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PAR/PAS series



> PAR/PAS series description



Fig. 1

Tecline products are linear actuators made of a self-supporting extruded aluminum with rack and pinion transmission designed for multi-axes solutions for several applications like pick and place, industrial machines feeding and logistics with loads up to 2.000 Kg.

PAR/PAS horizontal linear actuators are available with different sizes:

170 - 220 - 230 - 280 - 360mm.

PAR/PAS vertical linear actuators are available with different sizes:

90 - 100 - 140 - 170 - 220 - 230 - 280mm.

Some of the main advantages of PAR/PAS solutions are:

- Easy and quick assembly.
- High quality and competitive performances.
- Reduced and simplified maintenance.
- Wide range of integrated solutions.
- Possibility of customized solutions.
- Up to 12 m beams, high level torsional rigidity, precise shape.
Longer lengths can be obtained with jointed versions.
- Precise machining of all profiles.

PAR

PAR series is defined by Prismatic Rails as linear motion components.

PAS

PAS series is defined by recirculating ball guides with cage as linear motion components.

> The components

Extruded bodies

The PAR/PAS series is created using extruded and anodized Rollon profiles, made of hardened and tempered aluminum alloy 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.

Rack and pinion drive

The PAR/PAS series is driven by a rack and pinion system, can reach potentially infinite strokes (with standard junction kit).

The PAR/PAS transmission is made by hardened and ground helical tooth racks (Q6 quality), for higher load capacity and low noise. They are available with four different modules: m2, m3, m4 and m5.

The PAR/PAS systems are equipped with fully ground hardened steel pinions (Q6 quality) to achieve high performance. With the aid of correct and constant lubrication, for special applications, speeds of up to 5 m/s can be achieved.

Carriage

The carriage of the PAR/PAS series linear units is made of anodized aluminum. Different lengths of the carriages are available according to the different sizes.

> The linear motion system

The linear motion system has been designed to meet the load capacity, speed, and maximum acceleration conditions of a wide variety of applications.

PAR with Prismatic Rails

Prismatic Rails are made of specially treated high-carbon steel and provided with a permanent lubrication system. Thanks to this kind of solution PAR is specifically dedicated for dirty environments and high dynamics in automation.

- The Prismatic Rails with high load capacity are mounted in a dedicated seat on the aluminum body.
- The carriage is assembled with preload, that enables to withstand loading in the four main directions.
- Hardened and ground steel guide rails.
- Sliders have felts for self-lubrication.

The linear motion system described above offers:

- Suitable for dirty environments
- High speed and acceleration
- Maintenance free
- High load capacity
- Low friction
- Long life
- Low noise

PAS with recirculating ball guides with cage

The recirculating ball guides used for PAS have the cage system. The cage included has two purposes: it reduces the friction between the guide and the slider, increasing their service life, and allows lubrication refills to be performed more rarely. 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 2000 Km.

The linear motion system described above offers:

- High permissible bending moments
- High accuracy of the movement
- High speed and acceleration
- High load capacity
- High rigidity
- Low friction
- Long life
- Low noise

PAR

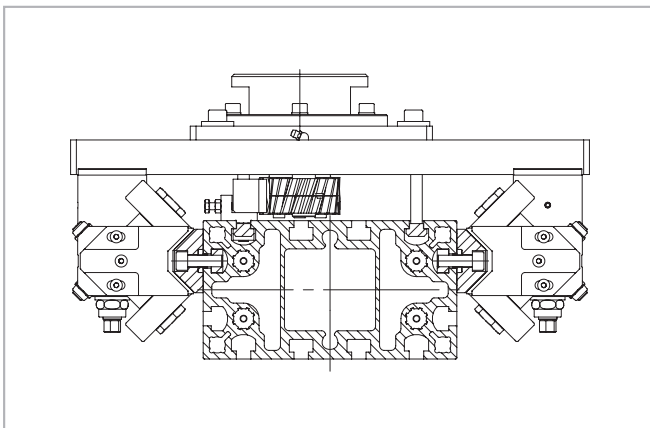


Fig. 2

PAS

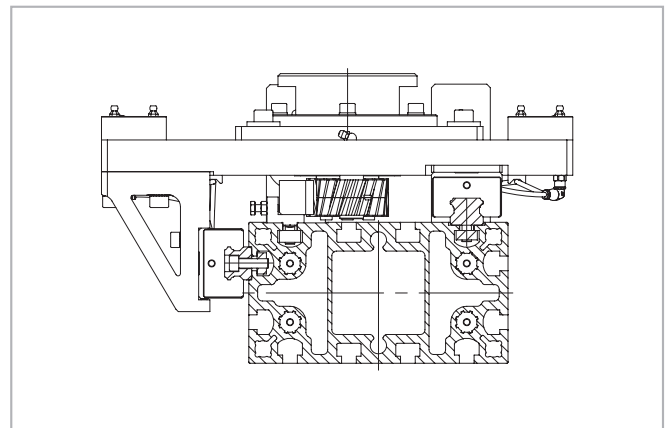
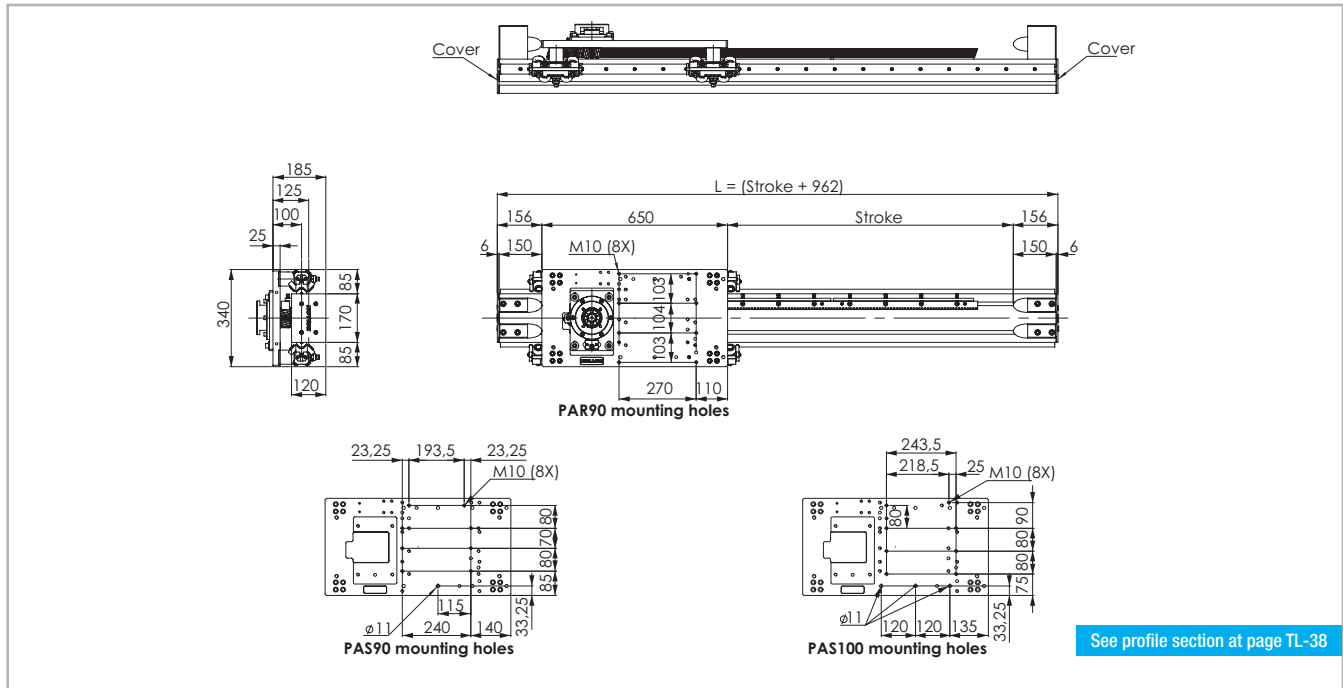


Fig. 3

> PAR 170H

PAR 170H Dimension

Typical Payloads*
 80 Kg 180 Kg
High Dynamics Low Dynamics



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 4

Technical data

	Type
	PAR 170H
Max. useful stroke length [mm]*1	9050
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	29.8
Zero travel weight [kg]	65.7
Weight for 100 mm useful stroke [kg]	3.3
Rail size [mm]	35x16

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 1

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 170H	1.973	0.984	2.957

Tab. 2

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 170H	Helical teeth hardened ground	m 3	Q6

Tab. 3

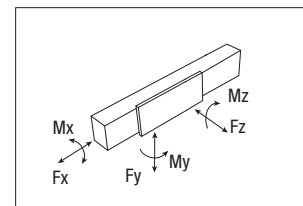
Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	
PAR 170H-4S	5714	65928	14142	14142	14142	1202	3889	3889

See verification under static load and lifetime on page SL-2 and SL-3

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{10^6} = 100.000$ km.

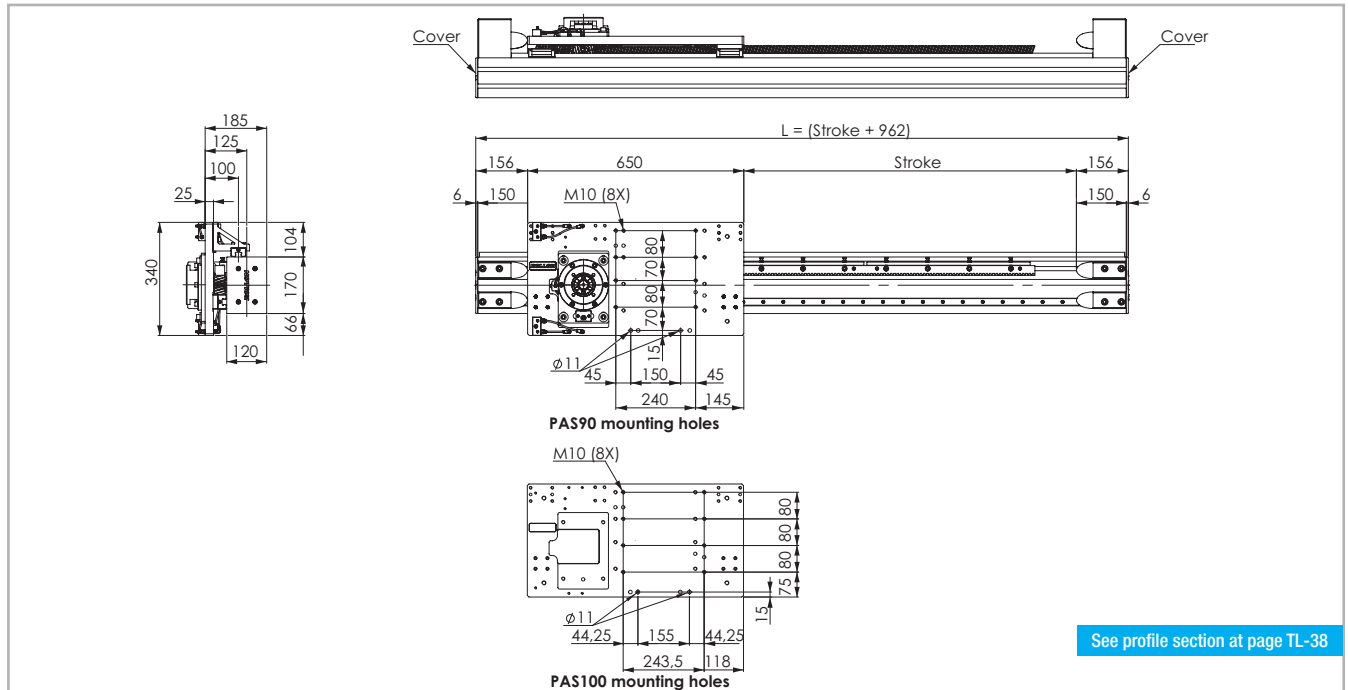
Tab. 4



> PAS 170H

Typical Payloads*
 90 Kg High Dynamics 200 Kg Low Dynamics

PAS 170H Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 5

Technical data

	Type
	PAS 170H
Max. useful stroke length [mm]*1	9050
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	22.3
Zero travel weight [kg]	56.5
Weight for 100 mm useful stroke [kg]	3.2
Rail size [mm]	20

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 5

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAS 170H	1.973	0.984	2.957

Tab. 6

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 170H	Helical teeth hardened ground	m 3	Q6

Tab. 7

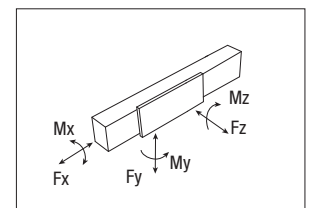
Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.	DYN.	Stat.	DYN.	Stat.	Stat.	Stat.	Stat.
PAS 170H	5714	70798	153600	153600	153600	10790	43392	43392

See verification under static load and lifetime on page SL-2 and SL-3

Tab. 8

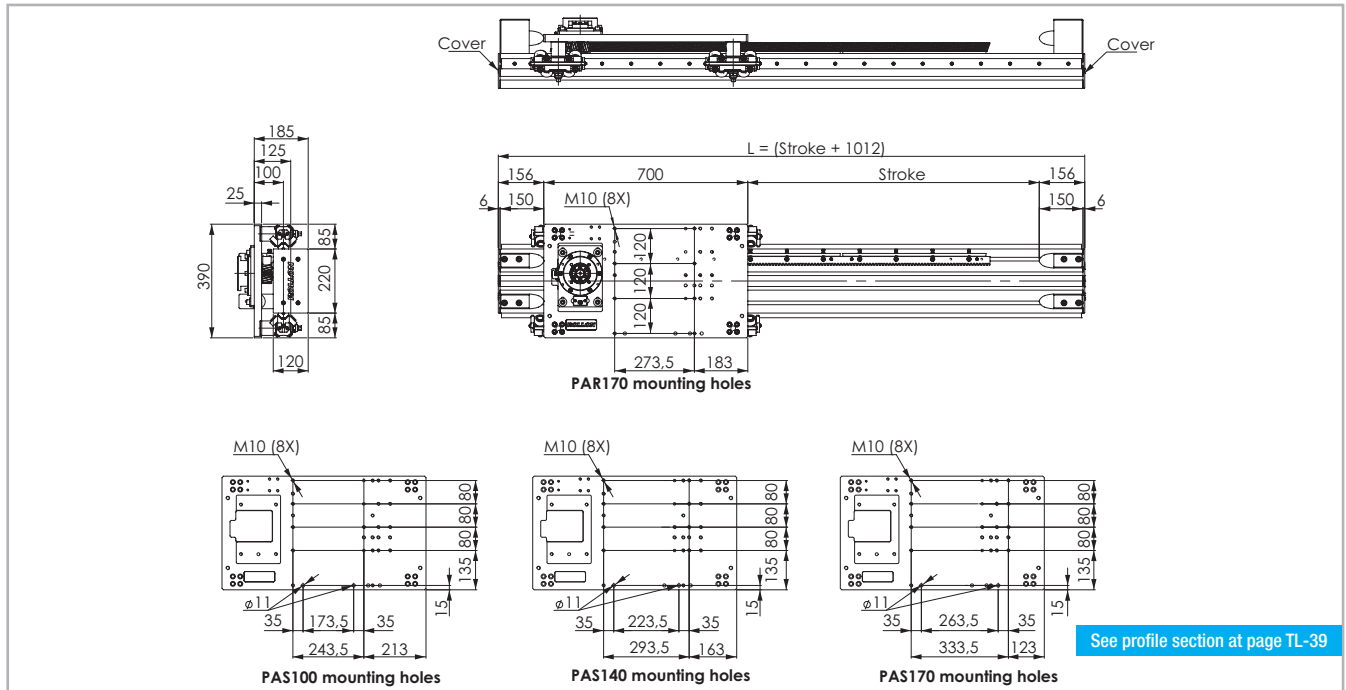
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L_{10^6} =100.000 km.



PAR 220H

PAR 220H Dimension

Typical Payloads*
 100 Kg 200 Kg
High Dynamics Low Dynamics



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 6

Technical data

	Type
	PAR 220H
Max. useful stroke length [mm]*1	11000
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	33.4
Zero travel weight [kg]	78.9
Weight for 100 mm useful stroke [kg]	4.17
Rail size [mm]	35x16

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 9

Moments of inertia of the aluminum body

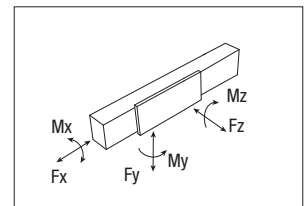
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 220H	4.625	1.559	6.184

Tab. 10

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 220H	Helical teeth hardened ground	m 3	Q6

Tab. 11



Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAR 220H-4S	5714	65928	14142	14142	14142	1556	4243	4243

See verification under static load and lifetime on page SL-2 and SL-3

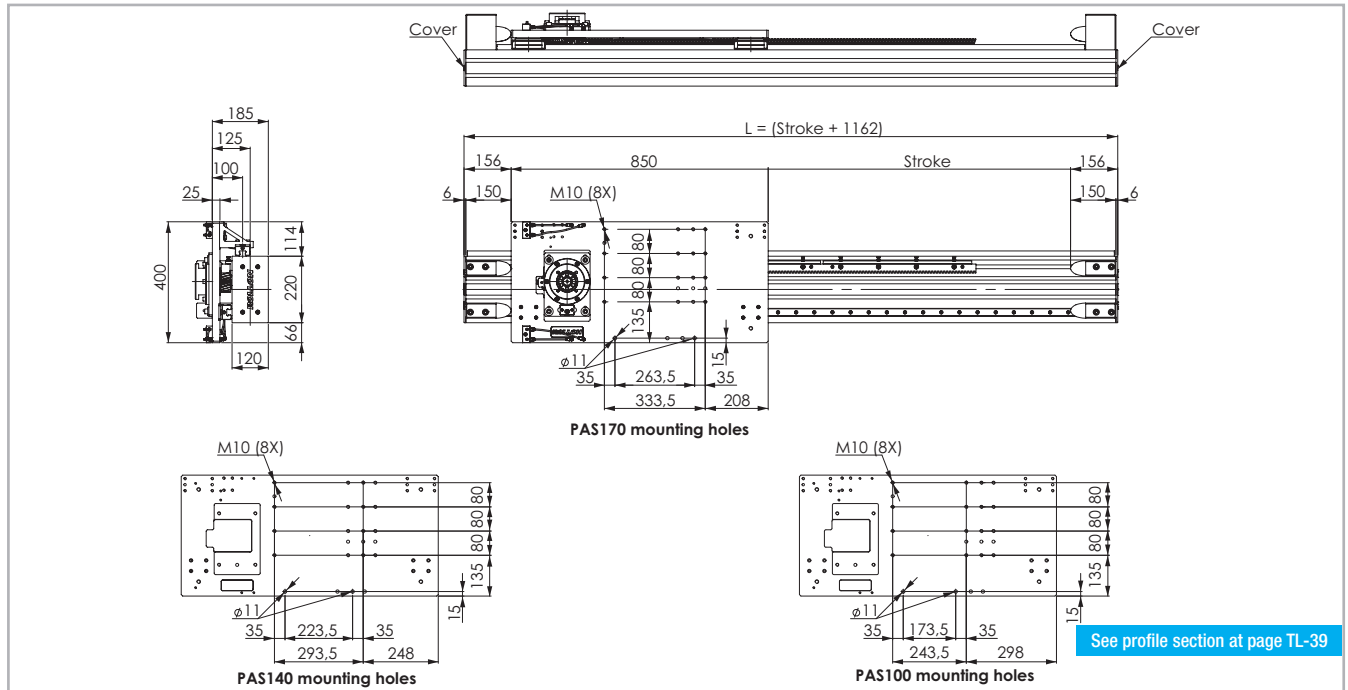
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

Tab. 12

> PAS 220H

Typical Payloads*
 180 Kg High Dynamics 350 Kg Low Dynamics

PAS 220H Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 7

Technical data

	Type
	PAS 220H
Max. useful stroke length [mm]*1	10850
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	33
Zero travel weight [kg]	84.2
Weight for 100 mm useful stroke [kg]	4.2
Rail size [mm]	25

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 13

Moments of inertia of the aluminum body

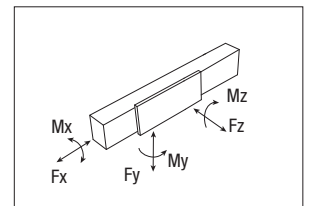
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAS 220H	4.625	1.559	6.184

Tab. 14

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 220H	Helical teeth hardened ground	m 4	Q6

Tab. 15



Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAS 220H	5714	116833	258800	116833	258800	24910	95109	95109

See verification under static load and lifetime on page SL-2 and SL-3

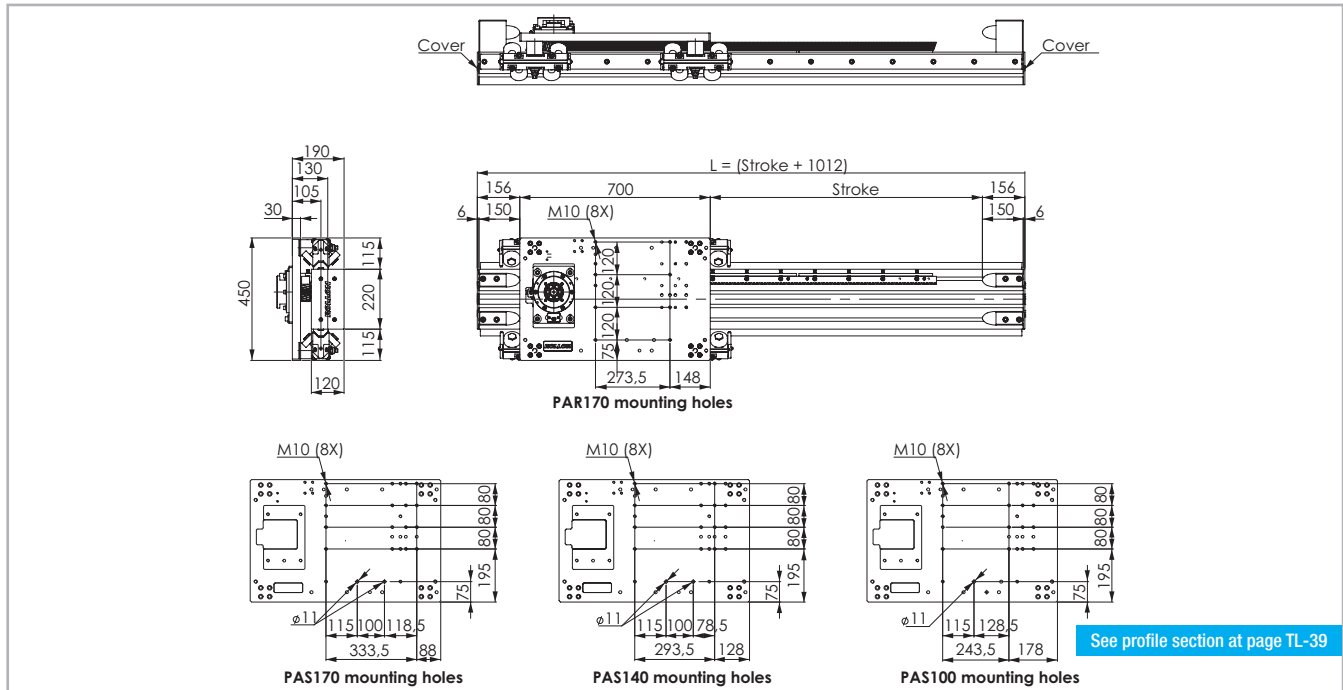
Tab. 16

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

PAR 220P

PAR 220P Dimension

Typical Payloads*
 200 Kg 400 Kg
High Dynamics Low Dynamics



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 8

Technical data

	Type
	PAR 220P
Max. useful stroke length [mm]*1	11000
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	56.3
Zero travel weight [kg]	113.5
Weight for 100 mm useful stroke [kg]	5.5
Rail size [mm]	55x25

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 17

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 220P	4.625	1.559	6.184

Tab. 18

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 220P	Helical teeth hardened ground	m 3	Q6

Tab. 19

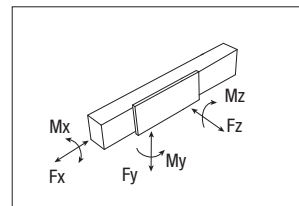
Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAR 220P-4S	5714	149063	29981	149063	29981	3298	8844	8844

See verification under static load and lifetime on page SL-2 and SL-3

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{10^6} = 100.000$ km.

