ROLLON®
BY TIMKEN

X-Rail

O-Rail

Telerace

NEW

Catalogue
English

www.rollon.com

We design and produce in order to support you

An international group for technology, a local support for service

Over 40 years of know how in design and production

Values

Collaboration

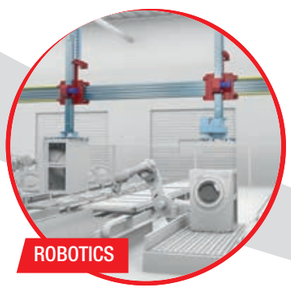
High level technical consulting

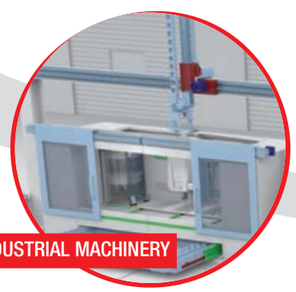
Cross competences in several industrial sectors for an effective problem-solving

Solutions

From a full range of standard products to fit-to-customer solutions for best perfomances

Applications


ROBOTICS


INDUSTRIAL MACHINERY


LOGISTICS


RAILWAY


AERONAUTICS


SPECIAL VEHICLES

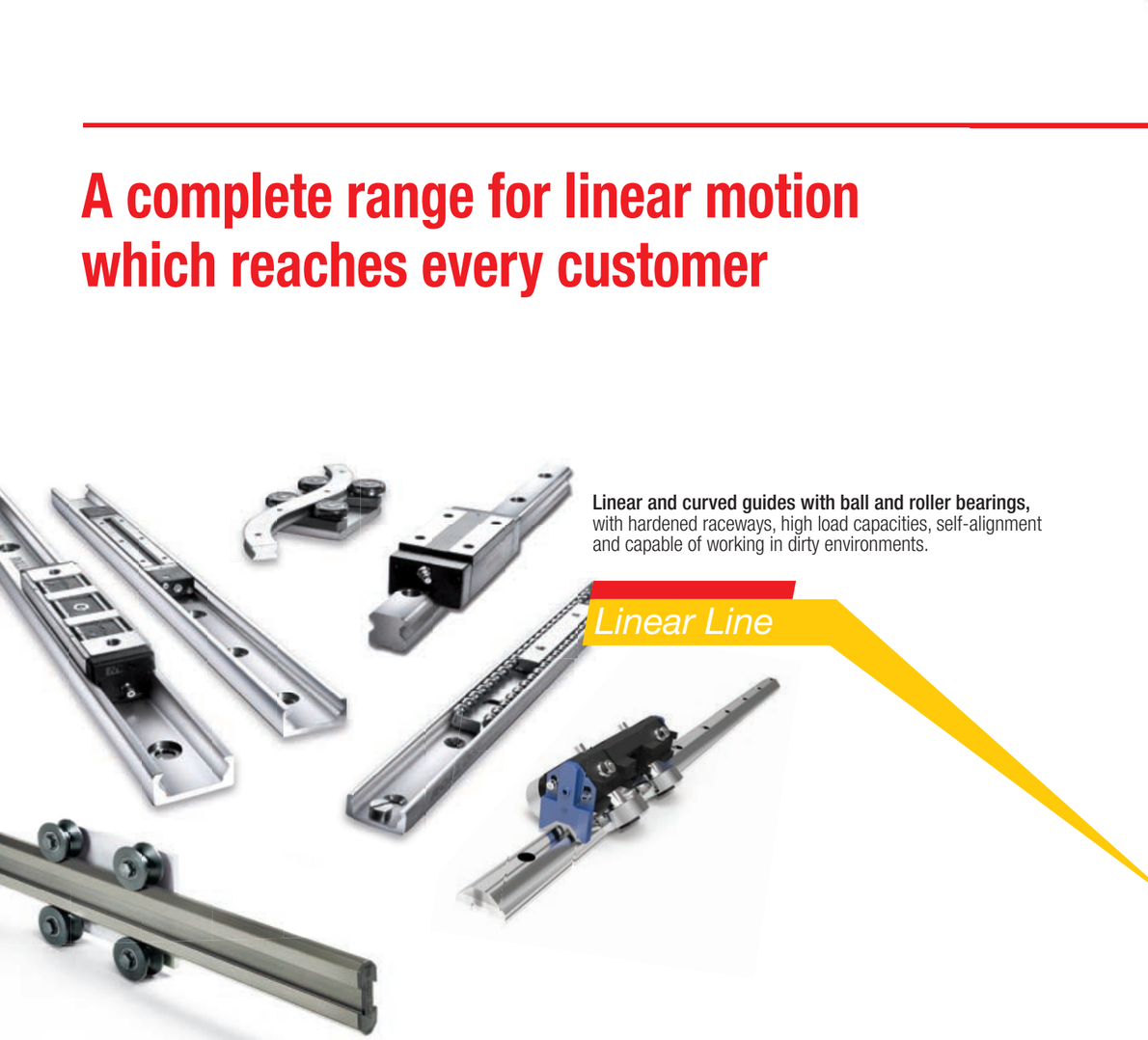

MEDICAL


INTERIORS AND ARCHITECTURE

A complete range for linear motion which reaches every customer

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

Linear Line



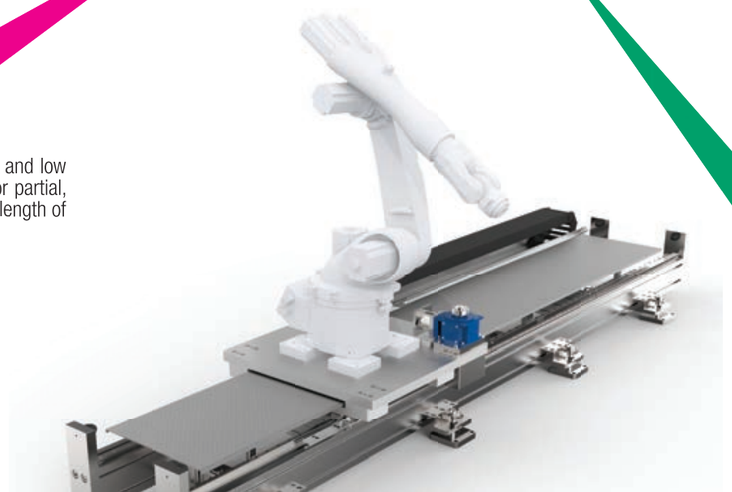
Actuator Line

Linear actuators with different guide configurations and drives,
available with belt, screw or rack and pinion drives according to different needs in terms of precision and speed. Guides with bearings or ball recirculating systems for different load capacities and critical environments.

A global provider of solutions for applications for linear motion

Telescopic Line

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



Actuator System Line

Integrated actuators for industrial automation,
they find applications in numerous industrial sectors: from machinery servo systems to high precision assembly systems, packaging lines and high speed production lines. It has evolved from Actuator Line series in order to meet the most demanding needs of our customers.

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ROLLON®
BY TIMKEN

X-Rail

Product explanation

X-Rail roller sliders TEN-UEN-TEX/TES series

Fig. 1

X-Rail

Rails are made from sheet steel, shaped by high precision, ultra-smooth forming rollers. And then hardened using Rollon-NOX nitriding and black oxidising process to ensure an extended lifetime and excellent corrosion resistance. The slider bodies are cataphoretically blackened for maximum corrosion resistance. The rollers are made from core tempered and precision ground, bearing grade steel. The ball bearings are lubricated for life with wide temperature range bearing grease and protected by 2Z rated metal shields. Robust elastomer raceway wipers are fitted at both ends of the slider to protect the rollers and keep the raceways clean. The wipers incorporate oil-impregnated felt pads to keep the points of contact between raceway and roller properly lubricated, for the lifetime of the rail. Wipers are held in place by a simple clip and can be removed and replaced easily.

Maximum compactness

Compact section rails in a range of sizes, with protected internal rollers.

Black finish sliders

Elegant, top quality, black finish obtained by coating-free thermochemical treatment. Flame and abrasion resistant. Does not flake off.

Optimum lubrication

Extended, maintenance-free lifetime thanks to wipers with slow release felt lubricating pads that deposit a thin film of lubricant on the raceways.

Maximum strength

Fully nitrided hardened and black oxidised rails for excellent wear resistance and effective protection against corrosion.

Smooth sliding

Superbly smooth sliding, thanks to optimal preload adjustment of the eccentric rollers and good lubrication provided by the wipers with incorporated felt.

Self-aligning system

Can be used in conjunction with UEN U section rails to create a self-aligning two-slide motion system capable of compensating for installation alignment errors.

The most important characteristics:

- Silent and smooth movement
- Hardened for long lifetime with no wear
- Without maintenance
- Self-aligning
- Smooth black oxidation
- Strong wipers with incorporated preoiled felt
- High corrosion resistance
- Option for customized colour

TEN-UEN-TEX/TES series

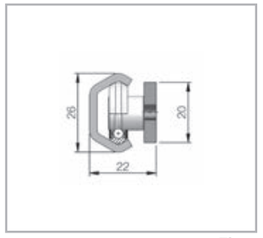


Fig.2

TEN 26

Load capacity p. XR-7

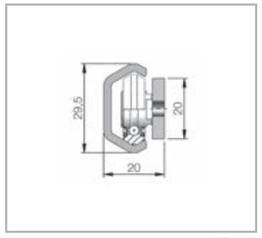


Fig. 3

TEN 30

Load capacity p. XR-7

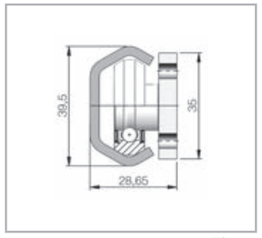


Fig. 4

TEN 40

Load capacity p. XR-7

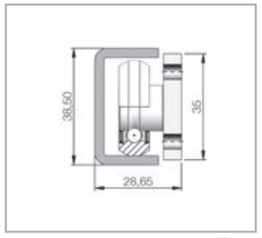


Fig. 5

UEN 40

Load capacity p. XR-7

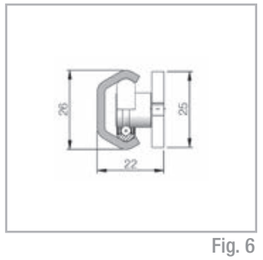


Fig. 6

TEX26-TES26

Load capacity p. XR-11

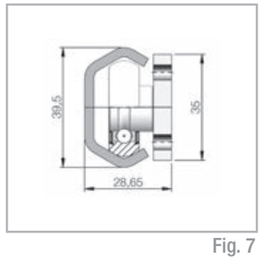


Fig. 7

TEX40-TES40

Load capacity p. XR-11

General characteristics

“X-Rail” roller sliders construction design

Optional surface treatments where high corrosion resistance is required: **Rollon e-coating** technology, black epoxy resin electrodeposition (K version) with controlled thickness on the entire surface, except on the raceways, as masked before electrodepositioning. The raceways remain with standard oxidation treatment and protected with a thin layer of lubricant, released by the wipers.

- Corrosion resistance tested for 700 hours in salty fog
- Superb black glossy finish
- Excellent resistance in humid ambients
- Good resistance to oils and hydrocarbons

Optional customized rail coloring based on epoxy paint for application where special design look and high corrosion resistance are required. Standard in white and red color (versions CW and CR) with controlled thickness on the entire surface except on the raceways, which are masked previously to coloring. The raceways remain with standard oxidation treatment and protected with a thin layer of lubricant, released by the wipers.

- Unique esthetic coloring for design needs

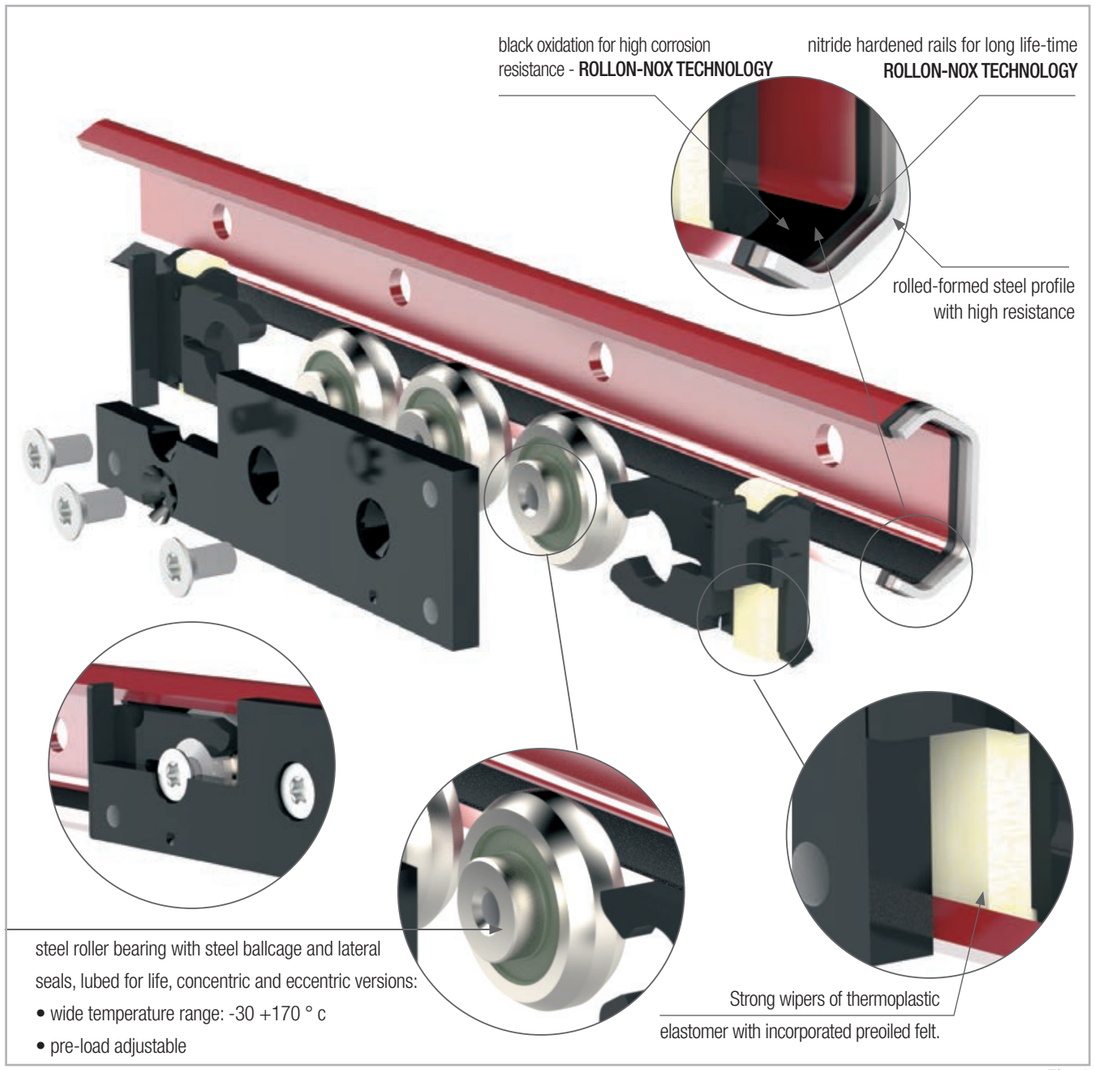


Fig. 8

Roller positioning for sliders assembly

The sliders are available in 3 and 5 rollers configuration.
The 3 roller version has the two lateral rollers aligned and in contact with the same raceway. These two rollers are concentric and “fixed” - blocked with Loctite. The adjustable central roller is eccentric for preloading against the opposite raceway.

The 5 roller version has the two lateral and central roller aligned against the same raceway. These three rollers are “fixed”. The lateral are concentric rollers, while the central is an eccentric roller. The two adjustable rollers, next to the lateral roller, are eccentric and preloaded against the opposite raceway.

Maximum Load Capacity
The sliders’ max. radial load capacities are given by the highest number of rollers aligned against the same raceway. As non symmetric roller positioning, the sliders must be positioned correctly during installation to obtain listed radial load capacities. Circular marks on the slider body, indicate the side with most rollers in contact with same raceway.

Slider with 3 and 5 rollers

Slider with 3 rollers

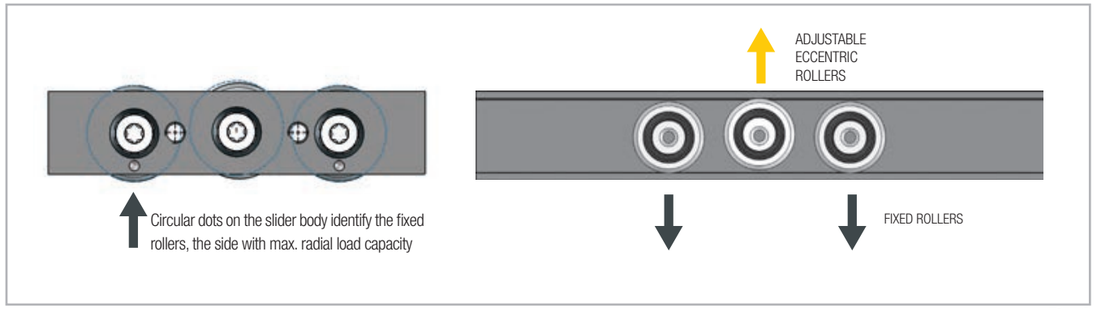


Fig. 9

Slider with 5 rollers

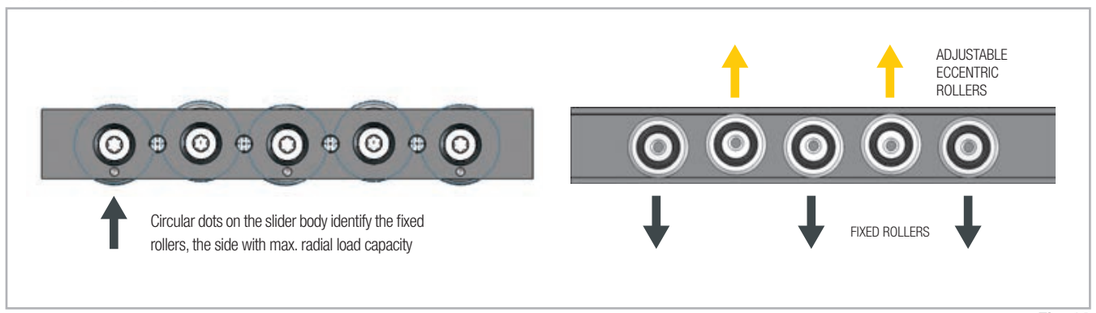
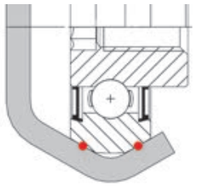


Fig. 10

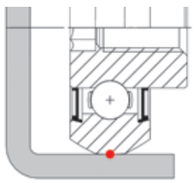
Contact points of the rollers



TEN GUIDING RAIL

Fig. 11

The two inclined bearing slopes run on the two slopes of the V-shaped raceways of the TEN rail. These 2 points contact on each roller in upper or lower raceway, assure both radial and axial load capacity.



