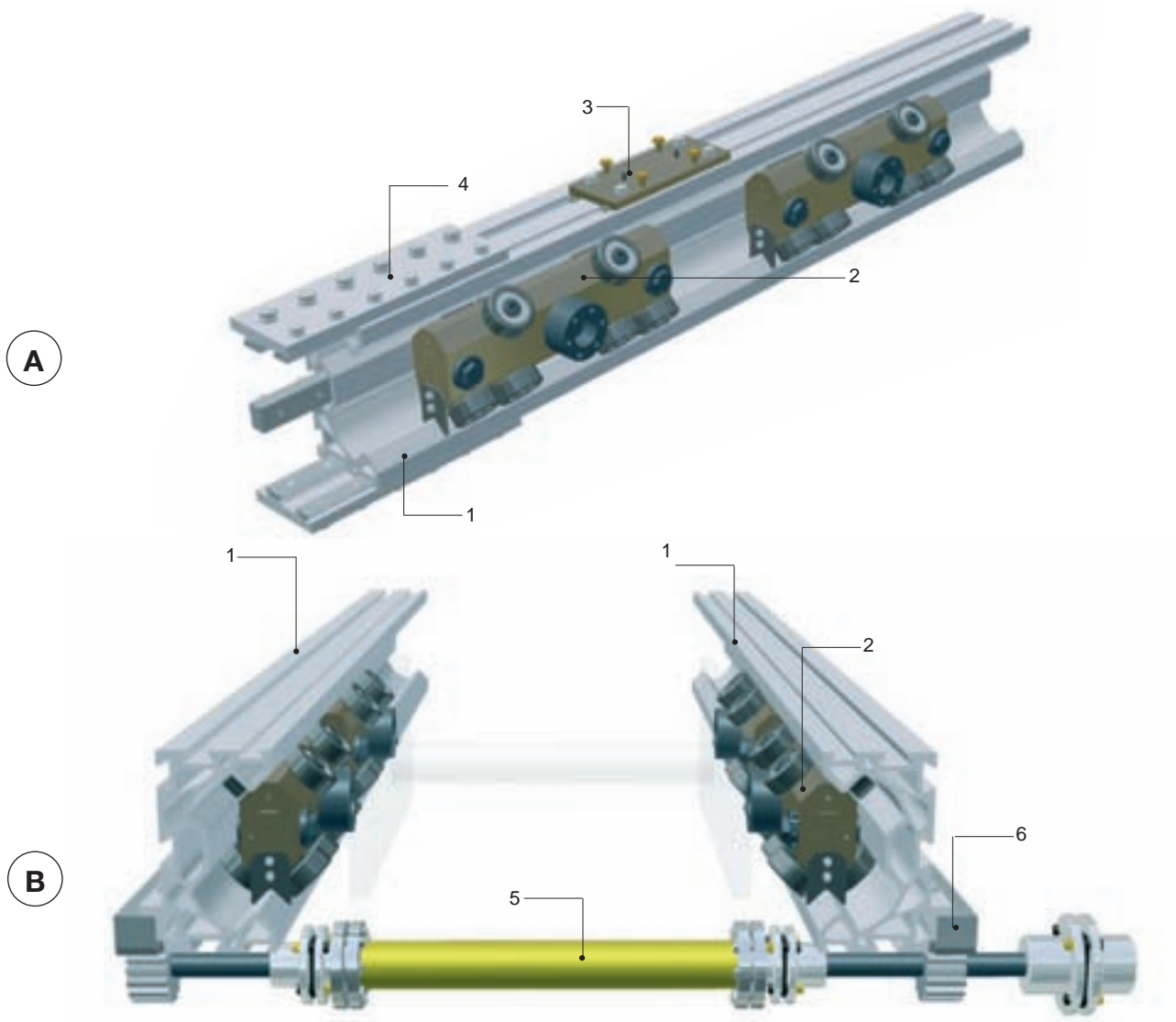


## Special application



Components	Code
01 Drive head	336.0003
02 Driven head	336.0004
03 Complete carriage	336.0005

## Assembly solutions



### A assembly:

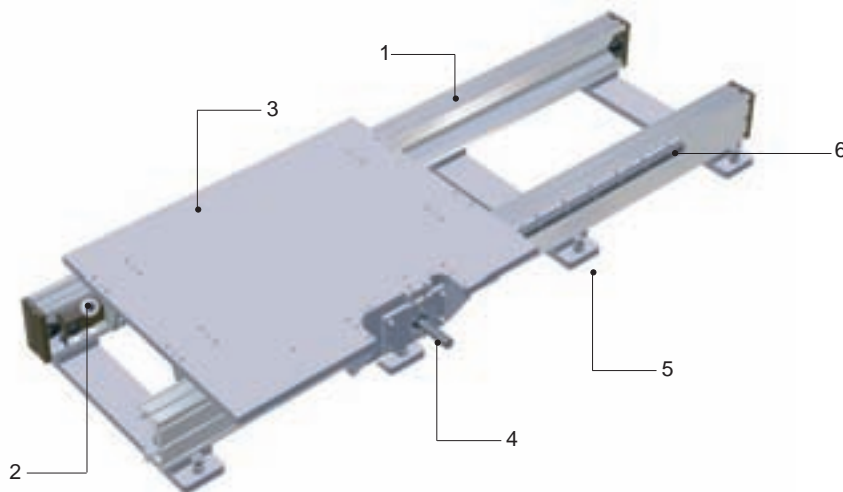
This assembly example represents an axis composed of a single rail. With this configuration you can keep the roller slides steady and move the rail by using pneumatic cylinders, pinion/rack or belt drive systems (not shown here).