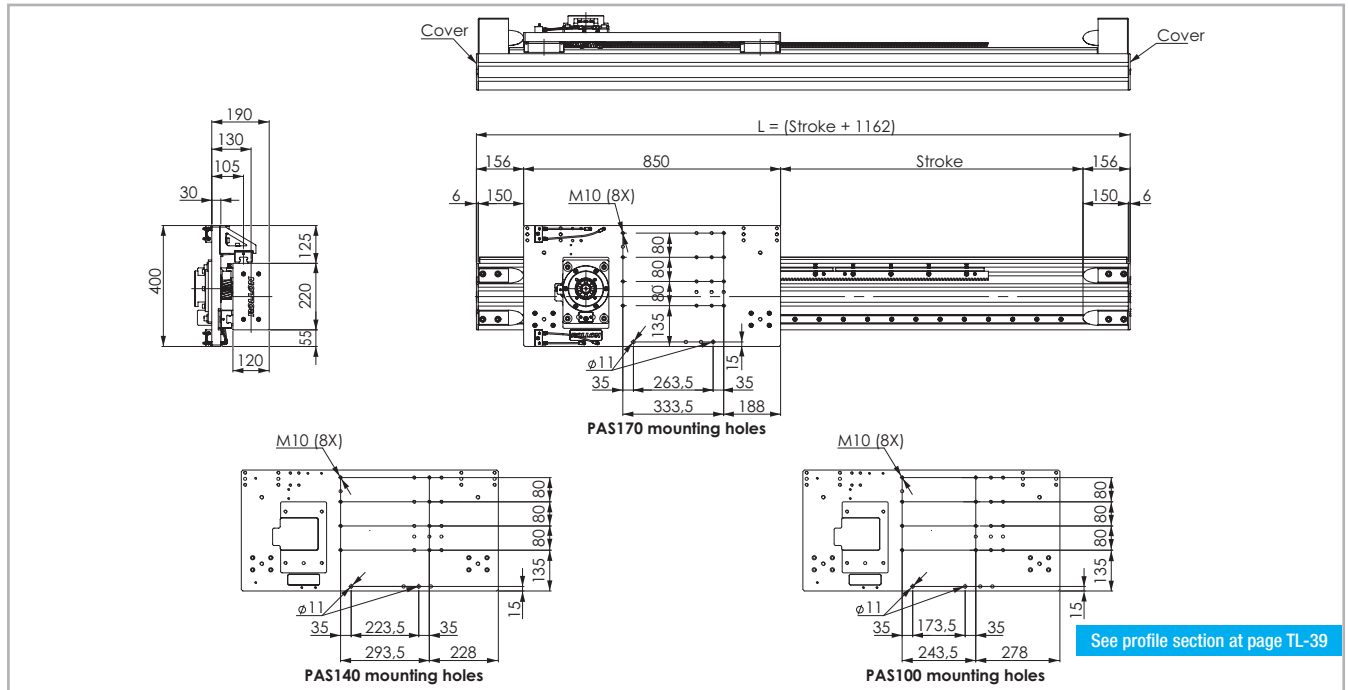
Tab. 20



> PAS 220P

Typical Payloads*
 250 Kg High Dynamics 500 Kg Low Dynamics

PAS 220P Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 9

Technical data

	Type
	PAS 220P
Max. useful stroke length [mm]*1	10850
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	44
Zero travel weight [kg]	100.5
Weight for 100 mm useful stroke [kg]	5.1
Rail size [mm]	30

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 21

Moments of inertia of the aluminum body

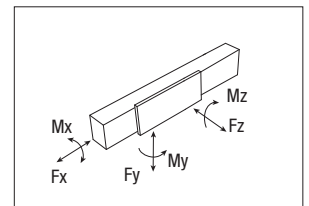
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_b [10 ⁷ mm ⁴]
PAS 220P	4.625	1.559	6.184

Tab. 22

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 220P	Helical teeth hardened ground	m 3	Q6

Tab. 23



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.	
PAS 220P	5714	172074	355200	355200	355200	34188	126984	126984	

See verification under static load and lifetime on page SL-2 and SL-3

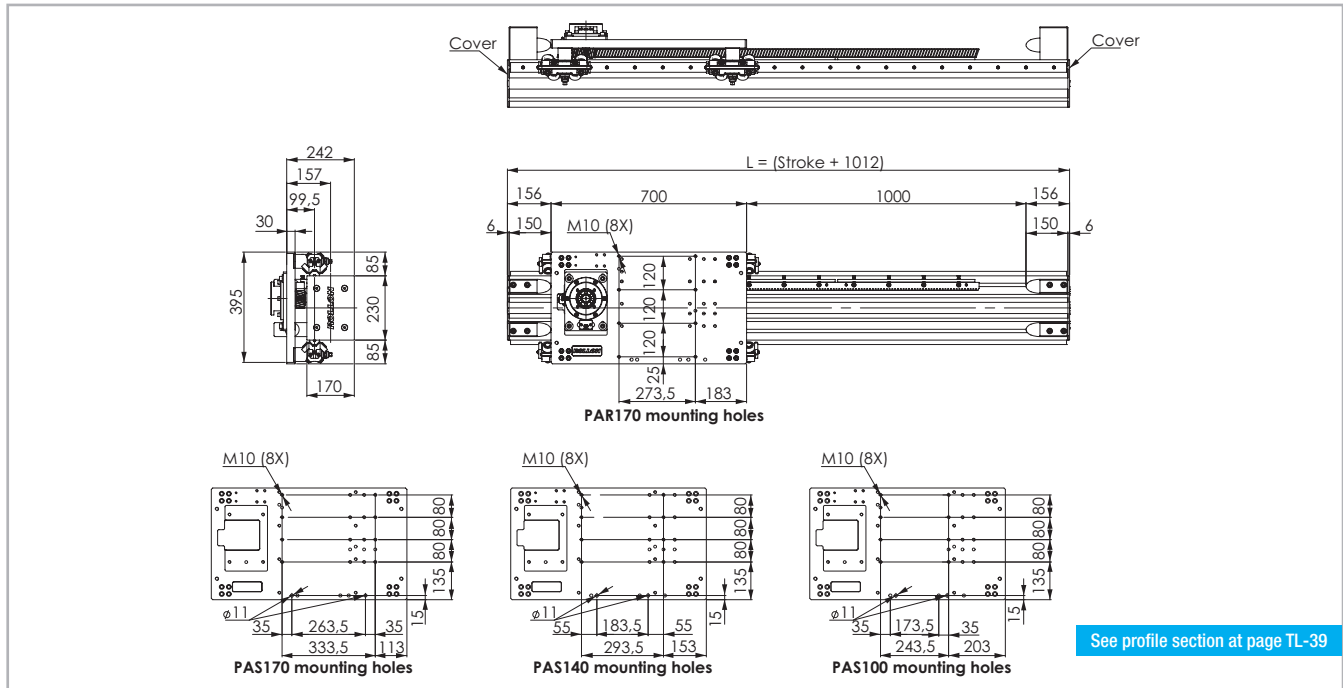
Tab. 24

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{th}=100.000$ km.

PAR 230H

PAR 230H- 4S 110 Kg	Typical Payloads*		220 Kg
	High Dynamics	Low Dynamics	
PAR 230H- 6F 150 Kg	Typical Payloads*		250 Kg
	High Dynamics	Low Dynamics	

PAR 230H Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 10

Technical data

	Type
	PAR 230
Max. useful stroke length [mm]*1	11000
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	40.6
Zero travel weight [kg]	87
Weight for 100 mm useful stroke [kg]	4.2
Rail size [mm]	35x16

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 25

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAR 230H-4S	5714	65928	14142	65928	14142	1626	4243	4243
PAR 230H-6W	5714	65928	14142	65928	14142	3253	4243	4243
PAR 230H-6F	5714	28284	14142	65928	28284	1626	4243	4243
PAR 230H-6C	5714	28284	14142	65928	28284	1626	4243	4243

See verification under static load and lifetime on page SL-2 and SL-3

Tab. 28

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

Moments of inertia of the aluminum body

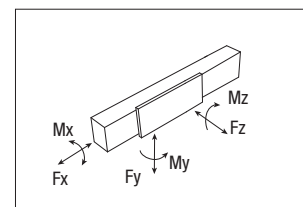
Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
PAR 230H	6.501	3.778	10.279

Tab. 26

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 230H	Helical teeth hardened ground	m 3	Q6

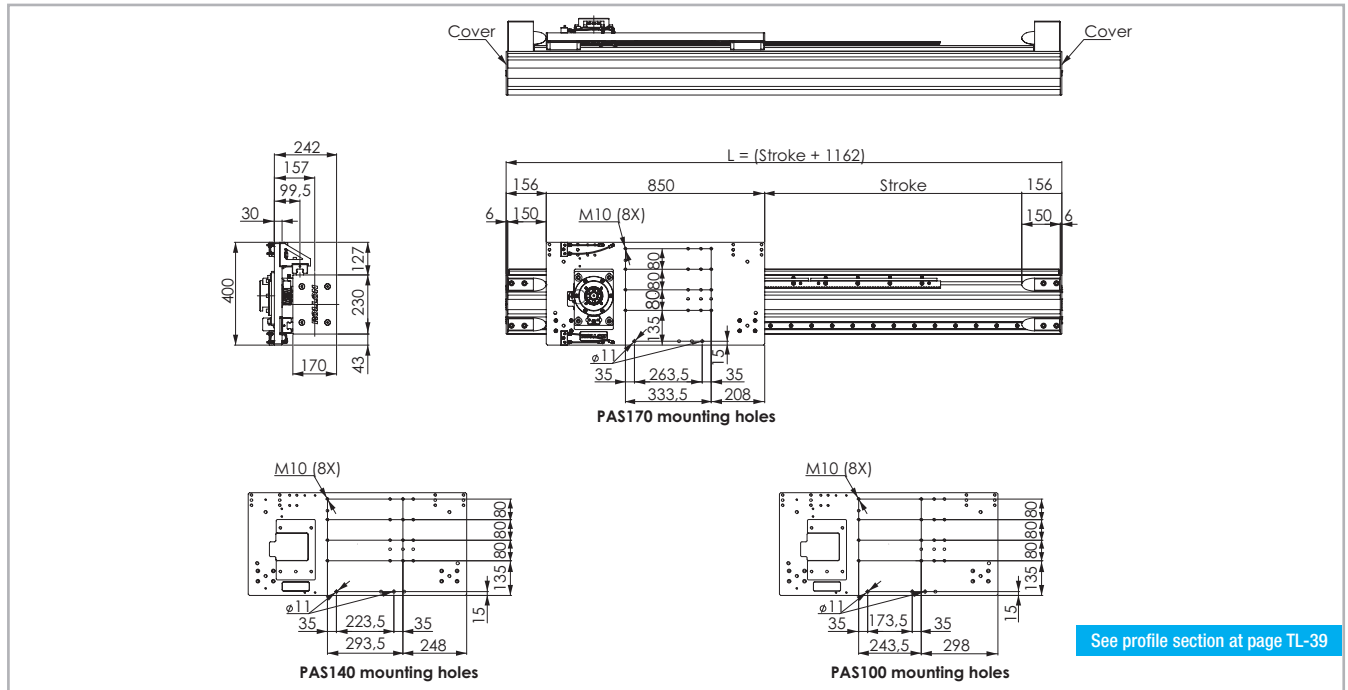
Tab. 27



> PAS 230H

270 Kg **Typical Payloads*** 550 Kg
 High Dynamics Low Dynamics

PAS 230H Dimension



See profile section at page TL-39

The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 11

Technical data

	Type
	PAS 230H
Max. useful stroke length [mm]*1	10850
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	41.1
Zero travel weight [kg]	94.2
Weight for 100 mm useful stroke [kg]	4.4
Rail size [mm]	30

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 29

Moments of inertia of the aluminum body

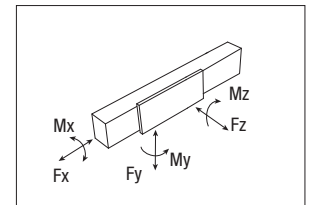
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_z [10 ⁷ mm ⁴]
PAS 230H	6.501	3.778	10.279

Tab. 30

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 230H	Helical teeth hardened ground	m 3	Q6

Tab. 31



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.	
PAS 230H	5714	172074	355200	355200	37118	126984	126984	126984	

See verification under static load and lifetime on page SL-2 and SL-3

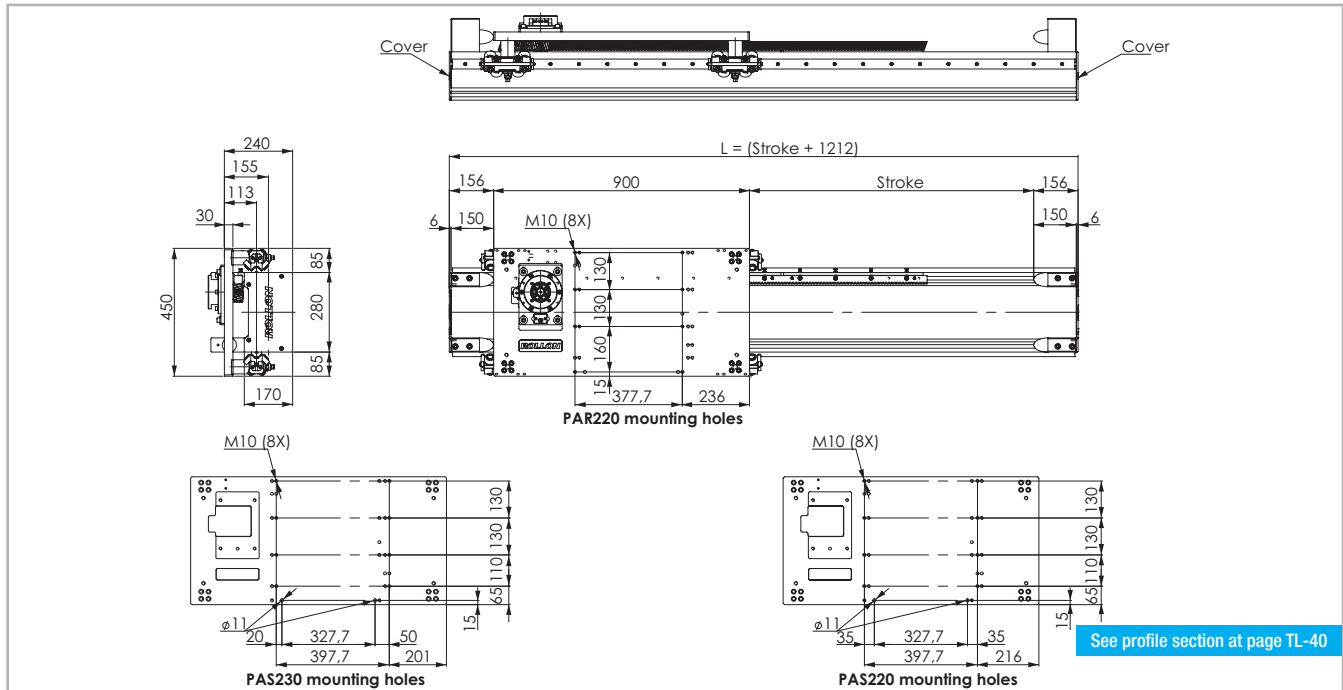
Tab. 32

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{90}=100.000$ km.

PAR 280H

PAR 280H Dimension

Typical Payloads*
 120 Kg High Dynamics 230 Kg Low Dynamics



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 12

Technical data

	Type
	PAR 280H
Max. useful stroke length [mm]*1	10800
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	48.2
Zero travel weight [kg]	116.5
Weight for 100 mm useful stroke [kg]	5.4
Rail size [mm]	35x16

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 33

Moments of inertia of the aluminum body

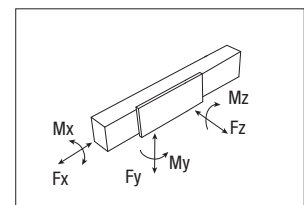
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 280H	12.646	4.829	17.475

Tab. 34

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 280H	Helical teeth hardened ground	m 4	Q6

Tab. 35



Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAR 280H-4S	5714	65928	14142	14142	14142	1980	5657	5657

See verification under static load and lifetime on page SL-2 and SL-3

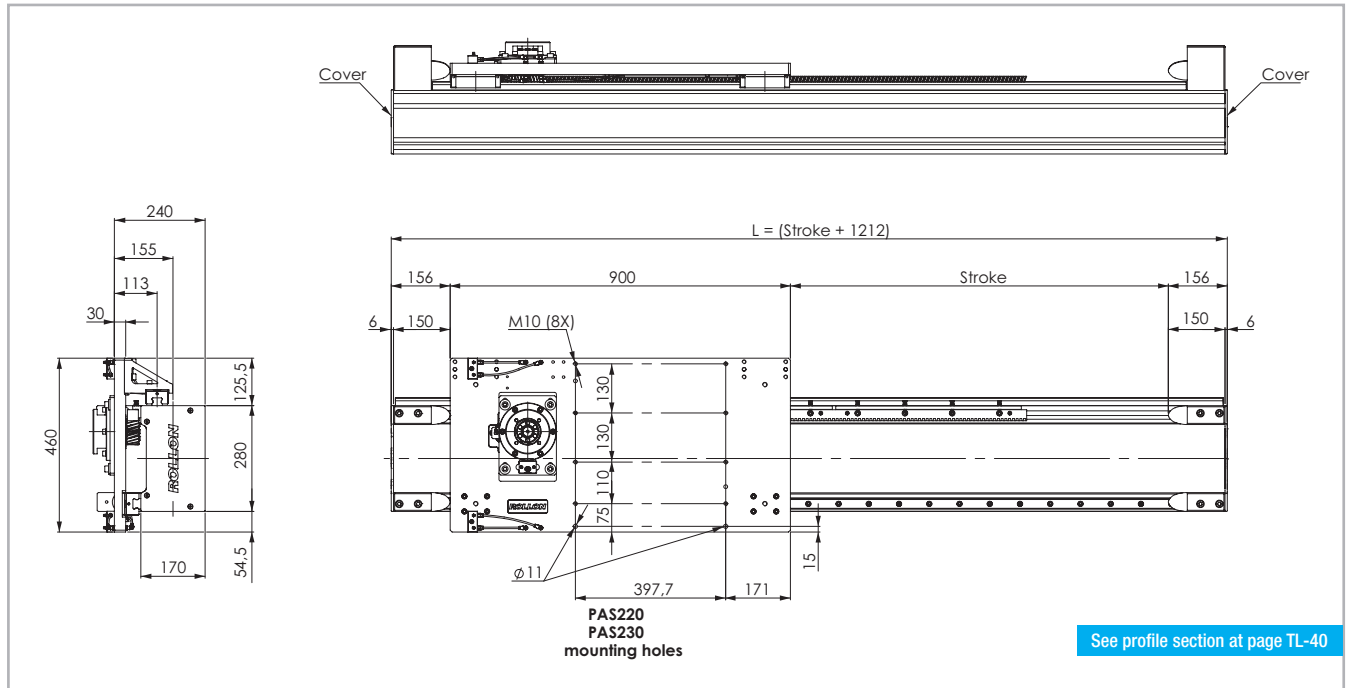
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

Tab. 36

> PAS 280H

Typical Payloads*
 250 Kg High Dynamics 500 Kg Low Dynamics

PAS 280H Dimension



See profile section at page TL-40

The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 13

Technical data

	Type
	PAS 280H
Max. useful stroke length [mm]*1	10800
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	47.7
Zero travel weight [kg]	117.1
Weight for 100 mm useful stroke [kg]	5.7
Rail size [mm]	30

Tab. 37

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

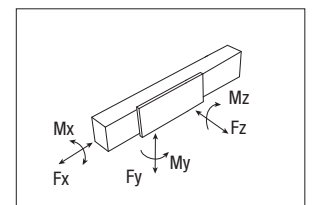
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_b [10 ⁷ mm ⁴]
PAS 280H	12.646	4.829	17.475

Tab. 38

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 280H	Helical teeth hardened ground	m 3	Q6

Tab. 39



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]		M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.	Stat.	
PAS 280H	5714	172074	355200	355200	355200	47952	135864	135864	135864	135864

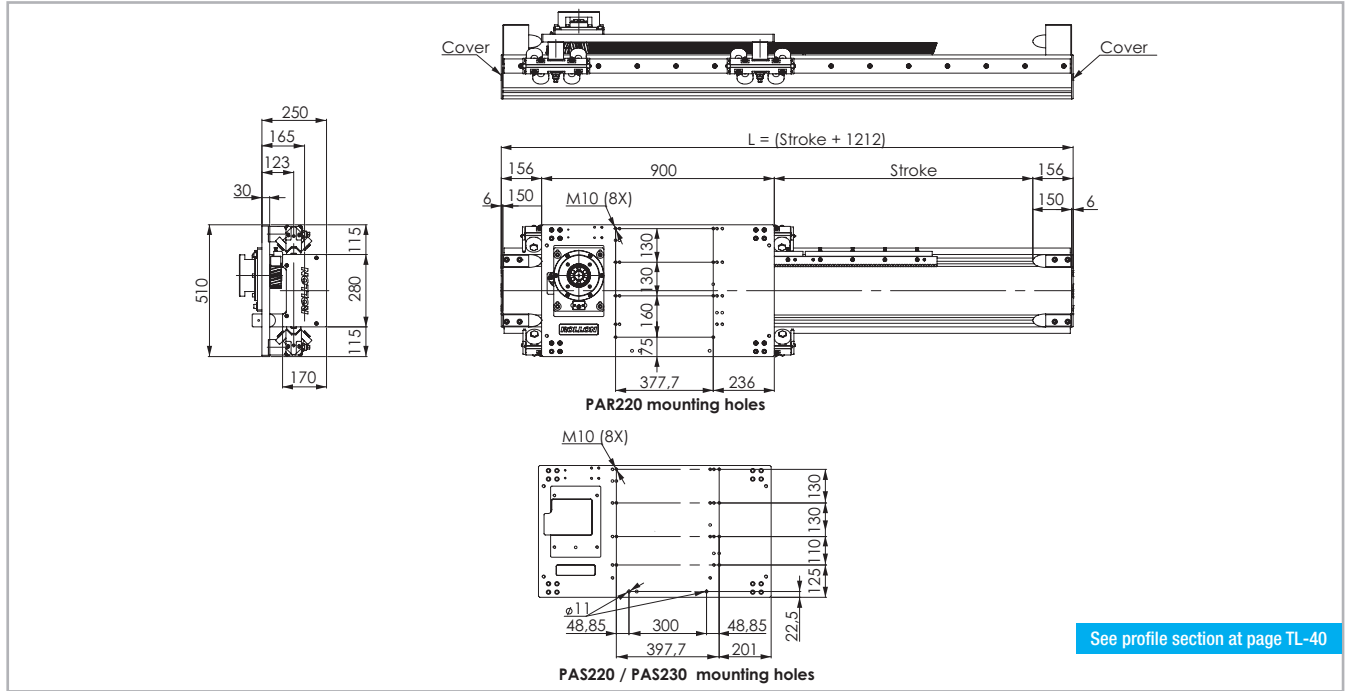
See verification under static load and lifetime on page SL-2 and SL-3

Tab. 40

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L_{10^6} =100.000 km.