UEN FLOATING RAIL

Fig. 12

The flat central surface of the roller runs on the flat raceway of the UEN rail. This one point contact of each roller in upper or lower raceway, provide only radial load capacity, but allows for axial floating capability.

Dimensions and load capacity

Rails series TEN and UEN “nitride”

Design

TEN and UEN series rails are made from sheet steel and shaped by high precision, ultra-smooth forming rollers. They are then fully nitrided, black oxidised and impregnated with rust inhibitor for maximum corrosion resistance.

Rail mounting holes

Rail mounting holes have an 80 mm pitch. Either ISO 7380 button head Allen screws or Rollon flat head screws can be used.

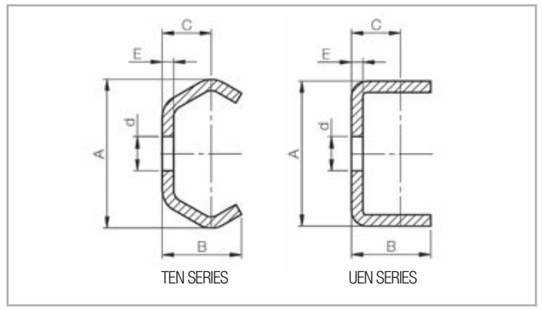


Fig. 13

Reference code	A (mm)	B (mm)	C (mm)	d (mm)	E (mm)	Screw type standard	WEIGHT (kg)
TEN 26	26	14	9,5	6,5	2,5	M5 (ISO 7380)	0,80
TEN 30	29,5	15	10	6,5	2,5	M5 (ISO 7380)	0,95
TEN 40	39,5	21	13	9	3	M8 (ISO 7380)	1,55
UEN 40	38,5	21	13	9	3	M8 (ISO 7380)	1,70

Tab. 1

Fixing screw dimensions

Reference code	KIT CODE (100 pz)	Screw type	M	V	G	S	Ch	Tightening torque
TEN 26 TEN 30	KIT-40.VB-E.0510.ZB	M5x10 ISO 7380	M5	10	9,5	2,7	3	9 Nm
	KIT-40.VC-SP01.0510.ZB	M8x10 ISO 7380	M5	10	10	2	T25	9 Nm
TEN 40 UEN 40	KIT-40.VB-E.0810.ZB	M8x10 (ISO 7380)	M8	10	14	4,3	5	20 Nm
	KIT-40.VC-SP01.0812.ZB	M8x12 (TORX)	M8	12	16	3	T40	20 Nm
	KIT-40.VC-SP01.0816.ZB	M8x16 (TORX)	M8	16	16	3	T40	20 Nm

The screws are not supplied with rails, can be bought separately.

Tab. 2

Standard iso 7380 screws

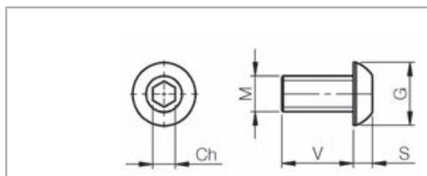


Fig. 14

Special ROLLON 40.vc-sp01 screws

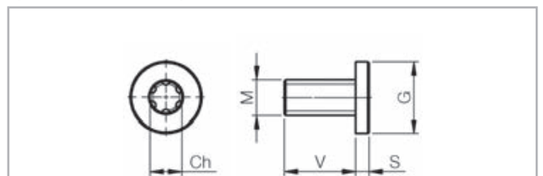


Fig. 15

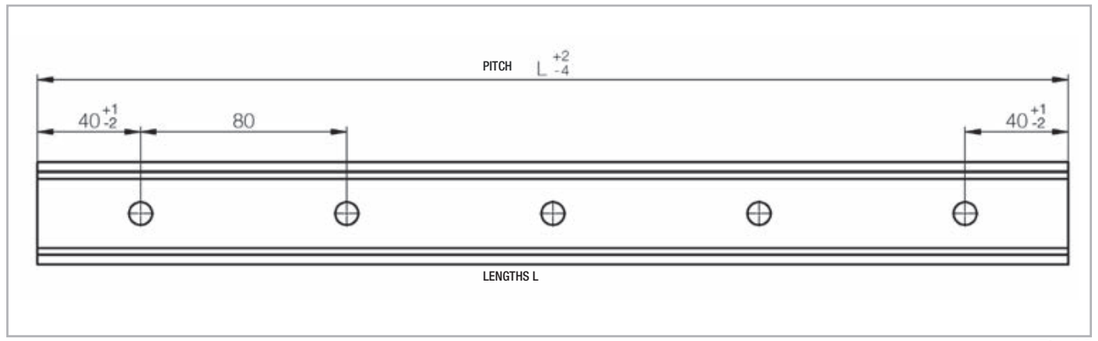


Fig. 16

Rail size

Dimensions from 160 mm to 2000 mm

Rail codes	Length L (mm)																						
	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
TEN 26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TEN 30	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TEN 40			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
UEN 40			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

• Available in stock

Tab. 3

Dimensions from 2080 mm to 4000 mm

Rail codes	Length L (mm)																						
	2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960	3040	3120	3200	3280	3360	3440	3520	3600	3680	3760	3840	3920	4000
TEN 26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TEN 30	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TEN 40	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
UEN 40	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

• Available in stock

Tab. 4

Order codes	Version	Characteristics
TEN40-1040	BASIC	Rolled steel rail with “ROLLON-NOX” nitride hardening, black oxidation, cut to size after treatment. The cut ends are protected with black spray paint.
TEN40-1040-K	K	As base version, but with additional treatment “ROLLON e-coating” black electro painting on the entire surface, except on the inner raceway area, providing a high corrosion resistance, up to 700 hours in salty fog. The raceways are still protected by the standard oxidation and raceway lubrication.
TEN40-1040-CW	CW o CR	As base version, but with additional coloring “ROLLON p-color”. CW is white-color version and CR is red-color version, - on the entire surface, except on the inner raceway area, providing a high corrosion resistance, up to 700 hours in salty fog. The raceways are still protected by the standard oxidation and raceway lubrication.

Tab. 5

CEN26 - CEN30 Sliders

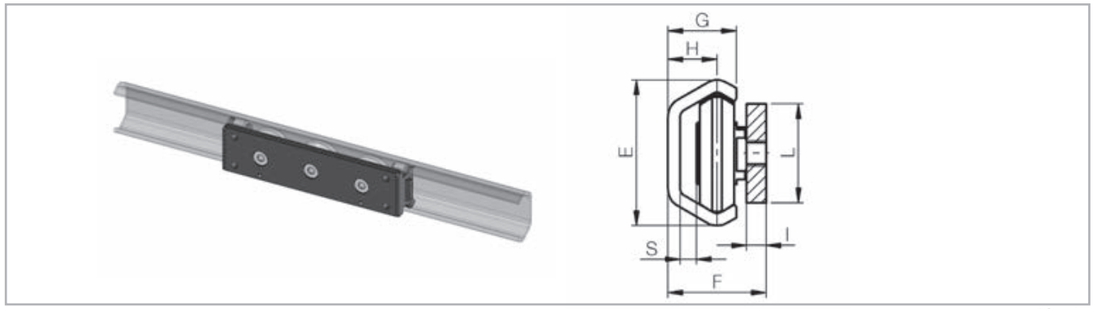
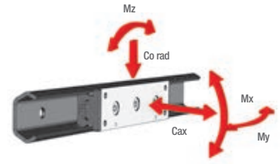
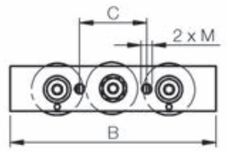


Fig. 17

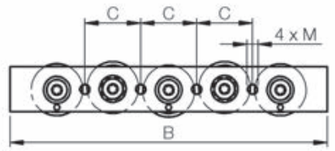
The CEN26 - CEN30 sliders have slim steel body with black glossy cataphoresis painting for high corrosion resistance. Available in 3 and 5 rollers, with and without wipers.



SLIDERS without wipers



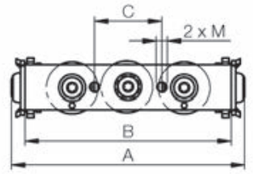
CEN26-92



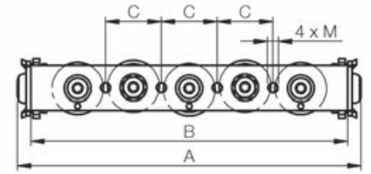
CEN26-142

Fig. 18

SLIDERS with wipers



CEN26-92T



CEN26-142T

Fig. 19

Code	E (mm)	F (mm)	G (mm)	H (mm)	S (mm)	I (mm)	L (mm)	M (mm)	A (mm)	B (mm)	C (mm)	Weight (g)	Dynamic coefficient C (N)	Load capacity				
														Co rad (N)	Co ax (N)	Mx (Nm)	My (Nm)	Mz (Nm)
CEN26-92	26	22	14	9,5	3,7	4	20	M5	-	92	30	100	1280	1120	380	3	9	16
CEN26-92T									104			110						
CEN26-142									-	142	25	140	1730	1520	540	5	15	45
CEN26-142T									154			150						
CEN30-92	29,5	19,9	15	10	3,3	4	20	M5	-	92	30	120	1360	1200	420	4	10	17
CEN30-92T									104			130						
CEN30-142									-	142	25	160	1830	1620	580	6	17	50
CEN30-142T									154			170						

Tab. 6

CEN40 Sliders

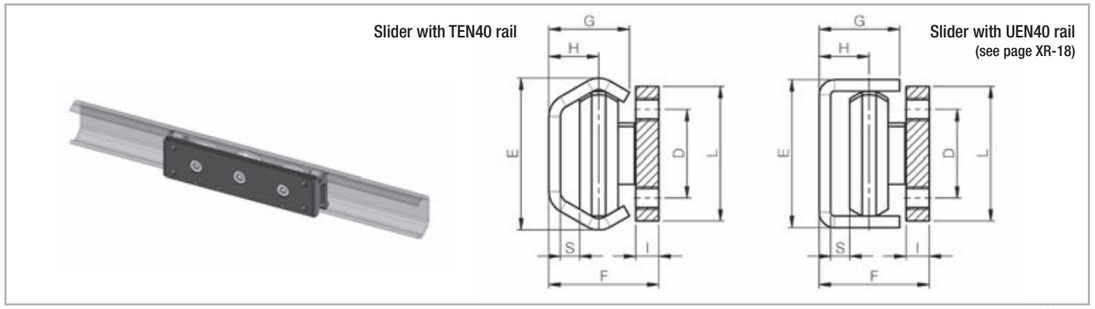
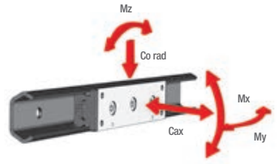


Fig. 20

The CEN40 slider has slim steel body with black glossy cataphoresis painting for high corrosion resistance. Available in 3 and 5 roller version, with and without wipers.



SLIDERS without wipers

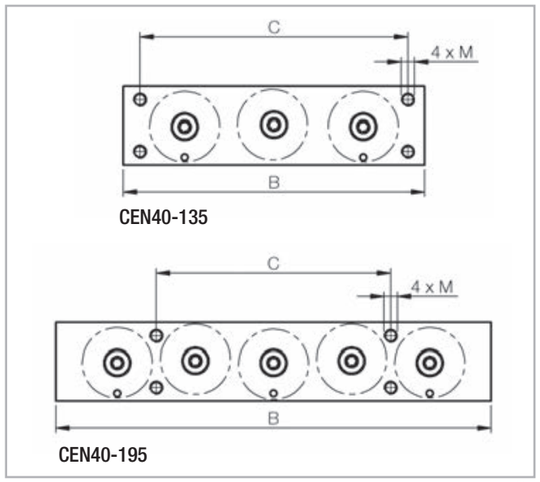


Fig. 21

SLIDERS with wipers

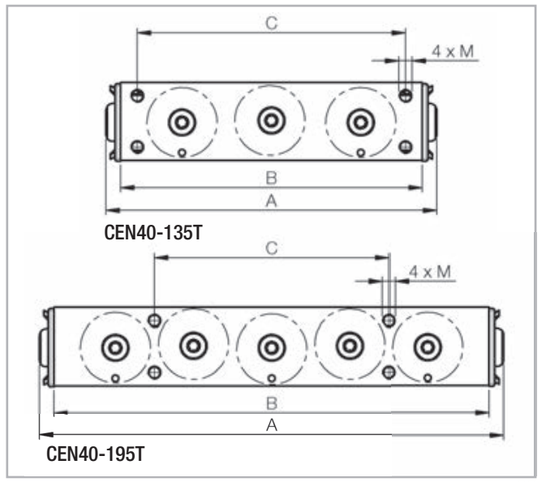


Fig. 22

Code	Type	E (mm)	F (mm)	G (mm)	H (mm)	S (mm)	I (mm)	L (mm)	M (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (g)	Dynamic coefficient C (N)	Load capacity				
																Co rad (N)	Co ax (N)	Mx (Nm)	My (Nm)	Mz (Nm)
CEN40-135	TEN40	39.5	28.65	21	13	5	6	35	M6	-	135	120	23	430	2720	2400	820	10	25	50
CEN40-135T										148				450						
CEN40-195										-	195	105		600	3670	3240	1150	18	42	125
CEN40-195T										208				620						
CEN40-135	UEN40	38.5	28.65	21	13	5	6	35	M6	-	135	120	23	430	1850	1850	0	0	0	34
CEN40-135T										148				450						
CEN40-195										-	195	105		600	2460	2460	0	0	0	84
CEN40-195T										208				620						

Tab. 7

TEX inox rails

TEX rails

The TEX rails, with their CEX sliders and rollers, are made entirely of stainless steel. They offer a simple and practical solution for all applications where high corrosion resistance is required, in particular for food industry, chemical, pharmaceutical and medical industries.

For applications in severe marine environments is proposed the version with all parts electro polished (X-version) for extra high corrosion resistances. The product is easily washable for applications subject to frequent cleaning, does not release particles in the environment and is particularly indicated for cleanroom applications. Available in two sizes: 26 and 40 mm.

Fixing holes

Rails have fixing pitch 80mm for standard INOX Button-head screws ISO 7380.

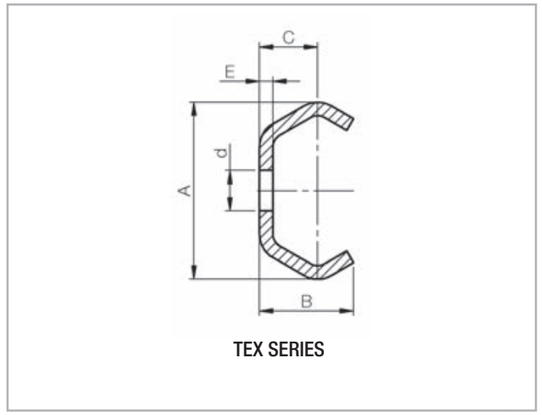


Fig. 23

Reference code	A (mm)	B (mm)	C (mm)	d (mm)	E (mm)	Screw type standard	WEIGHT (kg)
TEX 26	26	14	9,5	6,5	2,5	M5 (ISO 7380)	0,80
TEX 40	39,5	21	13	9	3	M8 (ISO 7380)	1,55

Tab. 8

Fixing screw dimensions

Reference code	KIT CODE (100 pz)	Screw type	M	V	G	S	Ch	Tightening torque
TEX 26	KIT-40.VB-E.0510.ZB	M5X10 (ISO 7380)	M5	10	9,5	2,7	3	
TEX 40	KIT-40.VB-E.0810.ZB	M8X10 (ISO 7380)	M8	10	14	4,3	5	

The screws are not supplied with rails, can be bought separately.

Tab. 9

Inox screws standard iso 7380

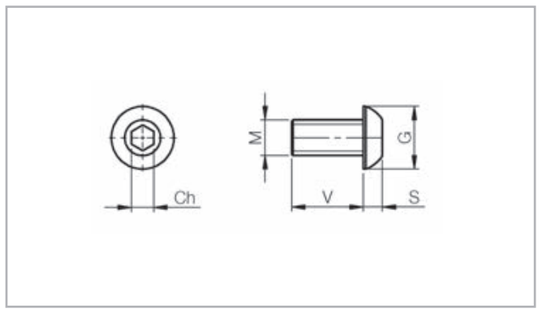


Fig. 24

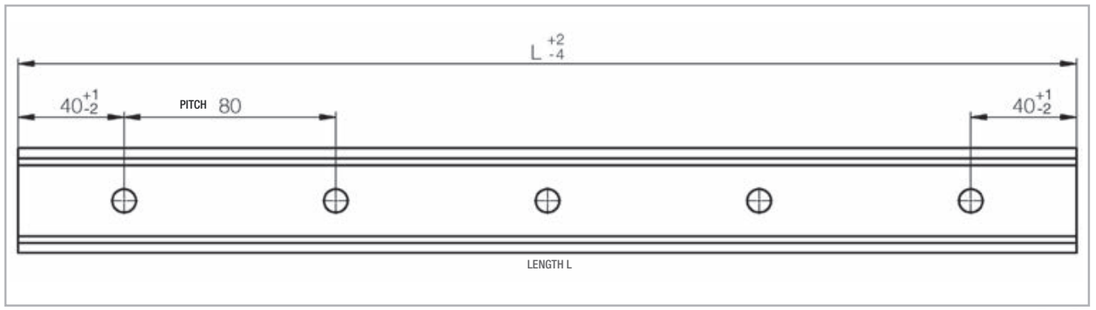


Fig. 25

Rail size

Dimensions from 160 mm to 2000 mm

Rail codes	Length L (mm)																							
	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
TEX 26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TEX 40			•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•

• Available in stock

Tab. 10

Dimensions from 2080 mm to 4000 mm

Rail codes	Length L (mm)																							
	2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960	3040	3120	3200	3280	3360	3440	3520	3600	3680	3760	3840	3920	4000
TEX 26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TEX 40	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

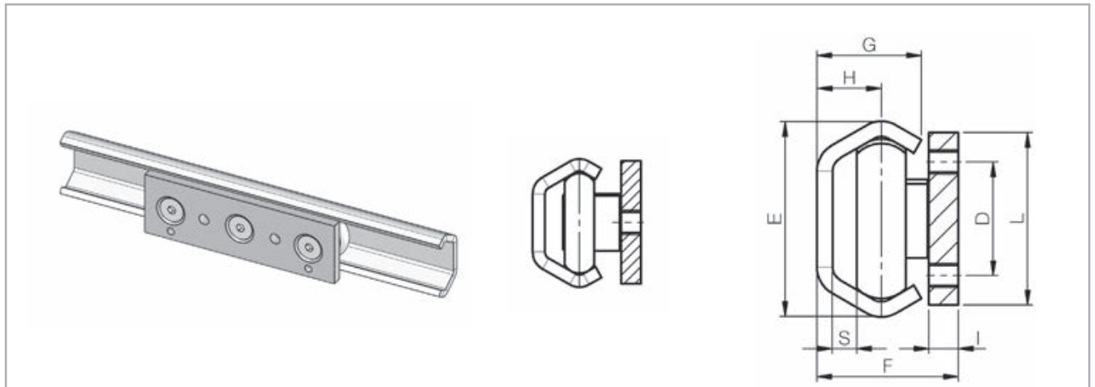
• Available in stock

Tab. 11

Order codes	Version	Characteristics
TEX40-1040	BASIC	Profiled rail, INOX AISI 304
TEX40-1040-X	X	As base rail but with electro polished after cutting to size. Tested to 1000 hours in salty fog.

