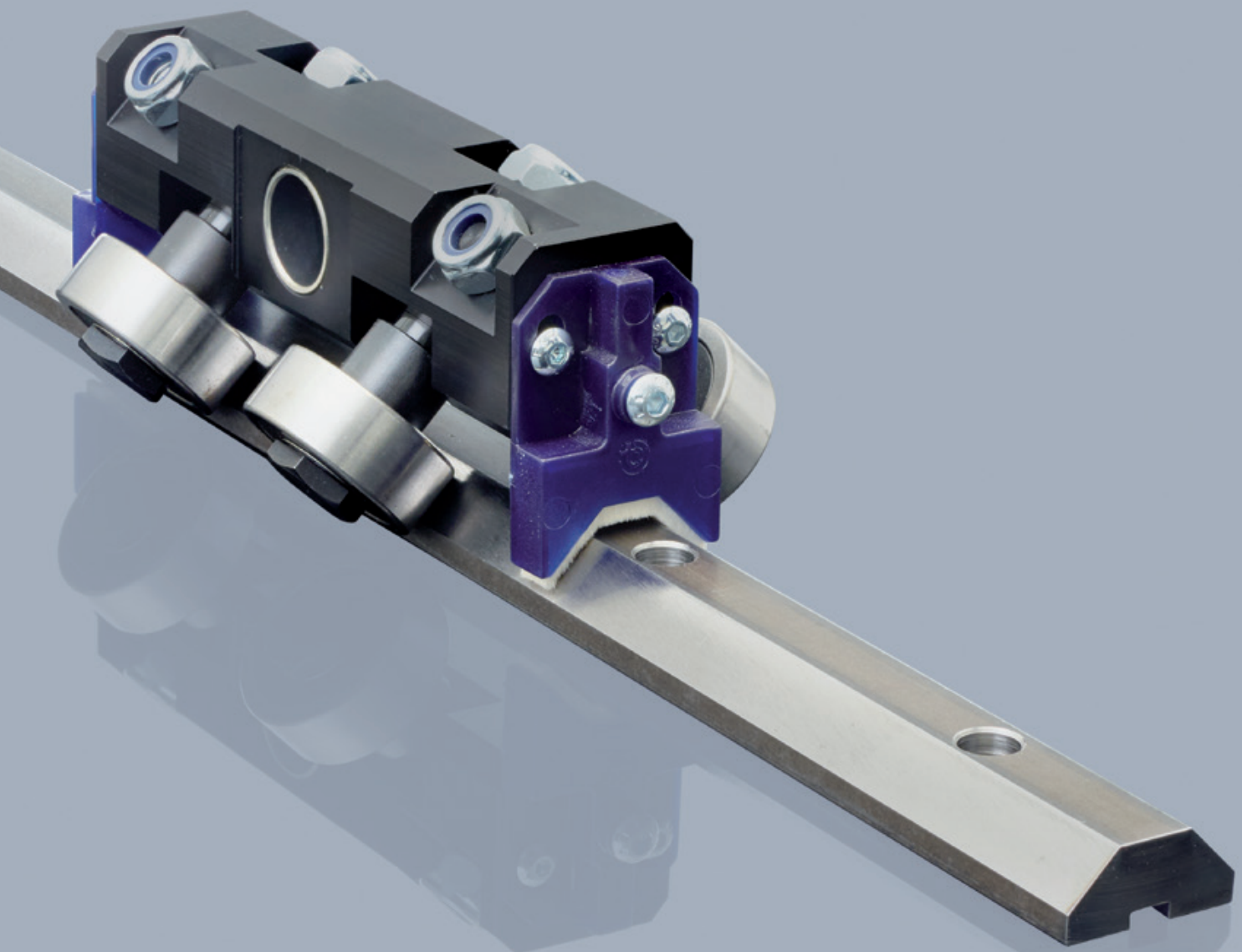
ROLLON®
BY TIMKEN

Prismatic Rail



TO SUPPORT YOU, WE DESIGN AND PRODUCE

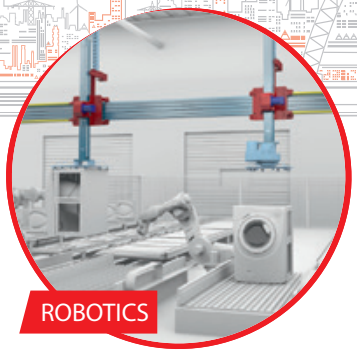
An industrialized process with various levels of customization

For over 45 years, Rollon has adopted an approach entailing responsibility and ethics in the design and production of our linear motion solutions for different industrial sectors. The reliability of an international technology group has now been combined with the availability of a local support and service network

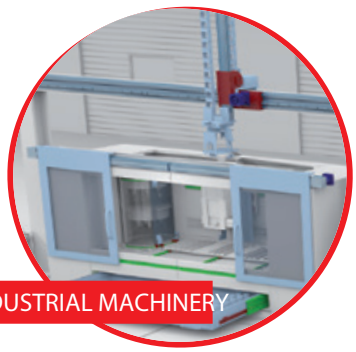
VALUES

PERFORMANCE

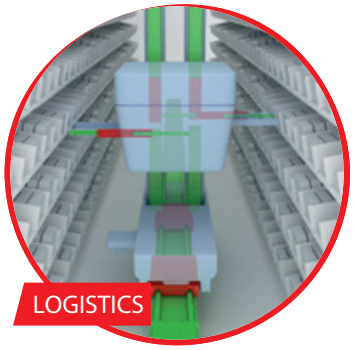
Rollon's goal is to help our clients become more competitive in their markets through technological solutions, design simplification, productivity, reliability, duration, and low maintenance.



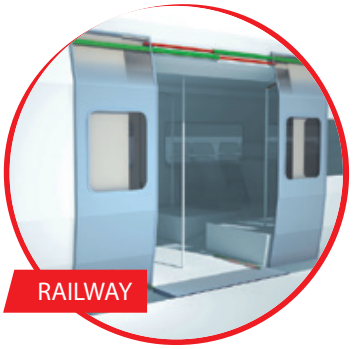
ROBOTICS



INDUSTRIAL MACHINERY



LOGISTICS



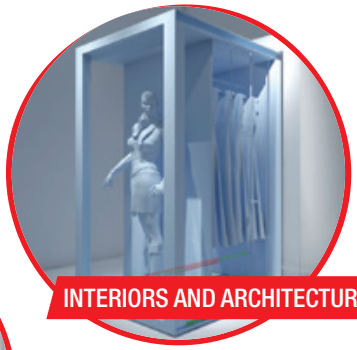
RAILWAY

COLLABORATION

High-level technical consulting and cross-competence allow us to identify the needs of our clients and transform them into guidelines for continuous exchange, while**our strong specialization in the different industrial sectors becomes an factor in developing projects and innovative applications.**

Rollon takes on the task of design and development of linear motion solutions, taking care of everything for our customers, so that they can concentrate on their core business. **We offer everything from individual components to specifically designed, mechanically integrated systems: the quality of our applications is an expression of our technology and competence.**

SOLUTIONS APPLICATIONS



INTERIORS AND ARCHITECTURE

MEDICAL

SPECIAL VEHICLES

AERONAUTICS

DIVERSIFIED LINEAR SOLUTIONS FOR EVERY APPLICATION REQUIREMENT

Linear and telescopic rails

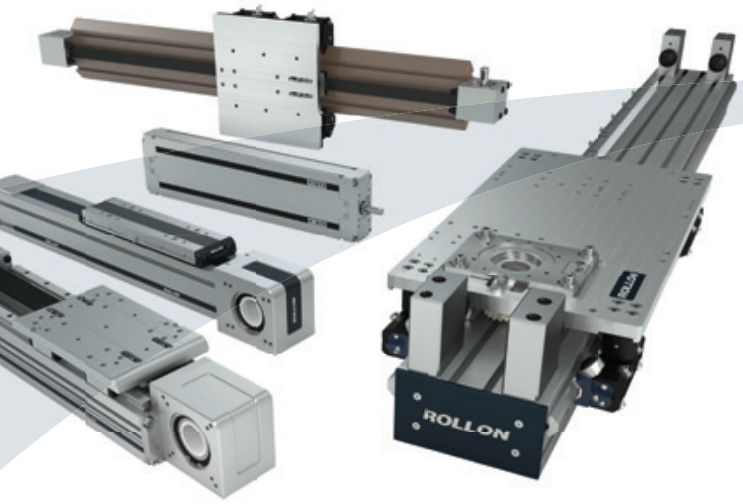
Linear Line

Linear and curved rails with ball and roller bearings, with hardened raceways, high load capacity, self-alignment, and capable of working in dirty environments.