> PAR 280P

PAS 280P Dimension



See profile section at page TL-40

The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

Fig. 14

Technical data

	Type
	PAR 280P
Max. useful stroke length [mm]*1	10800 (4S) 10650 (6W-F)
Max. positioning repeatability [mm]*2	± 0.13
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	78.9
Zero travel weight [kg]	166.7
Weight for 100 mm useful stroke [kg]	6.8
Rail size [mm]	55x25

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 41

Load capacity

Type	F [N]			M [Nm]		
	F _x	F _y	F _z	M _x	M _y	M _z
	Stat.	Stat.	Dyn.	Stat.	Stat.	Stat.
PAR 280P-4S	10989	29981	149063	29981	4197	11843
PAR 280P-6W	10989	29981	149063	29981	8395	11843
PAR 280P-6F	10989	29981	149063	59963	4197	11843
PAR 280P-6C	10989	29981	149063	59963	4197	11843

See verification under static load and lifetime on page SL-2 and SL-3

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

Tab. 44

Moments of inertia of the aluminum body

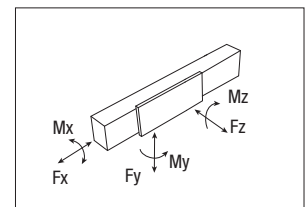
Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
PAR 280P	12.646	4.829	17.475

Tab. 42

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 280P	Helical teeth hardened ground	m 4	Q6

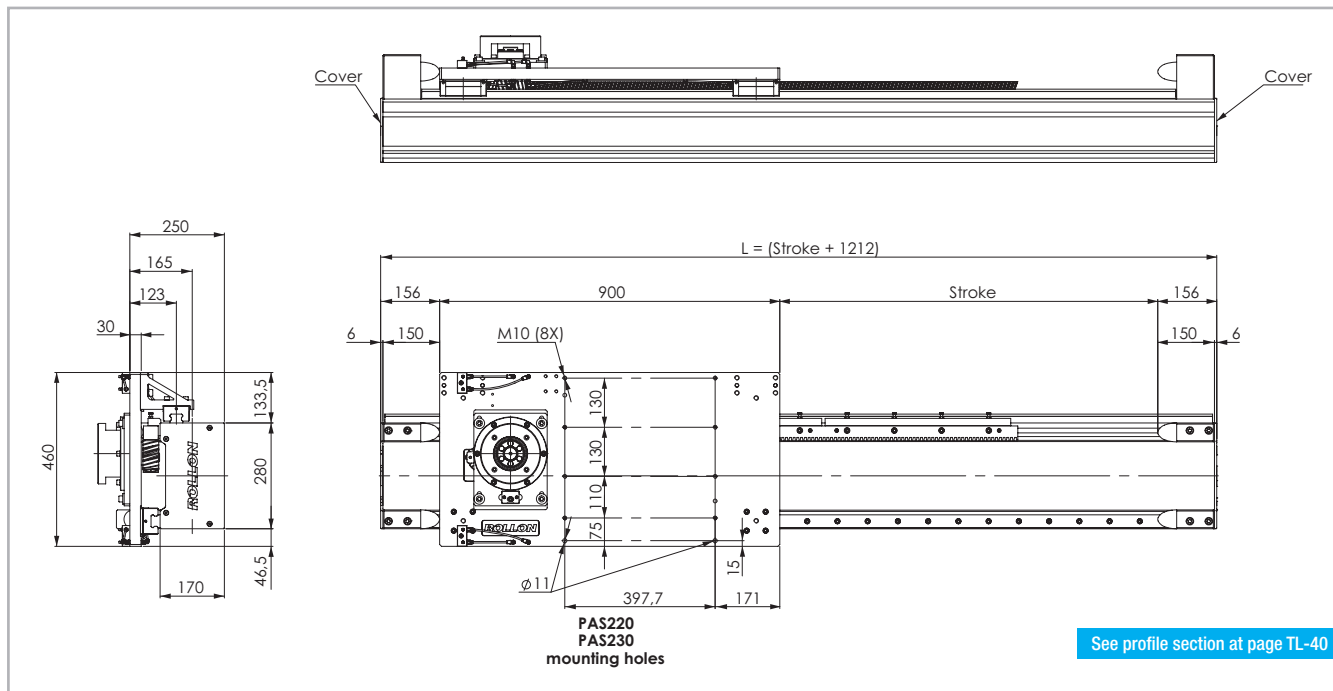
Tab. 43



> PAS 280P

Typical Payloads*
 300 Kg High Dynamics 600 Kg Low Dynamics

PAR 280P Dimension



See profile section at page TL-40

The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 15

Technical data

	Type
	PAS 280P
Max. useful stroke length [mm]*1	10800
Max. positioning repeatability [mm]*2	± 0.07
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	51.2
Zero travel weight [kg]	127.3
Weight for 100 mm useful stroke [kg]	6.6
Rail size [mm]	35

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 45

Moments of inertia of the aluminum body

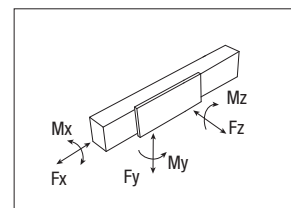
Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
PAS 280P	12.646	4.829	17.475

Tab. 46

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 280P	Helical teeth hardened ground	m 4	Q6

Tab. 47



Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAS 280P	10989	386400	197790	386400	50232	149730	149730	149730

See verification under static load and lifetime on page SL-2 and SL-3

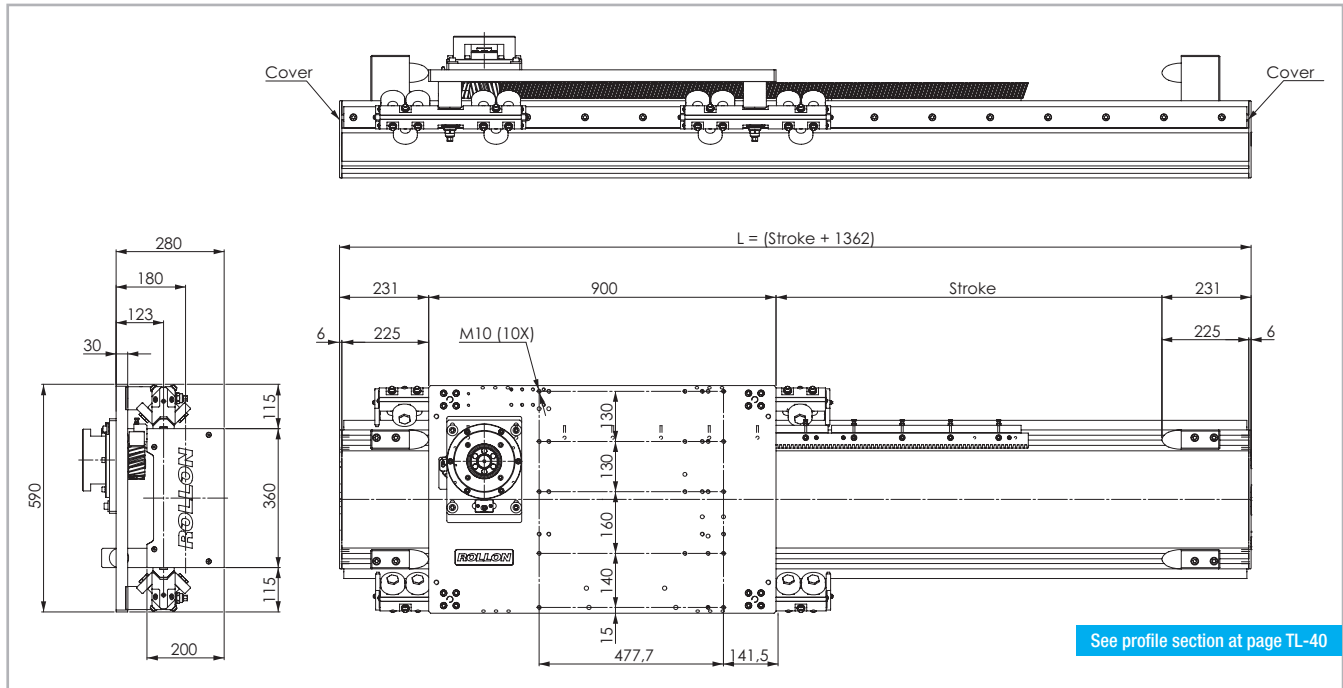
Tab. 48

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

> PAR 360H

PAR 360H Dimension

Typical Payloads*
 350 Kg 700 Kg
High Dynamics Low Dynamics



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 16

Technical data

	Type
	PAR 360H
Max. useful stroke length [mm]*1	10650
Max. positioning repeatability [mm]*2	± 0.13
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	84.7
Zero travel weight [kg]	197
Weight for 100 mm useful stroke [kg]	8.6
Rail size [mm]	55x25

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 49

Moments of inertia of the aluminum body

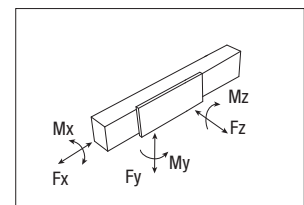
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 360H	31.721	10.329	42.050

Tab. 50

Rack specifications

Type	Type of rack	Rack module	Quality
PAR 360H	Helical teeth hardened ground	m 4	Q6

Tab. 51



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAR 360H-6W	10989	149063	29981	149063	29981	10793	11843	11843
PAR 360H-6F	10989	59963	29981	59963	59963	5397	11843	11843
PAR 360H-6C	10989	59963	29981	59963	59963	5397	11843	11843

See verification under static load and lifetime on page SL-2 and SL-3

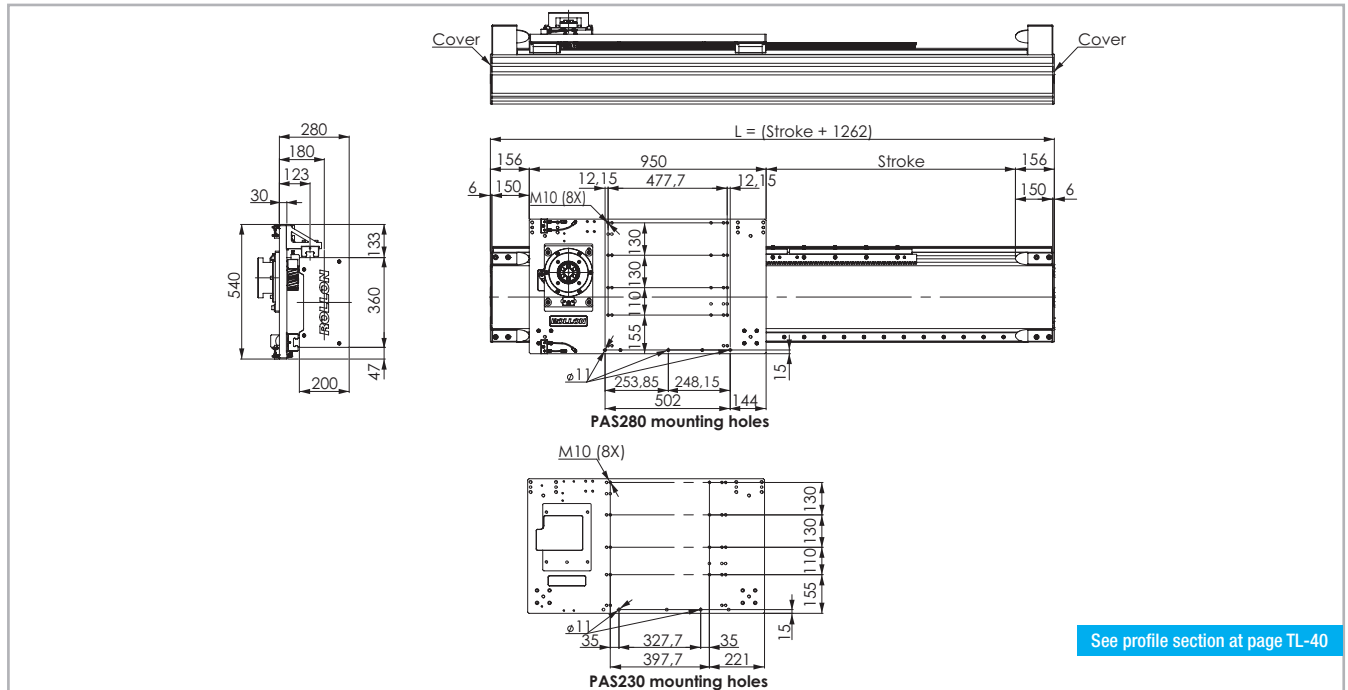
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L_{10^6} =100.000 km.

Tab. 52

> PAS 360H

400 Kg **Typical Payloads*** 800 Kg
 High Dynamics Low Dynamics

PAS 360H Dimension



See profile section at page TL-40

The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 17

Technical data

	Type
	PAS 360H
Max. useful stroke length [mm]*1	10750
Max. positioning repeatability [mm]*2	± 0.07
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	59.5
Zero travel weight [kg]	161
Weight for 100 mm useful stroke [kg]	8.4
Rail size [mm]	35

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 53

Moments of inertia of the aluminum body

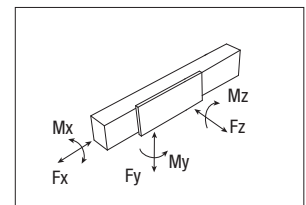
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_b [10 ⁷ mm ⁴]
PAS 360H	31.721	10.329	42.050

Tab. 54

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 360H	Helical teeth hardened ground	m 4	Q6

Tab. 55



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]		M_z [Nm]	
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Dyn.	Stat.	Dyn.	Stat.	Dyn.
PAS 360H	10989	197790	386400	386400	386400	65688	65688	159390	159390	159390	159390

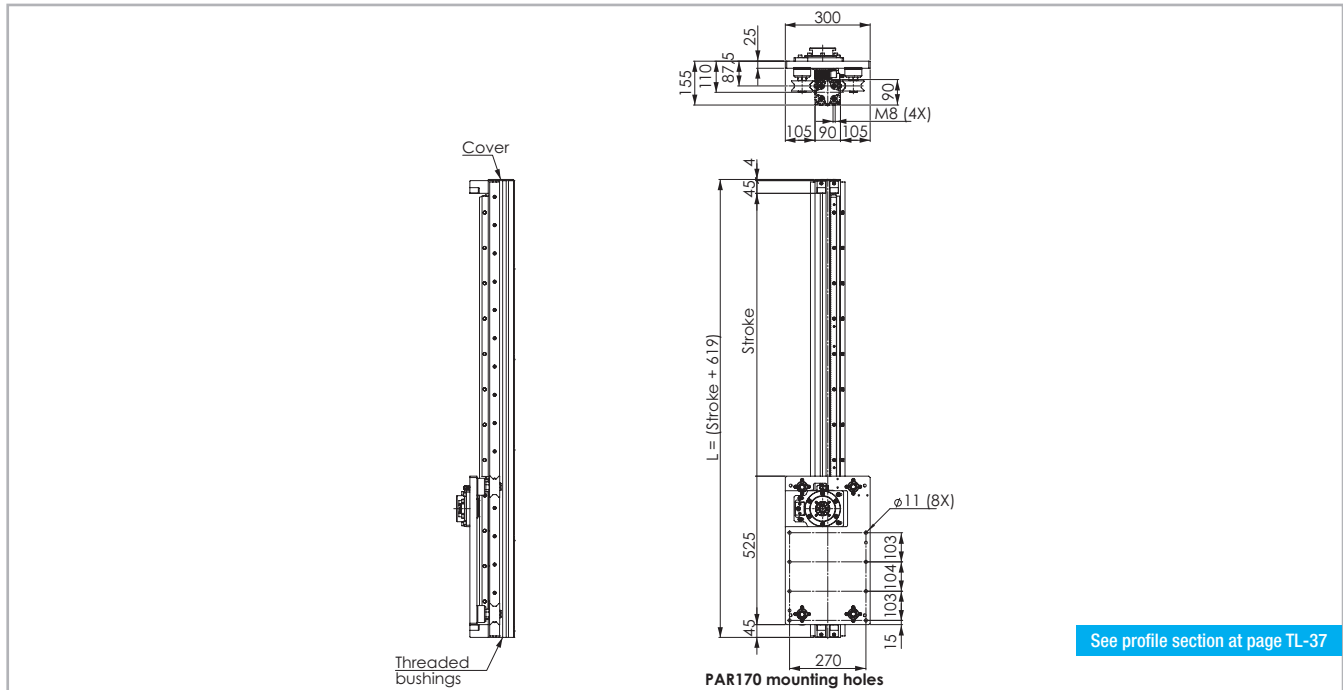
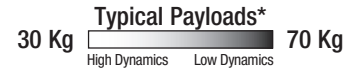
See verification under static load and lifetime on page SL-2 and SL-3

Tab. 56

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L_{10^6} =100.000 km.

> PAR 90V

PAR 90 Dimension



See profile section at page TL-37

The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 18

Technical data

	Type
	PAR 90V
Max. useful stroke length [mm]*1	2000
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	4
Max. acceleration [m/s ²]	6
Rack module	m 2
Pinion pitch diameter [mm]	53.05
Carriage displacement per pinion turn [mm]	167
Carriage weight [kg]	16.7
Zero travel weight [kg]	31
Weight for 100 mm useful stroke [kg]	2.3
Rail size [mm]	35x16

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 90V	0.254	0.254	0.508

Tab. 58

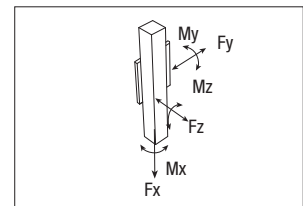
Rack specifications

Type	Type of rack	Rack module	Quality
PAR 90V	Helical teeth hardened ground	m 2	Q6

Tab. 59

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 57



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAR 90V	3356	53557	9000	53557	5600	344	1260	2025

See verification under static load and lifetime on page SL-2 and SL-3

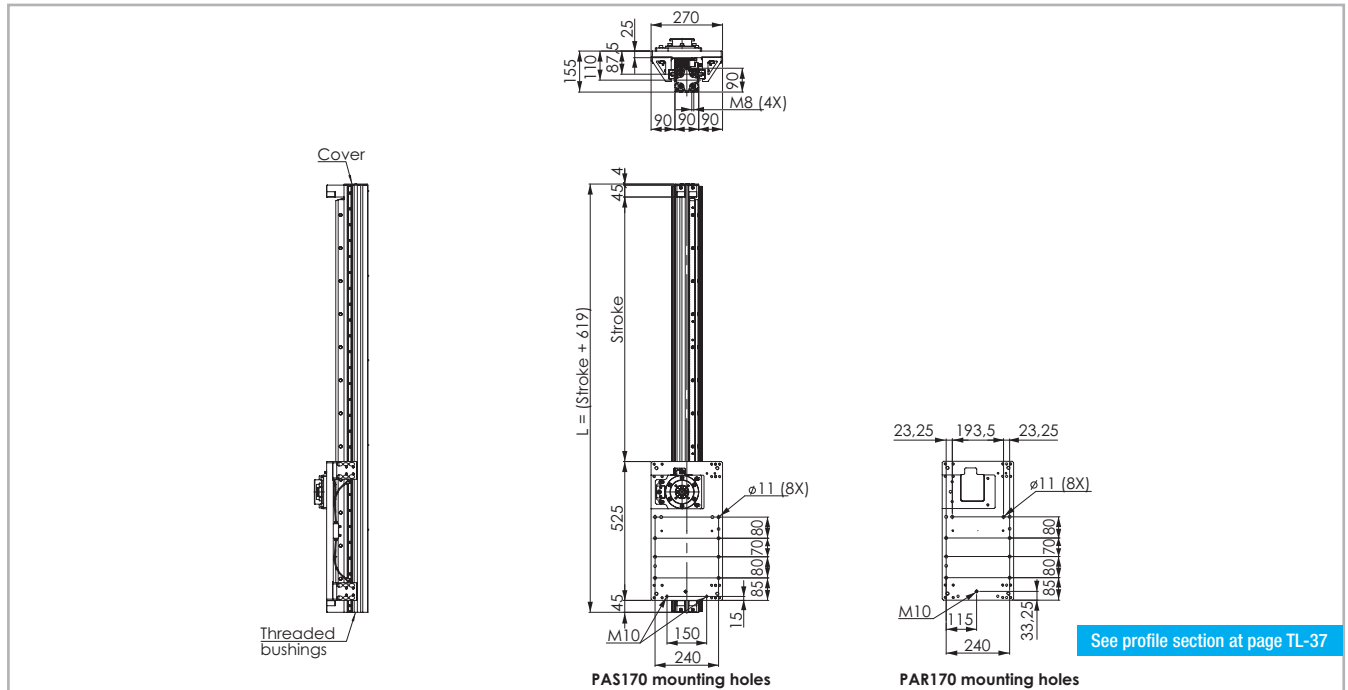
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L_{10^6} =100.000 km.

Tab. 60

> PAS 90V

40 Kg **Typical Payloads*** 90 Kg
 High Dynamics Low Dynamics

PAS 90V Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 19

Technical data

	Type
	PAS 90V
Max. useful stroke length [mm]*1	2000
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m2
Pinion pitch diameter [mm]	53.05
Carriage displacement per pinion turn [mm]	167
Carriage weight [kg]	15.2
Zero travel weight [kg]	27.5
Weight for 100 mm useful stroke [kg]	1.9
Rail size [mm]	15

Tab. 61

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

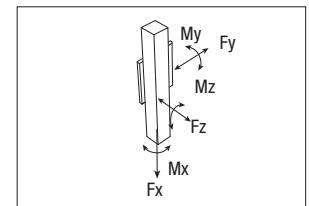
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_z [10 ⁷ mm ⁴]
PAS 90V	0.254	0.254	0.508

Tab. 62

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 90V	Helical teeth hardened ground	m 2	Q6

Tab. 63



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.	
PAS 90V	3356	45082	96800	45082	96800	4913	22167	22167	

See verification under static load and lifetime on page SL-2 and SL-3

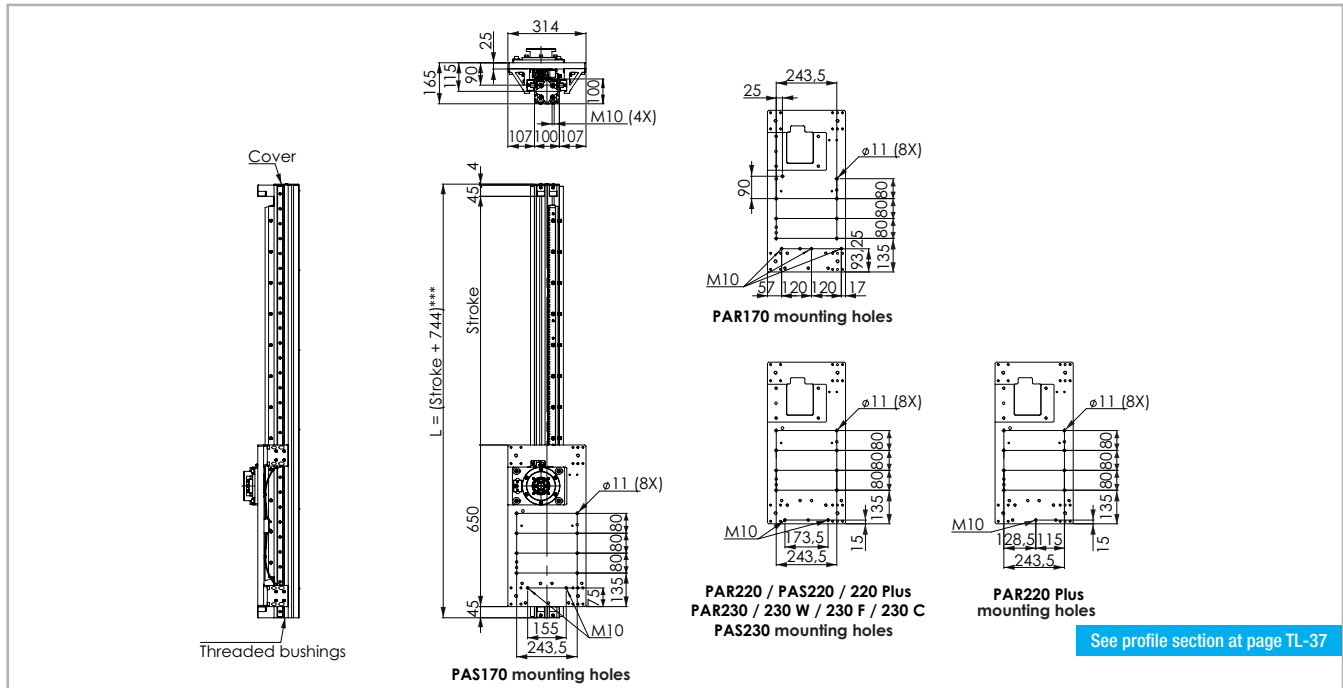
Tab. 64

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{th} = 100.000$ km.