### B assembly:

This assembly example represents a system composed of 2 pinion/rack-operated moving rails. It is mainly used to build lift and shift linear units for metal sheet handling.

### Legend:

- 1 – SYS 2 rail (see page 35)
- 2 – Self-aligning roller slide (see page 36)
- 3 – Accessory fixing set (see page 38)
- 4 – Rail extension plate set (see page 38)
- 5 – Connecting shaft (see Modline and Tecline catalogue)
- 6 – Racks and fixing plates (see page 20-21)

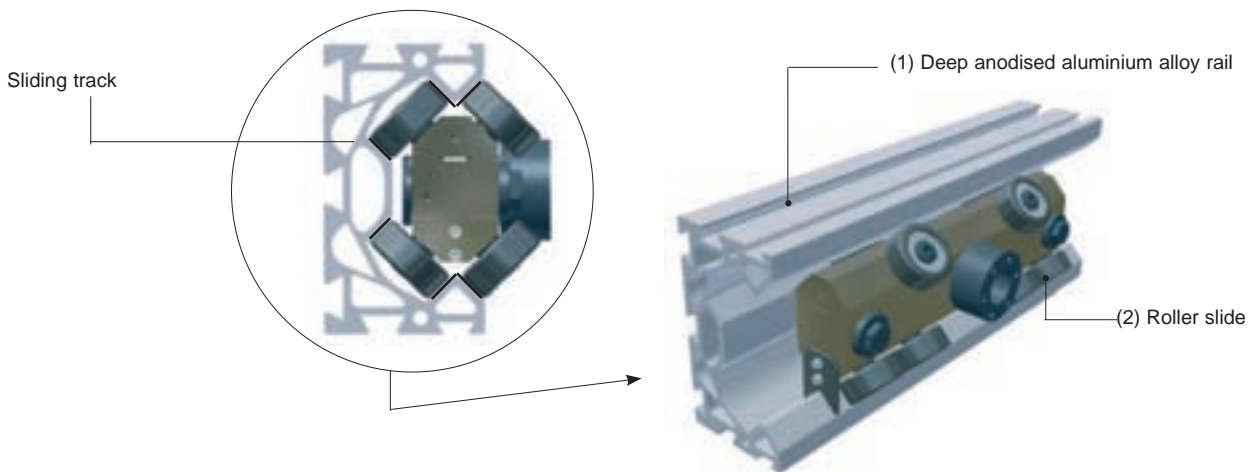


This assembly example represents a slide composed of a carriage (plate and 4 roller slides complete with welded supports) running on 2 profiles that act like a rail. In this configuration the self-aligning roller slides are mounted on the rack opposite site (see page 36), to compensate any stress caused by rail parallelism errors. This system is mainly used as robot-holder, elevators and palletisers.

**Legend:**

- 1 – SYS2 rail (see page 35)
- 2 – Self-aligning roller slide (see page 36)
- 3 – Base plate
- 4 – Gearbox assembly set
- 5 – Risers
- 6 – Racks and fixing plate (see page 20-21)

## Overview



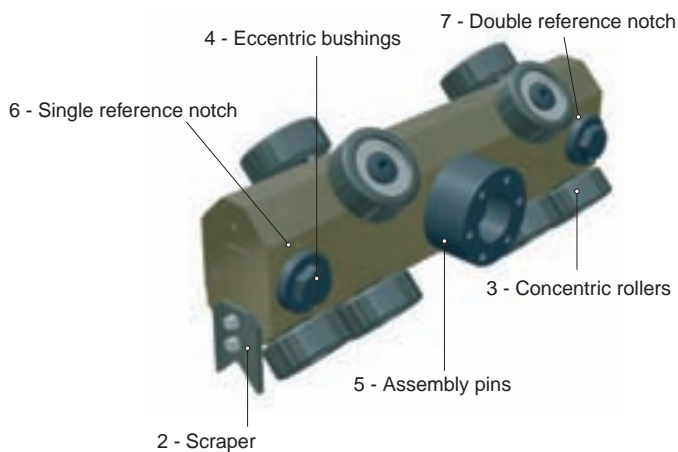
A rugged aluminium C-shaped rail (1) is at the basis of the SYS2 translation system. The linear motion is made through 8-12- or more roller slides running on the hardened inside surfaces. The rail section allows the full rollers and sliding surfaces protection; moreover, an additional lateral guard gives the rail a completely closed rectangular section. Thanks to its particular features, this system can also be used as slide handlings, elevators, palletizers and Cartesian robots.

## Roller slide description

The main body consists of two joined high-resistance light alloy components (1-2). It is provided with double-sphere ring gear angular contact bearings, neoprene O-rings, to ensure the lowest friction coefficient.