Telescopic Line

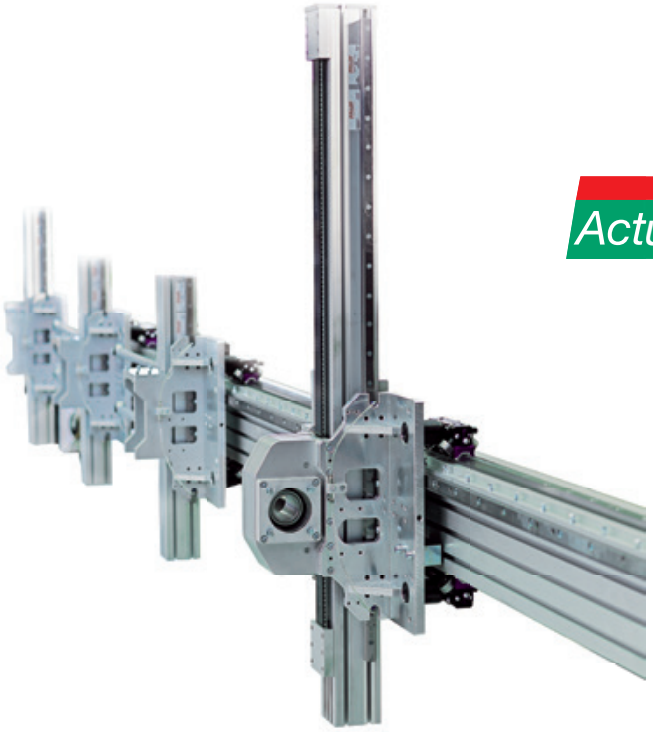
Telescopic rails with ball and roller bearings, with hardened raceways, high load capacities, low bending, resistant to shocks and vibrations. For partial, total or extended extraction up to 200% of the length of the guide.

Linear actuators and automation systems



Actuator Line

Linear actuators with different rail configurations and transmissions, available with belt, screw, or rack and pinion drives for different needs in terms of precision and speed. Rails with bearings or ball recycle systems for different load capacities and critical environments.



Actuator System Line

Integrated actuators for industrial automation, used in applications in several industrial sectors: automated industrial machinery, precision assembly lines, packaging lines and high speed production lines. The Actuator Line evolves to satisfy the requests of our most discerning clients.

Prismatic Rail

Product explanation

Prismatic Rail: with cylindrical or V-shaped rollers

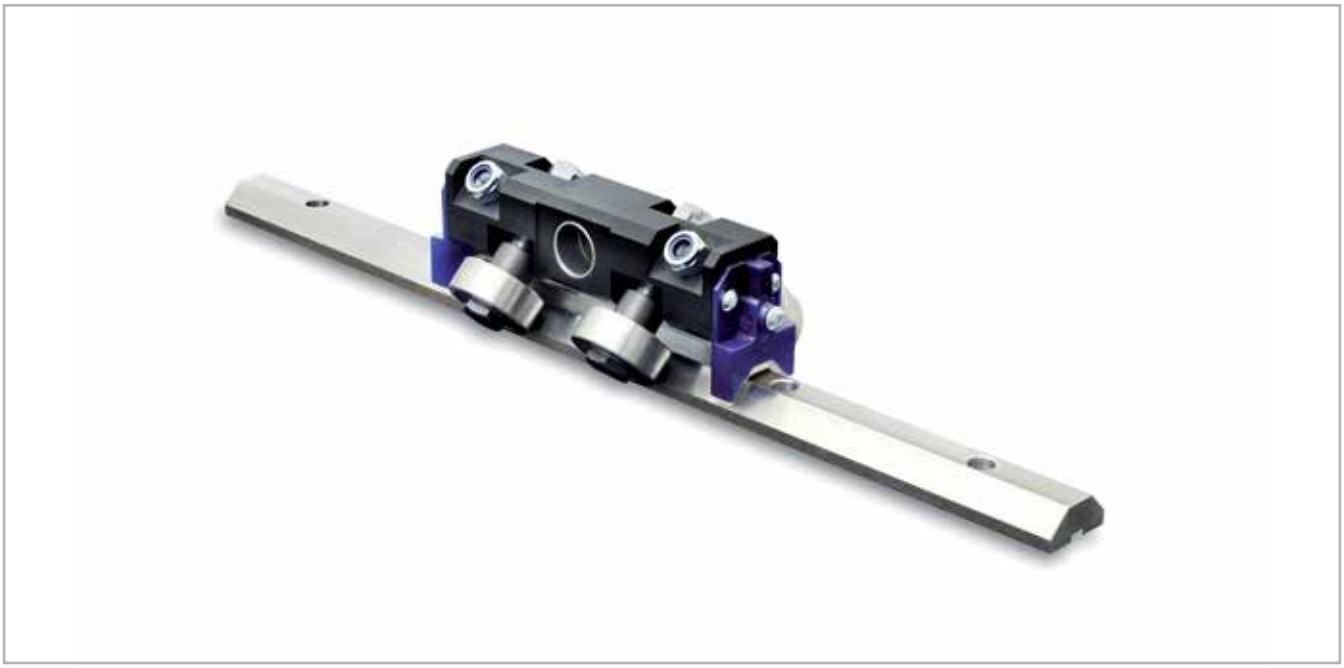


Fig. 1

The Prismatic Rail product family is composed of roller sliders sliding on V-shaped rails made of hardened steel. These linear guides also have high self-alignment properties.

V-shaped rails are induction hardened and polished, available in three sizes: 28, 35 and 55 mm. Rails can be machined with two straight cuts, one straight and one slanting cut or two slanting cuts. These options allow to create joinable versions, and thus obtaining longer strokes.

The aluminium slider can be configured with a variable number of rollers with steel pins, ranging from 3 to 6. Rollers are in turn available in two variants, cylindrical or V-shaped, with variable diameter from Ø30 a Ø62 depending on rail size.

The most important characteristics:

- Long life thanks to hardened raceways
- Optimal reliability in dirty environments
- Self-aligning system
- Simple mounting
- High dynamics

Preferred areas of application:

- Robot and handling systems
- Industrial automation
- Logistics
- Packaging machines

Drilled guide rails with straight cut:

Machining provided for guide rails with no joint.

Fig. 2

Drilled guide rails with one straight and one slanting cut:

Machining provided for the crop down sizes of guide rail ends with joints.

Fig. 3

Drilled guide rails with 2 slanting cuts:

Machining provided for the intermediate crop down sizes of guide rail ends with multiple joints.

Fig. 4

Sliders with rollers Ø30 - Ø40:

Floating and fixed sliders with rollers Ø30 (guide size 28) and Ø40 (guide size 35).

Fig. 5

Sliders with rollers Ø52- Ø62:

Floating and fixed sliders with rollers Ø52 and Ø62 (guide size 55).

Fig. 6

Assembly pins:

Steel pins.