Tab. 12

CEX sliders

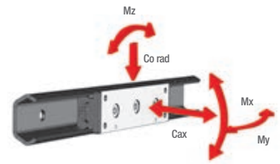


SLIDER WITH CEX26 RAIL

SLIDER WITH CEX40 RAIL

Fig. 26

The sliders are composed of a stainless steel AISI 304 body and 3 stainless steel AISI 440 rollers without wipers. The version with wipers is available only for the size 40.



SLIDERS without wipers

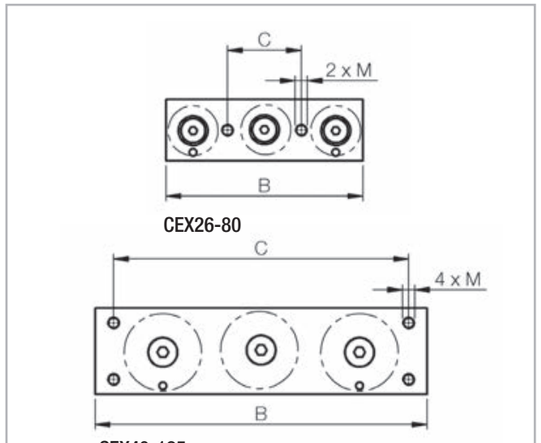


Fig. 27

SLIDERS with wipers

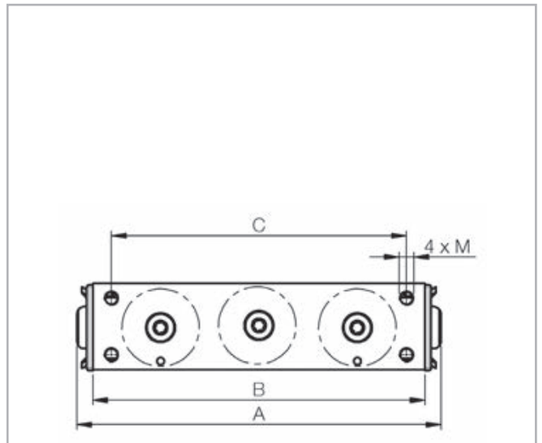


Fig. 28

Code	E (mm)	F (mm)	G (mm)	H (mm)	S (mm)	I (mm)	L (mm)	M (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (g)	Load capacity				
														Co rad (N)	Co ax (N)	Mx (Nm)	My (Nm)	Mz (Nm)
CEX26-80	26	22	14	9,5	3,7	4	20	M5	-	80	30	-	95	800	400	3	9	12
CEX40-135	39,5	28,65	21	13	5	6	35	M6	-	135	120	23	430	1600	800	9	23	32
CEX40-135T									148				450	1600	800	9	23	32

All sliders are also available in a fully electro-polished version. For the order code add suffix-X (eg CEX40-135-X)

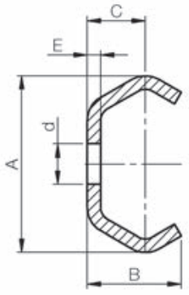
Tab. 13

TES rails

TES rails

The TES rails with its CES sliders are made of zinc plated steel, while the rollers are hardened bearing steel. They offer a simple and economical solution for a wide range applications, where high frequency is not required.

The compact overall dimensions, the internal protected raceways, the ease of assembly and the good ratio of load capacity /size make this product a winning choice compared to other self-built or available solutions on the market. The rails are available in two dimensions : 26 and 40 mm.



TES SERIES

Fig. 29

Reference code	A (mm)	B (mm)	C (mm)	d (mm)	E (mm)	Screw type standard	WEIGHT (kg)
TES 26	26	14	9,5	6,5	2,5	M5 (ISO 7380)	0,80
TES 40	39,5	21	13	9	3	M8 (ISO 7380)	1,55

Tab. 14

Fixing screw dimensions

Reference code	KIT CODE (100 pz)	Screw type	M	V	G	S	Ch	Tightening torque
TES 26	KIT-40.VB-E.0510.ZB	M5X10 (ISO 7380)	M5	10	9,5	2,7	3	9 Nm
	KIT-40.VC-SP01.0510.ZB	M5X10 (TORX)	M5	10	10	2	T25	10Nm
TES 40	KIT-40.VB-E.0810.ZB	M8X10 (ISO 7380)	M8	10	14	4.3	5	20Nm
	KIT-40.VC-SP01.0816.ZB	M8X16 (TORX)	M8	16	16	3	T40	20Nm
	KIT-40.VC-SP01.0812.ZB	M8X12 (TORX)	M8	12	16	3	T40	20Nm

Screws are not supplied whit the rails

Tab. 15

Screws standard iso 7380

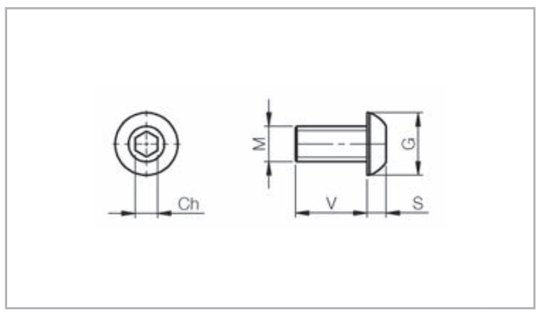


Fig. 30

Screws special ROLLON 40.vc-sp01.

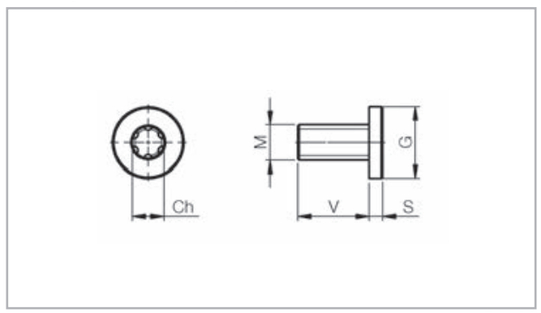


Fig. 31

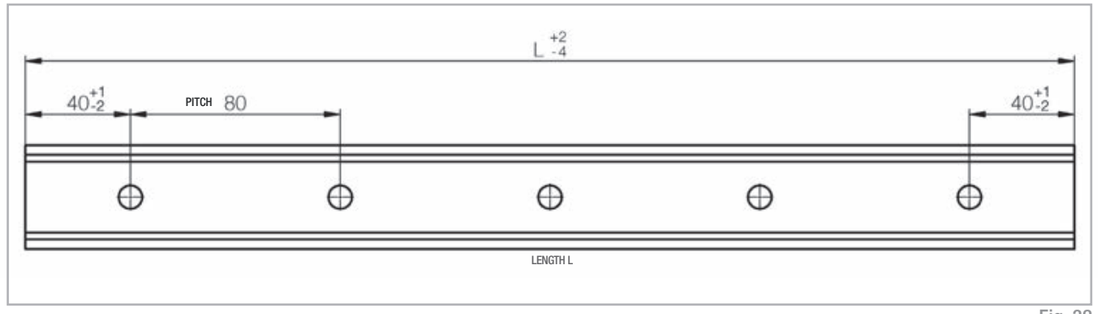


Fig. 32

Rail size

Dimensions from 160 mm to 2000 mm

Rail codes	Length L (mm)																							
	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
TES 26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TES 40			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

• Available in stock

Tab. 16

Dimensions from 2080 mm to 4000 mm

Rail codes	Length L (mm)																							
	2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960	3040	3120	3200	3280	3360	3440	3520	3600	3680	3760	3840	3920	4000
TES 26	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
TES 40	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

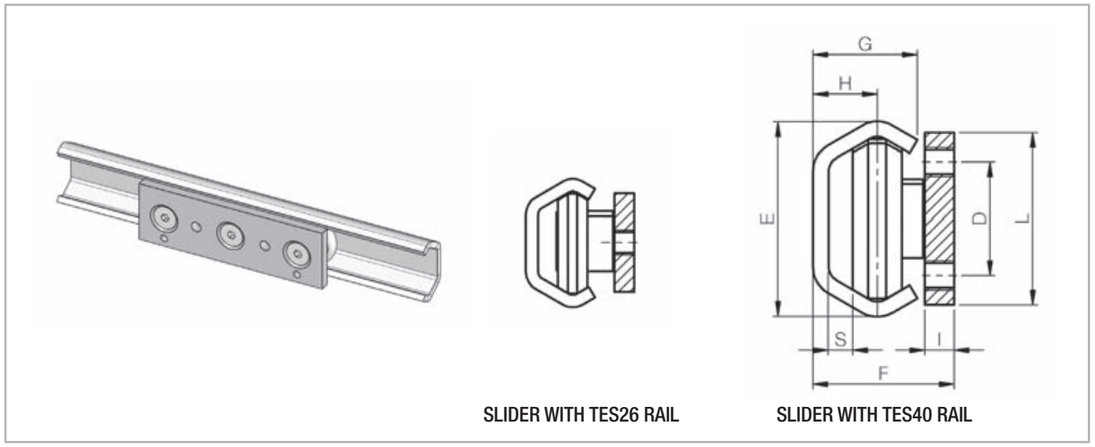
• Available in stock

Tab. 17

Order codes	Version	Characteristics
TES40-1040	BASIC	Rolled formed steel, zinc plated, with the rails ends with protective zinc-spray after cutting to size.

Tab. 18

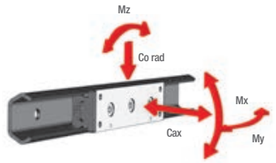
CES sliders



SLIDER WITH TES26 RAIL SLIDER WITH TES40 RAIL

Fig. 33

The sliders CES26 for the rail TES26 feature a zinc plated steel body with two fixing holes. With the rails TES40 can be used the sliders CEN40-135 indicated on page XR-10 that have a body with black color surface treatment.



SLIDERS without wipers

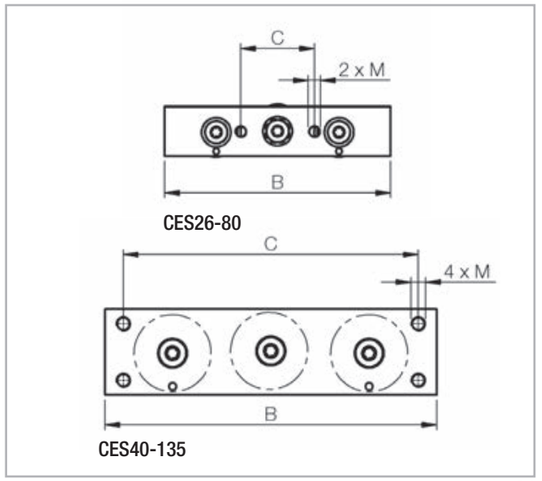


Fig. 34

SLIDERS with wipers

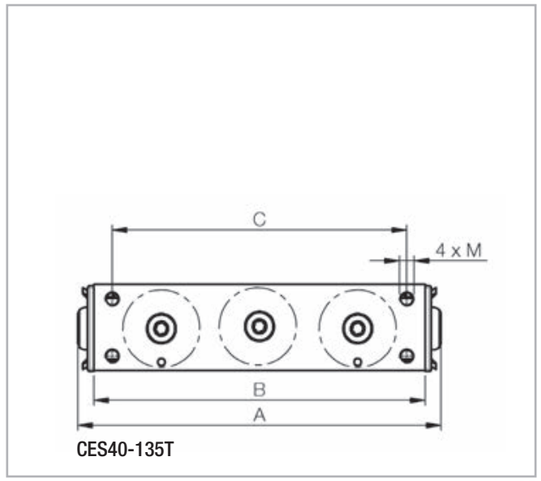


Fig. 35

Code	E (mm)	F (mm)	G (mm)	H (mm)	S (mm)	I (mm)	L (mm)	M (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (g)	Load capacity				
														Co rad (N)	Co ax (N)	Mx (Nm)	My (Nm)	Mz (Nm)
CES26-80	26	22	14	9,5	3,7	4	20	M5	-	80	30	-	95	800	400	3	9	12
CES40-135	39.5	28.65	21	13	5	6	35	M6	-	135	120	23	430	1600	800	9	23	32
CES40-135T									148				450	1600	800	9	23	32

Tab. 19

TEN40+UEN40 self-aligning system

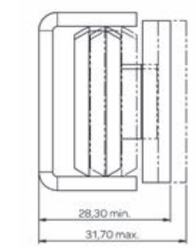
In two-slide linear motion systems, one TEN40 rail can be combined with one UEN40 rail, with CEN40 sliders in both rails. This combination creates a self-aligning system capable of tolerating alignment errors of up to 3.4 mm.

The slider in the TEN40 guiding rail is rigidly connected, via the mobile element, to the sliders in the UEN40 floating rail on the other side. The TEN40 guiding rail ensures play-free linear motion. The slider in the UEN40 floating rail is therefore also play-free but able to move axially across the flat raceways. This system avoids overload on the sliders as the result of rail alignment error.

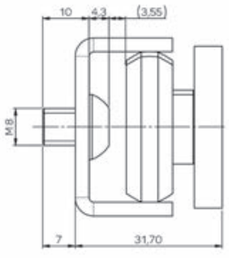
The limit of axial movement of CEN40 sliders towards the inside of UEN40 rails is determined by the size of the heads of the rail fixing screws (see figures below). In particular, ROLLON's special flat head DIN 7991 screws permit approximately 1 mm of extra axial movement compared to standard ISO 7380 screws.

The limit of axial movement towards the outside of the UEN40 rail is determined by the point of departure of the roller from the raceway. The limit specified in the catalogue guarantees sufficient contact between rollers and raceway to support rated load.

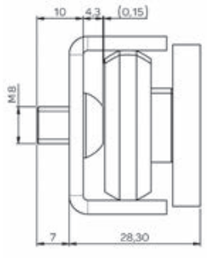
Sliders in UEN40 rails offer less load capacity than the same sliders in TEN40 rails.



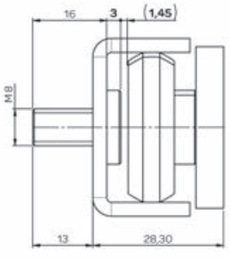
Min - Max axial movement



Limit towards outside with full load capacity



Limit towards inside of rail with standard ISO 7380 screws



Limit towards inside of rail with TORX DIN 7991 screws

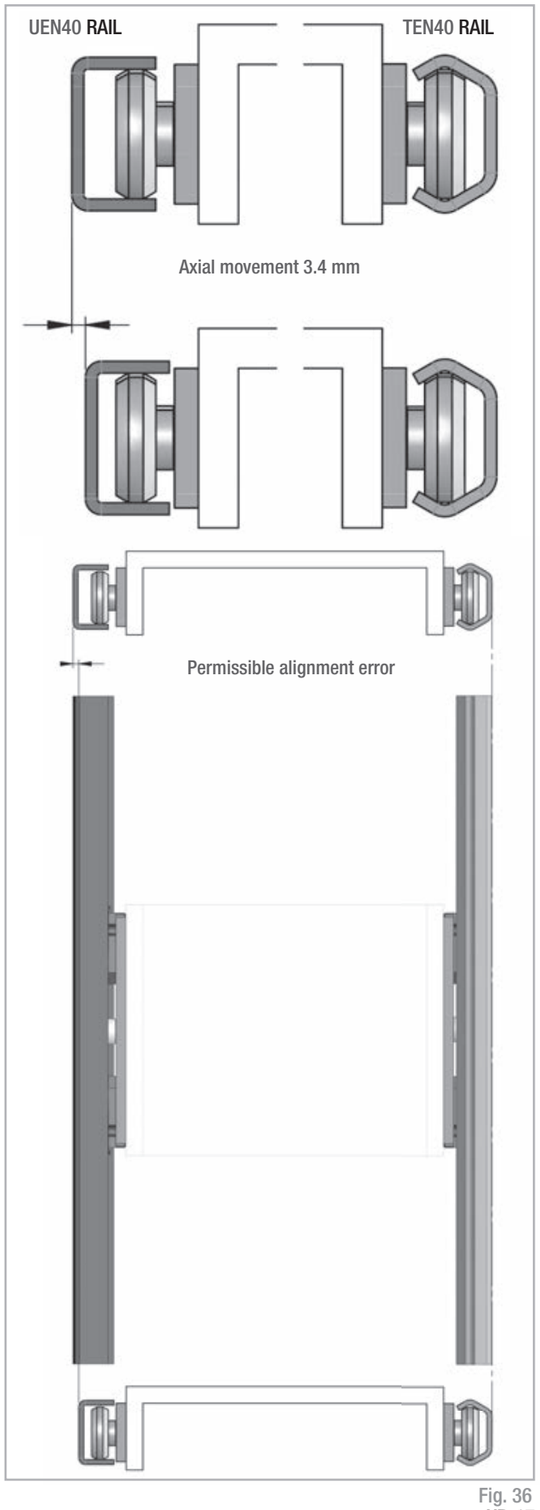


Fig. 36

Rollers for TEN and UEN series rails

As an alternative to our standard 3 and 5-roller sliders, rollers for TEN and UEN rails can also be mounted on custom sliders or directly on the mobile element. In such cases, the number, arrangement and types of roller need to be chosen to match the requirements of the application.

All rollers are made from core tempered and precision ground bearing grade carbon steel. Rollers are of the single row ball bearing type, with the balls held in place by a metal cage. Precision ground surfaces ensure a smooth, silent rolling action. Rollers are also fitted with 2Z rated metal shields to protect the ball bearings raceway and ensure good resistance to high temperatures. The ball bearing is lubricated for life with a wide temperature ranging lithium soap grease. The mounting axle is made in one piece with the inner bearing, for maximum strength. Rollers come in two types: eccentric and concentric.

PEN and PCN series rollers for size 26 and 40 rails have a hexagonal recess for an Allen key in the side opposite the threaded fixing hole. This serves to hold the axle steady while the fixing screw is being tightened with a second Allen key. On eccentric rollers, it also serves to adjust roller position, so as to reach the desired preload setting. Rollers for size 30 rails have a special central square pivot accessible with a flat key, inserted between slider body and eccentric rollers. The flat key is supplied by ROLLON.