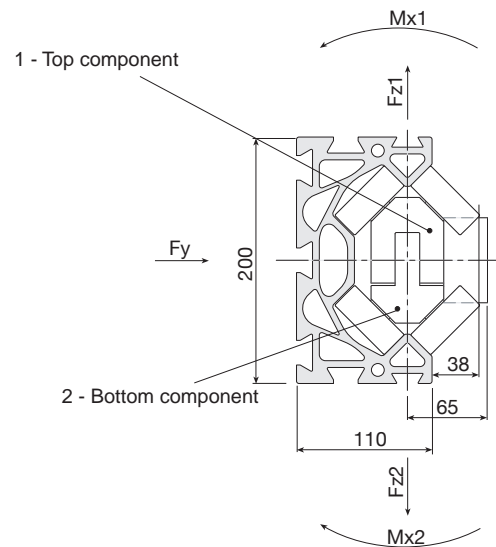
Lubrication is not required for the standard version, giving a great advantage to the plant operating efficiency.

The roller external surface is covered by a low-friction plastic material, which guarantees the maximum noise reduction and lowest possible rail wear.



Roller slides can be supplied in two solutions: 16- and 20-rollers with 2 assembly pins (length: 480 and 600 mm) and scraper (4) or 8- 12-rollers with just 1 central assembly pin, which allows a well balanced load distribution on each bearing through a slight oscillation.

A self-aligning roller slide version with 1 locking pin is also available.



## Assembly specifications

### A - Features

The sliding system generally foresees 2 assembly possibilities: moving rail and fixed roller slides (example 1) or fixed roller slides and moving rail (example 2).

If the application requires fixed rails and moving carriage, it is very important to pay particularly attention to the rail alignment while assembling, in order to avoid any additional loads on the rollers, that could limit their life.

The max. possible tolerance between 2 rails is  $\pm 1\text{mm}$ .

In this case is highly recommended to use self-aligning roller slides. If the sliding system is pinion/rack operated, check that slipping washers (see page 36) are removed on the roller slides fixed on the rack opposite side.

Rail connecting systems are available on demand.

### B - Alignment

Sliding tracks have to be perfectly aligned.

### C - Rack assembly

With rack drive it is very important to guarantee exact parallelism between the sliding system and the rack axis. (rack and fixing plates on page 20-21).

### D - Roller slide assembly and adjusting

The roller slide can be assembled and disassembled through the rail groove.

The correct backlash adjustment between rollers and rail sliding tracks must be made along the rail vertical axis, acting on the roller slide eccentric bushings (4).

It is recommended to adjust any backlash near each support, to avoid possible rail deformations caused by roller preloading.

An optimum condition for preloading is reached when rollers without any load, touching the sliding track, are not blocked and you can easily let them roll on the track just by hand.

For the simultaneous assembly of several roller slides in one system, it is possible that not all rollers can remain in contact with rails, because of the natural deformation of the rails.

In this case it is not advisable to act on the eccentric pins.

It is important to check the smoothness capacity of the whole system, which should be high; if not, loosen the pins and repeat the adjustment.

Please follow these instructions to disassemble roller slides: loosen the screws and the eccentric bushings (4) placed on the roller slide end, and the assembly pin CH24 bolts (5); free the roller slide from the equipment (welded parts or plates) and take it off; remove pins and bushings; split the two roller slide parts (1 and 2) and remove them from the rail.

To assemble the roller slide please follow the instructions in reverse order. Before blocking the CH24 bolts, adjust the roller slide by rotating counter-clockwise the eccentric bushing marked with the single notch (6) until all rollers touch the rail.

Do the same with double notched bushing. Repeat the previous fine-adjustment, by paying attention that rollers without any load can easily slide on the track just by hand.

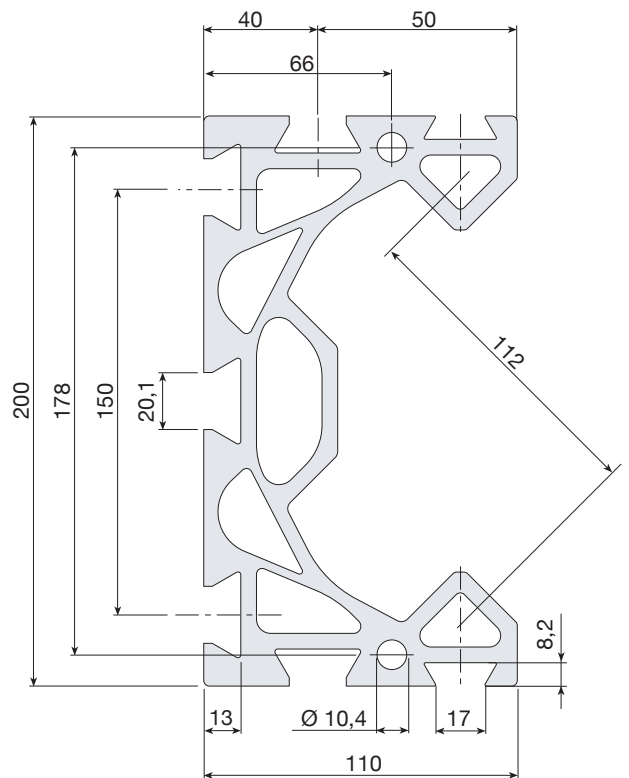
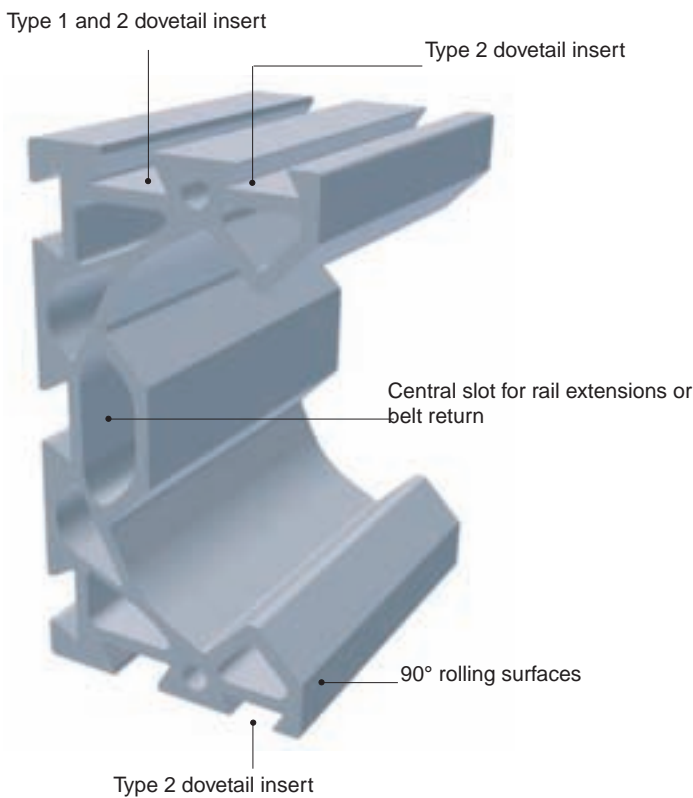
SYS2 rail has been developed to obtain a very strong asymmetrical section and limited on load structural deformation. It is provided with slots that can be used with a wide range of accessories.