Fig. 7

Technical data

Fig. 8

Performance characteristics:

- Sizes available: 28,35 and 55 mm.
- Rollers dimensions: Ø30 - Ø40 - Ø52 - Ø62.
- V-shaped rollers in hardened C45 steel available for sizes 28 and 35.
- Aluminum sliders, floating and fixed, with 3, 4 or 6 rollers.
- Max. speed: 7 m/s (depending on application).
- Max. acceleration: 20 m/s² (depending on application).
- Max. radial load capacity: 15000 (per slider).
- Max. axial load capacity: 15000 (per slider).
- Operating temperature: from -10°C to +80°C.
- Induction hardened and polished rails.
- Max. rail length: 4100 mm.
- Steel assembly pins.

Notes:

- Longer stroke achievable with joinable versions.
- V-shaped rails available in drilled or non-drilled versions.
- Please follow the diagrams in every slider section to ensure correct assembly.
- For applications with high projecting loads, the sliders' rollers must be adjusted so that the load is supported by the maximum possible number of them.

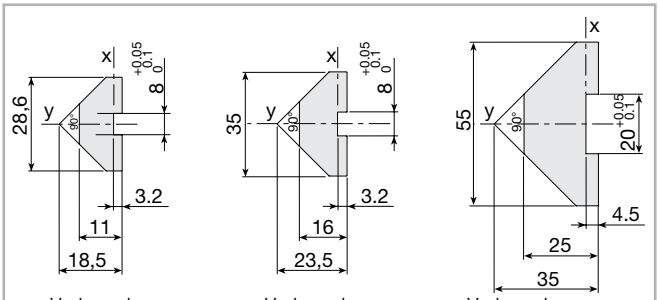
Product dimensions

Steel V-shaped rails

Material: high-performance alloy steel: R > 900 MPa
Hardened and tempered: core hardness 240 HB.

Induction-hardened and polished. Track hardness > 58 HRC

Fig. 9



V-shaped guide rail 28.6x11

V-shaped guide rail 35x16

V-shaped guide rail 55x25

Fig. 10

Features	Moment of inertia Ix [mm4]	Moment of inertia Iy [mm4]	Weight [Kg/m]
28.6x11	2148	14490	2
35x16	7932	36405	3.5
55x25	41906	194636	7.8

Tab. 1

Machining: drilled guide rails with straight cut

P_ _ -.....F V-shaped guide rails, length L, **drilled**

Fig. 11

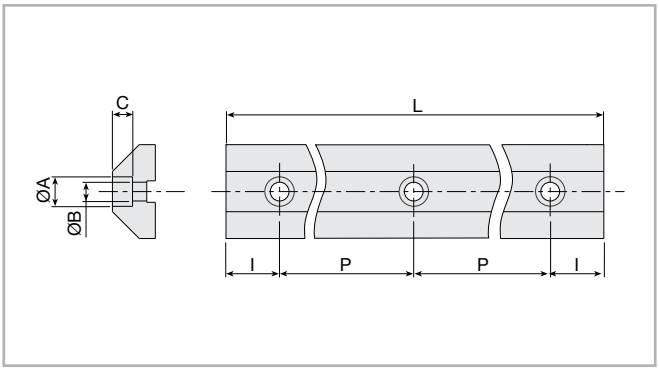


Fig. 12

Size	Treatment	L. max [mm]	P [mm]	I [mm]	A [mm]	B [mm]	C [mm]	Code
28.6x11	Induction-hardened	3980	150	40	11	7	5	**P28...**
35x16	Induction-hardened	4100	100	50	11	7	7.5	**P35...**
55x25	Induction-hardened	4100	150	25	18	11	11.5	**P55...**

Tab. 2

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

P_ _ -.....FX V-shaped guide rails with 1 slanting cut, length L, **drilled**

Fig. 13

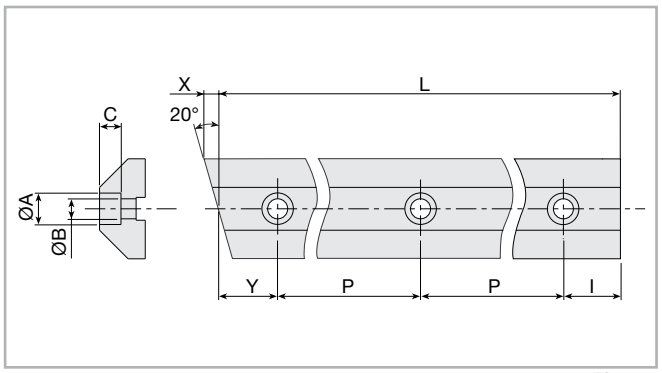


Fig. 14

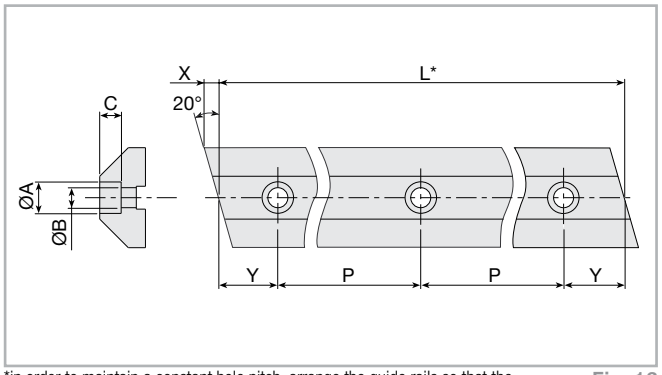
Size	Treatment	L. max [mm]	P [mm]	Y [mm]	I [mm]	A [mm]	B [mm]	C [mm]	Code
28.6x11	Induction-hardened	3700	150	50	50	11	7	5	**P28...**
35x16	Induction-hardened	4000	100	50	50	11	7	7.5	**P35...**
55x25	Induction-hardened	3950	150	25	25	18	11	11.5	**P55...**

Tab. 3

Machining: drilled guide rails with 2 slanting cuts

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

Fig. 15



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

Fig. 16

Size	Treatment	L. max [mm]	P [mm]	Y [mm]	A [mm]	B [mm]	C [mm]	Code
28.6x11	Induction-hardened	3700	150	50	11	7	5	**P28...**
35x16	Induction-hardened	3900	100	50	11	7	7.5	**P35...**
55x25	Induction-hardened	3950	150	25	18	11	11.5	**P55...**

Tab. 4

Tilting roller slides with 4 rollers Ø30 for V-shaped guide rails 28x11

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

Fig. 17

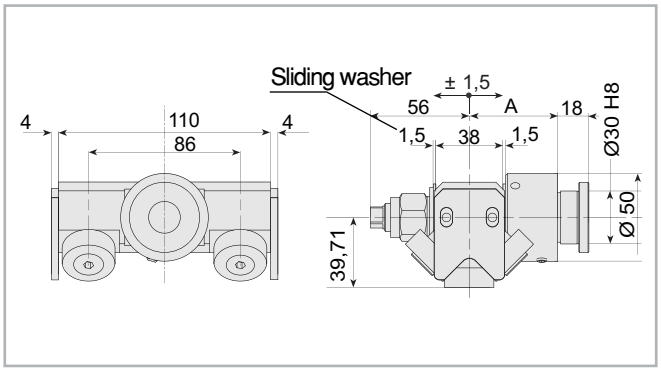


Fig. 18

	A [mm]	Load capacity C_{0rad} [N]	Weight [Kg]	Code
Roller slide with concentric pin	75	3818	1.8	204.0052
Roller slide with eccentric pin (±1 mm)	75	3818	1.8	204.0053
Roller slide with concentric pin	50	3818	1.4	204.0054
Roller slide with eccentric pin (±1 mm)	50	3818	1.4	204.0055