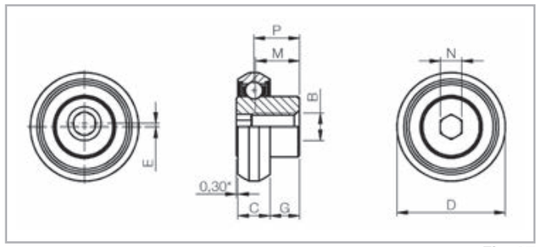


Fig. 37

Roller code	Type	Rail type	E (mm)	D (mm)	C (mm)	M (mm)	G (mm)	P (mm)	N (Key)		B (mm)	Weight (g)	Dynamic load factor C (N)	Load capacity	
									Key	N (mm)				Co rad (N)	Co ax (N)
PCN26	concentric	T	-	20,2	6	8,5	5,5	8,2	4	4	M5	13	640	560	126
PEN26	eccentric	T	0,6	20,2	6	8,5	5,5	8,2	4	4	M5	13	640	560	126
PCN40	concentric	T	-	31,5	10	9,65	4,65	10	5	5	M6	48	1360	1200	410
PEN40	eccentric	T	0,7	31,5	10	9,65	4,65	10	5	5	M6	48	1360	1200	410
PCN40	concentric	U	-	31,5	10	9,65	4,65	10	5	5	M6	48	910	800	0
PEN40	eccentric	U	0,7	31,5	10	9,65	4,65	10	5	5	M6	48	910	800	0

Tab. 20

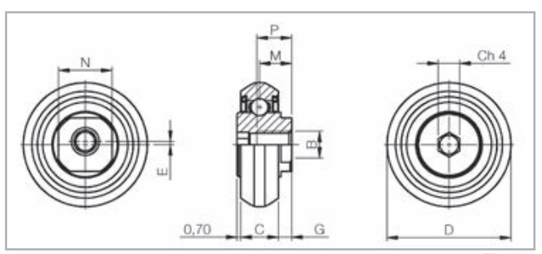


Fig. 38

Roller code	Type	E (mm)	D (mm)	C (mm)	M (mm)	G (mm)	P (mm)	N (Key)		B (mm)	Weight (g)	Dynamic load factor C (N)	Load capacity	
								Key	N (mm)				Co rad (N)	Co ax (N)
PCN30	concentric	-	23,15	7	6	2,5	6,5	KLM28	10	M5	20	2400	1000	250
PEN30	eccentric	0,6	23,15	7	6	2,5	6,5	KLM28	10	M5	20	2400	1000	250

Tab. 21

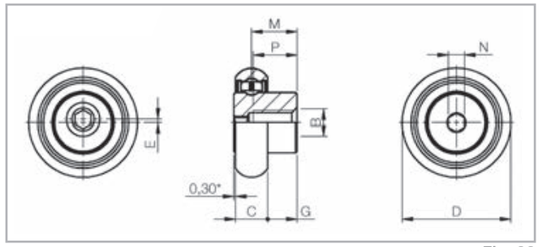


Fig. 39

Roller code	Type	E (mm)	D (mm)	C (mm)	M (mm)	G (mm)	P (mm)	N (Key)		B (mm)	Weight (g)	Dynamic load factor C (N)	Load capacity	
								Key	N (mm)				Co rad (N)	Co ax (N)
PCX26	concentric	-	20,3	6	8,5	5,5	8,2	4	4	M5	13	900	400	148
PEX26	eccentric	0,6	20,3	6	8,5	5,5	8,2	4	4	M5	13	900	40	148
PCX40	concentric	-	31,5	10	9,65	4,65	10	5	5	M6	48	1800	800	296
PEX40	eccentric	0,7	31,5	10	9,65	4,65	10	5	5	M6	48	1800	800	296

Tab. 22

Drilling of roller supports

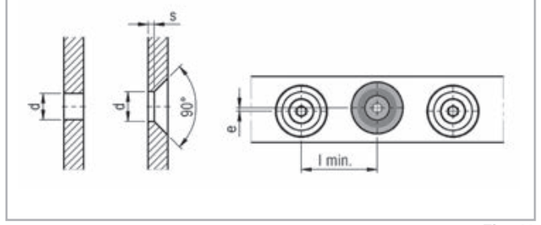


Fig. 40

Roller type	d (mm) Diameter of fixing screw hole	s (mm) Length of hole	e (mm) Hole alignment error	l_{min} (mm) recommended centre to centre distance
26	$5^{0}_{-0,1}$	1	0,2	22
30	$5^{0}_{-0,1}$	1	0,2	25
40	$6^{0}_{-0,1}$	1,5	0,4	34

Tab. 23

Lubrication and use of wipers

All sliders are supplied complete with wipers containing a synthetic felt soaked in lubricating oil, which release a thin lubricating film on the race-ways for long period of proper operation. The period of self-lubrication depends on conditions of use and level of environmental pollution.

In most normal conditions, the self-lubricating wipers can last up to 1000 km. They can be easily replaced with a replacement kit of 10 wipers. The rollers are lubricated for life with grease lithium soaps and with 2RS or 2Z lateral seals.

Correct lubrication is very important to ensure a long lifetime. For applications with high frequency is recommended to clean and re-grease the rail's raceways periodically every year or every 200,000 cycles ,depending on the operation environment.
We recommend using high pressure grease fat class NLGI2(ISO2137)

Kit code	Rail reference	Slider reference
KIT-KT-LA26	TEN26	CEN26
KIT-KT-LA30	TEN30	CEN30
KIT-KT-LA40	TEN40 TEX40 TES40	CEN40 CEX40 CES40

Tab. 24

Every kit is composed of 10 single wipers.

Sizing verification

After identifying the most appropriate positioning of rails and sliders, or eventually the single rollers, it is necessary to verify the proper sizing of the linear components. This both from a static point of view and in accordance to the expected life-time. For the static verification it is necessary to determine the load on each slider or roller, to identify the most stressed one, and then to verify the values of the safety coefficients, while comparing with the max. nominal load capacities. When the applied load is a combination of loads; radial and/or axial loads and moments, it is necessary to determine the value of each factor and verify that:

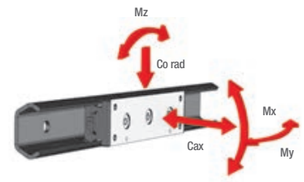
$$\frac{Pax}{Co\ ax} + \frac{Prad}{Co\ rad} + \frac{Mex}{Mx} + \frac{Mey}{My} + \frac{Mez}{Mz} <= \frac{1}{Z}$$

Fig. 41

Pax	=	axial load component
Prad	=	radial load component
Mex, Mey, Mez	=	applied moments
Co ax	=	axial load capacity
Co rad	=	radial load capacity
Mx, My, Mz	=	resistance capacity to moments
Z	=	safety coefficient > = 1

Fig. 42

LOAD DIRECTION



NOTE: Co rad, the radial load capacity for the sliders is to be understood only indirection shown on the slider body with two circular imprints.

It is recommended to apply the following values to safety coefficient Z:

Z	Application conditions
1-1,5	Accurate determination of static and dynamic loads. Precise assembly, tight structure.
1,5-2	Avarage conditions
2-3,5	Insufficient determination of applied loads. Vibrations, loose structure. Imprecise assembly. Unfavourable invironmental conditions.

Tab. 25

Theoretical lifetime calculation

The theoretical life of rollers and raceways should be determined by the conventional formula as indicated below in km of running. However, it should be kept in mind, that the value thus calculated must be taken with caution just for orientation. In fact, the real service life achieved can be very different from that calculated value, because the phenomena of wear and fatigue are caused by factors not easy to predetermine, for example:

- Inaccuracy in the estimation of the real loading condition
- Overloading for inaccuracies assembly
- Vibration, shock and dynamic pulse stress
- Raceways status of lubrication
- Thermal excursions
- Environmental pollution and dust
- Damage mounting
- Stroke length and frequency of movement

$$L\,(Km) = 100 \bullet \left(\frac{C}{P} \bullet \frac{fc}{fi} \bullet fh\right)^3$$

Fig. 43

C = Dynamic load coefficient of slider

P = The equivalent load applied on the most stressed slider

Fig. 44

fh	=	Coefficient depending on the actual stroke length. This factor takes into account applications with short stroke. With value 1 the stroke is superior to 2m, with shorter stroke the value is less, refer to “Coefficient fh” graphic.
fc	=	Coefficient depending on the number of sliders in the same rail passing the same raceway point. Refer to the table below for suggested values
fi	=	Coefficient taking into account operational ambient and level of correct lubrication of raceways

Fig. 45

Number of sliders	1	2	3	4
f_c	1	0.8	0.7	0.63

Tab. 26

The equivalent load applied on the most stressed slider = P , is determined by the formula:

$$P = Prad + \left(\frac{P_{ax}}{Co_{ax}} + \frac{Mex}{Mx} + \frac{Mey}{My} + \frac{Mez}{Mz}\right) \bullet Co\,rad$$

Fig. 46

Coefficient fh

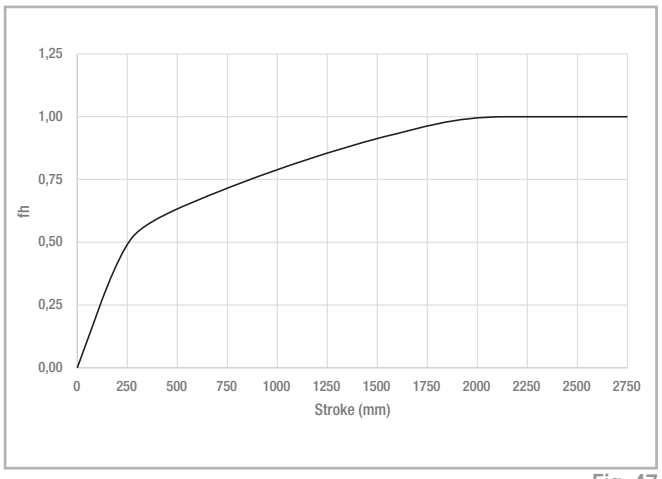


Fig. 47

The correction factors fc and fi applied to the theoretical calculation formula have the sole purpose of guiding the designer qualitatively on the influence in the lifetime estimation of the real application conditions without any pretense of precision. For more details please contact Rollon’s Technical department

fi	Application conditions
1-1.5	Good lubrication and wipers mounted – No impurities on raceways – Correct installation.
1.5-2	Normal dusty factory ambient, some vibrations, temperature changes, no wipers.
2-3.5	Poor Lubrication, dusty ambient, vibrations, high temperature changes, no wiper.

Tab. 27

ROLLON®
BY TIMKEN

O-Rail

Product explanation

“O-Rail - unique assembly possibilities

Fig. 1

The roller linear system O-Rail offers the maximum flexibility configuration due to the original shape of the guide with 3 raceways arranged at 90 ° to each other where on each of those can slide rollers R..43G series. Using a single guide, two, or more parallel guides, gives rise to a number of combinations capable of satisfying each specific need for linear motion and offering exceptional self-alignment capacity. O-Rail is constructed in high strength steel hardened with hardening treatments, for a further improvement of both performance and durability.

O-Rail is designed to be a strong and simple multitask linear system for larger handling and automation applications. It is an easy to assemble system, that offers smooth motion even on inaccurate surfaces.

FXRG series

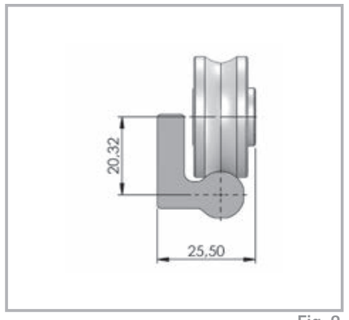


Fig. 2

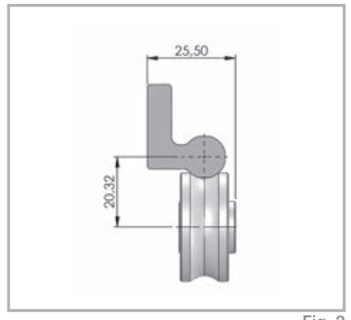


Fig. 3

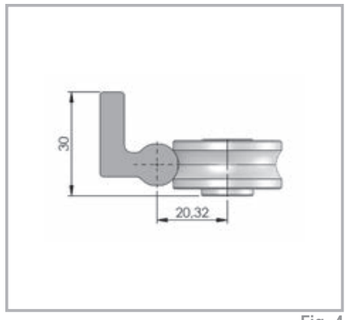


Fig. 4

General characteristics

New GEOMETRICAL DESIGN of the contact areas, based on Gothic arch raceways

- Superior sliding
- Very low friction
- Long lifetime
- Greater load capacity
- Very compact design

New rollers, double row bearings, with increased thickness of outer ring, gothic profile and finished raceways.

- Increased load capacity
- Increased lifetime
- Extremely low noise
- High speed
- Lubricated with low-temperature grease
- Temperature range -40 ° to + 130 ° c
- Neoprene lateral seals for dust protection

Self-aligning system when using two parallel rails, compensating large assembly inaccuracies on both longitudinal and transversal plane.

- allow for installation on non precise structures - welded carpentery or aluminium frame structures
- Do not require machined fixing surfaces for installation.
  Cost saving, as easy and fast assembly

Patented process ROLLON-NOX, to further improve the rail material and thermochemical hardening treatment of deep nitriding and post-oxidation black for an effective corrosion protection.

- Very high hardness
- Resistance to heavy loads
- Very low wear
- Effective corrosion protection
- Smooth black finish

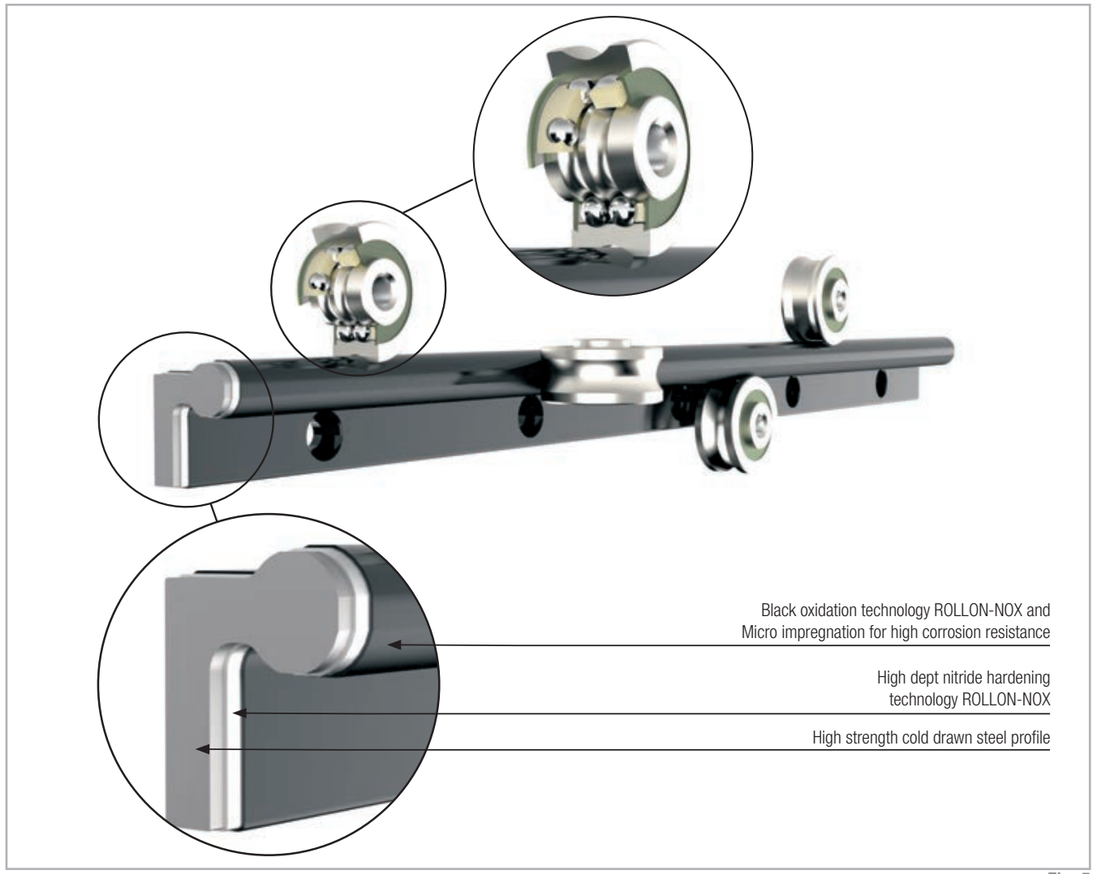


Fig. 5

Configurations

The FXRG allows a wide range of configurations when using two or more rails in parallel. Depending on required load and moment capacities/ direction more single rollers and standard sliders are used to obtain unique Self-aligning systems. Contact ROLLON for eventual support in dimensioning customized systems .

FXRG with guiding slider with limited rotational capacity

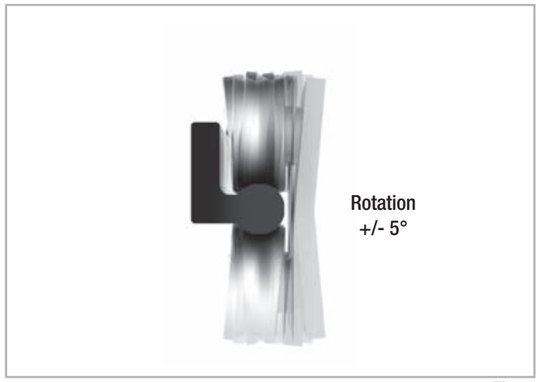


Fig. 6

Combination of two FXRG with resting load

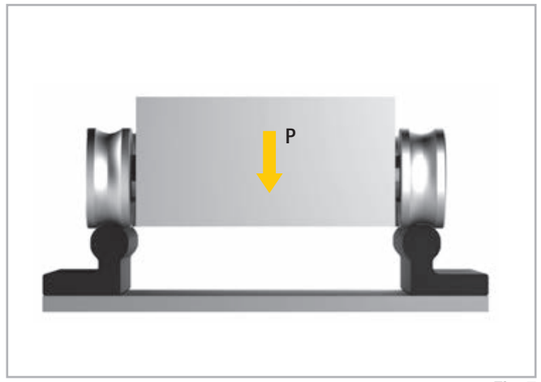


Fig. 7

Configuration with two parallel FXRG with self-aligning capacity

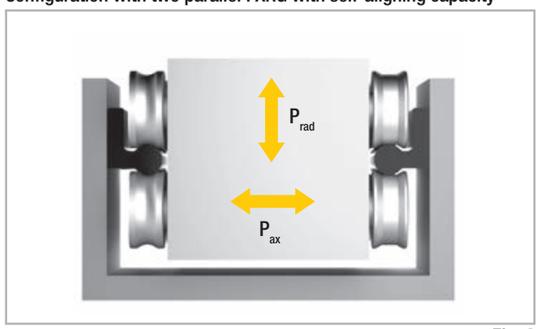


Fig. 8

Configuration with two FXRG to form a single rail with a slider allowing for high Mx moments

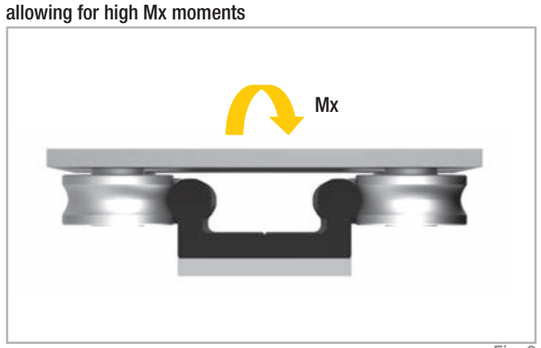


Fig. 9

Telescopic configuration

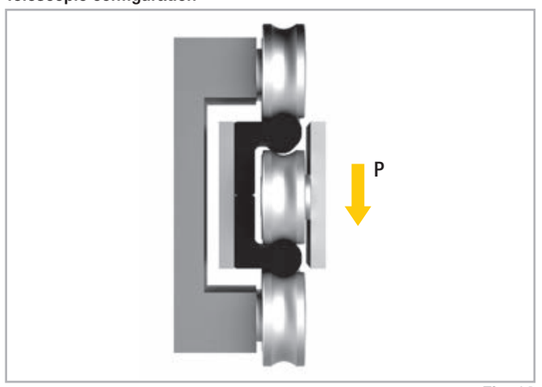


Fig. 10

Composed of two FXRG rails with rollers in between the rails fixed to mobile part and rollers on fixed structure running on outer raceways, providing a customized solutions for telescopic movements.