The rail surface is chemically treated, in order to obtain a great hardness above all on roller sliding tracks, guaranteeing its long-life.

Specifications	
Material:	hard. and temp. light alum. alloy (AlMgSi)
Quality:	F = 25
Tolerances:	1/2 UNI 3879
Tear resistance:	R = 245 - 270 N/mm <sup>2</sup>
Yelding point:	Rp = 215 - 240 N/mm <sup>2</sup>
Hardness:	HB = 70 - 90
Surface treatment: deep anodising (bronze coloured) , thickness > 0,055 mm	

SYS2 rail	Code 302.0539	
Size	200x110	mm
Weight	16,8	Kg/m
Max. length	7,5	m
Moment of inertia X (Ix)	31.900.000	mm <sup>4</sup>
Moment of inertia Y (Iy)	6.600.000	mm <sup>4</sup>
Bending section mod. (Wx)	319.000	mm <sup>3</sup>
Bending section mod. (Wy)	120.000	mm <sup>3</sup>

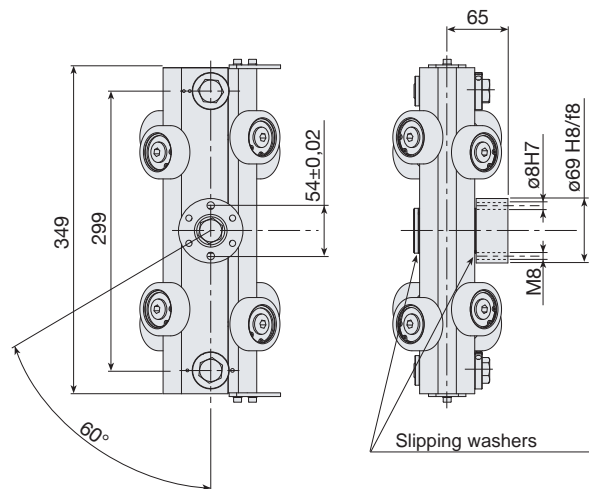
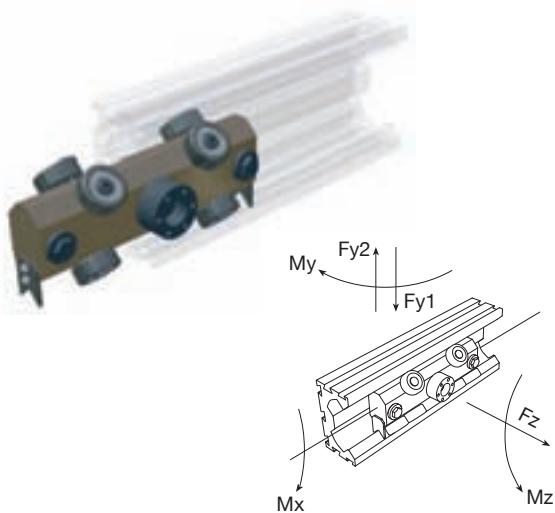
\*Holes for M14 thread and PVS® connectors



# Roller slide size

## Code 304.0833

8-roller slide, assembly with 1 self-aligning pin.