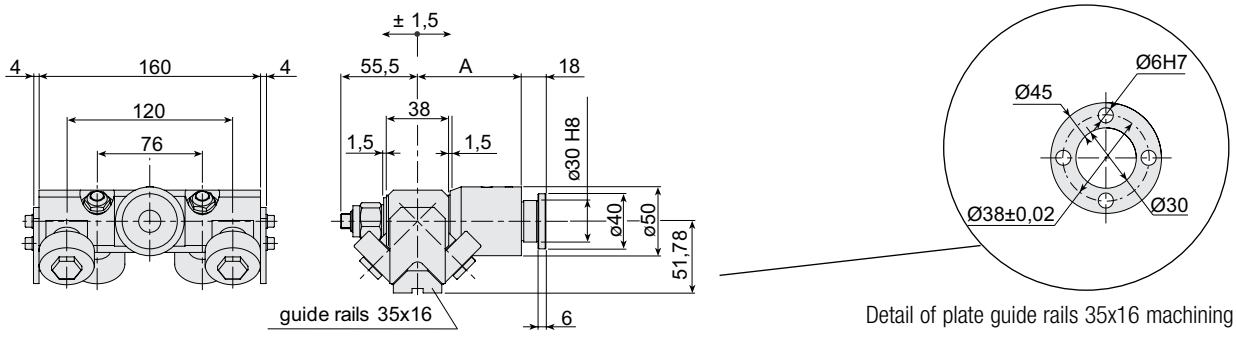
Tab. 5

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

Tab. 6

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

Fig. 19

	A [mm]	Load capacity C_{0rad} [N]	Weight [Kg]	Code
Slide with eccentric pin (±1 mm)	75	7071	2.2	**204.0016**
Slide with eccentric pin (±1 mm)	50	7071	1.8	**204.0033**

Tab. 7

Spare parts	A [mm]	Code
Complete body with rollers		**204.0013**
Eccentric pin (±1 mm)	75	**236.0011**
Eccentric pin (±1 mm)	75	**236.0015**

Tab. 8

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.

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.

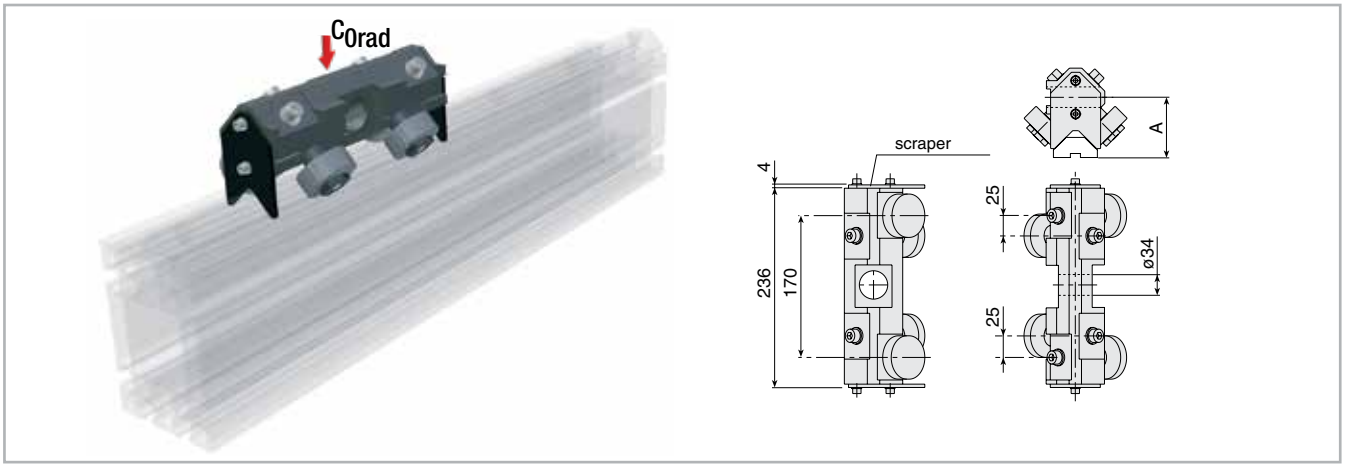


Fig. 20

Ø Rollers	A
Rollers Ø52	71.75
Rollers Ø62	78.85

Tab. 9

Technical caracteristics	Ø52	Ø62
Load capacity [N]	12021	14991
N° roller	4	4
Weight [Kg]	3.2	3.8
Spare parts code	204.1520	204.1521

Tab. 10

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

Tilting 6-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.

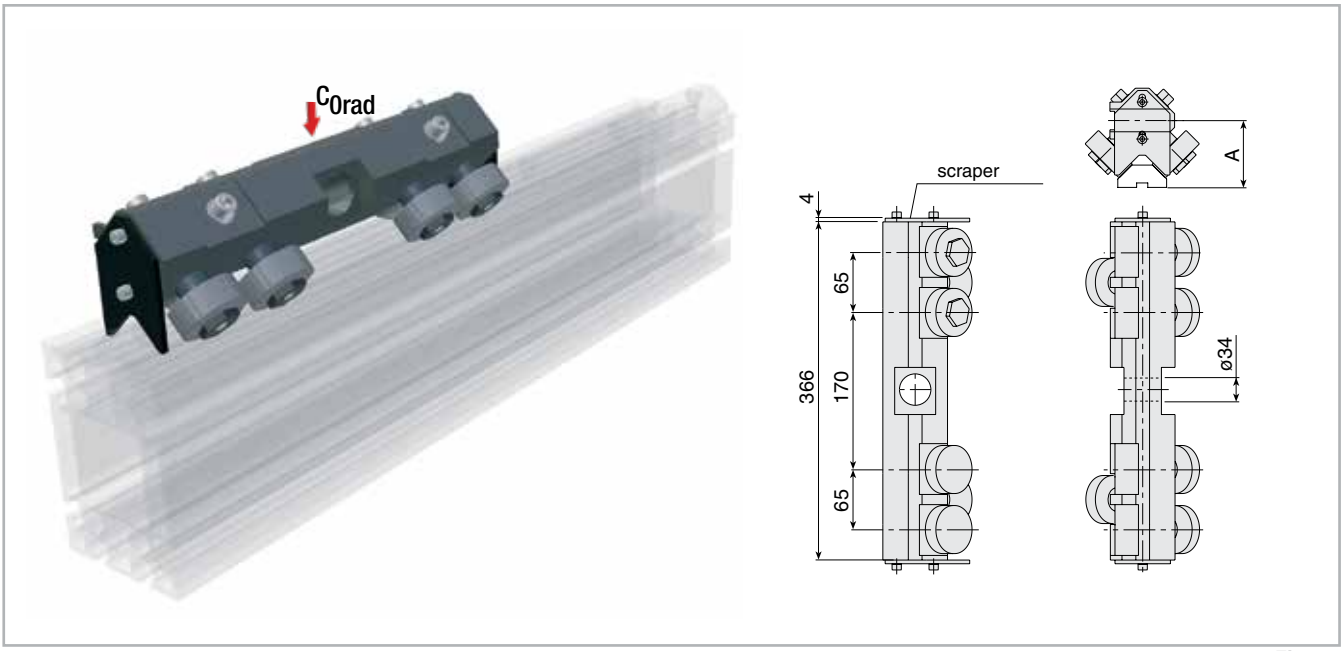
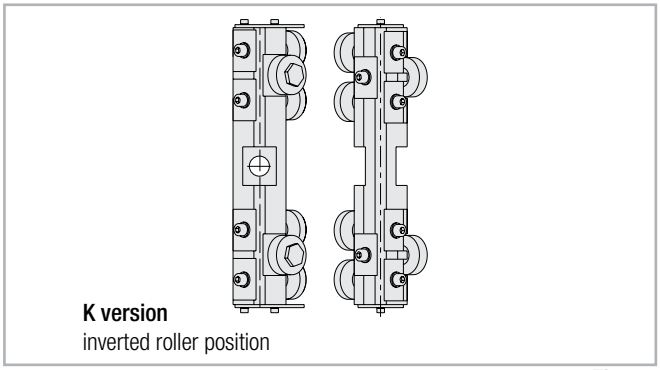


Fig. 21



K version
inverted roller position

Fig. 22

Ø Roller	A
Roller Ø52	71.75
Roller Ø62	78.85

Tab. 11

Technical caracteristics	Ø52	Ø62
Load capacity [N]	12021	14991
N° rollers	6	6
Weight [Kg]	4.9	5.9
Spare parts code	204.1522	204.1523

Tab. 12

Accessories

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

Shaped rollers with radial bearings with 2RS sealing (medium version).