Configuration of two FXRG

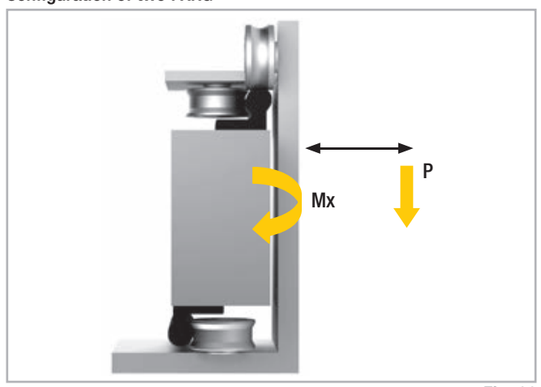


Fig. 11

With high cantilever load capacity, meanwhile Self-aligning.

Dimensions and load capacity

FXRG series

FXRG is a high precision cold drawn profile of high strength steel. After a high depth nitride hardening treatment the rails are oxidized, assuring high hardness and excellent corrosion resistance. The characteristic black color on the whole rail is the result of oxidation and subsequent process of micro-impregnation with oils and substances for improved smoothness and long life. The fixing holes are for standard M6 cylindrical low head screws, DIN 7984, with 80mm pitch .

Position of guiding roller - Concentric RCV43G on the three raceways

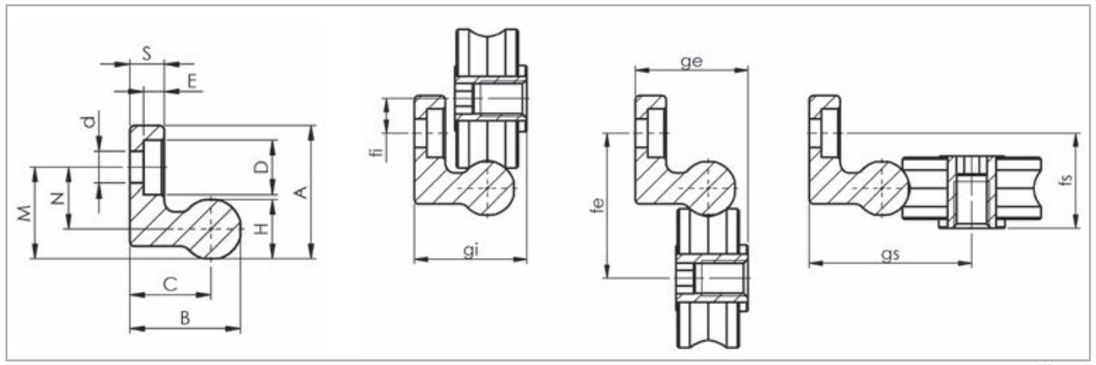


Fig. 12

Code	A (mm)	B (mm)	S (mm)	H (mm)	C (mm)	d (mm)	D (mm)	E (mm)	Screw type	M (mm)	N (mm)	Weight (g)
FXRG	27,02	22,52	7,00	12,04	16,50	6,50	11,00	4,20	M6 DIN 7984	18,52	12,50	2,48

Tab. 1

Axial movement of floating roller R.P43G with FXRG

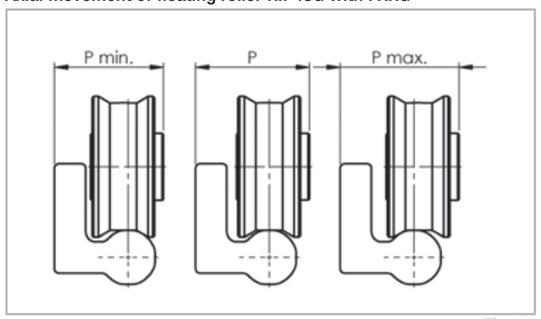


Fig. 13

Rotation of guiding roller R.V43G on FXRG

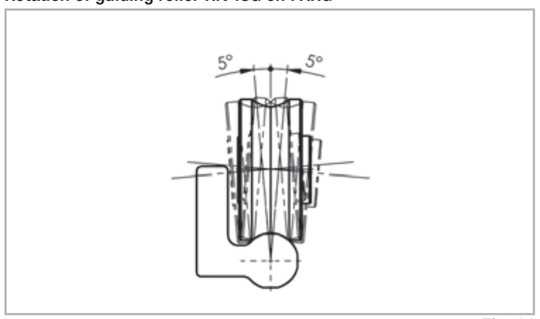


Fig. 14

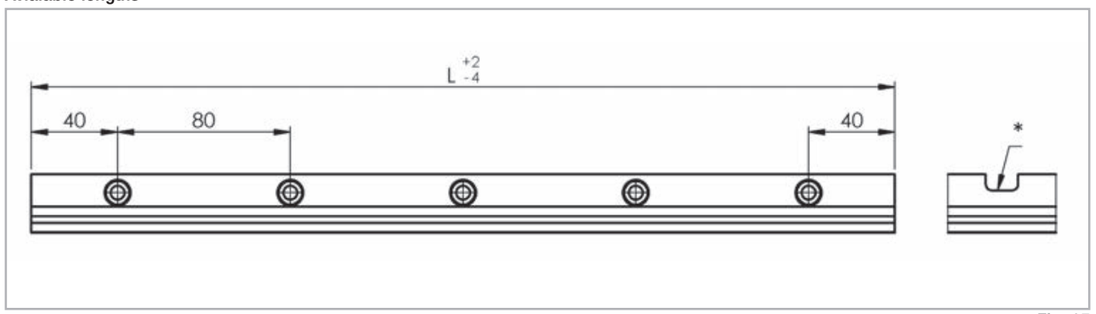
Code	P (mm)	movement	P_{min} (mm)	P_{max} (mm)
FXRG	25,50	+/-1	24,50	26,50

Tab. 2

fi (mm)	gi (mm)	fe (mm)	ge (mm)	fs (mm)	gs (mm)
7,82	25,50	32,82	25,50	21,50	36,82

Tab. 3

Avialable lengths



*Version FXRG-...-C with additional slot

Fig. 15

Dimensions from 400 mm to 2000 mm

Rail codes	Length L (mm)																						
	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	1920	2000
FXRG				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

• Available in stock

Tab. 4

Dimensions from 2080 mm to 4000 mm

Rail codes	Length L (mm)																							
	2080	2160	2240	2320	2400	2480	2560	2640	2720	2800	2880	2960	3040	3120	3200	3280	3360	3440	3520	3600	3680	3760	3840	3920	4000
FXRG	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

• Available in stock

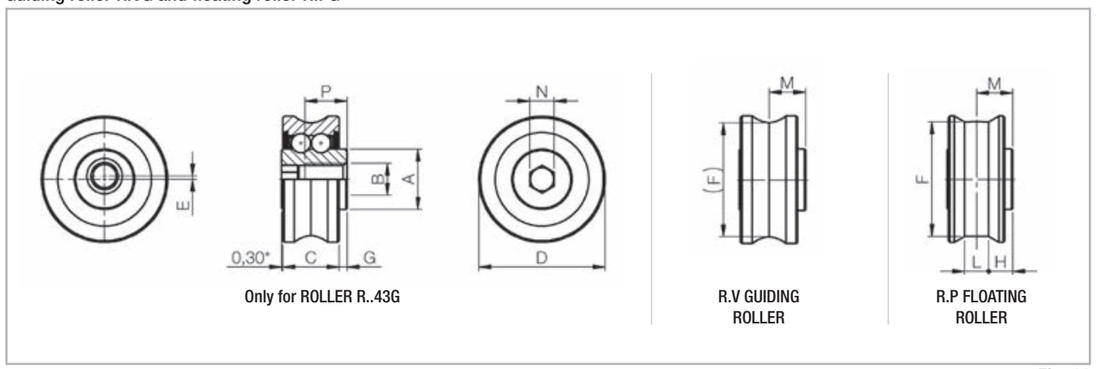
Tab. 5

Order codes	Version	Characteristics
FXRG-1040	BASIC	Cold drawn profile with high depth nitrade hardening “ROLLON-NOX”, oxidation with micro oil impregnation. Ends are cut to size after treatments and sprayed with protective black paint.

Tab. 6

Rollers for FXRG

Guiding roller R.VG and floating roller R.PG



Only for ROLLER R..43G

R.V GUIDING ROLLER

R.P FLOATING ROLLER

Fig. 16

Roller code	Type	Versions	E (mm)	D (mm)	C (mm)	M (mm)	G (mm)	N chi-ave	A (mm)	B (mm)	P (mm)	F (mm)	L (mm)	H (mm)	Weight (g)	Dynamic coefficient C (N)	Load capacity	
																	Co$_{rad}$ (N)	Co$_{ax}$ (N)
RCV43G	Concentric	GUIDING	-	31,4	14	9	2	6	15	M8	10,5	-	-	-	50	7600	4000	1190
RCP43G		FLOATING		31,5								28,59	6	6		7600	4000	0
REV43G	Eccentric	GUIDING	0,8	31,4								-	-	-		7600	4000	1190
REP43G		FLOATING		31,5								28,59	6	6		7600	4000	0

Tab. 7

Self-aligning combinations

When FXRG rails are used in parallel, the use of floating rollers R.P43G and guiding rollers R.V43G provides a Self-aligning system, capable of compensating greate inaccuracies of structure or assembly errors. The guiding rollers R.V43G in contact with the FXRG’s gothic raceways assure precise guiding while compensating misalignment, as they are able to rotate slightly around the longitudinal axis of about +/- 5 °. Combined with floating rollers R.P43G on a parallel rail, such system can compensate an axial displacement of +/- 1 mm , in addition to a max. rotation of +/- 5 °.

The combination effect of both rotation and lateral movement, allow two parallel rails to compensate for misalignment on both a) and b) level.

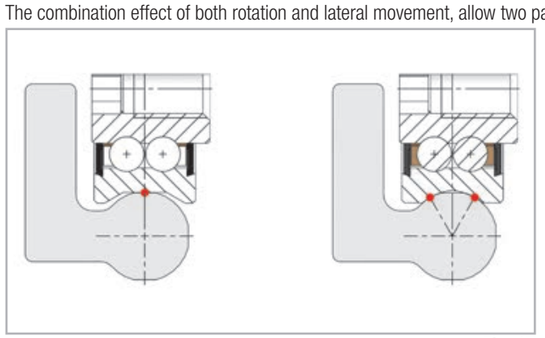


Fig. 17

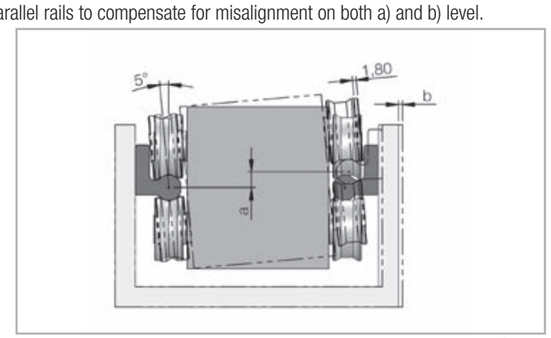


Fig. 18

Mounting configurations

The concentric rollers should be positioned in the direction of radial loading. Warning! A single slider configuration will rotate +/- 5° around the longitudinal axis of a single FXRG rail, not able to take any Mx moments.

Single rail with 3 rollers slider

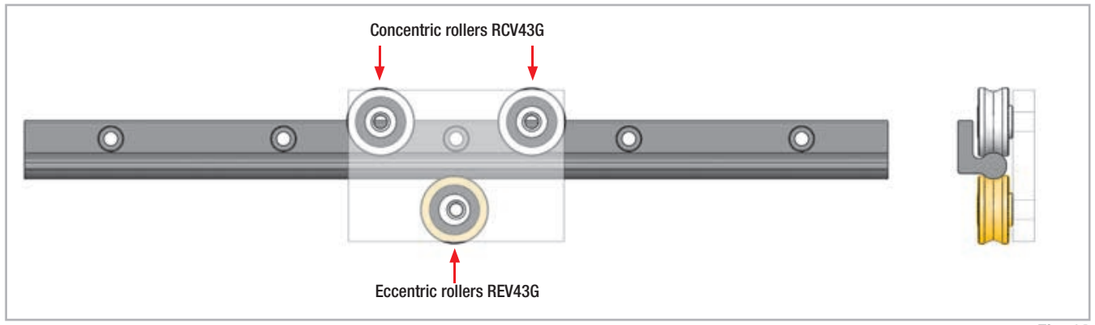


Fig. 19

It is recommended, when more than two rollers are on the same track with max. radial load, to use only two concentric rollers (as from example figure). The others should be eccentric. For cases with a wider distance between concentric rollers, please contact ROLLON's Technical departement for dimensioning.

Single rail with 5 rollers slider

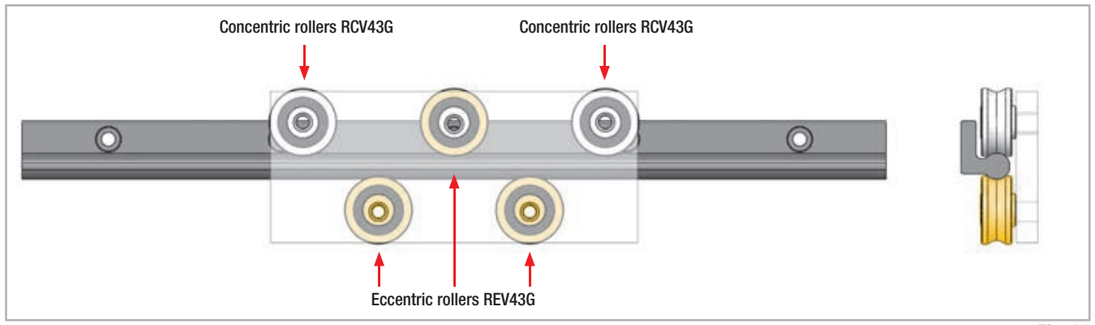


Fig. 20

Double rail with slider for high overturning moments

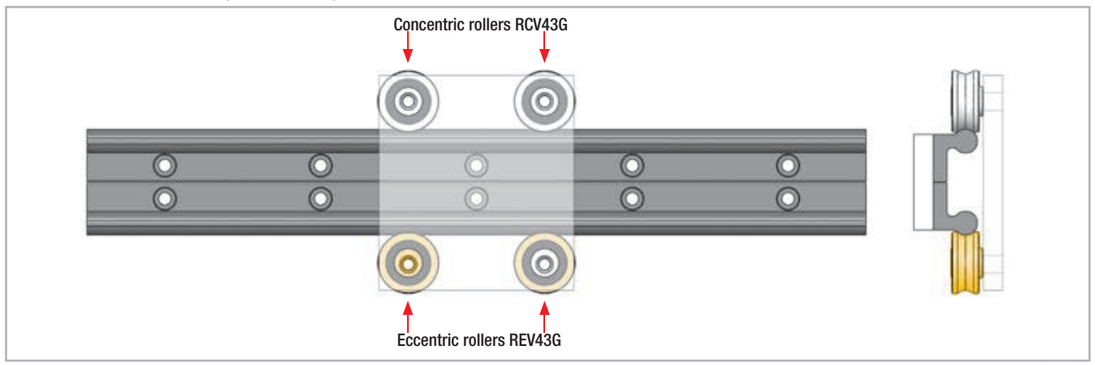


Fig. 21

The rollers need to be positioned on the rail in numbers and directions according to the prevailing load. It is always preferable to orient the rollers so that the prevailing load acts radially, due to higher radial load capacity.

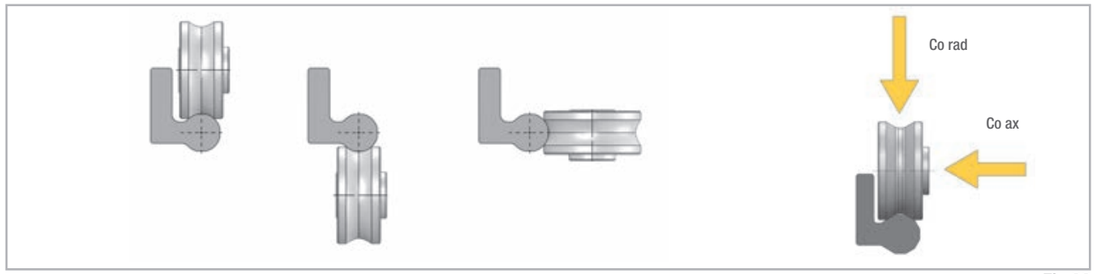
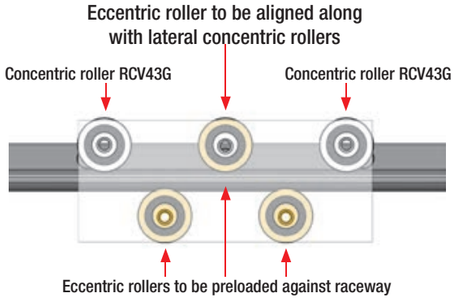


Fig.22

The rollers must be fixed on a metal surface not yielding, perfectly flat and with its fixing screws, applying a locking torque of 22 Nm.
The tightening of the fixing-screw is to be performed, while holding the roller firm with an Allen-wrench, present on the opposite side of the fixing thread. In case eccentric rollers, it is advisable to use a cup-spring washer under the screw-head to obtain a firm movement, able to maintain the roller "firm" against the surface and facilitate minor adjustment of eccentric roller, before the final locking.