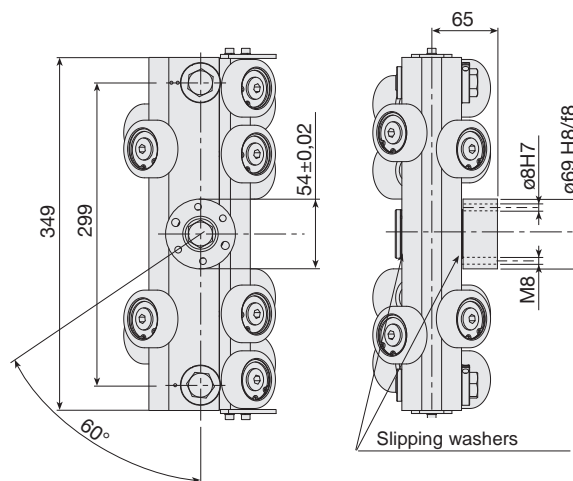
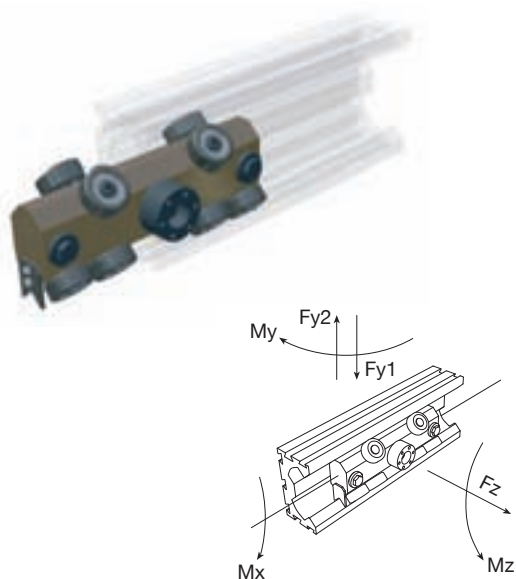


	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_{y1}$ [N]	$F_{y2}$ [N]	$F_z$ [N]
SYS2	293	363	-	3950	3950	3950

Specifications	
Support pins no.	1
Adjusting bushings no.	2
Rollers no.	8

## Code 304.0001

12-roller slide, assembly with 1 self-aligning pin.



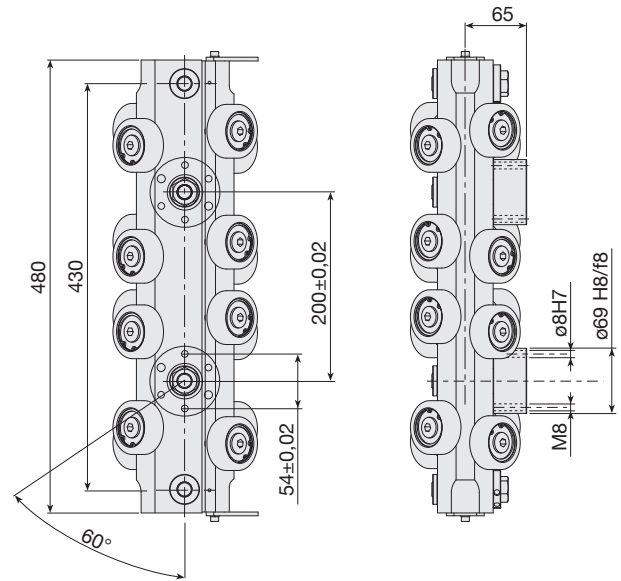
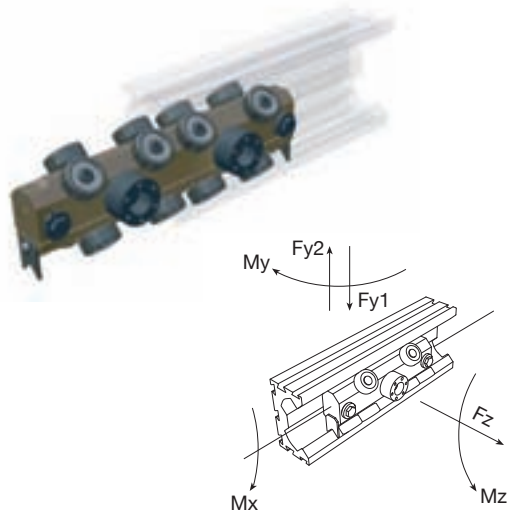
	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_{y1}$ [N]	$F_{y2}$ [N]	$F_z$ [N]
SYS2	320	363	-	6320	3950	3950