> PAS 100V

80 Kg **Typical Payloads*** 140 Kg
 High Dynamics Low Dynamics

PAS 100V Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

*** If the unit PAS 100V is to be mounted on PAR 220P additional strokes are required to clear the Y-axis carriage plate. Please see tab. 103 on pag TL-31.

Fig. 20

Technical data

	Type
	PAS 100V
Max. useful stroke length [mm]*1	2200
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	22.3
Zero travel weight [kg]	40
Weight for 100 mm useful stroke [kg]	2.6
Rail size [mm]	20

Tab. 65

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

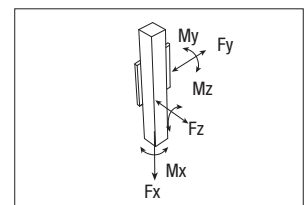
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAS 100V	0.443	0.443	0.887

Tab. 66

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 100V	Helical teeth hardened ground	m 3	Q6

Tab. 67



Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]		M _y [Nm]		M _z [Nm]	
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Dyn.	Stat.	Dyn.	Stat.	Dyn.
PAS 100V	5714	70798	153600	153600	153600	8870	43392	43392	43392	43392	43392

See verification under static load and lifetime on page SL-2 and SL-3

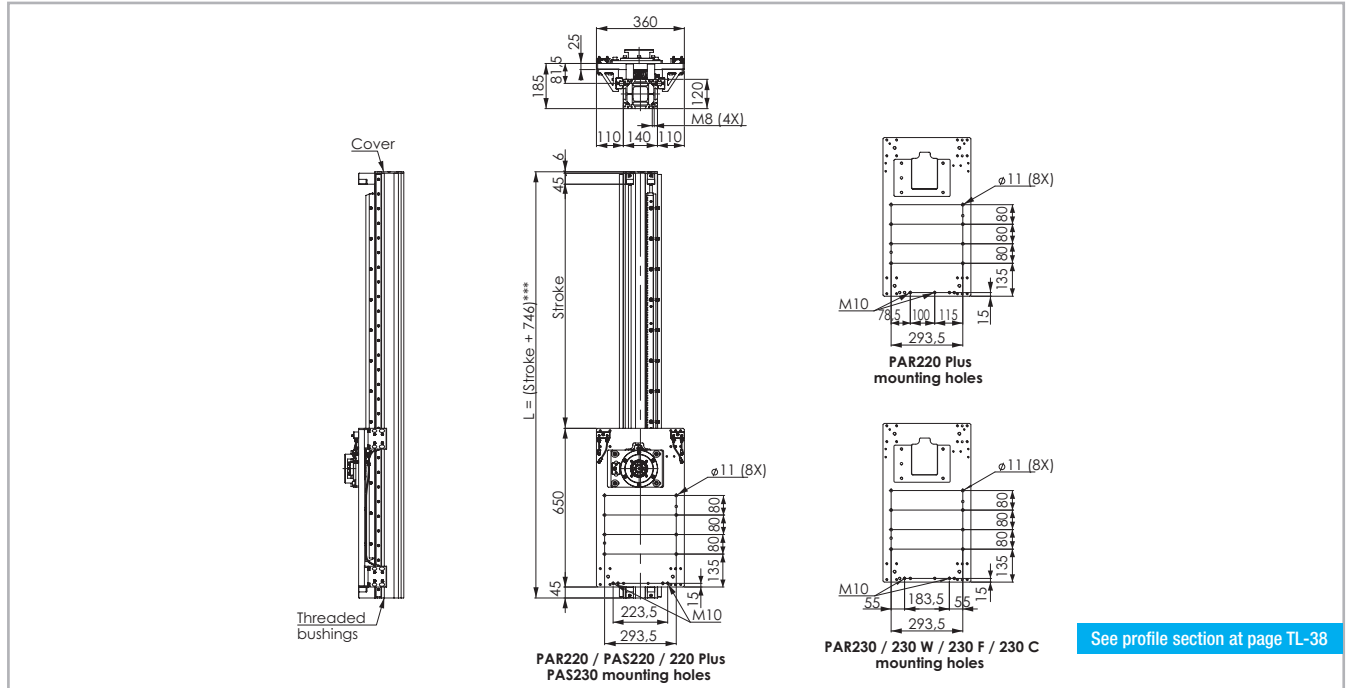
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

Tab. 68

PAS 140V

100 Kg **Typical Payloads*** 200 Kg
 High Dynamics Low Dynamics

PAS 140V Dimension



See profile section at page TL-38

Fig. 21

The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

*** If the unit PAS 140V is to be mounted on PAR 220P additional strokes are required to clear the Y-axis carriage plate. Please see tab. 104 on pag TL-31.

Technical data

	Type
	PAS 140
Max. useful stroke length [mm]*1	2400
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	24.5
Zero travel weight [kg]	44.6
Weight for 100 mm useful stroke [kg]	2.9
Rail size [mm]	20

Tab. 69

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

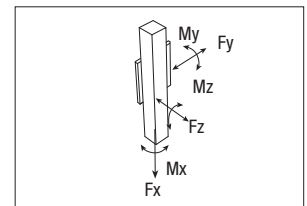
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_z [10 ⁷ mm ⁴]
PAS 140	1.148	0.892	2.040

Tab. 70

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 140	Helical teeth hardened ground	m 3	Q6

Tab. 71



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]		M_z [Nm]	
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Dyn.	Stat.	Dyn.	Stat.	Dyn.
PAS 140	5714	70798	153600	153600	153600	11942	11942	43392	43392	43392	43392

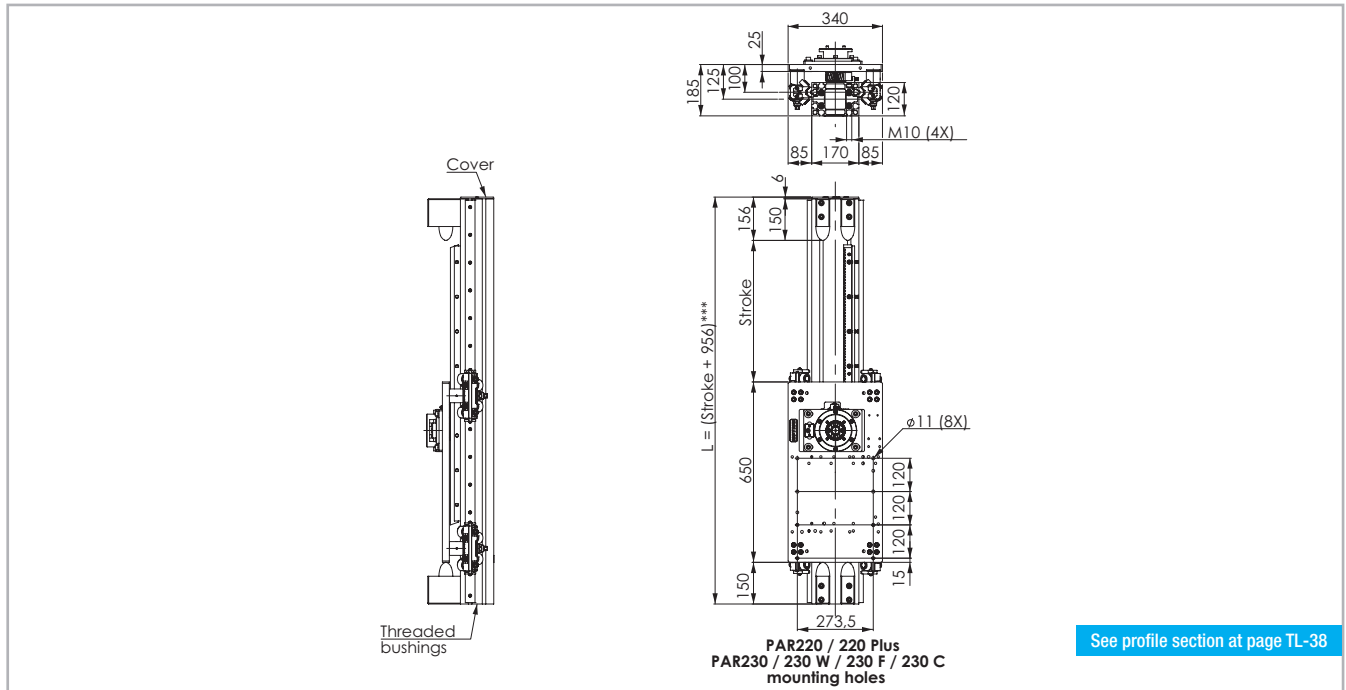
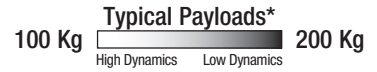
See verification under static load and lifetime on page SL-2 and SL-3

Tab. 72

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{gv}=100.000$ km.

> PAR 170V

PAR 170V Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

*** If the unit PAR 170V is to be mounted on PAR 220P-PAR 230H additional strokes are required to clear the Y-axis carriage plate. Please see tab. 101 on pag TL-31.

Fig. 22

Technical data

	Type
	PAR 170V
Max. useful stroke length [mm]*1	2400
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	30.1
Zero travel weight [kg]	67.5
Weight for 100 mm useful stroke [kg]	3.3
Rail size [mm]	35x16

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 170V	1.973	0.984	2.957

Tab. 74

Rack specifications

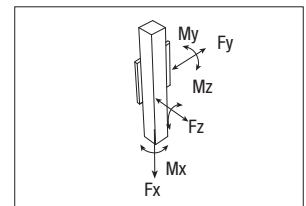
Type	Type of rack	Rack module	Quality
PAR 170V	Helical teeth hardened ground	m 3	Q6

Tab. 75

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 73



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.	
PAR 170V	5714	65928	14142	14142	14142	1202	3889	3889	

See verification under static load and lifetime on page SL-2 and SL-3

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{10} = 100.000$ km.

Tab. 76

> PAS 170V

110 Kg **Typical Payloads*** 220 Kg
 High Dynamics Low Dynamics

PAS 170V Dimension

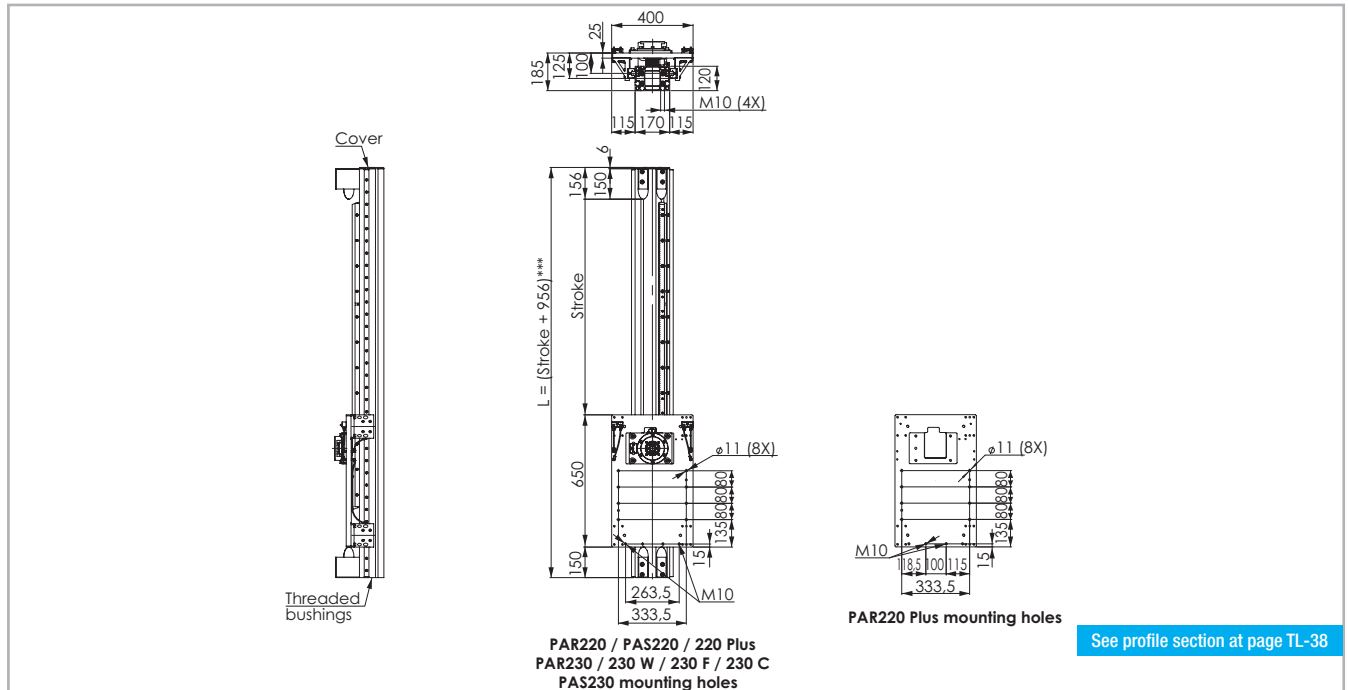


Fig. 23

The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

***If the unit PAS 170V is to be mounted on PAR 220P additional strokes are required to clear the Y-axis carriage plate. Please see tab. 105 on pag TL-31.

Technical data

	Type
	PAS 170V
Max. useful stroke length [mm]*1	2400
Max. positioning repeatability [mm]*2	± 0.06
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 3
Pinion pitch diameter [mm]	63.66
Carriage displacement per pinion turn [mm]	200
Carriage weight [kg]	30
Zero travel weight [kg]	66.4
Weight for 100 mm useful stroke [kg]	3.4
Rail size [mm]	25

Tab. 77

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

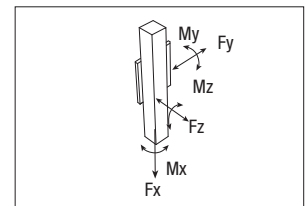
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_z [10 ⁷ mm ⁴]
PAS 170V	1.973	0.984	2.957

Tab. 78

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 170V	Helical teeth hardened ground	m 3	Q6

Tab. 79



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]		M_z [Nm]	
	Stat.	DYN.	Stat.	DYN.	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	
PAS 170V	5714	116833	258800	116833	258800	24030	69229	69229	69229	69229	

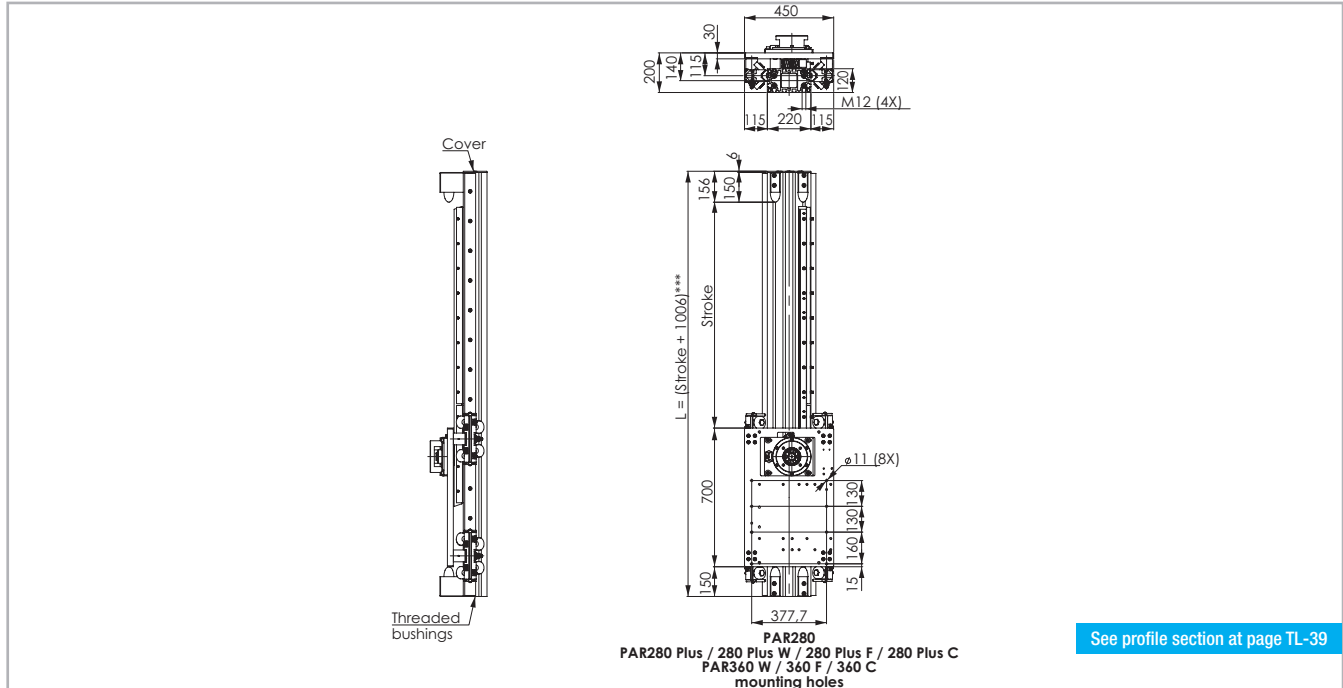
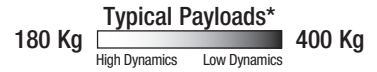
See verification under static load and lifetime on page SL-2 and SL-3

Tab. 80

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{90}=100.000$ km.

> PAR 220V

PAR 220V Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

***If the unit PAR 220V is to be mounted on PAR 280P-PAR 360H additional strokes are required to clear the Y-axis carriage plate. Please see tab. 102 on pag TL-31.

Fig. 24

Technical data

	Type
	PAR 220V
Max. useful stroke length [mm]*1	2800
Max. positioning repeatability [mm]*2	± 0.1
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	56.6
Zero travel weight [kg]	119.3
Weight for 100 mm useful stroke [kg]	5.5
Rail size [mm]	55x25

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAR 220V	4.625	1.559	6.184

Tab. 82

Rack specifications

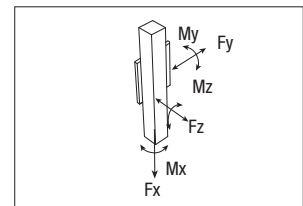
Type	Type of rack	Rack module	Quality
PAR 220V	Helical teeth hardened ground	m 4	Q6

Tab. 83

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 81



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.	
PAR 220V	10989	149063	29981	29981	29981	3298	8844	8844	

See verification under static load and lifetime on page SL-2 and SL-3

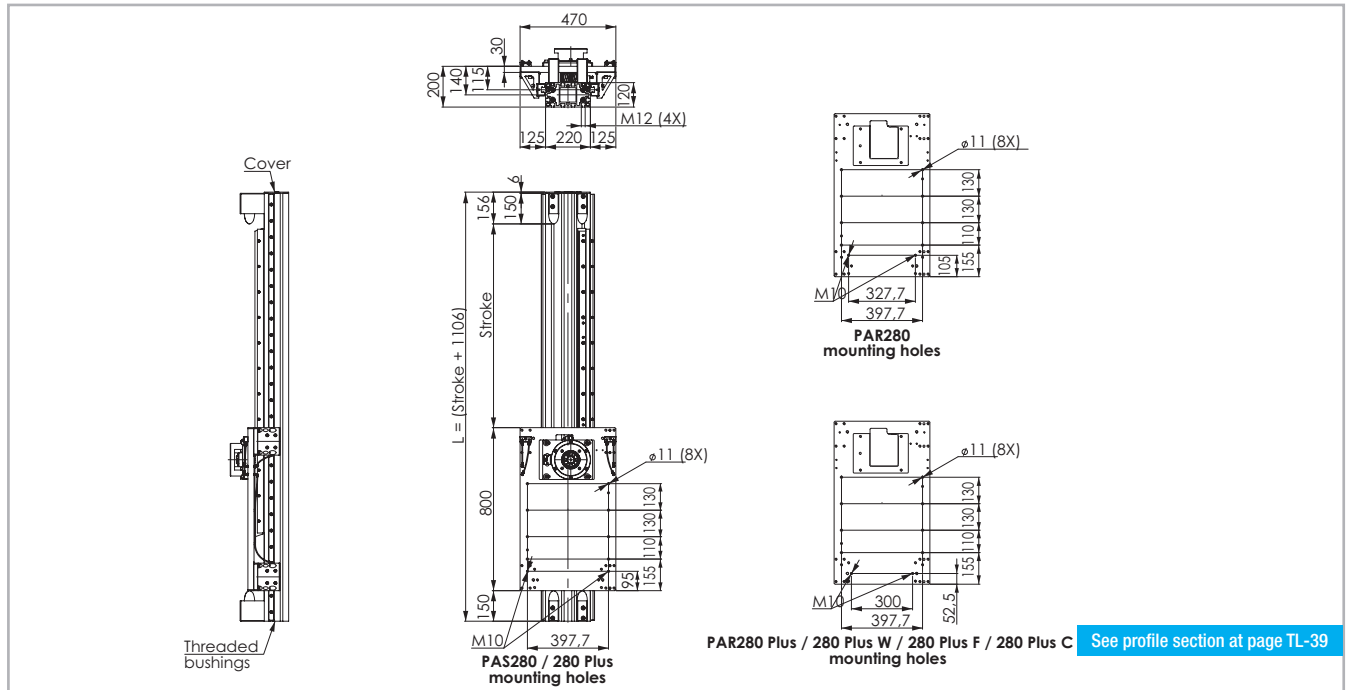
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{10}=100.000$ km.

Tab. 84

> PAS 220V

200 Kg **Typical Payloads*** 450 Kg
 High Dynamics Low Dynamics

PAS 220V Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 25

Technical data

	Type
	PAS 220V
Max. useful stroke length [mm]*1	2800
Max. positioning repeatability [mm]*2	± 0.07
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	50.7
Zero travel weight [kg]	106.2
Weight for 100 mm useful stroke [kg]	5.1
Rail size [mm]	30

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 85

Moments of inertia of the aluminum body

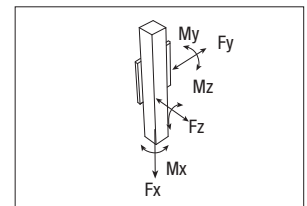
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_b [10 ⁷ mm ⁴]
PAS 220V	4.625	1.559	6.184

Tab. 86

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 220V	Helical teeth hardened ground	m 4	Q6

Tab. 87



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]		M_z [Nm]	
	Stat.	DYN.	Stat.	DYN.	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	
PAS 220V	10989	355200	172074	355200	42624	118104	118104				

See verification under static load and lifetime on page SL-2 and SL-3

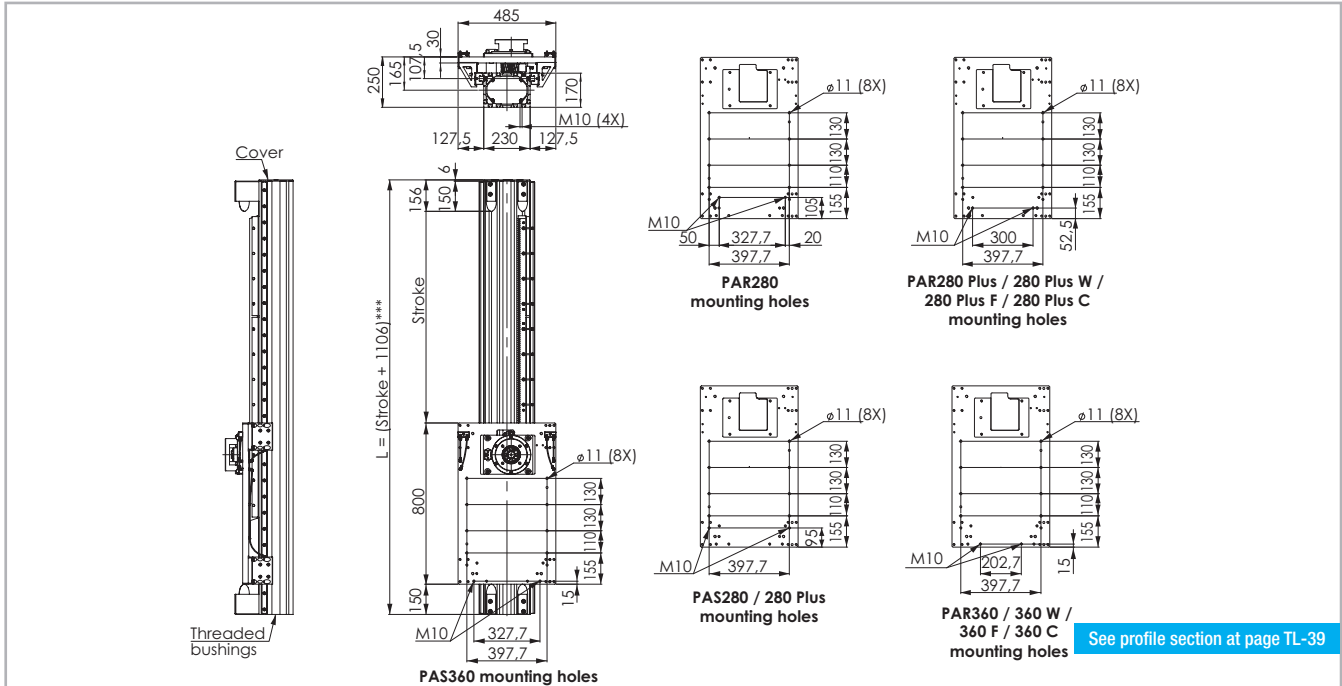
Tab. 88

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{90}=100.000$ km.