The preload adjustment can also be carried out by checking the force Fi of insertion of the movable part, in which the rollers are fixed into the rail. In general for a good Fi adjustment, the inserting friction must be between 2-10 N. To increase or decrease the Fi act on eccentric rollers, opposite to the load direction (see figure below).



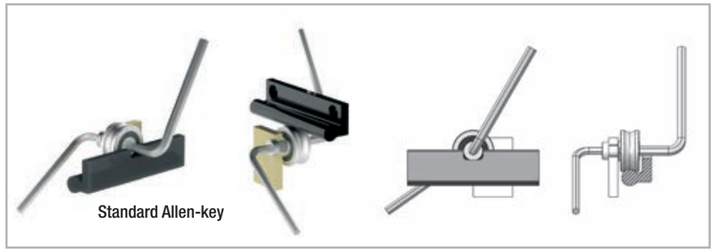


Fig. 23

In case required to have eccentric rollers on the internal rail side, it is necessary to include optional accesses, to allow Allen-key to reach the roller. Otherwise the adjustment can take place outside of the rail.

Fig. 24

ROLLON®
BY TIMKEN

Telerace

Product explanation

Telerace roller telescopic slides

Fig. 1

The Telerace family is composed of telescopic roller slides made of sheet steel of particular precision finish, fully hardened using high depth nitride hardened rails with black oxidation. This treatment assures long lifetime without wear and a good corrosion resistance. Telerace roller slides are suitable for harsh ambient environment, since the rollers are much less sensitive than ball-cage slides. TLR and TLQ series represent the high performance telescopic slides. TLN and TQN offer many of the technological advantages with a more simplified construction, TLAX and TQAX are completely made of stainless steel. The listed load capacities are per pair of slides, with the load centred. In case the load is not centred, the load capacity is reduced.

TLR-TLQ series

TLR and TLQ series represent the high performance telescopic slides. Top features like hardened and honed raceways, strong double row ball bearings, wipers with incorporated pre-oiled felt and robust rubber stoppers make them ideal for all kinds of industrial high frequency applications, including variable and vertical stroke.

TLN-TQN series

The roller telescopic slides TLN and TQN offer many of the technological advantages from the top-range slides, like hardened raceways and robust rubber stoppers, but with a more simplified construction to offer a range of cost-effective roller telescopic slides with good load capacities for industrial applications. All models are available in K-version, for higher corrosion resistance, and with other optional surfaces treatments.

TLAX-TQAX series

The complete INOX slides TLAX and TQAX are available in X-version with rails and intermediate S-element electro-polished for very high corrosion resistance, making them ideal for most critical outdoor applications.

Industrial automation

Telerace slides are especially recommended for high frequency applications, where long service requirements and low maintenance are necessary. Roller telescopic slides are superior for motorized automation with or without variable stroke-cycles, to eliminate the typical problem of ball cage creeping that subsequently can cause serious motor jamming-problems, when increased motor power is instantly required to reposition the ball cage. The materials and surface treatments assure high corrosion resistance, and with the additional treatments Telerace slides become suitable for outdoor applications or very humid ambient.

The most important characteristics:

- High load capacity
- Limited flexion
- Suitable for harsh enviromental conditions
- Corrosion resistance
- Strong stoppers for smooth movement
- Compactness
- Smooth and friction-less extension
- Suitable for continuous movement
- Long life without wear

TLR

TLR series provides excellent smooth and play-free running performance, along with high load capacities and low flexion. Good cleaning, proper lubrication and reduced maintenance thanks to pre-oiled felts on the strong wipers. When TLR series slides are used in pairs, they offer the possibility to absorb minor misalignment errors.

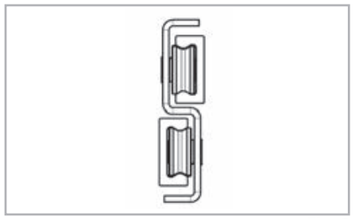


Fig. 2

TLQ

TLQ series are very compact slides with a square cross section that offer good load capacities, both axial and radial, and are particularly suitable for vertical applications, thanks to their compactness and light weight. TLQ series is composed of two single rails fixed together to form a rigid H-profile as an intermediate element. As TLR series, TLQ series features double row bearings. Possible customised stroke.

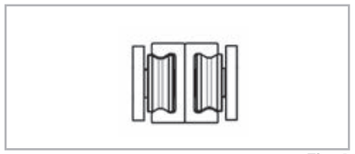


Fig. 3

TLN

TLN series features an innovative constructive design that combines cost-effective rails with advanced technology. The hardened rails assembled to a rigid intermediate S-shaped element provide excellent smooth and play-free running performance, along with high load capacities and low flexion. Also available the HP version with additional rollers to increase the load capacity, about 40-50% more, with no change in external dimensions.

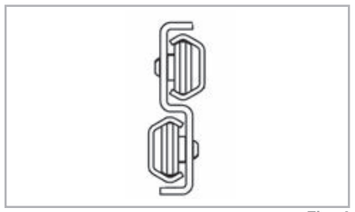


Fig. 4

TQN

TQN series are very compact slides with a square cross section that offer good load capacities, both axial and radial, and are particularly suitable for vertical applications, thanks to their compactness and light weight. TQN series is composed of two single rails fixed together to form a rigid H-profile as an intermediate element. As TLN series, TQN series features single row bearings. Possible customised stroke.

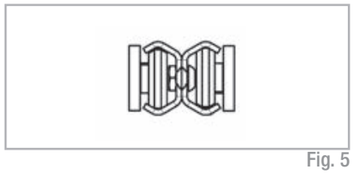


Fig. 5

TLAX

TLAX series are made of AISI 304 rails and AISI 404 hardened steel rollers, with 2RS seals and lubricated for life with grease for longevity and low temperature applications. TLAX is ideal for medical, pharmaceutical, chemical, medical industries or maritime ambient. For very severe environmental conditions, TLAX can be supplied in X-version, which provides an improved corrosion resistance. Customized versions with longer extension, length and stroke are available upon request.

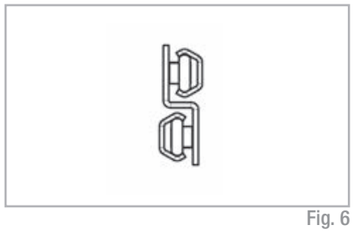


Fig. 6

TQAX

TQAX series are very compact stainless-steel slides with a square cross section that offer good load capacities, both axial and radial, and are particularly suitable for vertical applications, thanks to their compactness and light weight. TQAX series is composed of two single rails fixed together to form a rigid H-profile as an intermediate element. Rails are in AISI 304 and single row bearings in hardened AISI 440 with 2RS seals and lifetime lubricated.

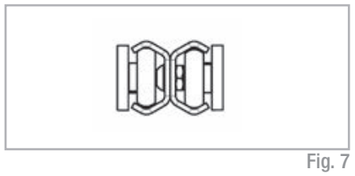


Fig. 7

TLR-TLQ series

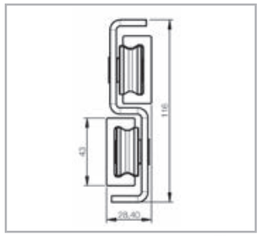


Fig. 8

TLRD43 - TLRS43

Load capacity p. TLR-44

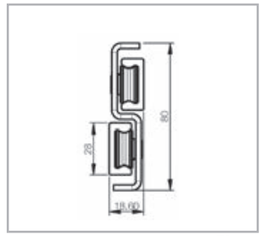


Fig. 9

TLRD28 - TLRS28

Load capacity p. TLR-45

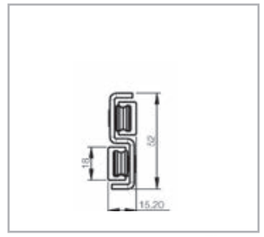


Fig. 10

TLRD18 - TLRS18

Load capacity p. TLR-44

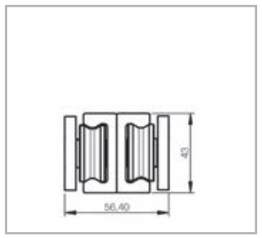


Fig. 11

TLQ43

Load capacity p. TLR-55

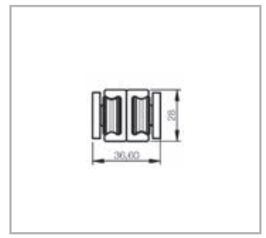


Fig. 12

TLQ28

Load capacity p. TLR-55

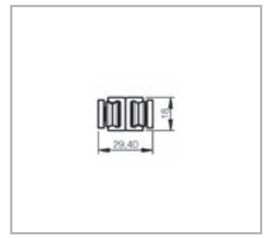


Fig. 13

TLQ18FF

Load capacity p. TLR-54

TLN-TQN series

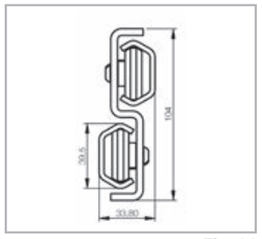


Fig. 14

TLND40 - TLNS40

Load capacity p. TLR-48

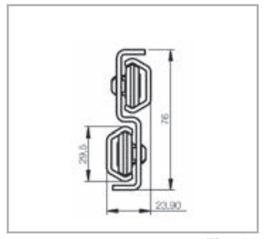


Fig. 15

TLND30 - TLNS30

Load capacity p. TLR-48

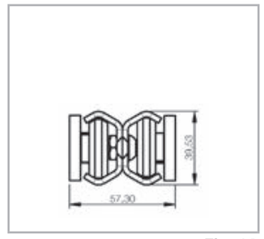


Fig. 16

TQN40

Load capacity p. TLR-58

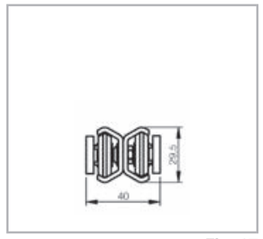


Fig. 17

TQN30

Load capacity p. TLR-58

TLAX-TQAX series

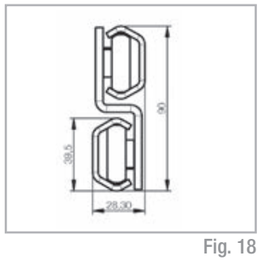


Fig. 18

TLAX40

Load capacity p. TLR-51

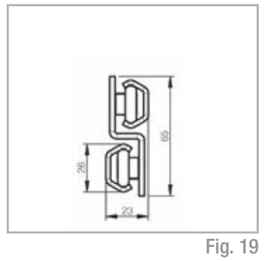


Fig. 19

TLAX26

Load capacity p. TLR-51

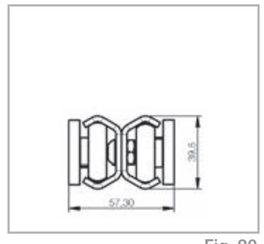


Fig. 20

TQAX40

Load capacity p. TLR-61

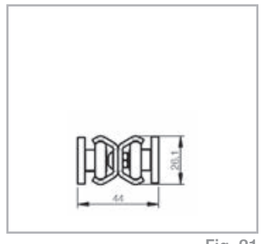


Fig. 21

TQAX26

Load capacity p. TLR-61

General characteristics

TLR-TLQ series

Cold drawn steel rails with Patented ROLLON-NOX treatment for high depth nitride hardening and with black oxidation, assuring long lifetime without wear and a good corrosion resistance.

- **High hardness**
- **Durable for high load/frequency**
- **Long life**
- **Good corrosion resistance**
  also on the raceways, tested for 120 hours in salt fog.

Strong double row ball-bearings, 2RS seals and lubricated for life.

- **Eccentric rollers for preload**
- **setting for smooth play-free running.**

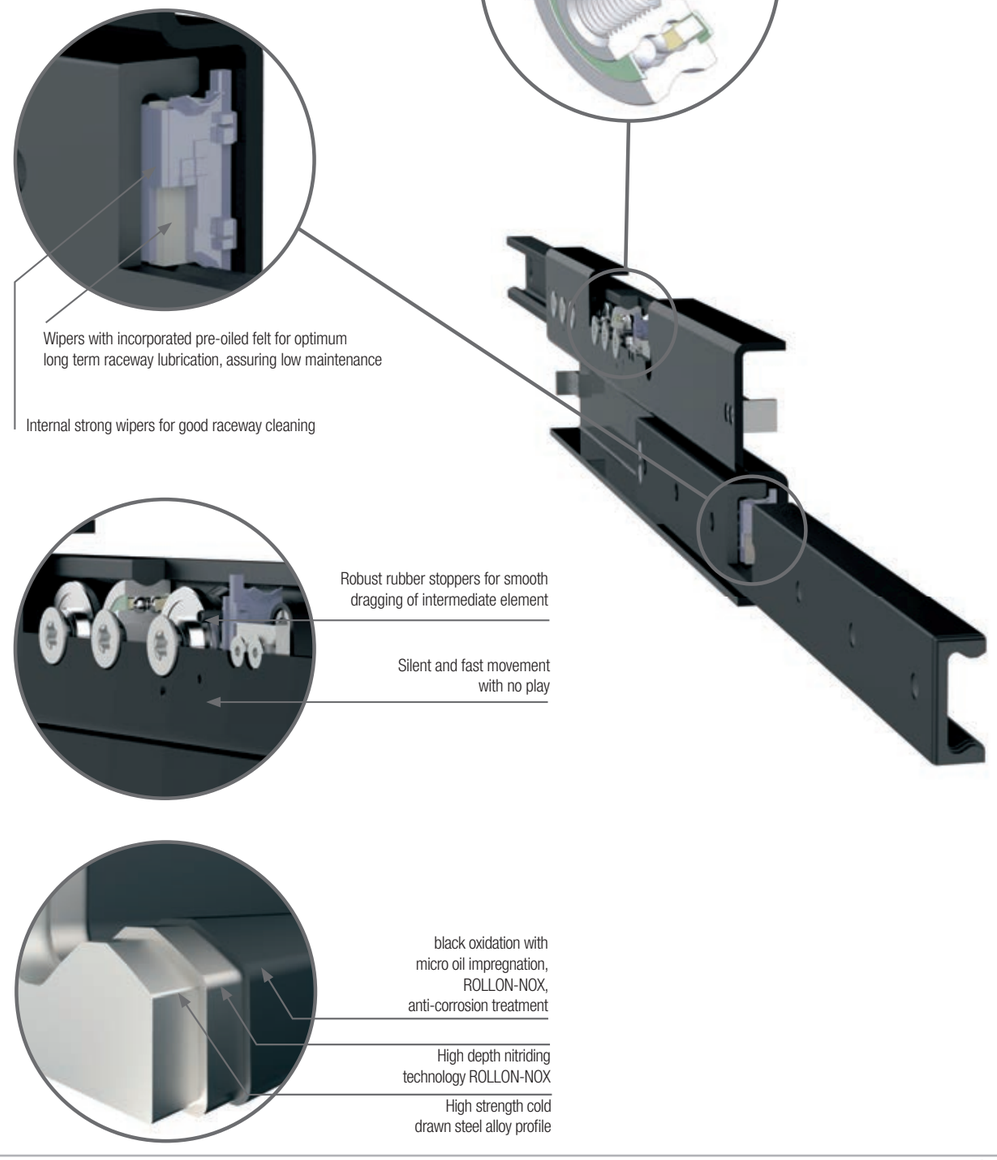


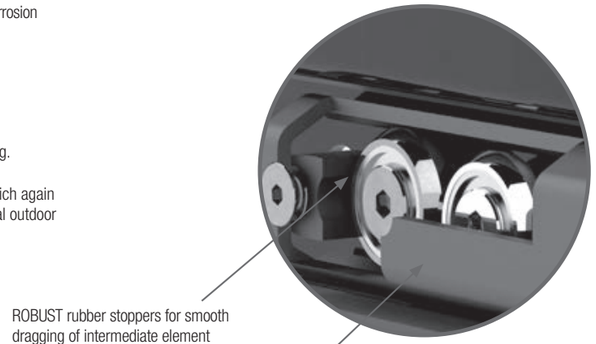
Fig. 22

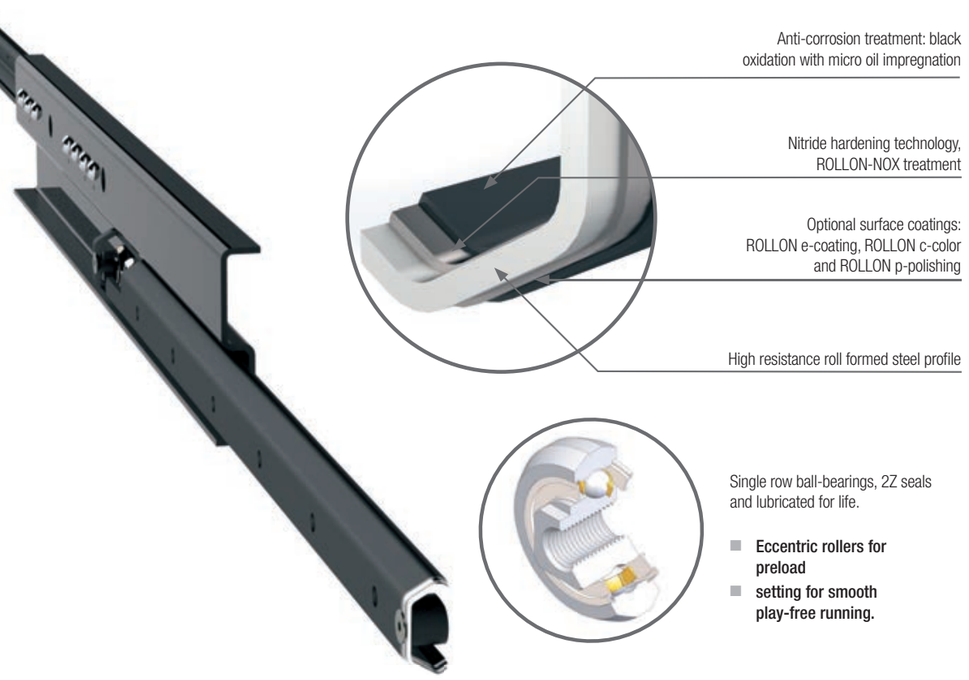
TLN-TQN series

Roll formed steel rails, nitride hardened and post black oxidation, patented ROLLON-NOX treatment, for efficient corrosion protection.

- **Hardened raceways**
- **DURABLE FOR HIGH LOAD/FREQUENCY**
- **GOOD LIFETIME**
- **Good corrosion resistance**, also on the raceways, tested for 120hours in salty fog.