Specifications	
Support pins no.	1
Adjusting bushings no.	2
Rollers no.	12



**Code 304.0911**

16-roller slide, fixed assembly with 2 pins  
centre-distance: 200 mm



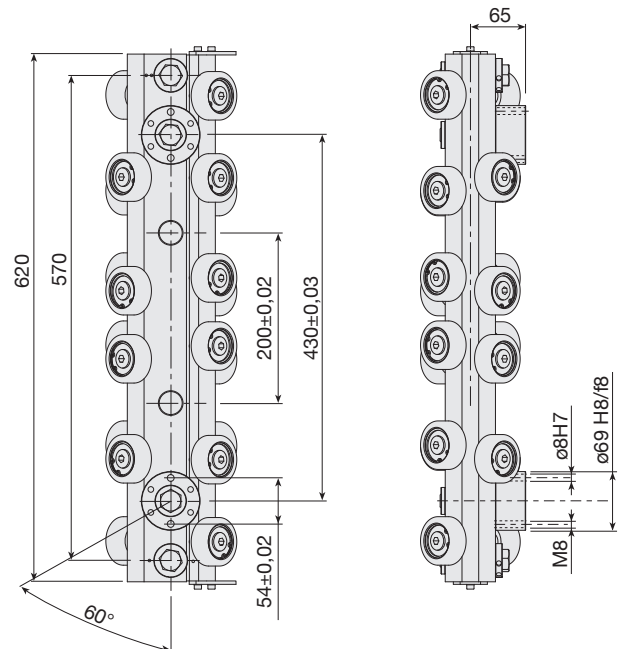
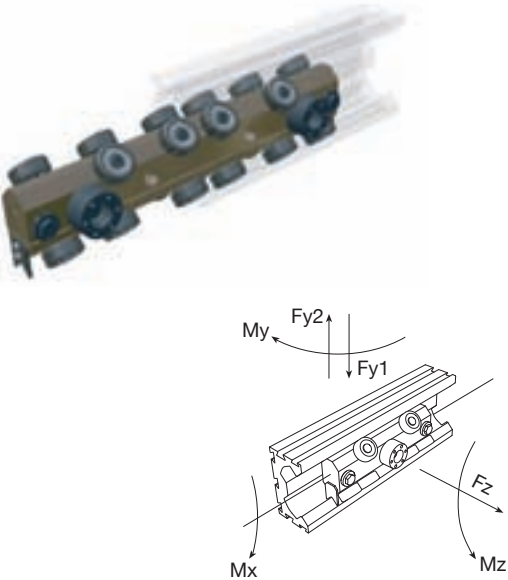
	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_{y1}$ [N]	$F_{y2}$ [N]	$F_z$ [N]
SYS2	470	620	705	6320	6320	6300

**Specifications**

Support pins no.	2
Adjusting bushings no.	2
Rollers no.	16

**Code 304.0902**

20-roller slide, fixed assembly with 2 pins  
centre-distance: 430 mm



	$M_x$ [Nm]	$M_y$ [Nm]	$M_z$ [Nm]	$F_{y1}$ [N]	$F_{y2}$ [N]	$F_z$ [N]
SYS2	700	820	705	6320	6320	6320

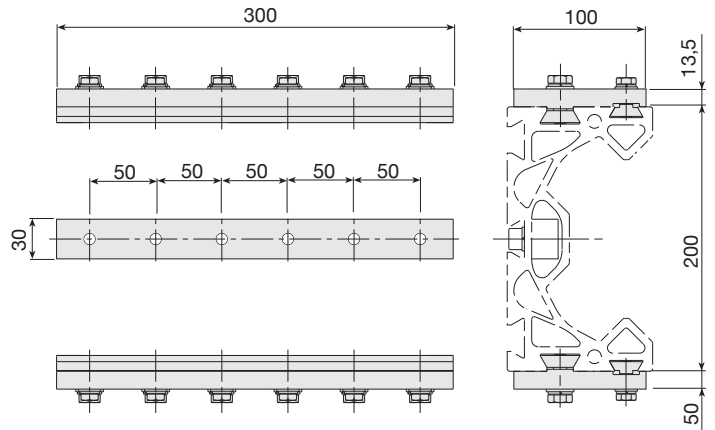
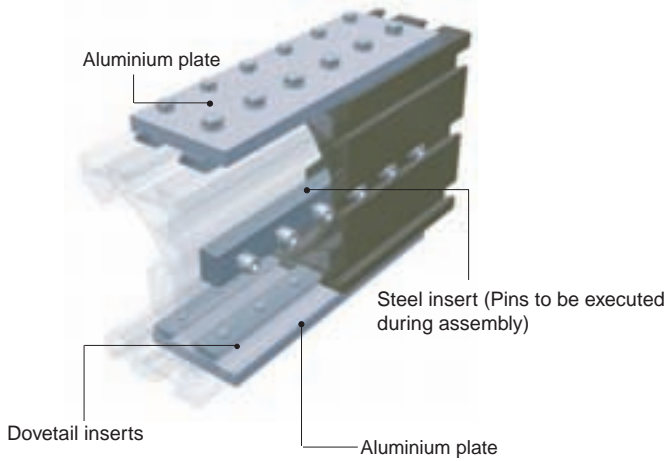
**Specifications**

Support pins no.	2
Adjusting bushings no.	2
Rollers no.	20

# Rail connecting plate

**Code 336.0803**

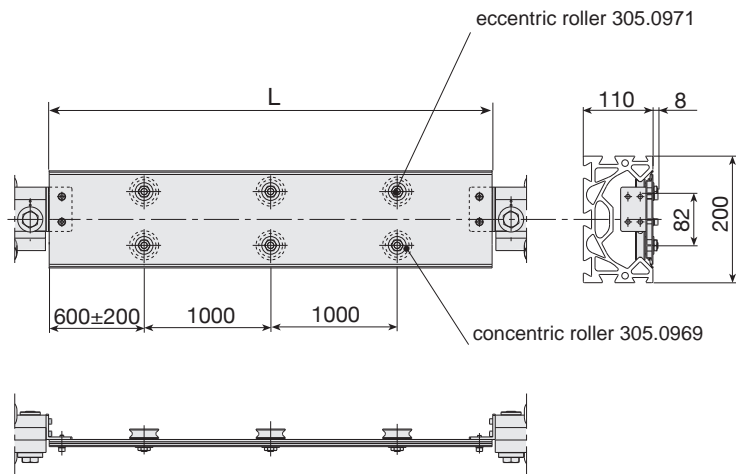
**N.B.:** please ask for the specific rail machining.