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

Fig. 23

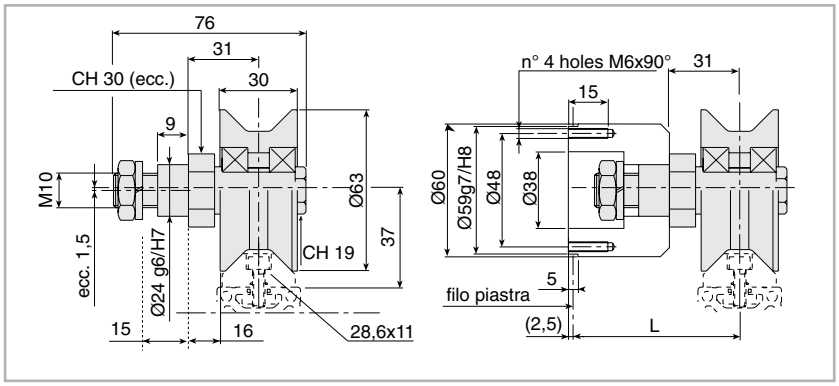


Fig. 24

Type	Bearing	C	COw	PR [N]	PA [N]	Speed [m/s]	Weight [Kg]	Code
Conc.	radial bearing	9500	4540	1400	600	2.5	0.8	**205.0013**
Exc.	radial bearing	9500	4540	1400	600	2.5	0.8	**205.0014**

Tab. 13

V-shaped rollers [rails 35 x 16]

Shaped rollers with two rows of angular contact ball bearings. With bilateral sliding sealing rings. Accuracy class P6.

They support loads along the axis of the pin provided Pa eff < 0.4 Pr eff.

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

Fig. 25

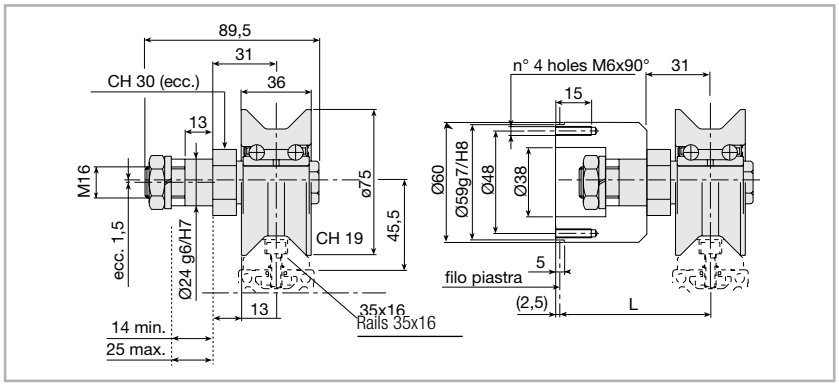


Fig. 26

Type	Bearing	C	COw	PR [N]	PA [N]	Speed [m/s]	Weight [Kg]	Code
Conc.	angular contact	21000	13900	4500	1800	2.5	1	**205.0011**
Exc.	angular contact	21000	13900	4500	1800	2.5	1	**205.0012**

Tab. 14

Spare roller with pin

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.

Fig. 27

Max. load factors for induction-hardened guides

Roller	Cw [N]	COw [N]	Fr amm. [N]	V max.
Ø30	5100	3100	1350	7 m/s
Ø40	10000	7000	2500	7 m/s
Ø52	16700	10700	4250	6 m/s
Ø62	21500	14500	5300	5 m/s

Tab. 15

Spare roller with pin	Weight [Kg]	Code
Ø30 Concentric	0.02	**205.0465**
Ø40 Concentric	0.22	**205.0464**
Ø40 Eccentric (± 0.75 mm)	0.25	**205.0463**
Ø52 Concentric	0.4	**205.0163**
Ø62 Concentric	0.55	**205.0165**

Tab. 16

Assembly Pins

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

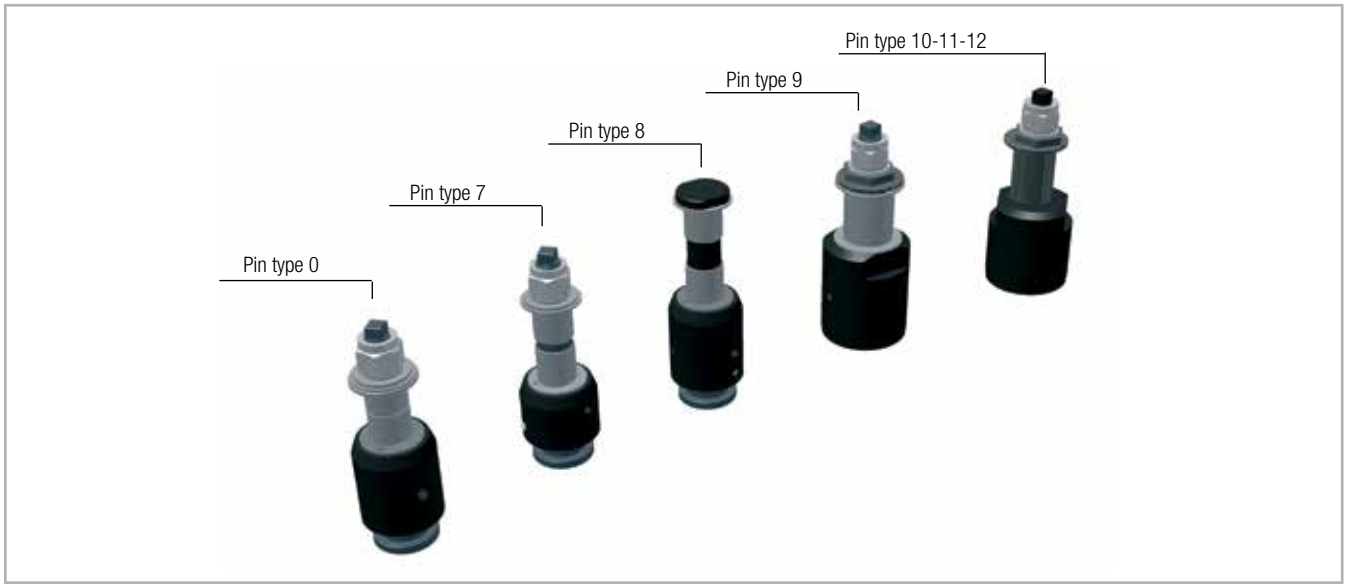


Fig. 28

Type 0 assembly pins suitable for roller slide Ø30 and Ø40

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

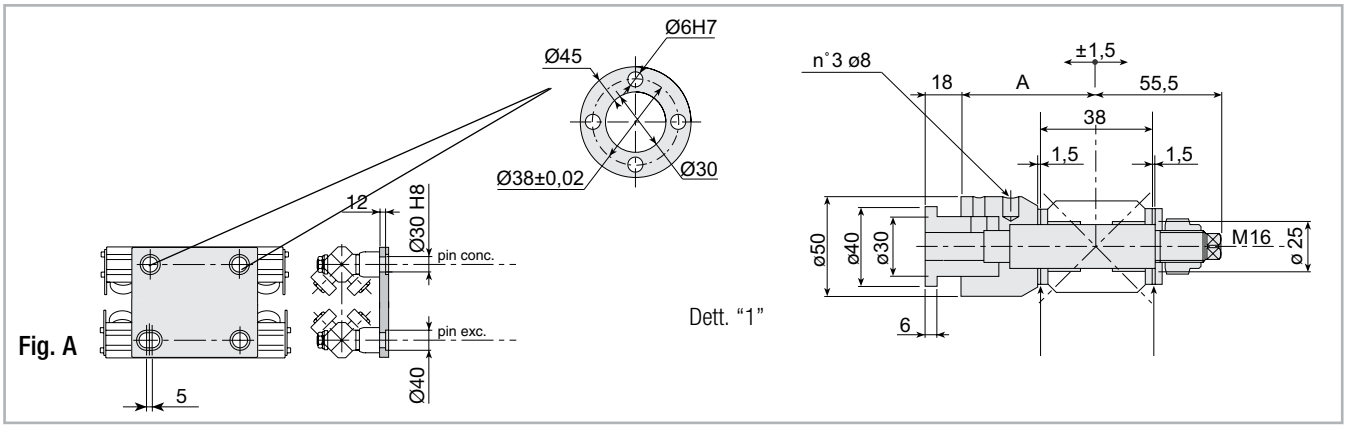


Fig. 29

Fig. 30

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

Technical caracteristics	A [mm]	
Weight [Kg]		1.1 approx.
Eccentric code (±0.75 mm)	75	236.0011
Eccentric code (±0.75 mm)	50	236.0015