Available also in complete INOX AISI304, TLAX,TQAX, which again can be offered in Electro-Polished version for most critical outdoor applications.





Single row ball-bearings, 2Z seals and lubricated for life.

- **Eccentric rollers for preload**
- **setting for smooth play-free running.**

OPTIONAL
SURFACE TREATMENT

ROLLON e-coating: glossy black epoxy electro coating for high corrosion resistance, tested for 700 hours in salt fog.

ROLLON c-color: powder coating in RAL-colors for customized coloured rails with high corrosion resistance.

Fig. 23

Dimensions and load capacity

Roller telescopic slides TLR series

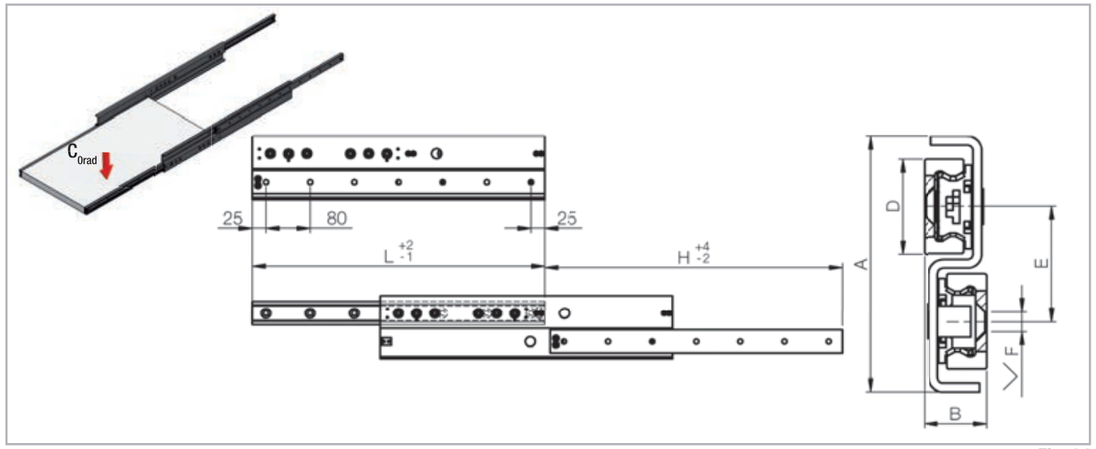
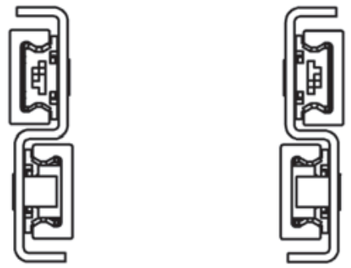
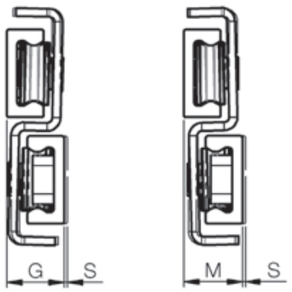


Fig. 24



Left side VERSION TLRS — Right side VERSION TLRD

Fig. 25



Self-aligning VERSION with floating rollers TLR..A

Fig. 26

Code	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)	G (mm)	M (mm)	S (mm)
TLR18	52	15,2	18	25	Ø 4,5 for screw M4 DIN7991	14,7	15,7	1
TLR28	80	18,6	28	35	Ø 5,5 for screw M5 DIN7991	17,2	19	1,8
TLR43	116	28,4	43	52	Ø 8,5 for screw M8 DIN7991	26,8	30	3,2

Tab. 1

Self-aligning capability

When TLR slides are used in pairs, they offer the possibility to absorb minor structural errors or non-precise installation, which otherwise would much increase the required force for moving the mobile part, in both extending and closing direction. Such “binding-problems” for installation on non precise structures, common for ball-cage slides and can be eliminated/ much reduced with a pair of self-aligning TLR..A slides. A problem of heavy binding will consequently much reduce load capacity and expected life-time. The self-aligning capacity is obtained by having a combination of floating and guiding rollers in the TLR..A. i.e. allowing for a minor rotation of the rails whilst maintaining the preload in both upper and lower rails.
The suffix A in TLR..A, indicates “Aligning”. To be noted that the rotation ex. of the TLR28A slide hereby changes the nominal value of 18,6mm to 17,2mmm (S min) – 19,0mm (S max) while compensating dimensional errors on mobile structures or distance errors between the two lateral sides of fixed structures, for which the upper rails are fixed to. The TLR..A is in general always used as a pair with a standard TLR, to assure good lateral stability.

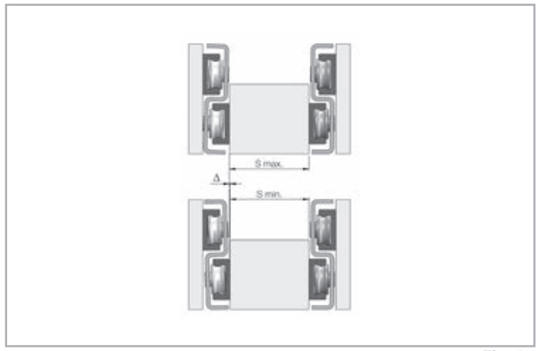


Fig. 27

Fig. 27

Order code	Version	Characteristics
TLRD43-1010	BASIC	Cold drawn steel rails with patented “ROLLON-NOX”; high depth nitride hardening and black oxidation treatment. The rails are cut to size after treatment, so the rail ends are protected by protective spray. The rollers are core hardened steel, while the intermediate steel S-element is protected with black epoxy electro coating - “ROLLON e-coating” .
TLRD43-1010-Q	Q	As a basic TLR product but with additional black “ROLLON e-coating” on the rails, for high corrosion resistance (min 700 hours resistance in salt fog) . The rail has no ROLLON e-coating on the raceway contact area with the rollers, as masked before the treatment. The raceways are anyhow with standard oxidation while the wipers with incorporated pre-oiled felt assure lubrication and corrosion protection of raceways.
TLRD43-1010-K	K	As the version Q but with the rollers made in stainless steel AISI440C

Tab. 2

Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLR.18.-290	290	290	731	710	0,9
TLR.18.-370	370	370	969	940	1,2
TLR.18.-450	450	450	1.115	1082	1,4
TLR.18.-530	530	530	1.214	1178	1,6
TLR.18.-610	610	610	1.286	1246	1,9
TLR.18.-690	690	690	1.324	1284	2,1
TLR.18.-770	770	770	1.344	1304	2,3

Tab. 3

Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLR.28.-370	370	380	1.578	1.596	2,1
TLR.28.-450	450	460	1.860	1.882	2,5
TLR.28.-530	530	540	2.045	2.068	2,9
TLR.28.-610	610	620	2.711	2.744	3,3
TLR.28.-690	690	700	2.933	2.968	3,7
TLR.28.-770	770	780	3.084	3.120	4,1
TLR.28.-850	850	860	3.180	3.218	4,5
TLR.28.-930	930	940	3.259	3.264	4,9
TLR.28.-1010	1010	1020	3.325	3.038	5,3
TLR.28.-1090	1090	1100	3.381	2.842	5,7
TLR.28.-1170	1170	1180	3.428	2.670	6,1
TLR.28.-1250	1250	1260	3.469	2.516	6,5
TLR.28.-1330	1330	1340	3.505	2.380	6,9
TLR.28.-1410	1410	1420	3.537	2.258	7,3
TLR.28.-1490	1490	1500	3.565	2.148	7,7

Tab. 4

Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLR.43.-530	530	540	4.075	4.156	6,4
TLR.43.-610	610	620	4.241	4.326	7,3
TLR.43.-690	690	700	6.155	6.278	8,2
TLR.43.-770	770	780	6.554	6.686	9,1
TLR.43.-850	850	860	6.870	7.008	10
TLR.43.-930	930	940	7.127	7.270	10,9
TLR.43.-1010	1010	1020	7.341	7.488	11,8
TLR.43.-1090	1090	1100	7.520	7.672	12,7
TLR.43.-1170	1170	1180	7.674	7.568	13,6
TLR.43.-1250	1250	1260	7.807	7.148	14,5
TLR.43.-1330	1330	1340	7.922	6.772	15,4
TLR.43.-1410	1410	1420	8.024	6.434	16,3
TLR.43.-1490	1490	1500	8.115	6.130	17,2
TLR.43.-1570	1570	1580	8.195	5.850	18,1
TLR.43.-1650	1650	1660	8.268	5.596	19
TLR.43.-1730	1730	1740	8.333	5.364	19,9
TLR.43.-1810	1810	1820	8.393	5.150	20,8
TLR.43.-1890	1890	1900	8.447	4.952	21,7
TLR.43.-1970	1970	1980	8.497	4.768	22,6

Tab. 5

Roller telescopic slides TLQ series

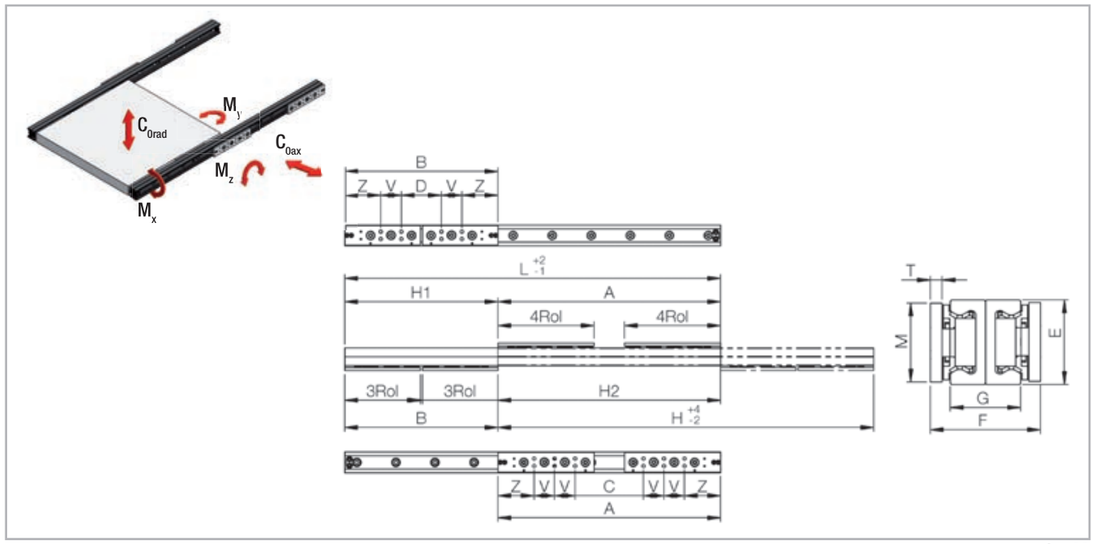


Fig. 28

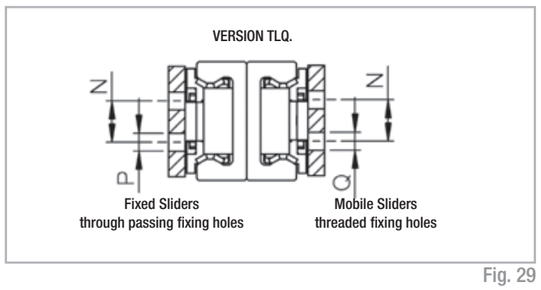


Fig. 29

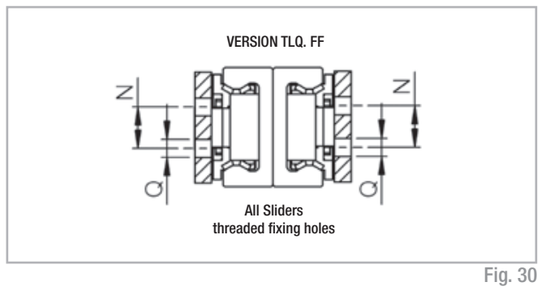


Fig. 30

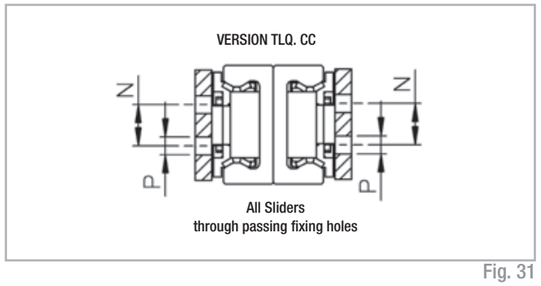


Fig. 31

Code	E (mm)	F (mm)	G (mm)	M (mm)	T (mm)	N (mm)	P (mm)	Q (mm)	Sliders Type	Sliders Length L (mm)	Z (mm)	V (mm)	Weight (kg/m)	Weight 4 sliders (Kg)
TLQ18FF	18	29,4	19	15	3	8	-	M4	3Rol	87	48	21	1,4	0,4
TLQ28..	28	36,6	23,9	25	4	10	Ø5,5 for screw M5 DIN912	M5	3Rol	111,5	58	29	2,5	1,5
									4Rol	140,5				
TLQ43..	43	56,4	36	40	6	15	Ø6,5 for screw M6 DIN912	M6	3Rol	155	74	42	6	2,4
									4Rol	197				

Tab. 6

Customized stroke

TLQ slides offer the unique possibility to easily customize the actual stroke H to individual needs. This is obtained by repositioning the slider distance “A” for “Fixed sliders” and distance “B” for “Mobile sliders” , with different distances than indicated on this page. Just keep in mind that distance A is always bigger than B, to maximize the load capacity. By reducing distances between A and B the total stroke increases but the Load capacity decreases, conversely increasing the distance between A and B the total stroke is reduced, while the load capacity increases. Contact ROLLON’s Technical department for load capacities according to customized stroke.

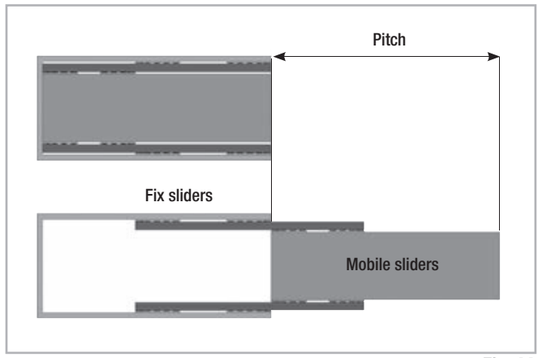


Fig. 32

Installation notes for radial loads

The slide must be installed with the mark “Up-side” facing upwards, when considering RADIAL loads. The sliders attached to structure are marked “Fix-sliders” while the sliders mounted to mobile part are marked “Mobile sliders”. When used in pairs, the same slide can be installed left or right, just by rotating the slide, keeping the mark “Up-side” facing upwards, for radial loads.

Order code	Version	Characteristics
TLQ43-1010	BASIC	Cold drawn steel rails with patented “ROLLON-NOX” ; high depth nitride hardening and black oxidation treatment. The rails are cut to size after treatment, so the rail ends are protected by protective spray. The rollers are core hardened steel.
TLQ43-1010-Q	Q	As a basic TLQ product but with additional black “ROLLON e-coating” on the rails, for high corrosion resistance (min 700 hours resistance in salt fog). The rail has no ROLLON e-coating on the raceway contact area with the rollers, as masked before the treatment. The raceways are anyhow with standard oxidation while the wipers with incorporated pre-oiled felt assure lubrication and corrosion protection of raceways.

Tab. 7

Code	L (mm)	H (mm)	Fix sliders (mm) A (mm)	Fix sliders (mm) C (mm)	Fix sliders (mm) H1 (mm)	Mobile sliders (mm) B (mm)	Mobile sliders (mm) D (mm)	Mobile sliders (mm) H2 (mm)	Load capacity and moments for a pair of rails: Dynamic coefficient C (N)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TLQ18FF-370	370	370	185	47	185	185	47	185	725	702	350	6	218	94
TLQ18FF-450	450	450	270	132	180	180	42	270	1159	946	426	6	202	86
TLQ18FF-530	530	530	318	180	212	212	74	318	1.267	828	374	6	268	120
TLQ18FF-610	610	610	366	228	244	244	106	366	1.343	738	332	6	268	120
TLQ18FF-690	690	690	414	276	276	276	138	414	1.400	664	300	6	268	120
TLQ18FF-770	770	770	462	324	308	308	170	462	1.445	604	272	6	268	120
Slider type			All sliders type 3Rol			All sliders type 3Rol								

Tab. 8

* The value Mx refers to a single rail

Code	L (mm)	H (mm)	Fix sliders (mm)			Mobile sliders (mm)			Load capacity and moments for a pair of rails					
			A (mm)	C (mm)	H1 (mm)	B (mm)	D (mm)	H2 (mm)	Dynamic coefficient C (N)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TLQ28..-450	450	450	227	53	223	223	49	227	602	928	464	18	192	256
TLQ28..-530	530	530	307	133	223	223	49	307	1138	1754	876	18	192	256
TLQ28..-610	610	610	360	128	250	250	76	360	1335	2058	808	18	256	342
TLQ28..-690	690	690	408	176	282	282	108	408	1458	1916	732	18	316	444
TLQ28..-770	770	770	456	224	314	314	140	456	1552	1754	670	18	316	546
TLQ28..-850	850	850	504	272	346	346	172	504	1626	1616	618	18	316	576
TLQ28..-930	930	930	552	320	378	378	204	552	1687	1500	572	18	316	576
TLQ28..-1010	1010	1010	600	368	410	410	236	600	1737	1398	534	18	316	576
TLQ28..-1090	1090	1090	648	416	442	442	268	648	1779	1310	500	18	316	576
TLQ28..-1170	1170	1170	696	464	474	474	300	696	1814	1232	470	18	316	576
TLQ28..-1250	1250	1250	744	512	506	506	332	744	1845	1162	444	18	316	576
TLQ28..-1330	1330	1330	792	560	538	538	364	792	1872	1100	420	18	316	576
TLQ28..-1410	1410	1410	840	608	570	570	396	840	1896	1044	400	18	316	576
TLQ28..-1490	1490	1490	888	656	602	602	428	888	1917	994	380	18	316	576
Slider type			Length 450 e 530 type 3RoI from Length 610 type 4RoI			All sliders type 3RoI								