> PAS 230V

PAS 230V Dimension

Typical Payloads*
 250 Kg 500 Kg
High Dynamics Low Dynamics



The length of the safety stroke is provided on request according to the customer's specific requirements.

**Cable carrier offered as option

***If the unit PAS 230V is to be mounted on PAR 360H additional strokes are required to clear the Y-axis carriage plate. Please see tab. 106 on pag TL-31.

Fig. 26

Technical data

	Type
	PAS 230V
Max. useful stroke length [mm]*1	2800
Max. positioning repeatability [mm]*2	± 0.07
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 4
Pinion pitch diameter [mm]	76.39
Carriage displacement per pinion turn [mm]	240
Carriage weight [kg]	52
Zero travel weight [kg]	106
Weight for 100 mm useful stroke [kg]	5.1
Rail size [mm]	30

*1) It is possible to obtain longer stroke by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 89

Moments of inertia of the aluminum body

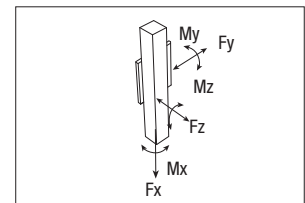
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAS 230V	6.501	3.778	10.279

Tab. 90

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 230V	Helical teeth hardened ground	m 4	Q6

Tab. 91



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.		Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAS 230V	10989		355200	172074	355200	45110	118104	118104

See verification under static load and lifetime on page SL-2 and SL-3

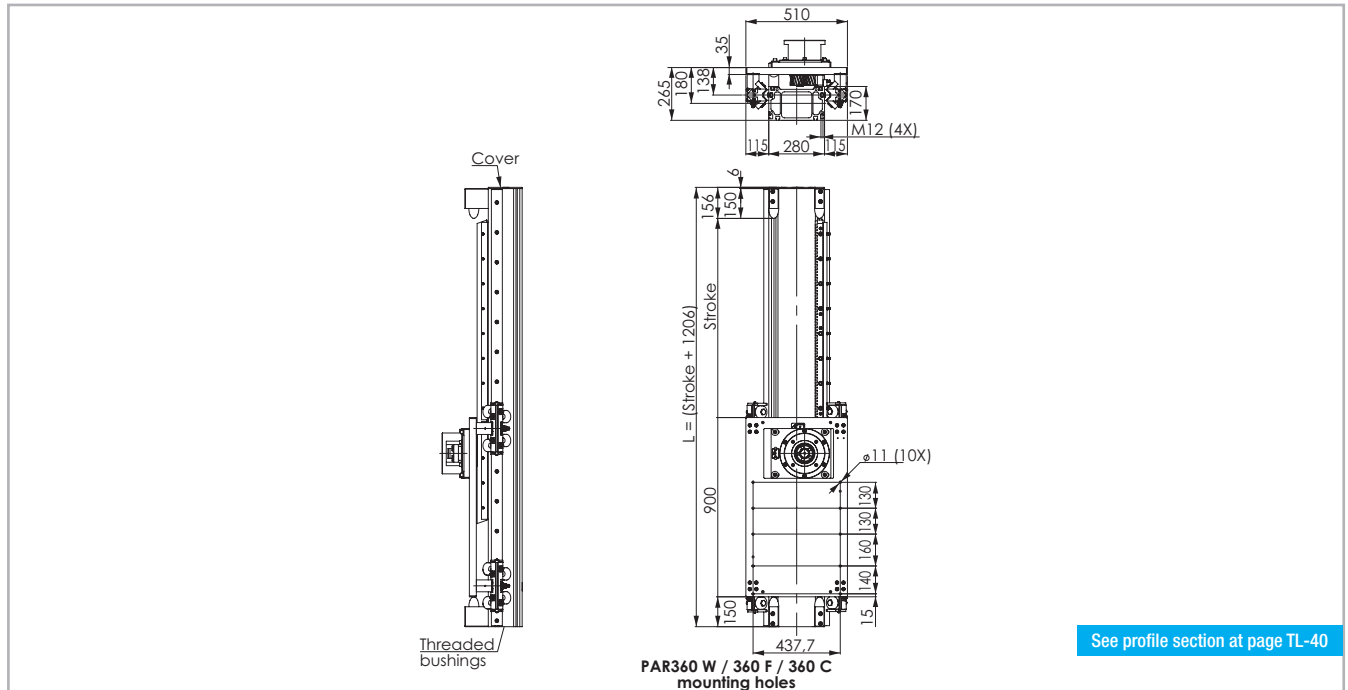
*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L_{10^6} =100.000 km.

Tab. 92

> PAR 280V

350 Kg **Typical Payloads*** 700 Kg
 High Dynamics Low Dynamics

PAR 280V Dimension



See profile section at page TL-40

Fig. 27

The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Technical data

	Type
	PAR 280V
Max. useful stroke length [mm]*1	3000
Max. positioning repeatability [mm]*2	± 0.15
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 5
Pinion pitch diameter [mm]	116.71
Carriage displacement per pinion turn [mm]	366
Carriage weight [kg]	84.7
Zero travel weight [kg]	165.1
Weight for 100 mm useful stroke [kg]	7
Rail size [mm]	55x25

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_z [10 ⁷ mm ⁴]
PAR 280V	12.646	4.829	17.475

Tab. 94

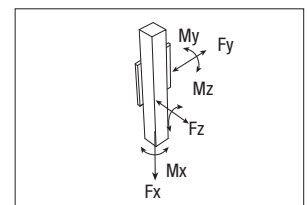
Rack specifications

Type	Type of rack	Rack module	Quality
PAR 280V	Helical teeth hardened ground	m 5	Q6

Tab. 95

*1) It is possible to obtain longer stroke by means of special Rollon joints
 *2) Positioning repeatability is dependent on the type of transmission used

Tab. 93



Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]		M_y [Nm]	M_z [Nm]
	Stat.	DYN.	Stat.	DYN.	Stat.	Stat.	Stat.	Stat.	
PAR 280V	15873	29981	29981	149063	29981	4197	11843	11843	

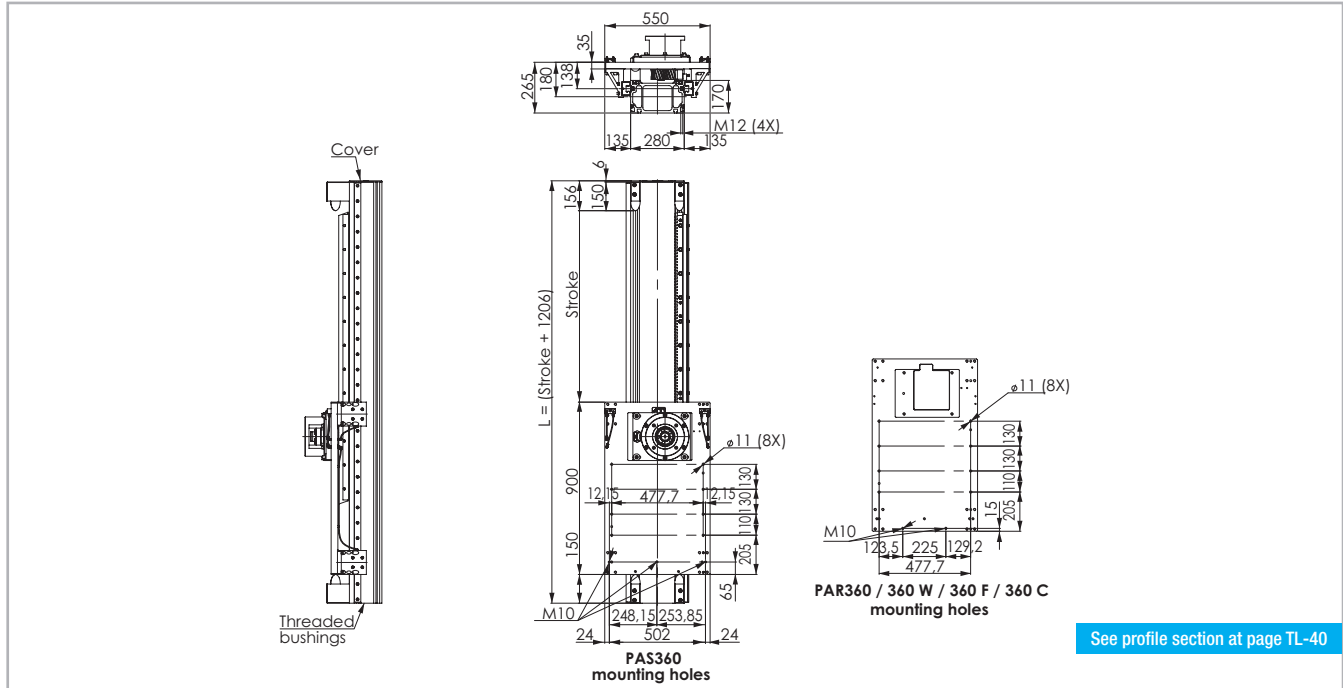
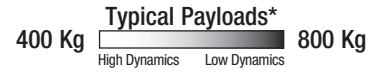
See verification under static load and lifetime on page SL-2 and SL-3

Tab. 96

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of $L_{gv}=100.000$ km.

> PAS 280V

PAS 280V Dimension



The length of the safety stroke is provided on request according to the customer's specific requirements.
**Cable carrier offered as option

Fig. 28

Technical data

	Type
	PAS 280V
Max. useful stroke length [mm]*1	3000
Max. positioning repeatability [mm]*2	± 0.08
Max. speed [m/s]	3
Max. acceleration [m/s ²]	6
Rack module	m 5
Pinion pitch diameter [mm]	116.71
Carriage displacement per pinion turn [mm]	366
Carriage weight [kg]	77
Zero travel weight [kg]	155.5
Weight for 100 mm useful stroke [kg]	6.8
Rail size [mm]	35

*1) It is possible to obtain longer stroke by means of special Rollon joints
*2) Positioning repeatability is dependent on the type of transmission used

Tab. 97

Moments of inertia of the aluminum body

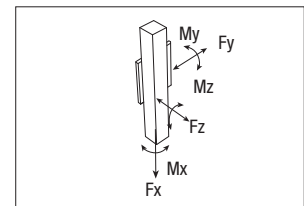
Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_p [10 ⁷ mm ⁴]
PAS 280V	12.646	4.829	17.475

Tab. 98

Rack specifications

Type	Type of rack	Rack module	Quality
PAS 280V	Helical teeth hardened ground	m 5	Q6

Tab. 99



Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
PAS 280V	15873	197790	386400	386400	386400	58540	149730	149730

See verification under static load and lifetime on page SL-2 and SL-3

*The payload capacity is impacted by the center of mass and dynamics; the payload capacity is considered centered on the carriage (vertical actuator for 2-axis systems) to ensure a theoretical guides lifetime of L₁₀=100.000 km.

Tab. 100

> Z-AXIS EXTRA STROKE

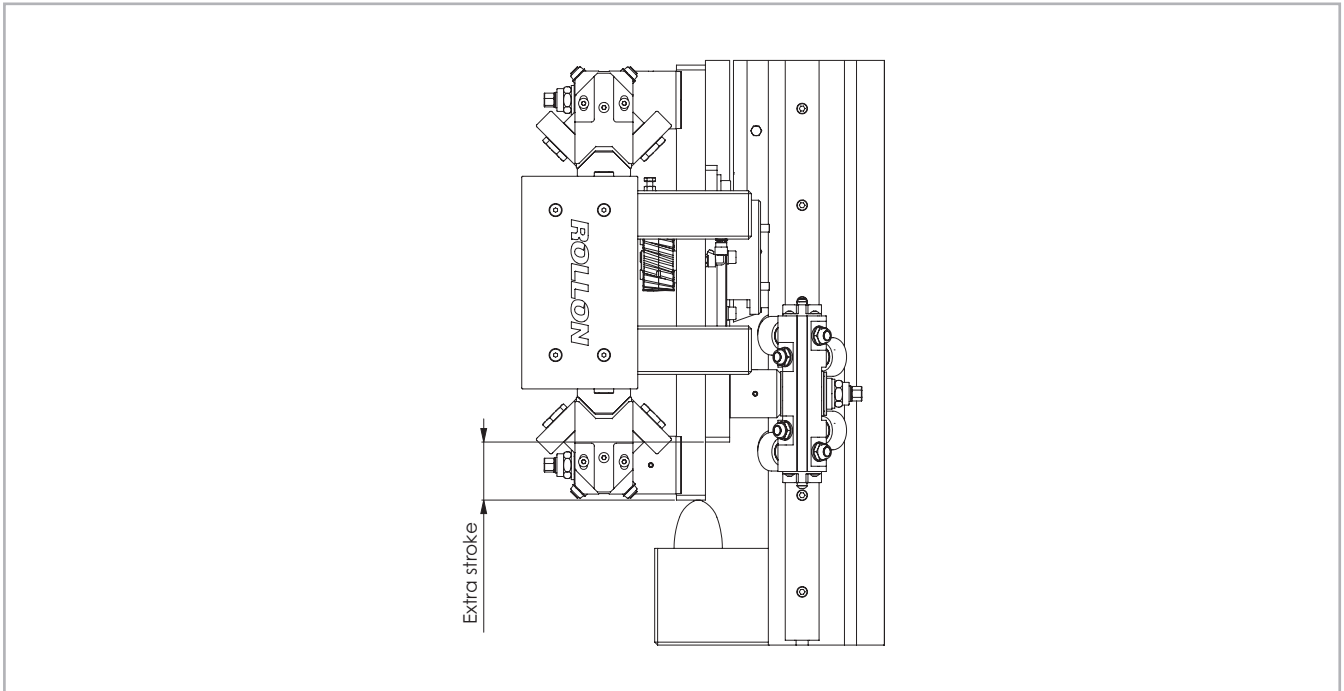


Fig. 29

PAR 170V Extra stroke

Y-axis	Z-axis
	PAR 170V
PAR 220P	60 mm
PAR 230H	10 mm

Tab. 101

PAR 220V Extra stroke

Y-axis	Z-axis
	PAR 220V
PAR 280P	60 mm
PAR 360H	140 mm

Tab. 102

PAS 100V Extra stroke

Y-axis	Z-axis
	PAS 100V
PAR 220P	60 mm

Tab. 103

PAS 140V Extra stroke

Y-axis	Z-axis
	PAS 140V
PAR 220P	60 mm

Tab. 104

PAS 170V Extra stroke

Y-axis	Z-axis
	PAS 170V
PAR 220P	60 mm

Tab. 105

PAS 230V Extra stroke

Y-axis	Z-axis
	PAS 230V
PAR 360H	50 mm

Tab. 106

> **PAR rollers**

The aluminium slider can be configured with a variable number of rollers with steel pins, ranging from 4 (2+2) to 6 (4+2). The number of rollers are depending on the actuator size and mounting: floor, wall or ceiling.

6F (6 ROLLERS, FLOOR MOUNTING)

Type has the 4 bearings of all 6 roller sliders on the upper side.

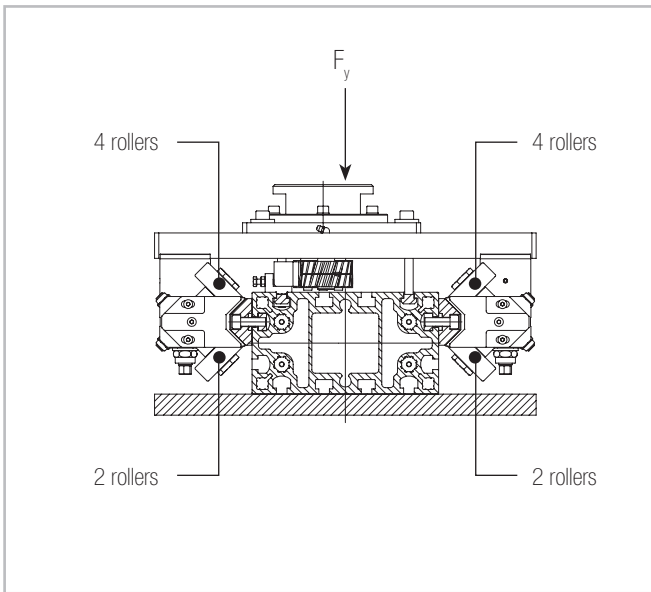


Fig. 30

6W (6 ROLLERS, WALL MOUNTING)

Type has the 4 bearings of all 6 roller sliders in opposite direction.

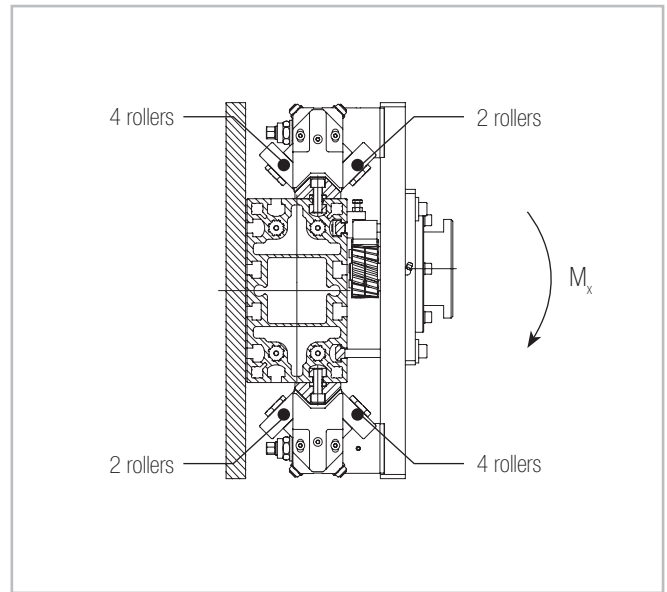


Fig. 31

6C (6 ROLLERS, CEILING MOUNTING)

Type has the 4 bearings of all 6 roller sliders on the opposite side than the carriage plate.

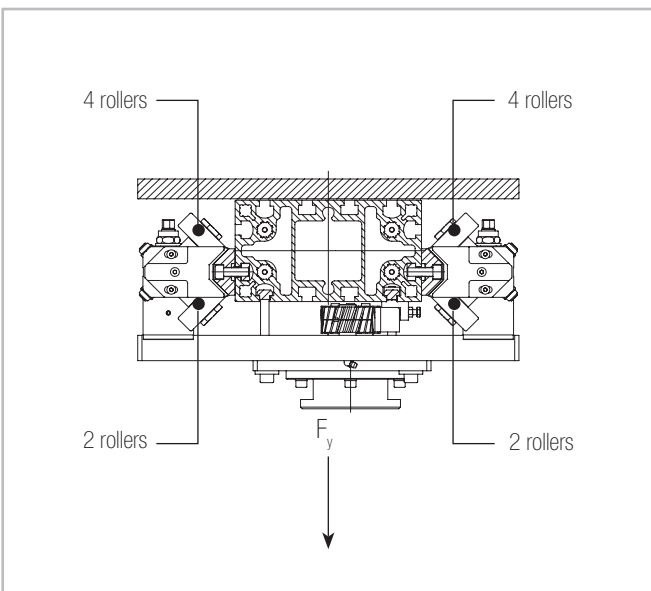


Fig. 32

4S (4 ROLLERS, SYMMETRIC)

Type has the 2 bearings of all 4 roller sliders on the upper side.