Tab. 17

Type 7 assembly pins suitable for roller slide E-F

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

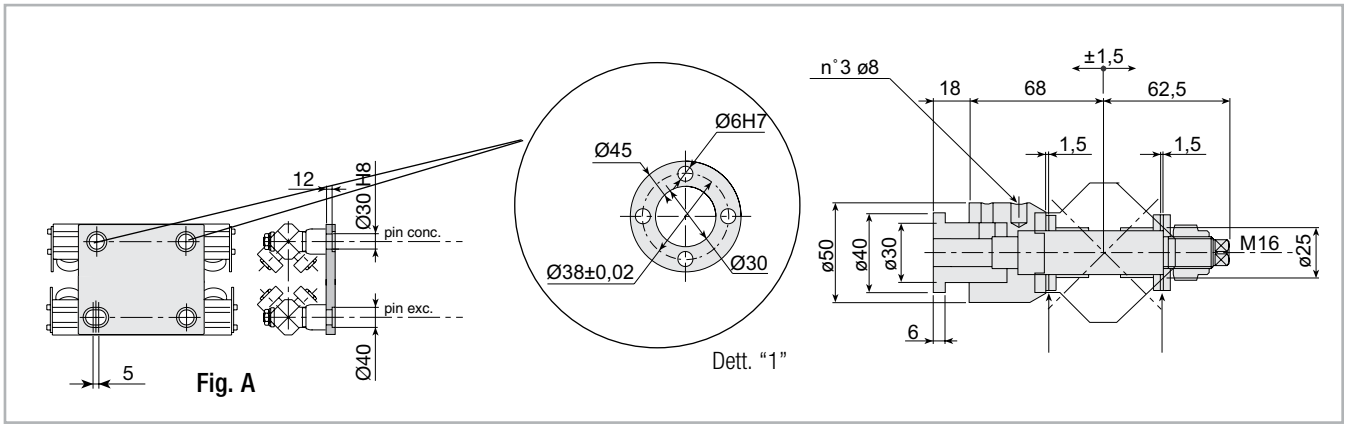


Fig. 31

Fig. 32

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

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

Tab. 18

Assembly pins type 8 suitable for carriage E-F

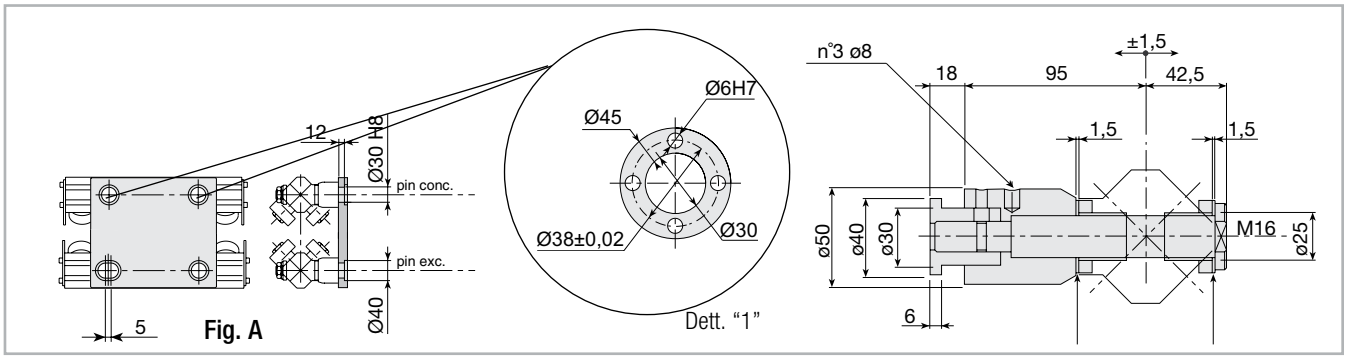


Fig. 33

Fig. 34

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

Technical caracteristics	
Weight [Kg]	1.8 approx.
Eccentric code (±1 mm)	236.1691

Tab. 19

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

Fig. 35

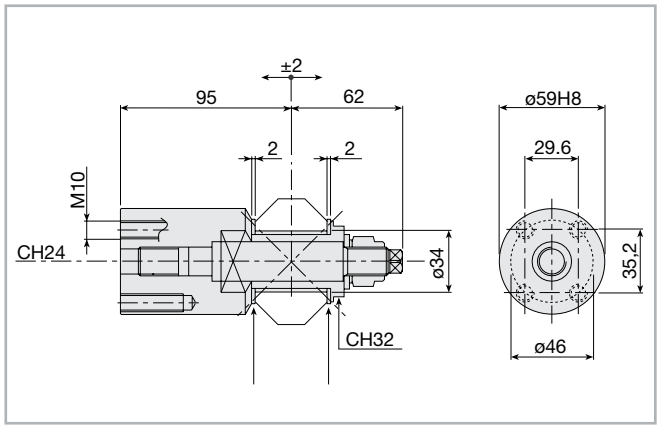


Fig. 36

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

Technical caracteristics	
Weight [Kg]	2 approx.
Concentric code	236.2076
Eccentric code (± 1.5 mm)	236.2079

Tab. 20

V-shaped guide rail assembly inserts

Material: C40 galvanized steel.