# Roller slide guard profile

**Code 335.0805/L**

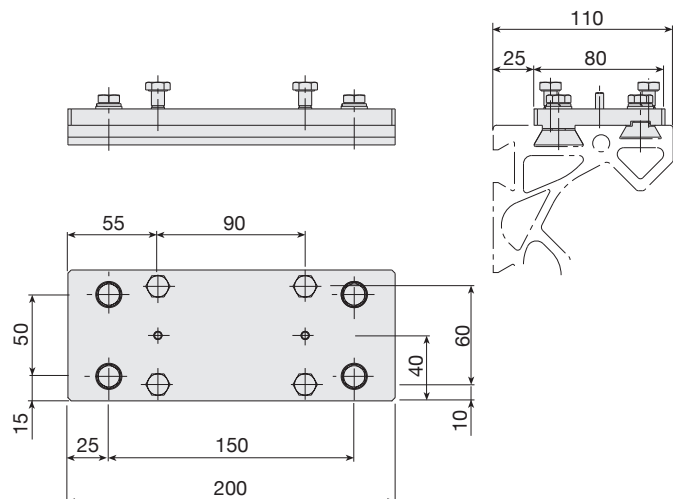
Material: aluminium alloy profile.



# Accessory fixing plate

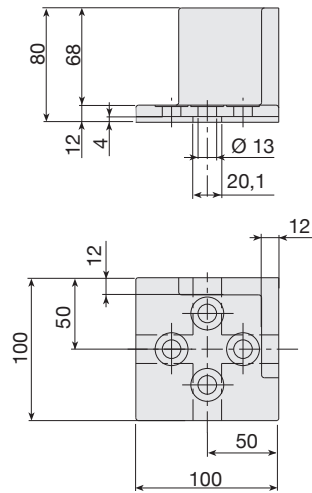
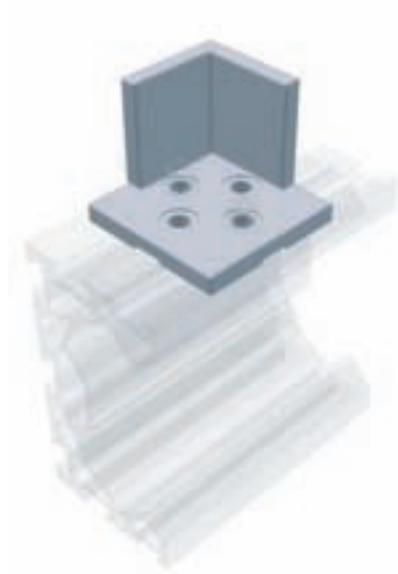
**Code 336.0810**

Material: bronze anodised 6082 aluminium alloy.



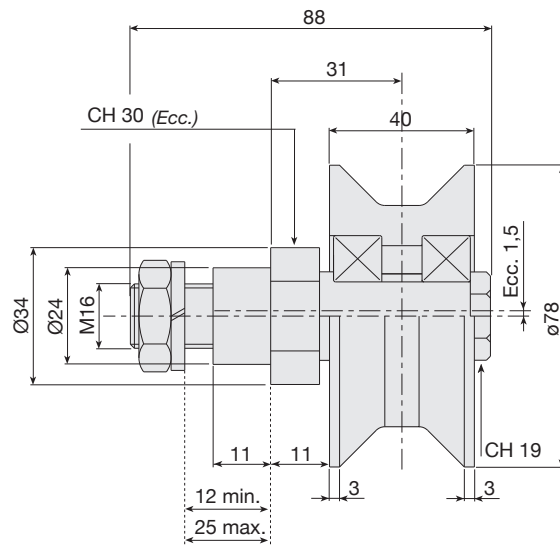
## Code 213.1100

Material: aluminium alloy extrusion.



## Ø78 V-shaped rollers

Material: high-resistance black polyamide coating.  
Eccentric or concentric blued steel pin.