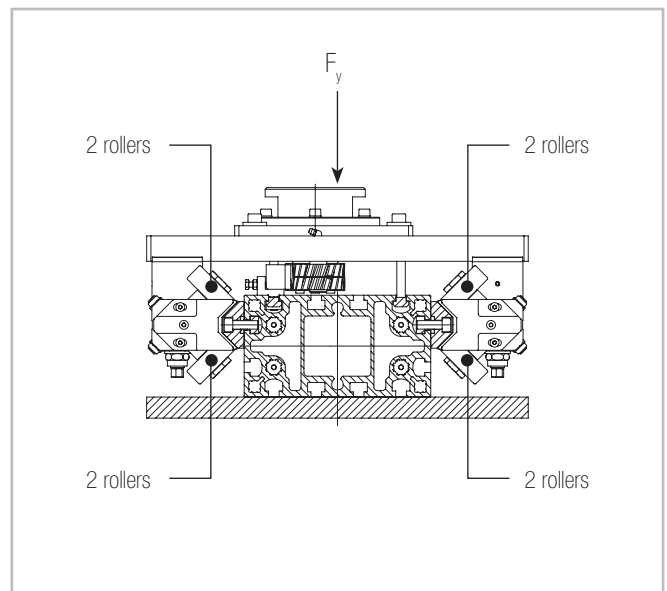


Fig. 33

> PAS slider

HORIZONTAL (FLOOR MOUNTING)

Type has 2 sliders L mounting

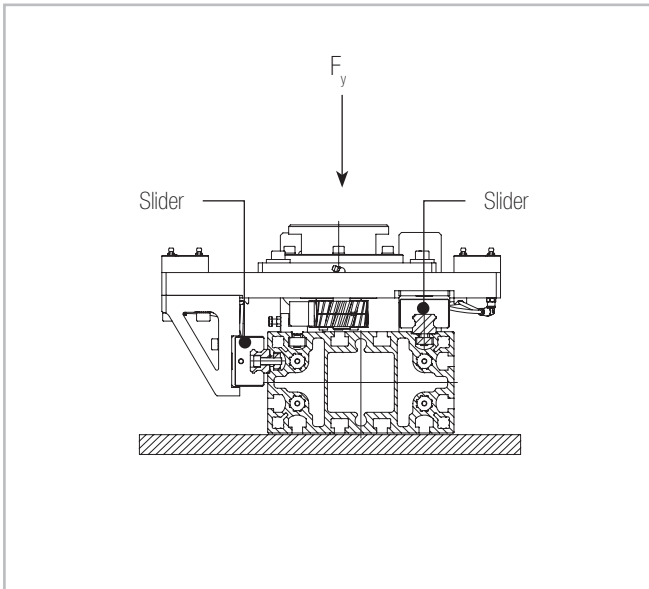


Fig. 34

VERTICAL

Type has 2 sliders opposite mounting

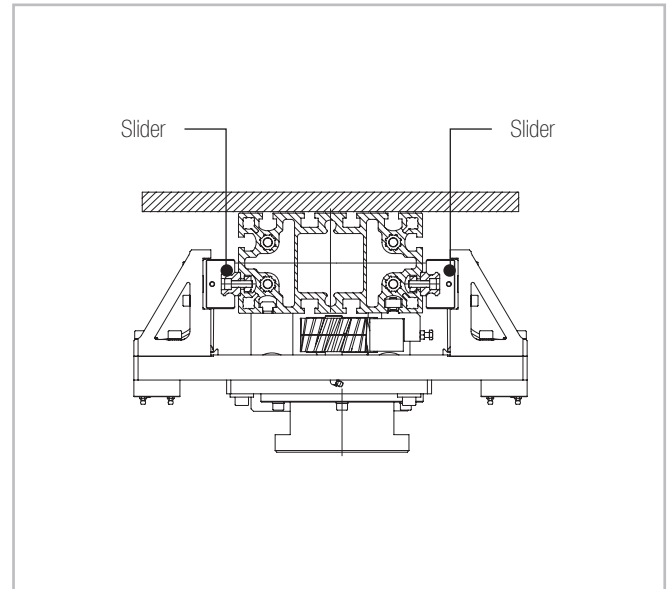


Fig. 35

HORIZONTAL (WALL MOUNTING)

Type has 2 sliders L mounting

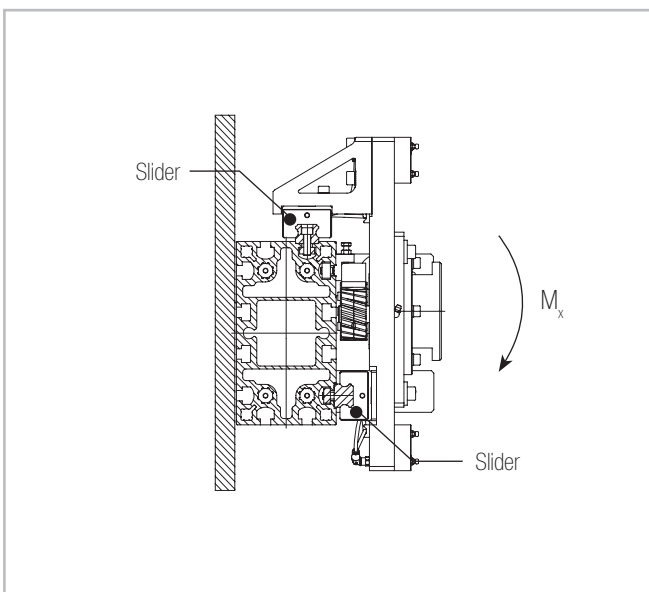
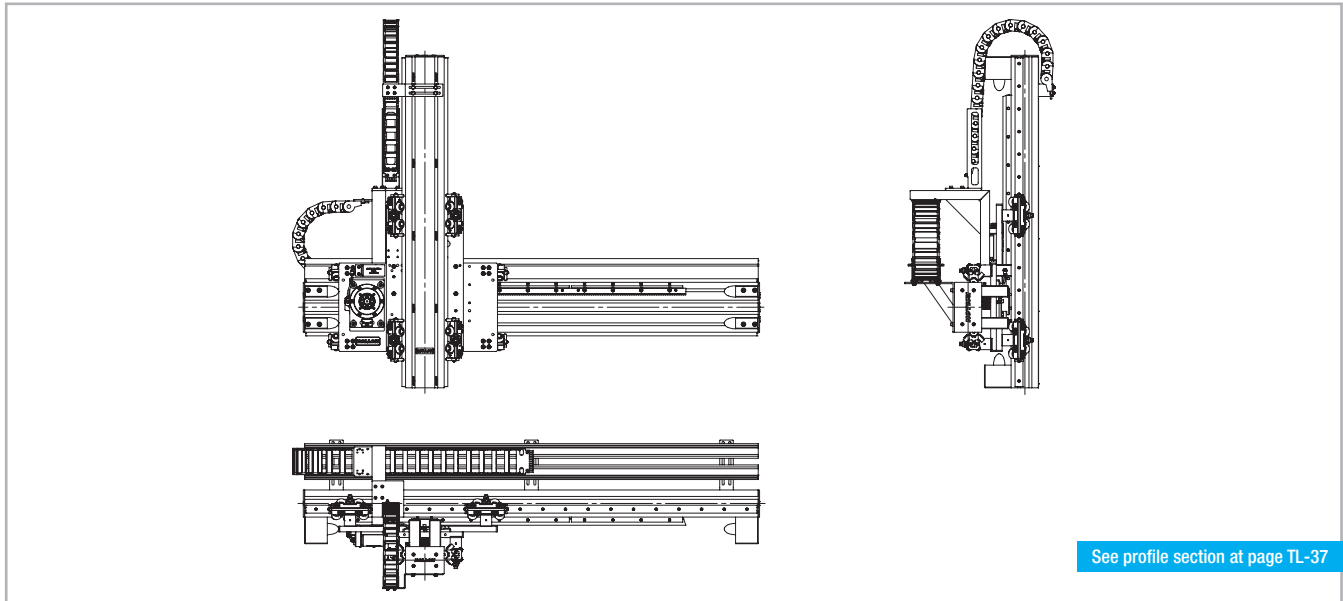


Fig. 36

> PAR/PAR

Standard Y-Z configurations



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 37

Product range overview

Y-axis	Z-axis			
	PAR 90V	PAR 170V	PAR 220V	PAR 280V
PAR 170H	YES			
PAR 220H		YES		
PAR 220P		YES		
PAR 230H		YES		
PAR 280H			YES	
PAR 280P			YES	
PAR 360H			YES	YES

Tab. 107

Rack specifications

Axis	Type of rack	Rack module	Quality
PAR 170H	Helical teeth hardened ground	m 3	Q6
PAR 90V		m 2	
PAR 220H		m 3	
PAR 170V		m 3	
PAR 220P		m 3	
PAR 170V		m 3	
PAR 230H		m 3	
PAR 170V		m 3	
PAR 280H		m 3	
PAR 220V		m 4	
PAR 280P		m 4	
PAR 220V		m 4	

Tab. 108

Axis	Type of rack	Rack module	Quality
PAR 360H	Helical teeth hardened ground	m 4	Q6
PAR 220V		m 4	
PAR 360H		m 4	
PAR 280V		m 5	

Tab. 109

> PAS/PAS

Standard Y-Z configurations

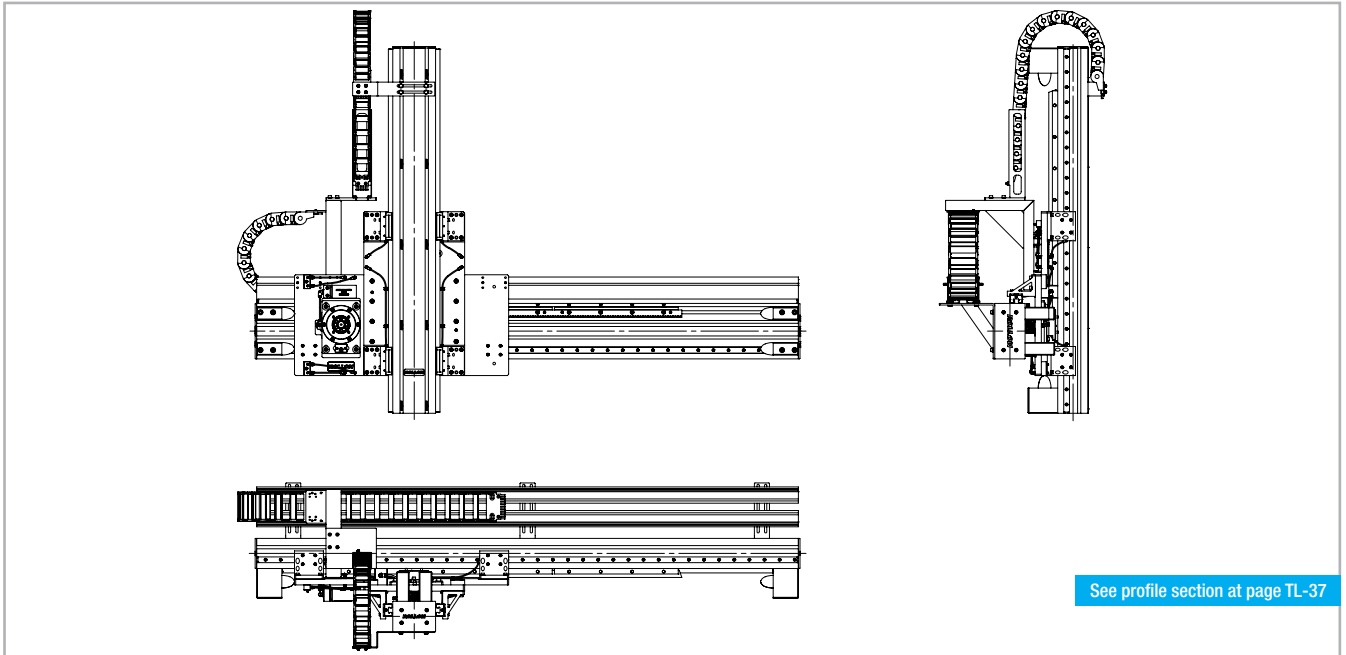


Fig. 38

The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Product range overview

Y-axis	Z-axis						
	PAS 90V	PAS 100V	PAS 140V	PAS 170V	PAS 220V	PAS 230V	PAS 280V
PAS 170H	YES	YES					
PAS 220H		YES	YES	YES			
PAS 220P		YES	YES	YES			
PAS 230H		YES	YES	YES			
PAS 280H					YES	YES	
PAS 280P					YES	YES	
PAS 360H						YES	YES

Tab. 110

Rack specifications

Axis	Type of rack	Rack module	Quality	Axis	Type of rack	Rack module	Quality	Axis	Type of rack	Rack module	Quality
PAS 170H	Helical teeth hardened ground	m 3	Q6	PAS 220P	Helical teeth hardened ground	m 3	Q6	PAS 280H	Helical teeth hardened ground	m 3	Q6
PAS 90V		m 2		PAS 140V		m 3		PAS 230V		m 4	
PAS 170H		m 3		PAS 220P		m 3		PAS 280P		m 4	
PAS 100V		m 3		PAS 170V		m 3		PAS 220V		m 4	
PAS 220H		m 3		PAS 230H		m 3		PAS 280P		m 4	
PAS 100V		m 3		PAS 100V		m 3		PAS 230V		m 4	
PAS 220H		m 3		PAS 230H		m 3		PAS 360H		m 4	
PAS 140V		m 3		PAS 140V		m 3		PAS 230V		m 4	
PAS 220H		m 3		PAS 230H		m 3		PAS 360H		m 4	
PAS 170V		m 3		PAS 170V		m 3		PAS 280V		m 5	
PAS 220P		m 3		PAS 280H		m 3					
PAS 100V		m 3		PAS 220V		m 4					

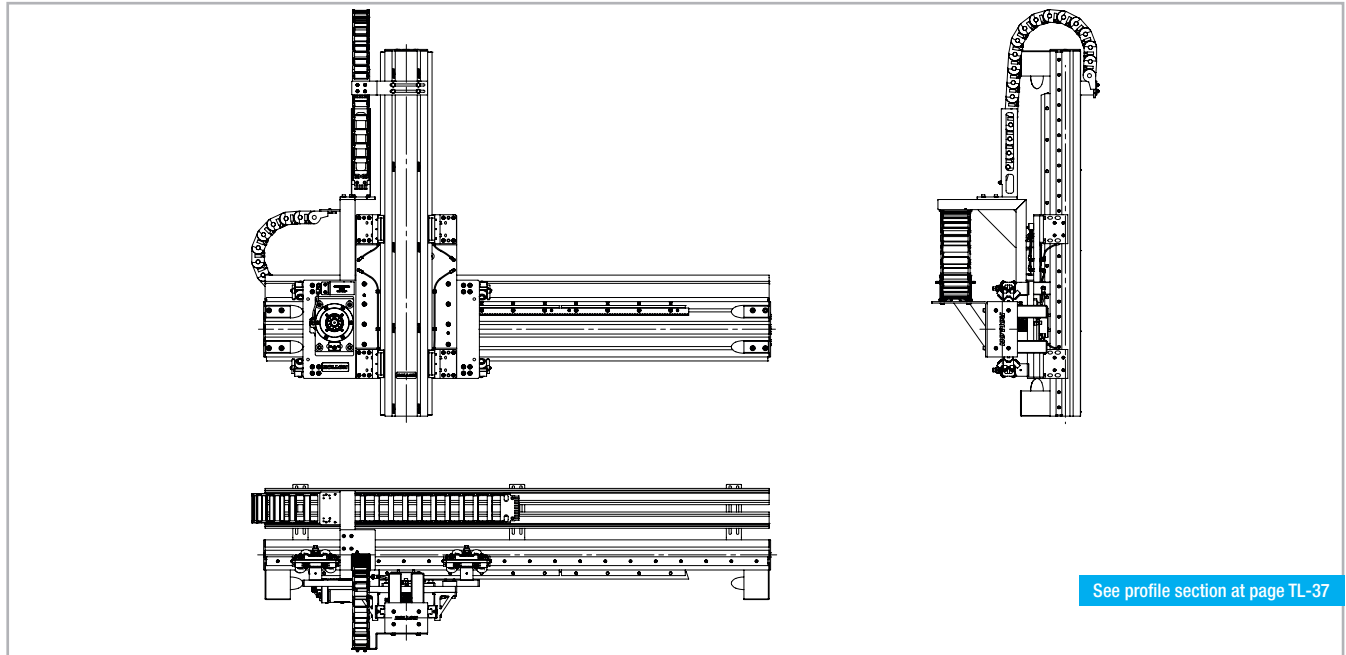
Tab. 111

Tab. 112

Tab. 113

> PAR/PAS

Standard Y-Z configurations



The length of the safety stroke is provided on request according to the customer's specific requirements.
 **Cable carrier offered as option

Fig. 39

Product range overview

Y-axis	Z-axis						
	PAS 90V	PAS 100V	PAS 140V	PAS 170V	PAS 220V	PAS 230V	PAS 280V
PAR 170H	YES	YES					
PAR 220H		YES	YES	YES			
PAR 220P		YES	YES	YES			
PAR 230H		YES	YES	YES			
PAR 280H					YES	YES	
PAR 280P					YES	YES	
PAR 360H						YES	YES

Tab. 114

Rack specifications

Axis	Type of rack	Rack module	Quality	Axis	Type of rack	Rack module	Quality	Axis	Type of rack	Rack module	Quality
PAR 170H	Helical teeth hardened ground	m 3	Q6	PAR 220P	Helical teeth hardened ground	m 3	Q6	PAR 280H	Helical teeth hardened ground	m 3	Q6
PAS 90V		m 2		PAS 140V		m 3		PAS 230V		m 4	
PAR 170H		m 3		PAR 220P		m 3		PAR 280P		m 4	
PAS 100V		m 3		PAS 170V		m 3		PAS 220V		m 4	
PAR 220H		m 3		PAR 230H		m 3		PAR 280P		m 4	
PAS 100V		m 3		PAS 100V		m 3		PAS 230V		m 4	
PAR 220H		m 3		PAR 230H		m 3		PAR 360H		m 4	
PAS 140V		m 3		PAS 140V		m 3		PAS 230V		m 4	
PAR 220H		m 3		PAR 230H		m 3		PAR 360H		m 4	
PAS 170V		m 3		PAS 170V		m 3		PAS 280V		m 5	
PAR 220P		m 3		PAR 280H		m 3					
PAS 100V		m 3		PAS 220V		m 4					

Tab. 117

> Profile specifications

Medium profiles

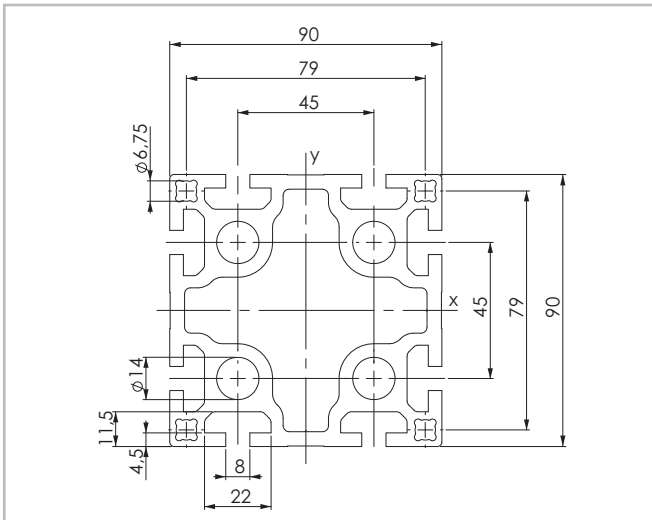
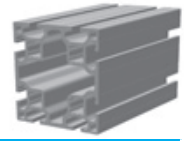


Fig. 40



Profile 90

Weight [Kg/m]	7.9
Max. length [mm]	6000
Moment of inertia Ix [10^7 mm ⁴]	0.254
Moment of inertia Iy [10^7 mm ⁴]	0.254
Polar moment of inertia Ip [10^7 mm ⁴]	0.508
Bending section modulus Wx [mm ³]	56400
Bending section modulus Wy [mm ³]	56400

Tab. 118

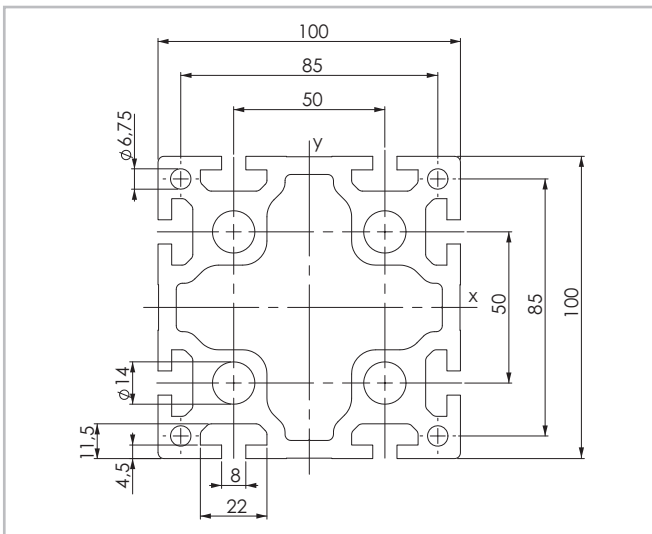
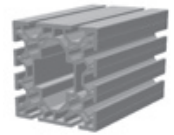


Fig. 41



Profile 100

Weight [Kg/m]	10.7
Max. length [mm]	6000
Moment of inertia Ix [10^7 mm ⁴]	0.444
Moment of inertia Iy [10^7 mm ⁴]	0.444
Polar moment of inertia Ip [10^7 mm ⁴]	0.887
Bending section modulus Wx [mm ³]	88800
Bending section modulus Wy [mm ³]	88800

Tab. 119

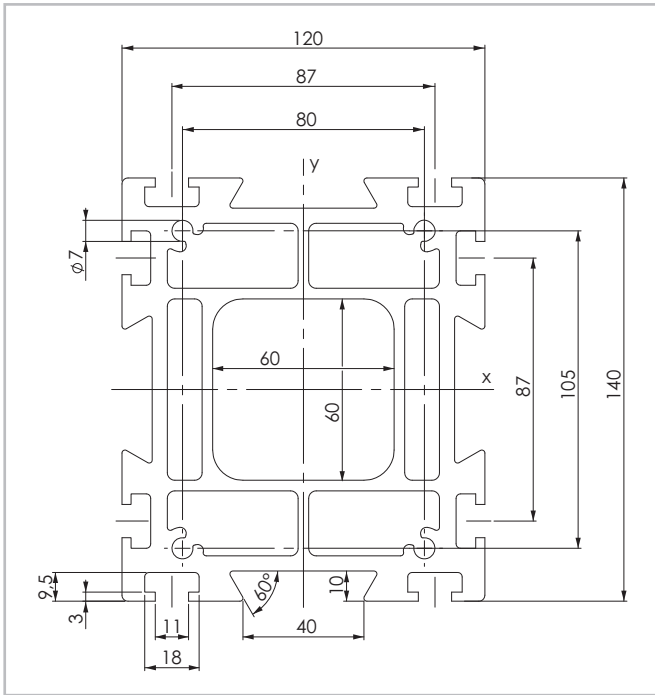


Fig. 42

Profile 140	
Weight [Kg/m]	14.6
Max. length [mm]	10000
Moment of inertia Ix [10 ⁷ mm ⁴]	1.148
Moment of inertia Iy [10 ⁷ mm ⁴]	0.892
Polar moment of inertia Ip [10 ⁷ mm ⁴]	2.040
Bending section modulus Wx [mm ³]	191372
Bending section modulus Wy [mm ³]	127421

Tab. 120

Load bearing profiles

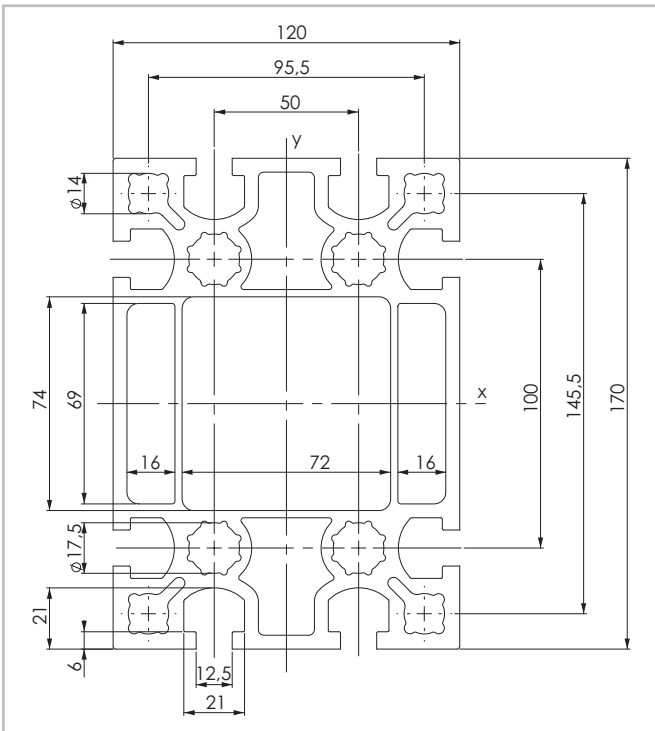
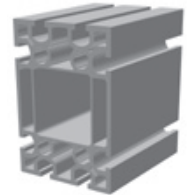


Fig. 43



Profile 170	
Weight [Kg/m]	17
Max. length [mm]	10000
Moment of inertia Ix [10 ⁷ mm ⁴]	1.973
Moment of inertia Iy [10 ⁷ mm ⁴]	0.984
Polar moment of inertia Ip [10 ⁷ mm ⁴]	0.846
Bending section modulus Wx [mm ³]	232168
Bending section modulus Wy [mm ³]	163929

Tab. 121

Load bearing profiles

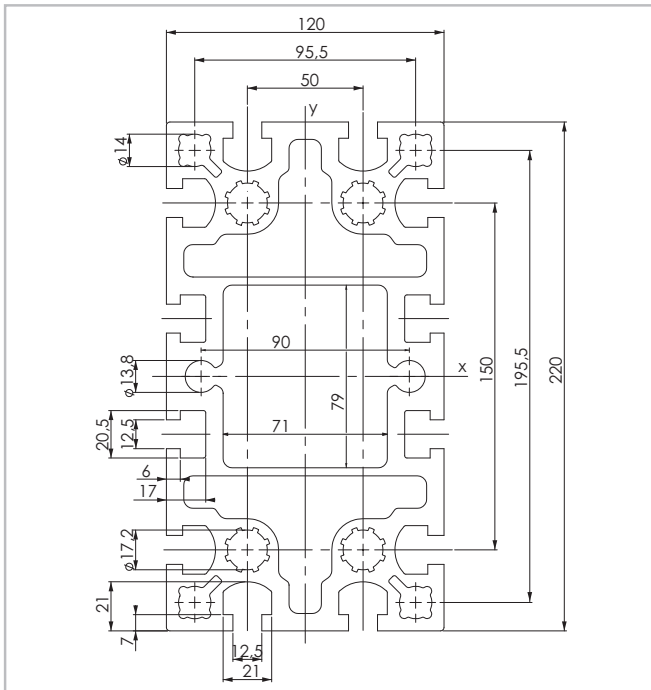
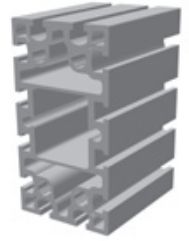


Fig. 44



Profile 220

Weight [Kg/m]	25
Max. length [mm]	12000
Moment of inertia I_x [10^7 mm ⁴]	4.625
Moment of inertia I_y [10^7 mm ⁴]	1.559
Polar moment of inertia I_p [10^7 mm ⁴]	6.184
Bending section modulus W_x [mm ³]	423182
Bending section modulus W_y [mm ³]	260833