Fig. 37

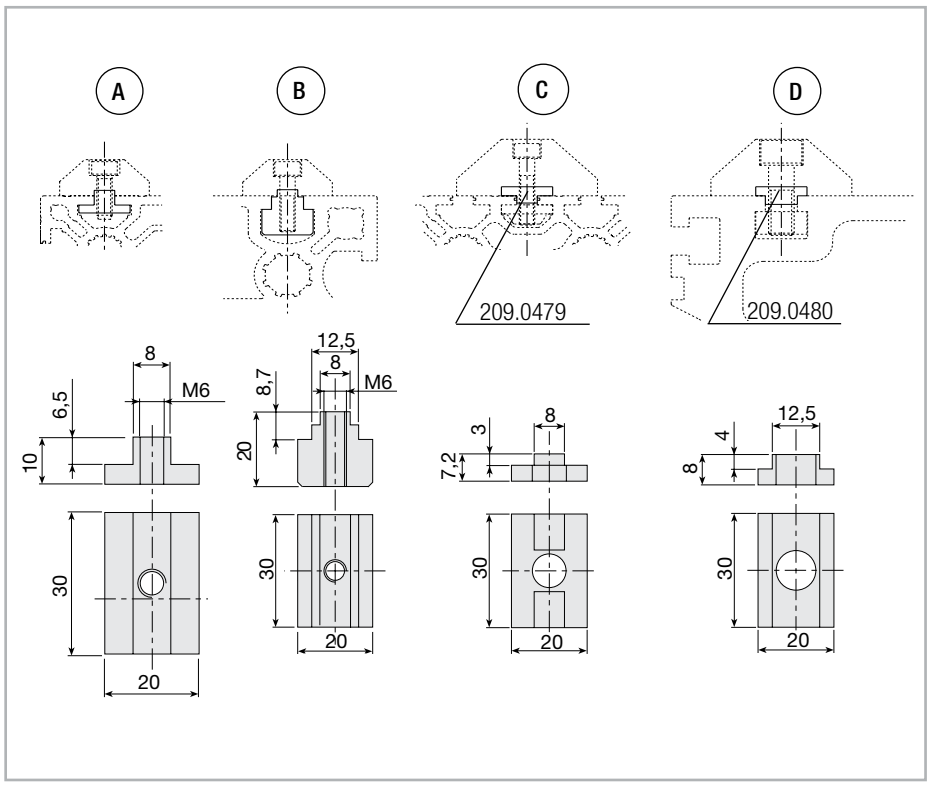


Fig. 38

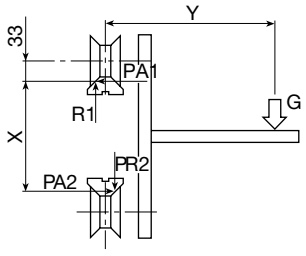
Guide rails	Slot side	Screw	Code
A 35x16/28.6x11	8	M6x20	209.0298
B 35x16	12.5	M6x25	209.1855
C 55x25	8	M8x30	209.0479
D 55x25	12.5	M10x30	209.0480

Tab. 21

Technical instructions

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

Material: Hardened and burnished C45 steel covering; burnished steel pins and bolts. Rollers with shaped plastic cover are available upon request. Rollers with longer centre-distance L can be supplied.

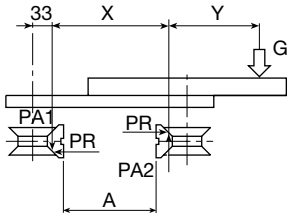


$P_{A1} = \frac{G \bullet Y}{X} = P_{A2}$

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

$P_{R2} = P_{A2}$

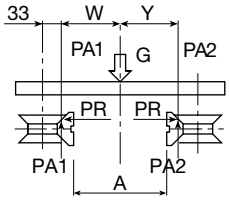
$X = A + 20$ mm



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

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

$X = A + 20$ mm



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

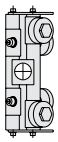
$P_{A2} = G - P_{A1}$

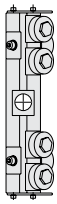
$X = A + 20$ mm

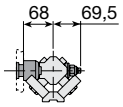
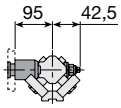
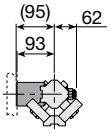
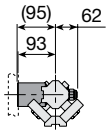
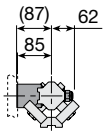
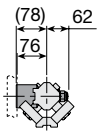
Fig. 39

Ordering key

Identification codes for roller slides and pins





	PIN	Roller sl.	G (Ø 52)	H (Ø 62)	I (Ø 52)	L (Ø 62)
	7	conc	-	-	-	-
		exc.	-	-	-	-
	8	conc				
		exc.				
	9	conc	204.2092	204.2093	204.2094	204.2095
		exc.	204.2102	204.2103	204.2104	204.2105
	10	conc	-	-	-	-
		exc.	-	-	-	-
	11	conc	-	-	-	-
		exc.	-	-	-	-
	12	conc	-	-	-	-
		exc.	-	-	-	-

Tab. 22

Identification codes for Prismatic Rail guide

P	28 35 55	J	1100	F	XX X = Single slanting cut XX w= Double slanting cut
				Drilled	
			Length		
		J = jointed rails (only when required)			
	Size				
Linear guides series Prismatic Rail					

Ordering example: P55-2750FX, P55-2600FXX, P55-J5200FC01

Notes on ordering: the rail length codes are always 4 digits; use zeroes as a prefix when lengths are shorter.

In case of jointed rails it is necessary to send the segmentation order.

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:

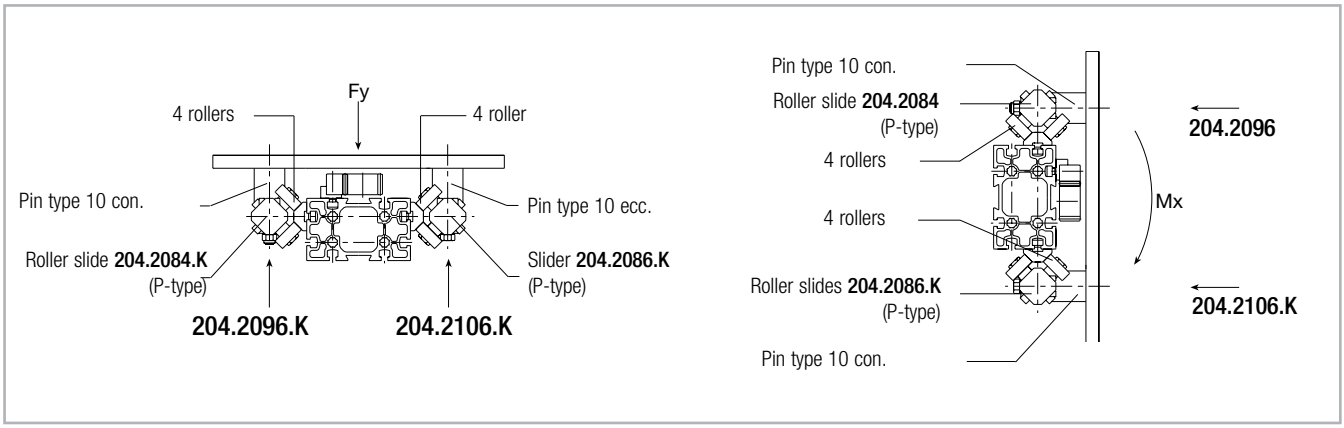
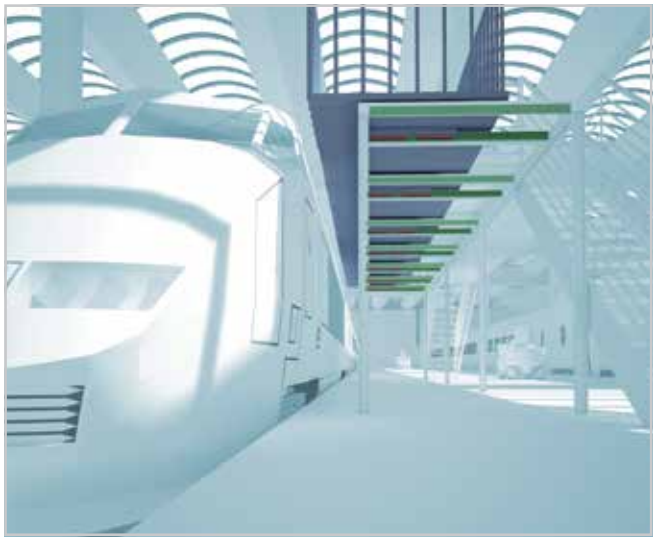