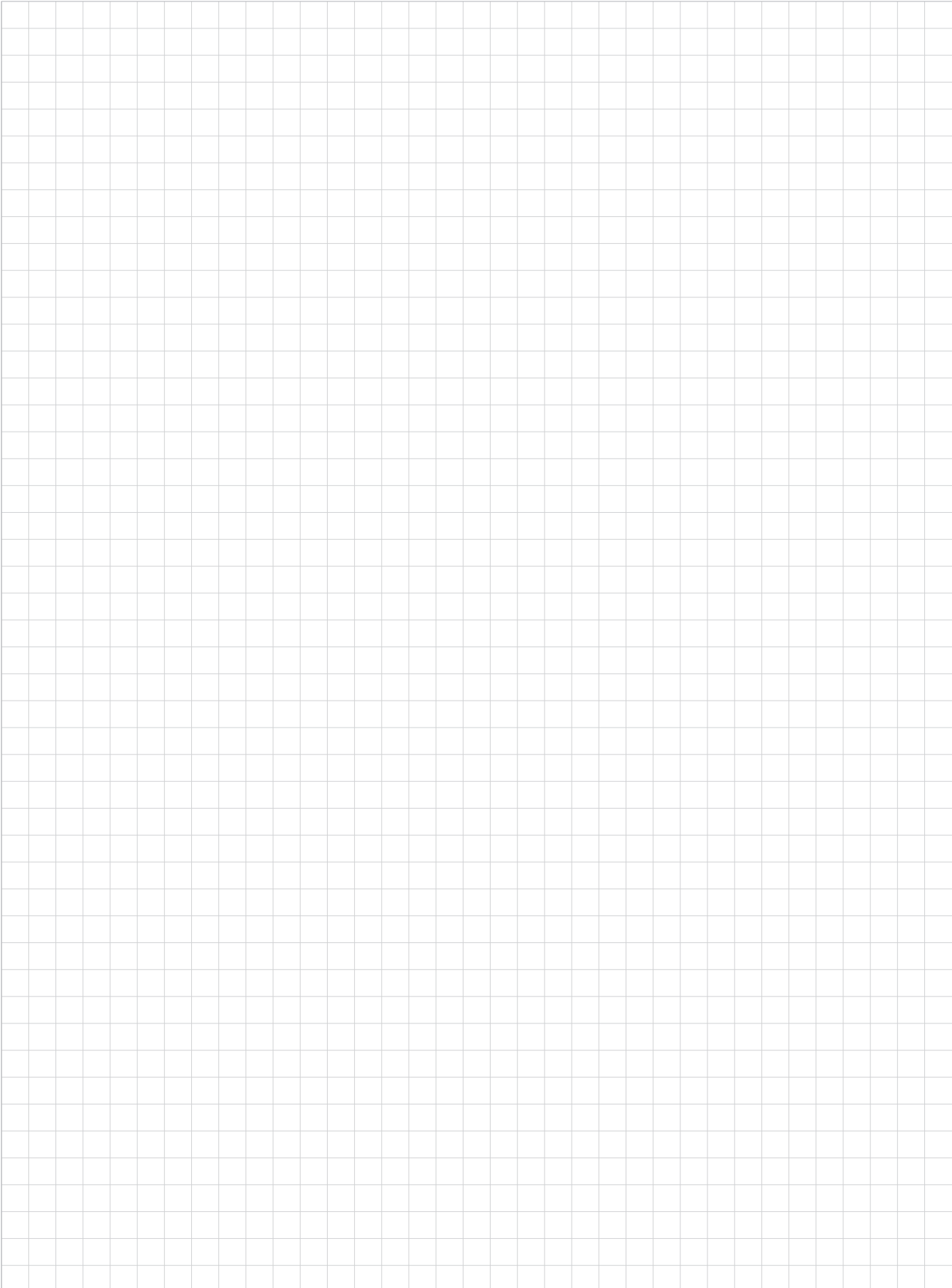


Type	Weight [kg]	PR [N]	PA [N]	Speed [m/s]	Code
Ecc.	0,6	500	130	2	305.1037
Conc.	0,6	500	130	2	305.1036

# Code Parts Index

Code	pag.	Code	pag.	Code	pag.	Code	pag.	Code	pag.	Code	pag.
1010732	23	3040357	16	3040837	11	3150662	14	A30-76	26	B32-55	24
2090467	23	3040359	16	3040866	11	3150713	19	A30-86	26	B32-60	24
2091202	23	3040363	16	3040902	37	3150724	19	A32-40	23	B32-65	24
2111061	23	3040365	16	3040911	37	3150882	19	A32-50	23	B32-67	24
2111077	24	3040383	16	3041017	18	3151031	15	A32-55	23	B32-85	24
2111617	29	3040385	16	3050730	17	3151032	15	A32-55	23	B33-21	25
2112349	21	3040401	16	3050731	17	3360003	31	A32-60	23	B33-26	25
2112351	21	3040403	16	3050732	17	3360004	31	A32-61	24	B33-28	25
2112363	21	3040409	16	3050733	17	3360005	31	A32-65	23	B35-15	25
2112366	21	3040411	16	3050747	17	3360007	30	A32-67	23	B35-20	25
2112367	21	3040417	16	3050748	17	3360188	19	A32-80	23	B35-30	25
2112426	21	3040419	16	3050951	12	3360198	19	A32-81	24	B35-40	25
2112429	21	3040423	16	3050958	12	3360597	28	A32-82	24	BD31-30	25
2112429	21	3040425	16	3051036	39	3360666	20	A32-83	24	BD31-50	25
2130756	26	3040476	16	3051037	39	3360701	13	A32-84	24	BD31-60	25
2131100	39	3040601	16	3051570	18	3360702	13	A32-85	23	BD31-90	25
2150007	21	3040602	16	3051571	18	3360707	13	A32-86	24	C30-00	26
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3040001	36	3040611	16	3120846	28	3360739	13	A33-28	25	3020552	9
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3040229	16	3040625	16	3140164	22	3361069	28	A39-10	27		
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3040233	16	3040627	16	3140169	22	SYS1-G	8	A39-25/5000	27		
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3040263	16	3040638	16	3150002	20	3020714		AC31-60	23		
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3040289	16	3040667	18	3150578	20	A20-90	29	B30-10	26		
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3040293	16	3040717	10	3150655	15	A24-00	29	B30-53	26		
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3040303	16	3040720	12	3150658	15	A30-10	26	B30-56	26		
3040305	16	3040726	16	3150659	14	A30-20	26	B30-63	26		
3040323	16	3040727	16	3150659	14	A30-54	26	B30-64	26		
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3040341	16	3040729	16	3150660	14	A30-56	26	B30-66	26		
3040343	16	3040734	16	3150661	14	A30-64	26	B32-30	24		
3040349	16	3040735	16	3150661	14	A30-65	26	B32-40	24		
3040351	16	3040833	36	3150662	14	A30-66	26	B32-50	24		

Notes 









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