Tab. 122

Load bearing profiles

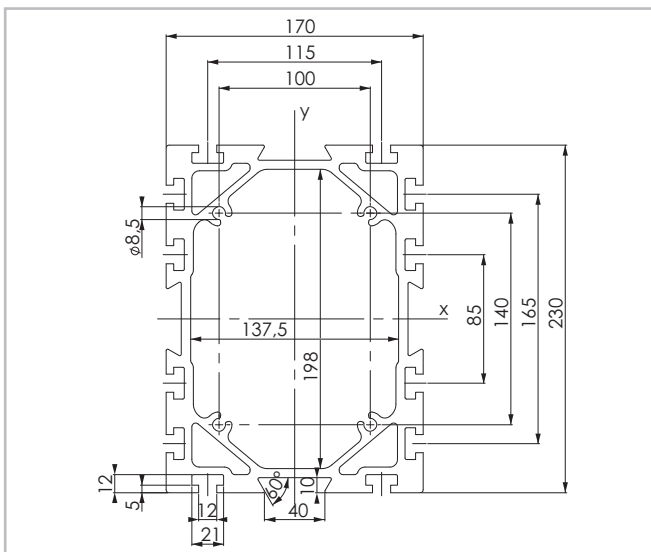


Fig. 45

Profile 230

Weight [Kg/m]	25.5
Max. length [mm]	12000
Moment of inertia I_x [10^7 mm ⁴]	6.501
Moment of inertia I_y [10^7 mm ⁴]	3.778
Polar moment of inertia I_p [10^7 mm ⁴]	10.279
Bending section modulus W_x [mm ³]	564284
Bending section modulus W_y [mm ³]	444500

* Not anodized

Tab. 123

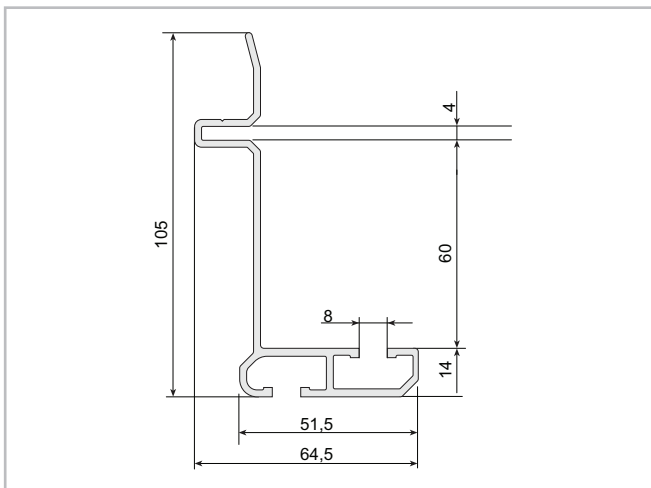
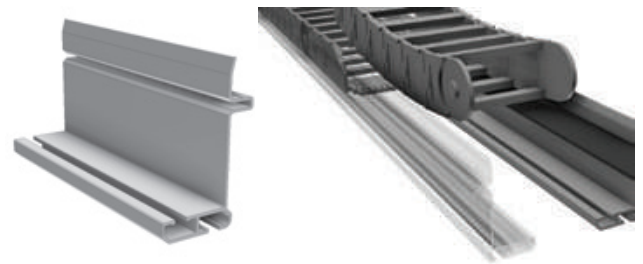


Fig. 46



7400568 energy chain support profile

Weight [kg/m]	1.3
Available length [Mm]	6

Tab. 124

> Accessory

Programmable automatic rack lubrication

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

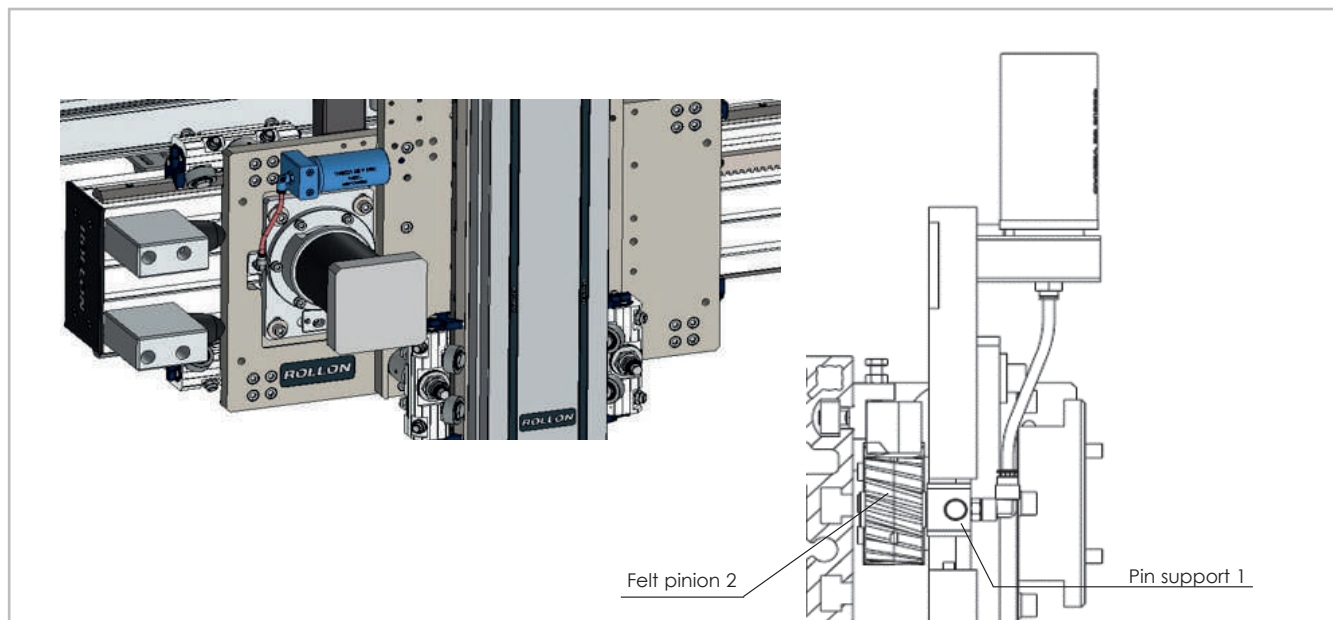


Fig. 49

1 - Spares

Specification	Code
Programmable grease cartridge (125 ml) [b]	1011244
m2 - helical tooth felt pinion [1]	1011165
m3 - helical tooth felt pinion [1]	1160050
m4 - helical tooth felt pinion [1]	1160056
m5 - helical tooth felt pinion [1]	1160055

Tab. 127

2 - Lubrication assembly kit

Specification (see figure C)	Code
Lubrication assembly kit (no felt pinion, nonriscan pipe)	7363137

Tab. 128

> Pinion / Racks helical tooth specifications

Pinion / Racks - Helical tooth

Module	Z [n°]	Øp [mm]
2	25	53,05
3	20	63,66
4	18	76,39
5	22	116,71

Tab. 129

Example of simplified calculation

To obtain the working torque value, divide the maximum operating torque by the safety factor. Intermediate values can be adjusted according to the application.

Motion (A) = High shock 1.75

Speed (B) = Low 1

Lubrication (C) = Constant 0.9

Rack = module 3 KSD

Pinion = $\varnothing p$ 63.66 (400 Nm)

Safety factor = $A \times B \times C = 1.575$

Maximum transmissible torque = Maximum torque 400 / Safety factor 1,575 \leq 254 N

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

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. 130

> Connections 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.

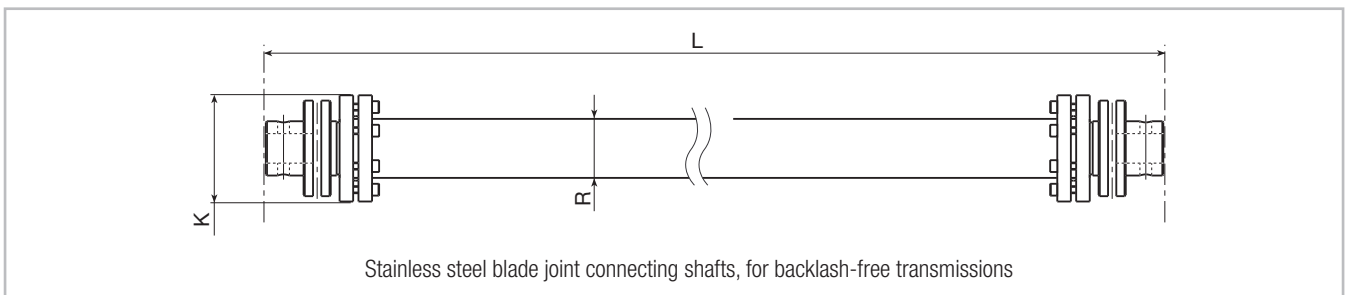
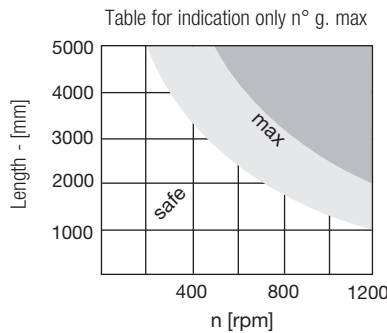


Fig. 50

R(*)	K	L _{max}	MTwork [Nm]	Mom. of inertia [kgm ²]	Code L
50	81	6.300	35	0.0092 + 0.66 x L . x10 ⁻⁶	4360291
50	93	6.300	70	0.0161 + 1.34 x L . x10 ⁻⁶	4360245
70	104	6.400	100	0.0293 + 2.93 x L . x10 ⁻⁶	4360282
80	126	6.400	190	0.0793 + 4.5 x L . x10 ⁻⁶	4360292
90	143	6.500	300	0.1456 + 6.53 x L . x10 ⁻⁶	4360986

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

Tab. 131

> Anti-drop safety device

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.

One-way blocking occurs following a pressure cut.

Operating pressure 3.5-8 Bar.

With no pressure = locked.

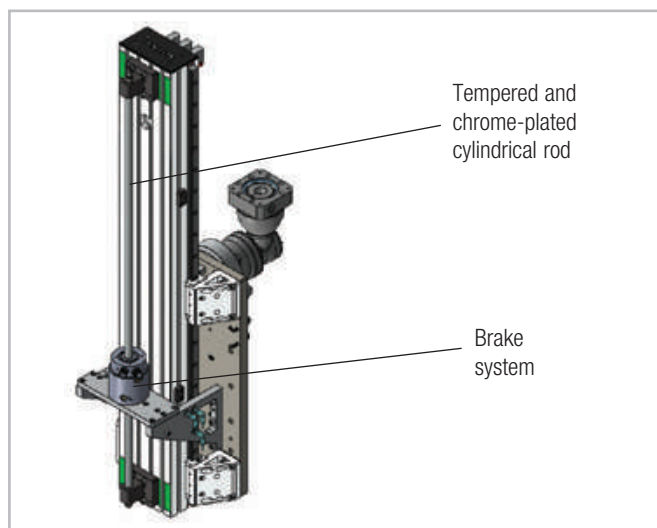


Fig. 51

1- Static rod blocking device

Brake Code*	Rod blocking force [kN]	Stroke [mm]	Cylindrical rod diameter [mm]
1010387	/ 2.5	/ ...	16
1011121	/ 5.0	/ ...	22
1011161	/ 10.0	/ ...	22
1011114	/ 15.0	/ ...	25

*Cylindrical rod and relative supports are not included. For more information contact Rollon technical support.

Tab. 132

> 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.

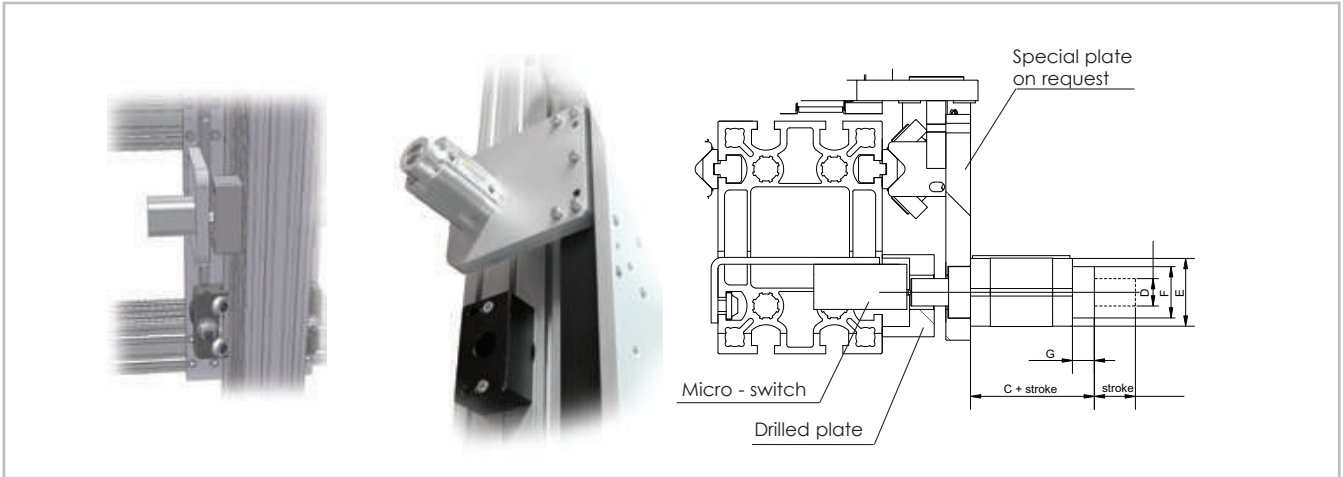


Fig. 52

1- Safety lock-pin

ØD Rod	Stroke	C	E	F	G	Kit Code
20	20	60.5	50	38	16	2360021
32	30	-	-	-	-	2360022

Tab. 133

2- Accessory: drilled plate for rod

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

Tab. 134

> Cable carrier

Cable carrier offered as option.

> Profile anchor brackets

Material: aluminum alloy (Rs=310 N/mm²).

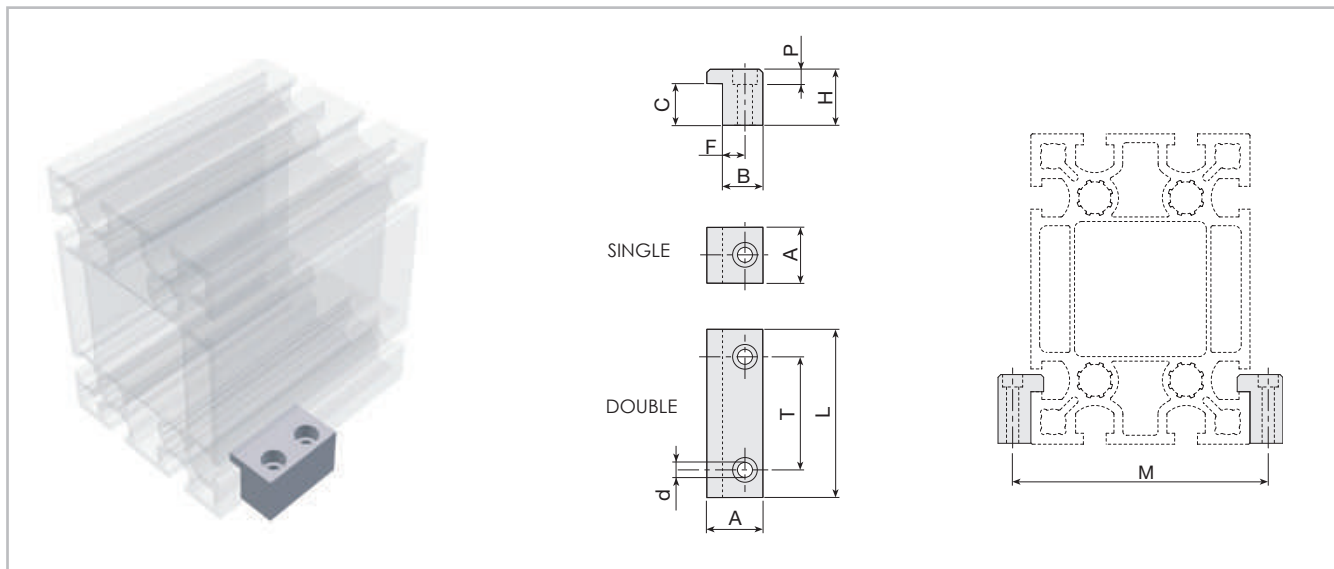


Fig. 53

Profile	A	L	T	d	H	P	C	F	B	M	Single code	Double code
Profile 90 H	30	50	25	9	25	9.5	18	12	22	114	4150772	4150773
Profile 100 V	25	50	25	6.7	27	6.8	20.6	10	18	120	4150769	4150764
Profile 140 V	-	-	-	-	-	-	-	-	-	-	-	-
Profile 170 H	30	90	50	11	40	11	28.3	14	25	198	4150767	4150762
Profile 170 V	30	90	50	11	40	11	28.3	14	25	148	4150767	4150762
Profile 220 H	30	90	50	11	40	11	28.3	14	25	248	4150767	4150762
Profile 220 V	30	90	50	11	40	11	28.3	14	25	148	4150767	4150762
Profile 230 H	-	-	-	-	-	-	-	-	-	-	-	-
Profile 230 V	-	-	-	-	-	-	-	-	-	-	-	-
Profile 280 H	30	90	50	11	20	11	11.3	14	25	308	4150768	4150763
Profile 280 V*	30	90	50	11	25	11	13.5	14	25	198	-	-
Profile 360 H	30	90	50	11	20	11	11.3	14	25	388	4150768	4150763
Profile 360 V*	30	90	50	11	25	11	13.5	14	25	228	-	-

* For vertical orientation of cross section this profile has asymmetric position of the T-Slots. Contact Rollon Technical department

Tab. 135

> L-shaped brackets

Threaded hole bracket

Threaded hole bracket for mounting additional equipment.
Material: 6060 natural anodized aluminum alloy.

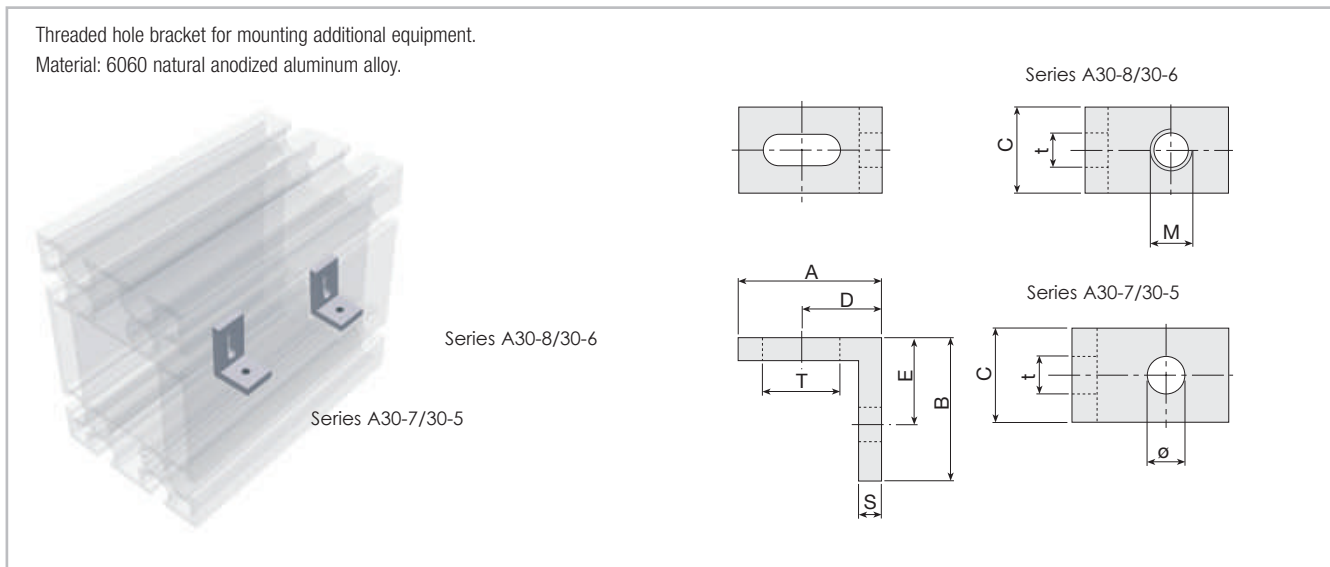


Fig. 54

A	B	C	D	E	S	Txt	M	Code	Ø	Code
45	45	20	25	25	5	16 x 6.5	M6	A30-86	6	A30-76
35	25	20	19	15	5	20 x 6.5	M4	A30-64	4	A30-54
35	25	20	19	15	5	20 x 6.5	M5	A30-65	5	A30-55
35	25	20	19	15	5	20 x 6.5	M6	A30-66	6	A30-56
25	25	15	14	15	4	13.5 x 5.5	M3	B30-63	3	B30-53
25	25	15	14	15	4	13.5 x 5.5	M4	B30-64	4	B30-54
25	25	15	14	15	4	13.5 x 5.5	M5	B30-65	5	B30-55
25	25	15	14	15	4	13.5 x 5.5	M6	B30-66	6	B30-56

Tab. 136

Bracket for mounting additional equipment

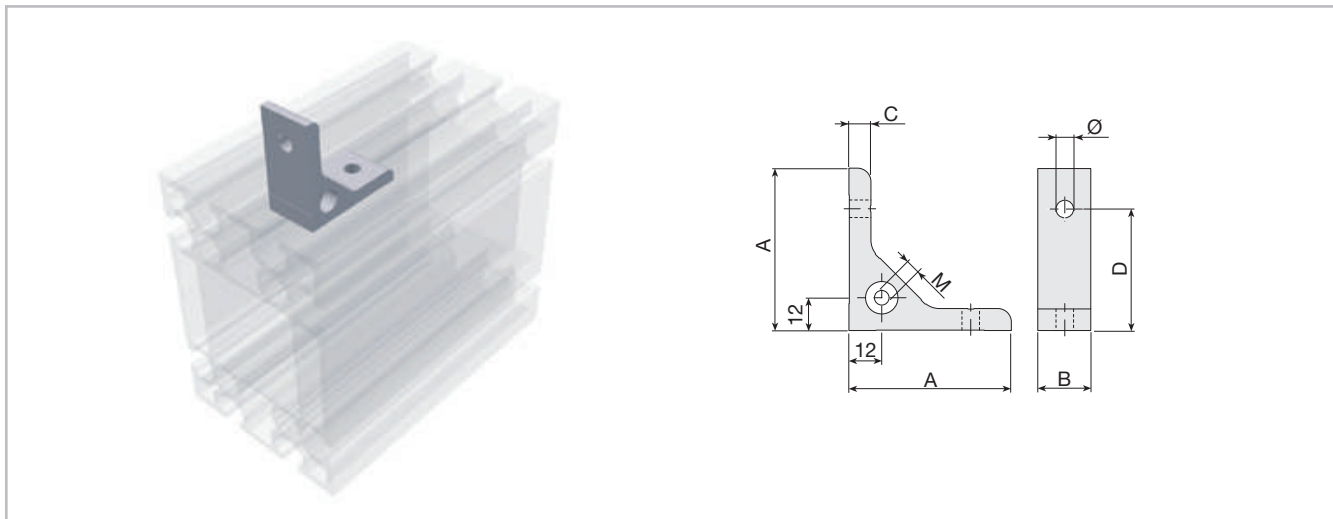


Fig. 55

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

Material: 6060 natural anodized aluminum 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

Tab. 137

Bracket for mounting additional profiles

Material: 6060 natural anodized aluminum alloy.

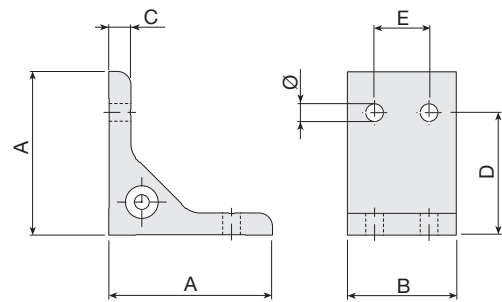


Fig. 56

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

Tab. 138

Bracket for mounting additional profiles

Material: 6060 natural anodized aluminum alloy.