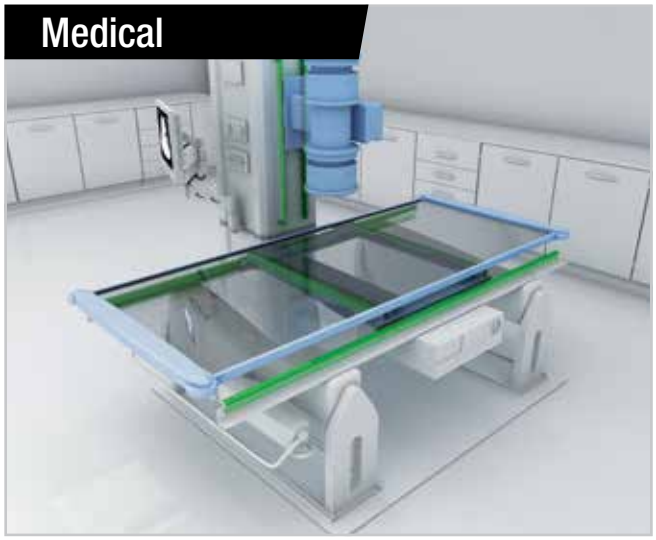
Fig. 40

Guides suitable for all applications

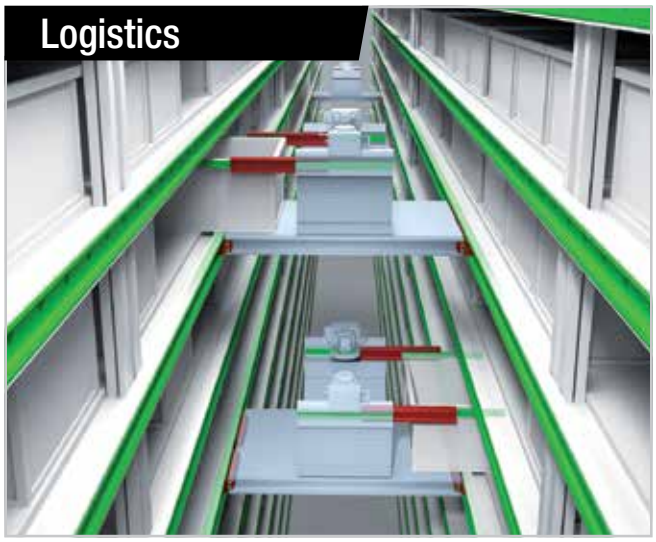
Railway

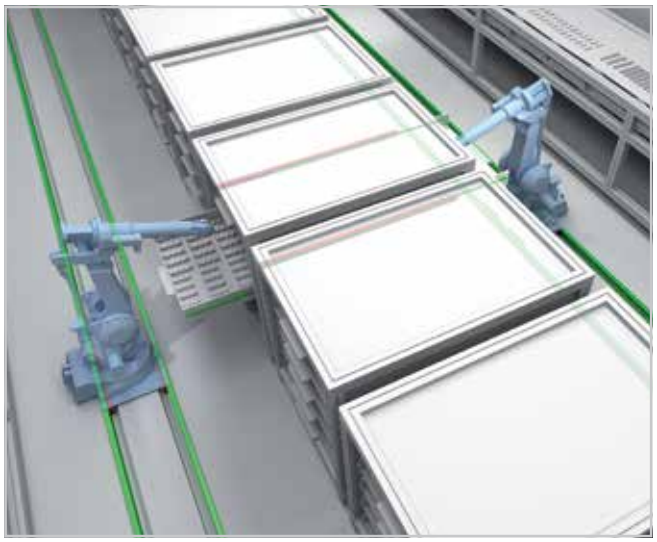


Medical



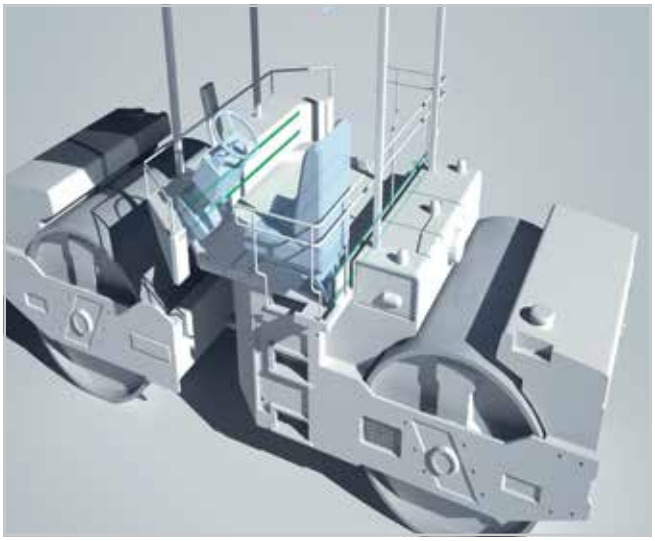
Logistics





Aerospace

Special Vehicles



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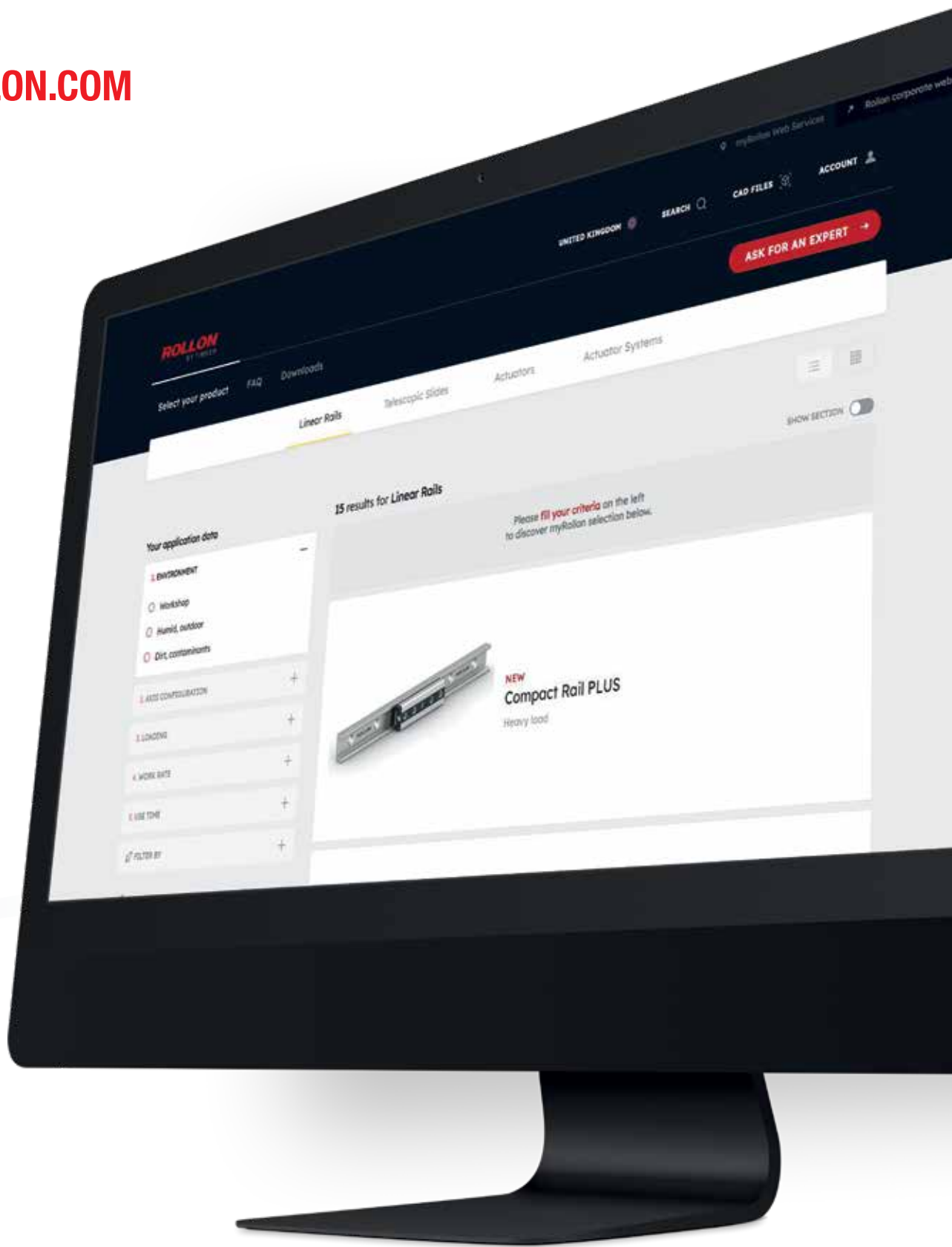

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