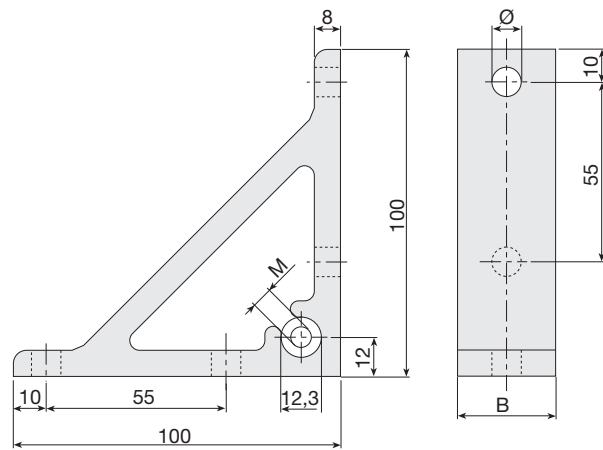


Fig. 57

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

Tab. 139

> Threaded inserts

Frontally insertable for profiles 90/100/170/220/280/360

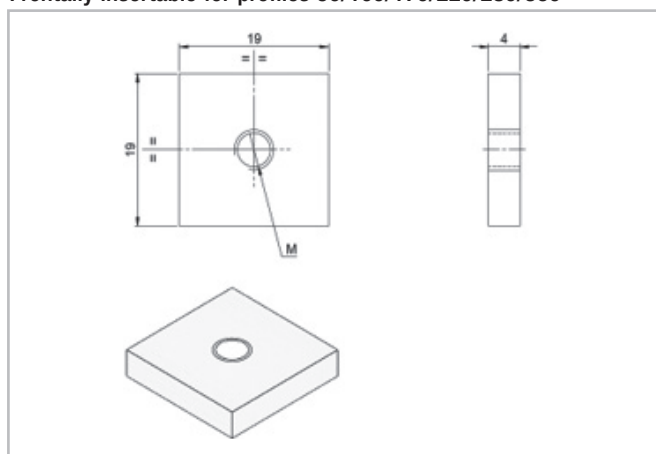


Fig. 58

Material: galvanised steel.

Thread	Code
M5	6006051
M6	6006052
M8	6006053

Tab. 140

Laterally insertable for profiles 90/100

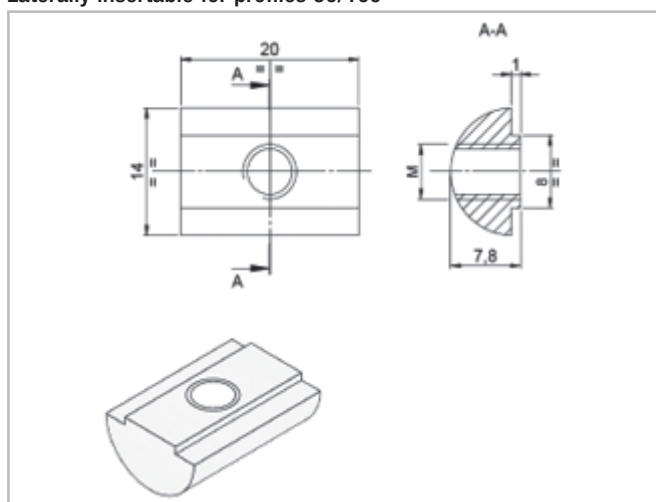


Fig. 59

Thread	Code
M5	6001387
M6	6000437
M8	6001544

Tab. 141

> Threaded inserts for 220/280/360 profiles

Frontally insertable alignment plates

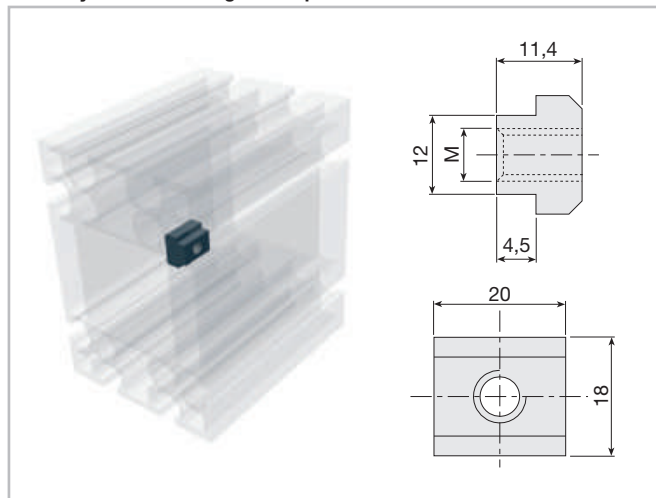


Fig. 60

Material: galvanised steel.

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

Thread	Code
M5	2151768
M6	2151769
M8	2151770
M10	2152124

Tab. 142

Frontally insertable alignment plates

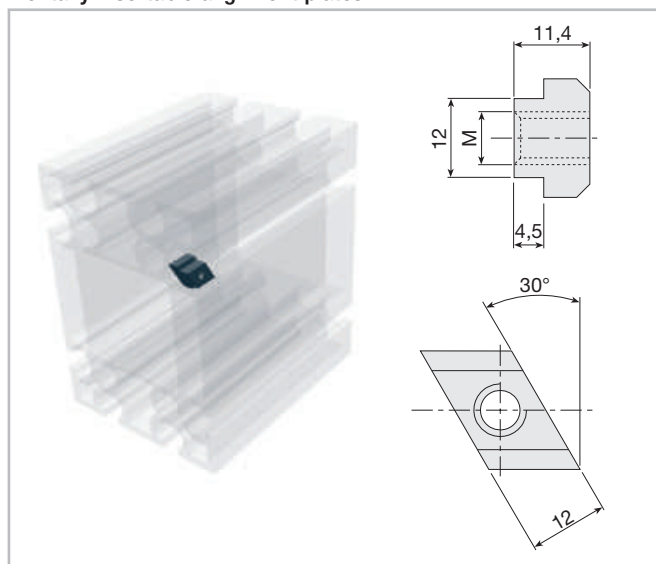


Fig. 61

Material: galvanised steel.

Thread	Code
M5	2151771
M6	2151772
M8	2151773
M10	2152125

Tab. 143

Threaded inserts

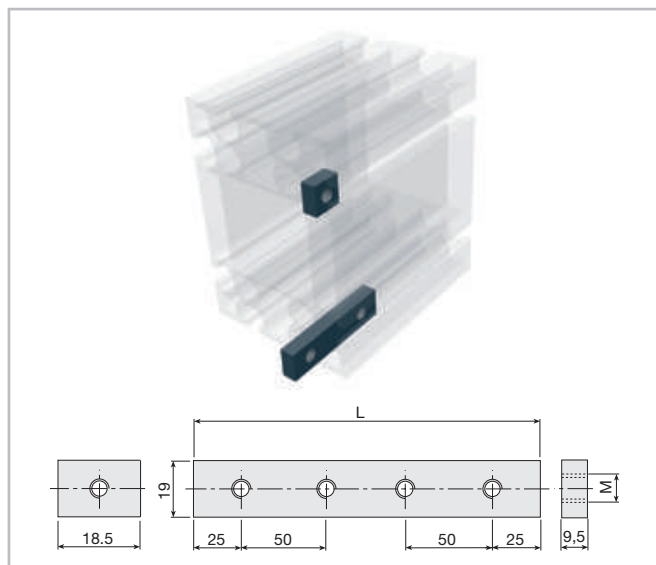


Fig. 62

Material: galvanised steel.

Thread	N. holes	L	Code
M10	1	40	2150477
M12	1	40	2091281
M10	1	20	2091277
M10	2	80	2091776
M10	3	150	2091777
M10	4	200	2091778
M10	5	250	2091779
M10	6	300	2091780
M10	7	350	2091781

Tab. 144

> Threaded inserts for 140/230 profiles

Inserts for 140/230 profiles

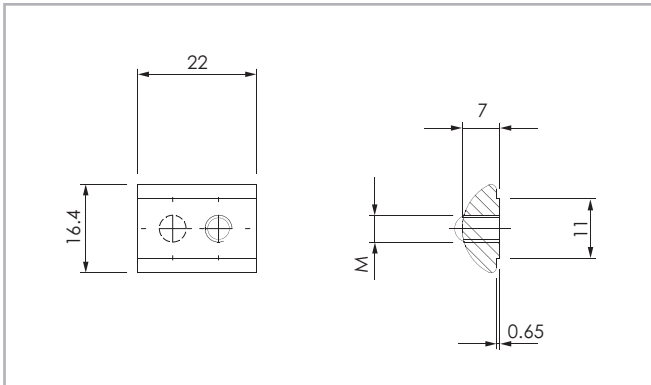


Fig. 63

Material: burnished steel

Thread	Holes	Code
M4*	1	4111360
M5*	1	4111351
M6*	1	4111352
M8*	1	4111353

* Quick front insert on PAS118 (short side) and PAS 230 only

Tab. 145

Inserts for profile 230

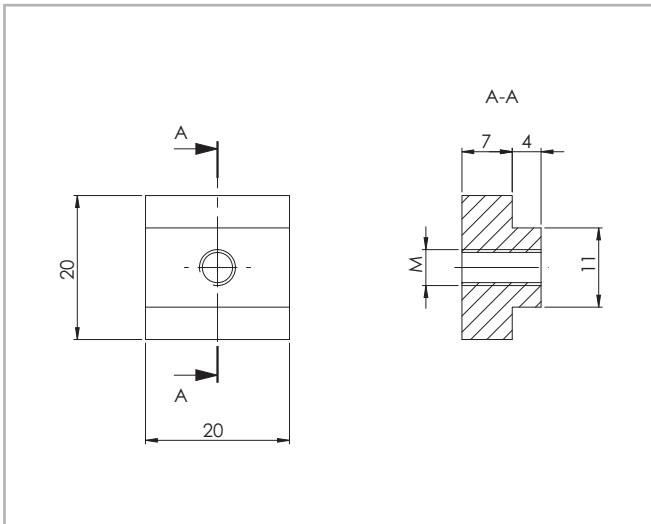


Fig. 64

Material: burnished steel

Thread	Holes	Code
M5	1	4112540
M6	1	4112541
M8	1	4112542
M10	1	4112543

Tab. 146

> Dovetail inserts for 140/230 profiles

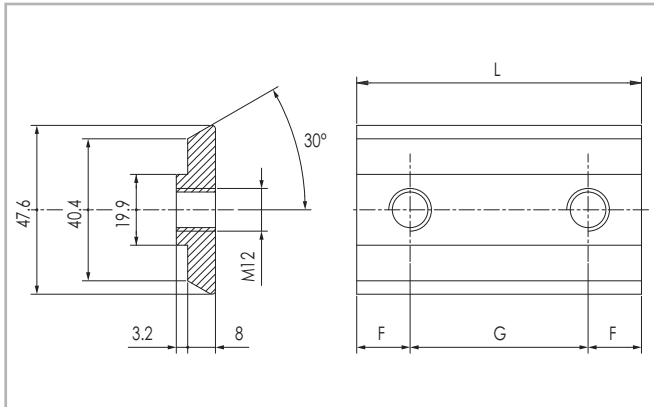


Fig. 65

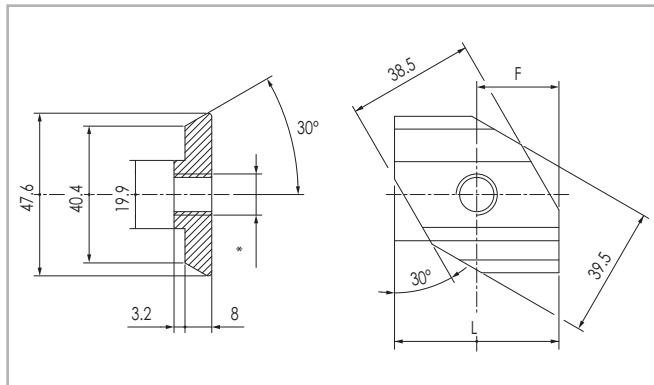


Fig. 66

Dovetail clamps with M8 threaded holes

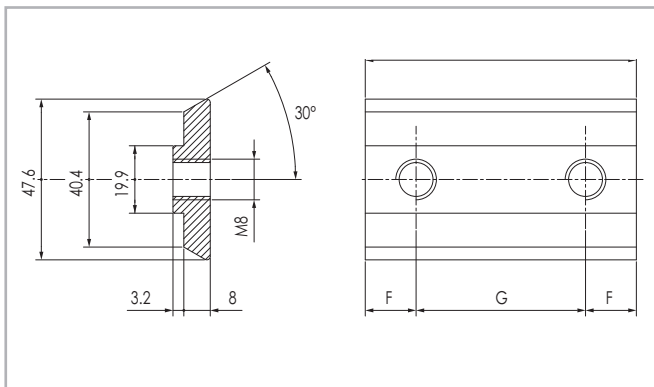


Fig. 67

Dovetail clamps with M10 threaded holes

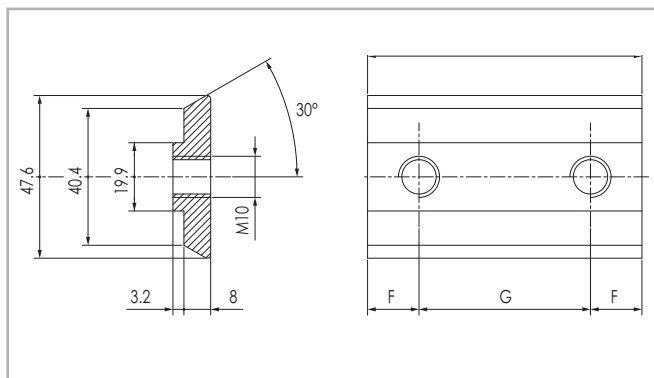


Fig. 68

TL-52

Material: burnished steel.

Holes	F	G	L	Code N.
1	25	/	50	4110745
2	15	40	70	4110503
2	25	50	100	4110469
3	25	50	150	4110588
2	25	150	200	4110472
6	25	50	300	4110470

Tab. 147

411.1178

* M10 dovetail-quick front-insertion version

411.0845

* M12 dovetail-quick front-insertion version

Material: burnished steel.

Holes	F	G	L	Code N.
2	15	20	50	4110675
1	25	/	50	4111111
2	25	50	100	4111112
3	25	50	150	4111113
6	25	50	300	4110970

Tab. 148

Material: burnished steel.

Holes	F	G	L	Code N.
1	25	/	50	4111117
2	25	50	100	4111119
3	25	50	150	4111120

Tab. 149

Steel dovetail without step

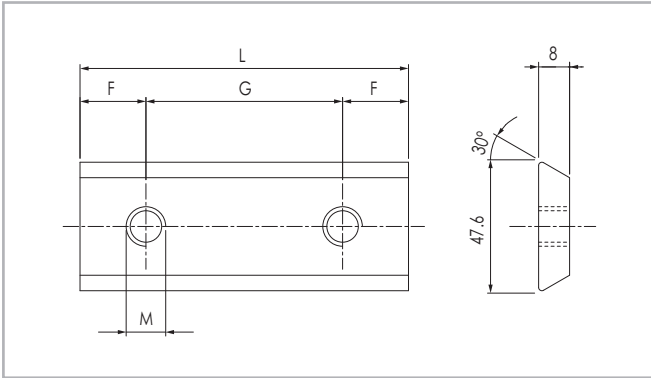


Fig. 69

Holes	F	G	L	M	Code N.
2	15	20	50	M8	4111675
1	25	/	50	M10	4111186
1	25	/	50	M12	4111185
3	25	50	150	M12	4110888

Tab. 150

Steel dovetail quick front insertion without step

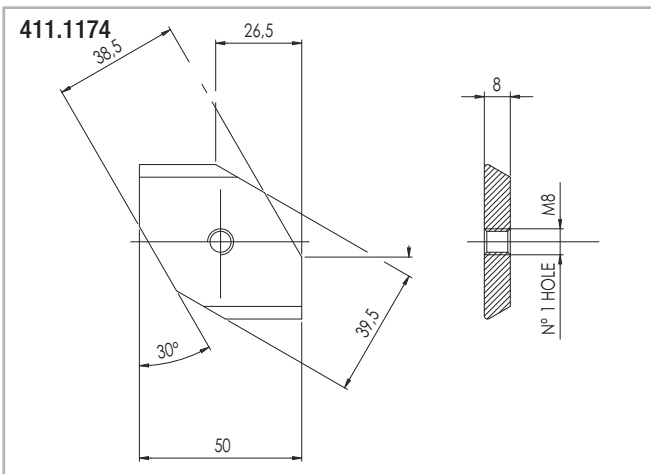


Fig. 70

T
L

> Lubrication of the rack and pinion driving system

Proper lubrication is critical to ensure good lifetime of rack and pinion drive systems. Rollon's rack and pinion lubrication system applies grease directly to the driving pinion via a polyurethane pinion. The lubrication can be made manually via lubrication fitting, or an automatic lubricator tank is available that offers continuous and maintenance-free operation of the drive system during the lifetime of

the tank. The automatic lubricator tank can be configured to distribute the lubrication over time (up to ~1 year max.) according to the application requirements.

Manual lubrication



Fig. 71

Automatic lubrication



Fig. 72

> Lubrication of the linear guide system

PAR Series

PAR Series actuators features cam roller guide elements that are standard with lifetime lubrication.

PAS series

PAS Series actuators feature recirculating ball slider blocks, that must be periodically lubricated. The slider blocks are fitted with a retention cage that eliminates "steel-steel" contact between adjacent revolving parts and prevents misalignment in the circuits.

Standard lubrication method for the slider blocks is by manual refill. The slider block lubrication points are factory routed to a grease fitting block mounted on top of the carriage for easy access. This system guarantees a long interval between maintenances: every 2000 km or 1 year of use, based on the value reached first.

For PAS actuators equipped with optional automated lubrication system, automatic lubricator tanks are mounted on the grease block which continuously provides the necessary amount of grease to the ball raceways under load. These lubrication reservoirs considerably reduce the frequency of lubrication of the module. This system guarantees a long interval between maintenances: every 4000 km, based on the value reached first.

If a longer service life is required or in case of high dynamics or high loading applications, please contact our offices for further verification.

Quantity of lubricant (approximate) necessary for re-lubrication of each block:

Type	Size	Lubricant [g]
PAS	90	1.5
	100	2.5
	140	2.5
	170	3.0
	220	5.0
	230	5.0
	280	6.0
	360	6.0

Tab. 151

Manual lubrication



Fig. 73

Automatic lubrication



Fig. 74

Ordering key

> PAR

PAR	17	0000	H V P	4	S F W C	M A	
						Lubrication <i>see pg. TL-54</i>	
						Mounting <i>see pg. TL-31</i> S=Symmetric; F=Floor; W=Wall, C=Celing)	
						Number of rollers <i>see pg. TL-31</i>	
						Type H=Horizontal; V=Vertical; P=Plus	
						Total length of the unit	
						Profile <i>see pg. TL-36</i>	
						PAR Series <i>see pg. TL-3</i>	

Ordering example
PARH174SM962

> PAS

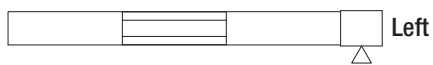
PAS	09	0000	H V P	M A		
						Lubrication <i>see pg. TL-54</i>
						Type H=Horizontal; V=Vertical; P=Plus
						Total length of the unit
						Profile <i>see pg. TL-36</i>
						PAS Series <i>see pg. TL-3</i>

Ordering example
PASV09M2000

In order to create identification codes for Actuator Line, you can visit: <http://configureactuator.rollon.com>



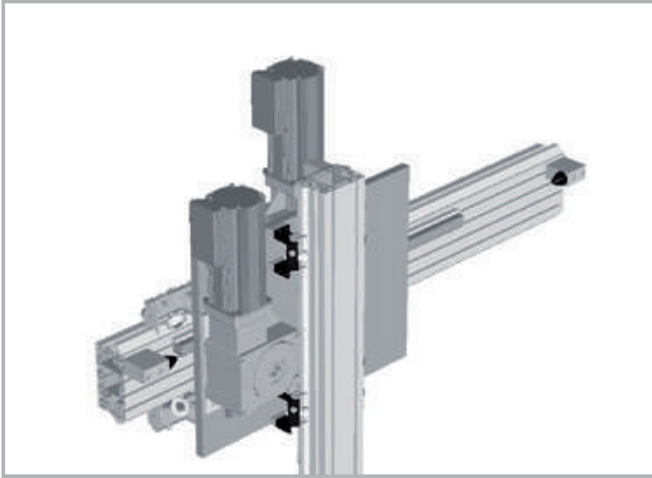
Left / right orientation



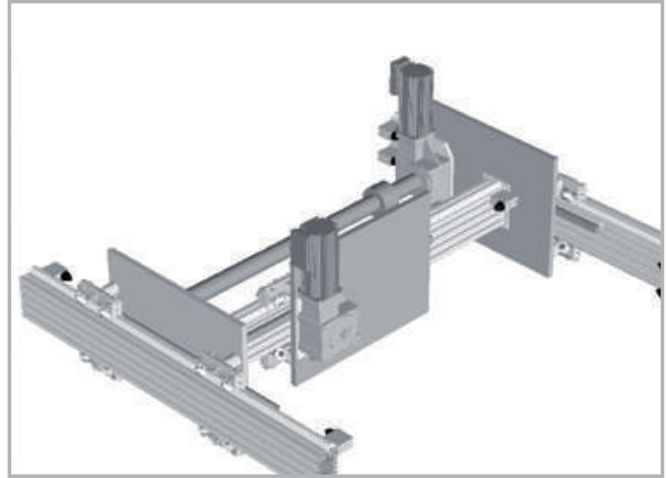
Multiaxis systems



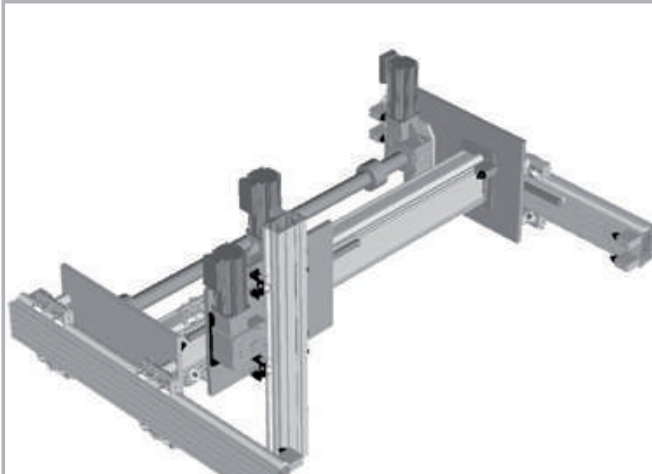
1 - Two axis Y-Z system



2 - Two axis Y-X system



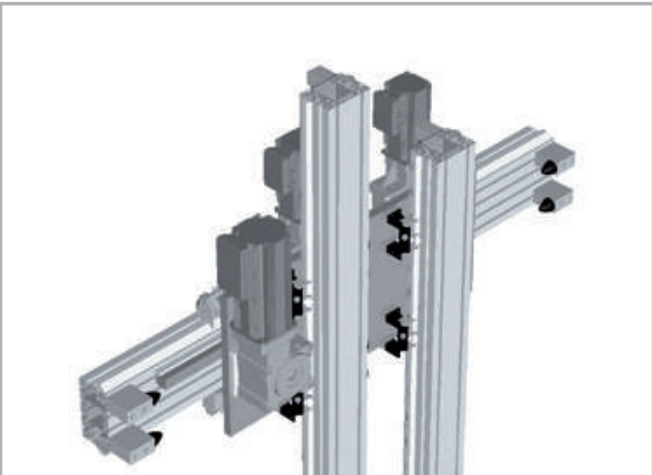
3 - Three axis X-Y-Z system



4 - Three Axis X-Y-Z system



5 - Two axis Y-Z system



6 - Two axis Y-Z system