Tab. 9

* The value Mx refers to a single rail

Code	L (mm)	H (mm)	Fix sliders (mm)			Mobile sliders (mm)			Load capacity and moments for a pair of rails					
			A (mm)	C (mm)	H1 (mm)	B (mm)	D (mm)	H2 (mm)	Dynamic coefficient C (N)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TLQ43..-610	610	600	310	78	300	310	78	300	1529	2228	1114	64	648	864
TLQ43..-690	690	690	374	142	316	316	84	374	2326	3390	1694	64	680	906
TLQ43..-770	770	770	456	140	314	314	82	456	3052	4448	2068	64	668	892
TLQ43..-850	850	850	504	188	346	346	114	504	3305	4816	1916	64	842	1122
TLQ43..-930	930	930	552	236	378	378	146	552	3509	4978	1784	64	1014	1352
TLQ43..-1010	1010	1010	600	284	410	410	178	600	3676	4656	1668	64	1036	1584
TLQ43..-1090	1090	1090	648	332	442	442	210	648	3816	4374	1568	64	1036	1814
TLQ43..-1170	1170	1170	696	380	474	474	242	696	3935	4126	1478	64	1036	2044
TLQ43..-1250	1250	1250	744	428	506	506	274	744	4037	3902	1398	64	1036	2274
TLQ43..-1330	1330	1330	792	476	538	538	306	792	4126	3702	1326	64	1036	2504
TLQ43..-1410	1410	1410	840	524	570	570	338	840	4204	3522	1262	64	1036	2736
TLQ43..-1490	1490	1490	888	572	602	602	370	888	4272	3358	1204	64	1036	2892
TLQ43..-1570	1570	1570	936	620	634	634	402	936	4334	3210	1150	64	1036	2892
TLQ43..-1650	1650	1650	984	668	666	666	434	984	4389	3072	1102	64	1036	2892
TLQ43..-1730	1730	1730	1032	716	698	698	466	1032	4438	2948	1056	64	1036	2892
TLQ43..-1810	1810	1810	1080	764	730	730	498	1080	4483	2832	1014	64	1036	2892
TLQ43..-1890	1890	1890	1128	812	762	762	530	1128	4524	2726	976	64	1036	2892
TLQ43..-1970	1970	1970	1176	860	794	794	562	1176	4561	2626	940	64	1036	2892
Slider type			Length 610 e 690 type 3RoI from Length 770 type 4RoI			All sliders type 3RoI								

Tab.10

* The value Mx refers to a single rail

Roller telescopic slides TLN series

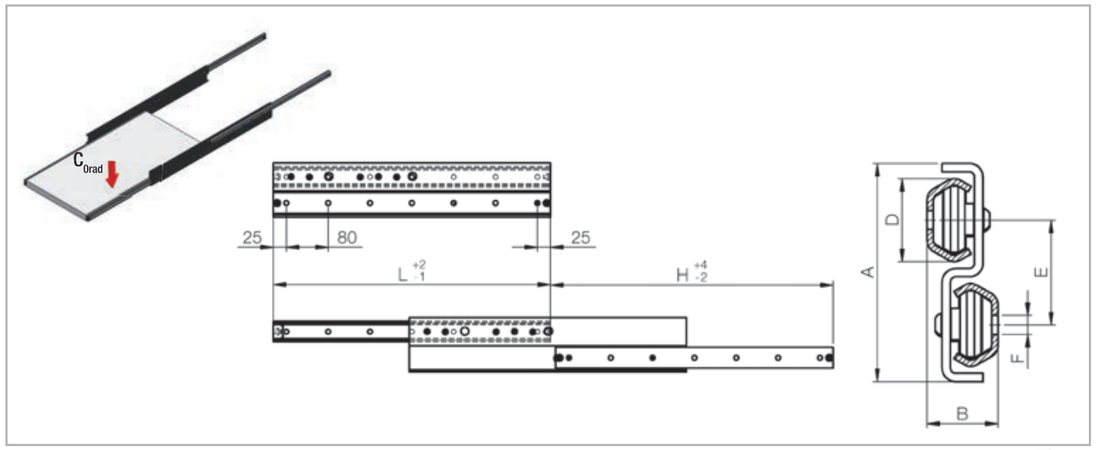


Fig. 33

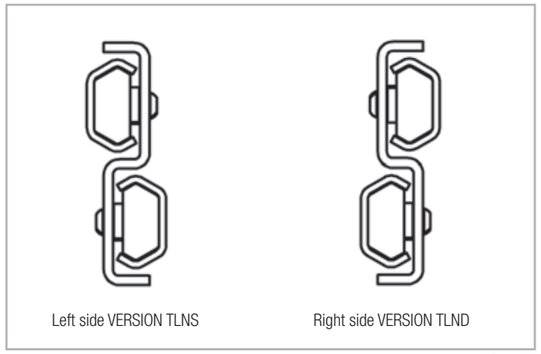


Fig. 34

Code	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)	Fixing screw
TLN.30	76	23,9	29,5	37	Ø 6,5	KIT-40.VC-SP01.0510.ZB M5 ISO7380
TLN.40	104	33,8	39,5	50	Ø 9	KIT-40.VC-SP01.0816.ZB M8 ISO7380

The fixing holes on TLN are through passing holes for standard Button-head screws ISO 7380 or alternatively very Flat-head ROLLON TORX screws 40.VC-SP01

Tab. 11

Order code	Version	Characteristics
TLND40-1010	BASIC	Roll formed steel rails with patented “ROLLON-NOX” ; nitride hardening and black oxidation treatment. The rails are cut to size after treatment, so the rail ends are protected by protective spray. The rollers are core hardened steel, while the intermediate steel S-element is protected with black epoxi electro coating - “ROLLON e-coating”.
TLND40-1010-Q	Q	As a basic TLN product but with additional black “ROLLON e-coating” on the rails, for high corrosion resistance (min 700 hours resistance in salt fog) . The rail has no ROLLON e-coating on the raceway contact area with the rollers, as masked before the treatment. The raceways are anyhow with standard oxidation while the wipers with incorporated pre-oiled felt assure lubrication and corrosion protection of raceways.
TLND40-1010-CW	CW o CR	As basic version with colored aesthetic finish ROLLON p-colored CW version (white color) and CR (red color) offer also a high resistance to corrosion. The treatment is deposited over the entire surface of the guides, toexcept for the raceways that are still protected from oxidation by basic black and the lubricating film, and on the intermediate except.

Tab. 12

Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)	Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLN.30-290	290	300	369	1086	1,2						
TLN.30-370	370	380	431	1266	1,5						
TLN.30-450	450	460	480	1412	1,8	TLN.30HP-450	450	460	720	2.118	1,9
TLN.30-530	530	540	516	1516	2,2	TLN.30HP-530	530	540	773	2.274	2,2
TLN.30-610	610	620	540	1588	2,5	TLN.30HP-610	610	620	810	2.382	2,5
TLN.30-690	690	700	560	1646	2,8	TLN.30HP-690	690	700	840	2.470	2,8
TLN.30-770	770	780	570	1676	3,1	TLN.30HP-770	770	780	861	2.534	3,1
TLN.30-850	850	860	578	1700	3,4	TLN.30HP-850	850	860	879	2.586	3,4
TLN.30-930	930	940	583	1714	3,7	TLN.30HP-930	930	940	895	2.624	3,7
TLN.30-1010	1010	1020	589	1732	4,0	TLN.30HP-1010	1010	1020	907	2.440	4,0
TLN.30-1090	1090	1100	592	1740	4,3	TLN.30HP-1090	1090	1100	918	2.278	4,3
TLN.30-1170	1170	1180	596	1752	4,6	TLN.30HP-1170	1170	1180	927	2.138	4,6
TLN.30-1250	1250	1260	599	1764	4,9	TLN.30HP-1250	1250	1260	935	2.012	4,9
TLN.30-1330	1330	1340	601	1768	5,2	TLN.30HP-1330	1330	1340	942	1.902	5,2
TLN.30-1410	1410	1420	604	1776	5,5	TLN.30HP-1410	1410	1420	948	1.802	5,6
TLN.30-1490	1490	1500	606	1712	5,8	TLN.30HP-1490	1490	1500	954	1.712	5,9

Tab. 13

Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)	Code	Length L (mm)	Stroke H (mm)	Dynamic coefficient C (N)	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLN.40-450	450	460	797	2.344	3,7						
TLN.40-530	530	540	889	2.614	4,3						
TLN.40-610	610	620	959	2.820	4,9	TLN.40HP-610	610	620	1.438	4.230	5,1
TLN.40-690	690	700	1.011	2.974	5,5	TLN.40HP-690	690	700	1.517	4.462	5,7
TLN.40-770	770	780	1.051	3.090	6,1	TLN.40HP-770	770	780	1.576	4.634	6,3
TLN.40-850	850	860	1.084	3.188	6,7	TLN.40HP-850	850	860	1.626	4.782	6,9
TLN.40-930	930	940	1.110	3.264	7,3	TLN.40HP-930	930	940	1.665	4.896	7,5
TLN.40-1010	1010	1020	1.133	3.332	7,9	TLN.40HP-1010	1010	1020	1.700	5.000	8,1
TLN.40-1090	1090	1100	1.153	3.390	8,5	TLN.40HP-1090	1090	1100	1.729	5.086	8,7
TLN.40-1170	1170	1180	1.168	3.436	9,1	TLN.40HP-1170	1170	1180	1.753	5.154	9,2
TLN.40-1250	1250	1260	1.183	3.480	9,7	TLN.40HP-1250	1250	1260	1.775	5.220	9,8
TLN.40-1330	1330	1340	1.195	3.514	10,2	TLN.40HP-1330	1330	1340	1.792	5.200	10,4
TLN.40-1410	1410	1420	1.207	3.548	10,8	TLN.40HP-1410	1410	1420	1.810	4.936	11,0
TLN.40-1490	1490	1500	1.217	3.578	11,4	TLN.40HP-1490	1490	1500	1.825	4.696	11,6
TLN.40-1570	1570	1580	1.225	3.604	12,0	TLN.40HP-1570	1570	1580	1.838	4.478	12,2
TLN.40-1650	1650	1660	1.230	3.620	12,6	TLN.40HP-1650	1650	1660	1.850	4.280	12,8
TLN.40-1730	1730	1740	1.235	3.634	13,2	TLN.40HP-1730	1730	1740	1.860	4.098	13,4
TLN.40-1810	1810	1820	1.238	3.642	13,8	TLN.40HP-1810	1810	1820	1.870	3.932	14,0
TLN.40-1890	1890	1900	1.240	3.648	14,4	TLN.40HP-1890	1890	1900	1.880	3.778	14,6
TLN.40-1970	1970	1980	1.244	3.636	15,0	TLN.40HP-1970	1970	1980	1.888	3.636	15,2

Tab. 14

Roller telescopic slides TQN series

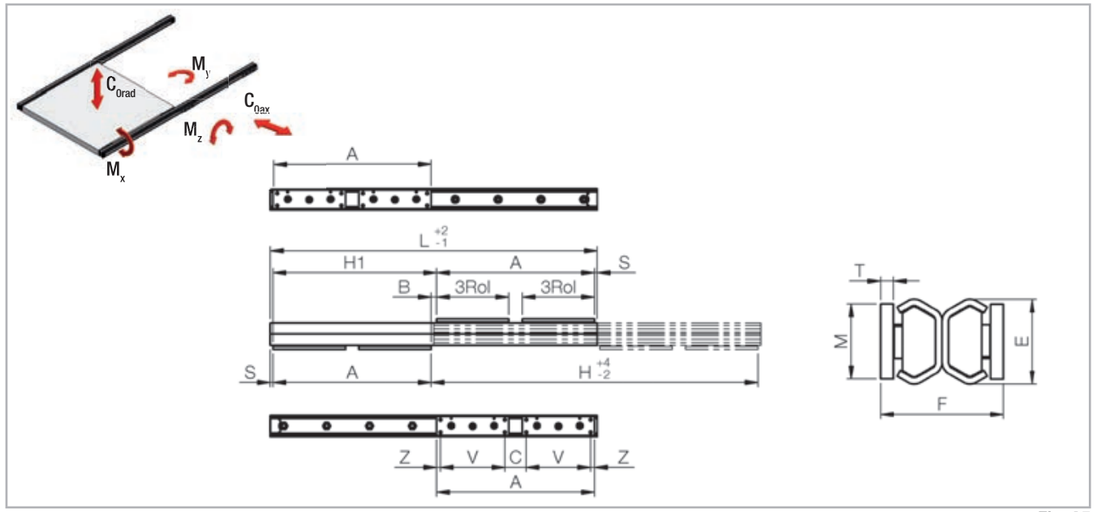


Fig. 35

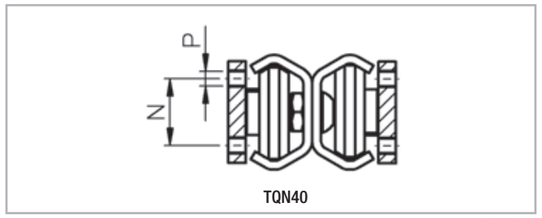


Fig. 36

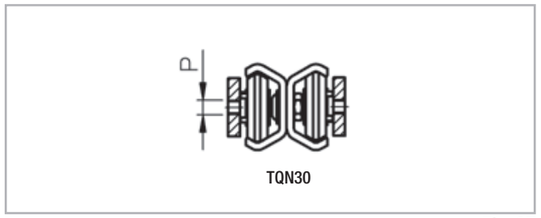


Fig. 37

Code	E (mm)	F (mm)	M (mm)	T (mm)	N (mm)	P (mm)	Sliders		Z (mm)	V (mm)	S (mm)	N° fori	B (mm)	Rail Weight (Kg/m)	Weight 4 sliders (Kg)
							Type	Length L (mm)							
TQN30	29,5	40	20	4	-	M5	3RoL	92	31	30	5	2	10	1,9	0,45
TQN40	39,5	57,3	35	6	23	M6	3RoL	135	7,5	120	5	4	10	3,1	1,5

Tab. 15

Customized stroke

TQN slides offer the unique possibility to easily customize the actual stroke H, to individual needs by the standard products. This obtained simply by repositioning the slider distance “A” for “Fixed sliders” and “Mobile sliders”, with different distance than indicated on this page. The concept is that by reducing distances the total stroke increases but the Load capacity decreases, conversely increasing the distances the total stroke is reduced, while the load capacity increases. Contact ROLLON’s Technical department for load capacities according to customized stroke. For radial loading the slide must be installed with the mark “Up-side” facing upwards. The sliders fixed to structure are marked “Fix-sliders” while the once fixed to mobile part are marked “Mobile sliders”. When used in pairs, the same slide can be installed left or right, just by rotating the slide, keeping the mark “Up-side” facing upwards for radial loading.

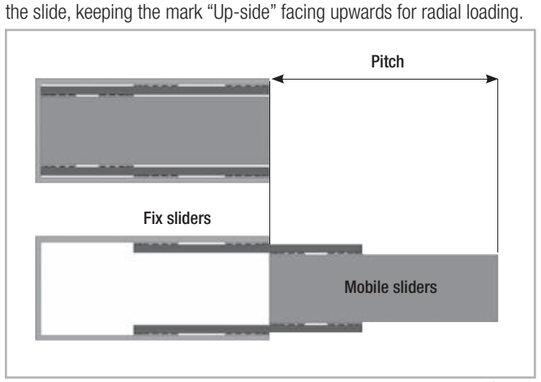


Fig. 38

Order code	Version	Characteristics
TQN40-1010	BASIC	Roll formed steel rails with patented “ROLLON-NOX”; nitride hardening and black oxidation treatment. The rails are cut to size after treatment, so the rail ends are protected by protective spray. The rollers are core hardened steel.
TQN40-1010-Q	Q	As a basic TQN product but with additional black “ROLLON e-coating” on the rails, for high corrosion resistance (min 700 hours resistance in salt fog). The rail has no ROLLON e-coating on the raceway contact area with the rollers, as masked before the treatment. The raceways are anyhow with standard oxidation while the wipers with incorporated pre-oiled felt assure lubrication and corrosion protection of raceways.
TQN40-1010-CW	CW o CR	As a Basic version but with rails and intermediate element with additional colored treatment ROLLON c-color. Upon request available PC-version, where rails and intermediate element, except raceways, are with RED or WHITE powder coating, code PCR and PCW.

Tab. 16

Code	L (mm)	H (mm)	Fix & Mobile sliders (mm)			Load capacity and moments for a pair of rails					
			A (mm)	C (mm)	H1 (mm)	Dynamic coefficient C (N)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TQN30-450	450	450	215	93	225	419	1234	432	8	174	246
TQN30-530	530	530	255	133	265	463	1362	476	8	228	326
TQN30-610	610	610	295	173	305	494	1324	508	8	228	406
TQN30-690	690	690	335	213	345	517	1190	532	8	228	472
TQN30-770	770	770	375	253	385	535	1080	520	8	228	472
TQN30-850	850	850	415	293	425	550	990	478	8	228	472
TQN30-930	930	930	455	333	465	562	914	440	8	228	472
TQN30-1010	1010	1010	495	373	505	572	848	408	8	228	472
TQN30-1090	1090	1090	535	413	545	580	790	382	8	228	472
TQN30-1170	1170	1170	575	453	585	587	740	358	8	228	472
TQN30-1250	1250	1250	615	493	625	593	696	336	8	228	472
TQN30-1330	1330	1330	655	533	665	599	658	318	8	228	472
TQN30-1410	1410	1410	695	573	705	603	624	300	8	228	472
TQN30-1490	1490	1490	735	613	745	608	592	286	8	228	472
		Slider type	All sliders type 3RoI								

Tab. 17

* The value Mx refers to a single rail

Code	L (mm)	H (mm)	Fix & Mobile sliders (mm)			Load capacity and moments for a pair of rails					
			A (mm)	C (mm)	H1 (mm)	Dynamic coefficient C (N)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TQN40-610	610	610	295	40	305	405	2382	834	20	562	640
TQN40-690	690	690	335	80	345	440	2592	906	20	562	800
TQN40-770	770	770	375	120	385	468	2516	964	20	562	960
TQN40-850	850	850	415	160	425	490	2314	1008	20	562	1120
TQN40-930	930	930	455	200	465	508	2142	1044	20	562	1152
TQN40-1010	1010	1010	495	240	505	522	1994	972	20	562	1152
TQN40-1090	1090	1090	535	280	545	535	1864	910	20	562	1152
TQN40-1170	1170	1170	575	320	585	545	1750	854	20	562	1152
TQN40-1250	1250	1250	615	360	625	554	1650	806	20	562	1152
TQN40-1330	1330	1330	655	400	665	562	1562	762	20	562	1152
TQN40-1410	1410	1410	695	440	705	569	1480	722	20	562	1152
TQN40-1490	1490	1490	735	480	745	576	1408	686	20	562	1152
TQN40-1570	1570	1570	775	520	785	581	1342	654	20	562	1152
TQN40-1650	1650	1650	815	560	825	586	1282	626	20	562	1152
TQN40-1730	1730	1730	855	600	865	591	1228	600	20	562	1152
TQN40-1810	1810	1810	895	640	905	595	1178	574	20	562	1152
TQN40-1890	1890	1890	935	680	945	599	1132	552	20	562	1152
TQN40-1970	1970	1970	975	720	985	602	1088	532	20	562	1152
		Slider type	All sliders type 3RoI								

Tab. 18

* The value Mx refers to a single rail

Roller telescopic slides TLAX series “INOX”

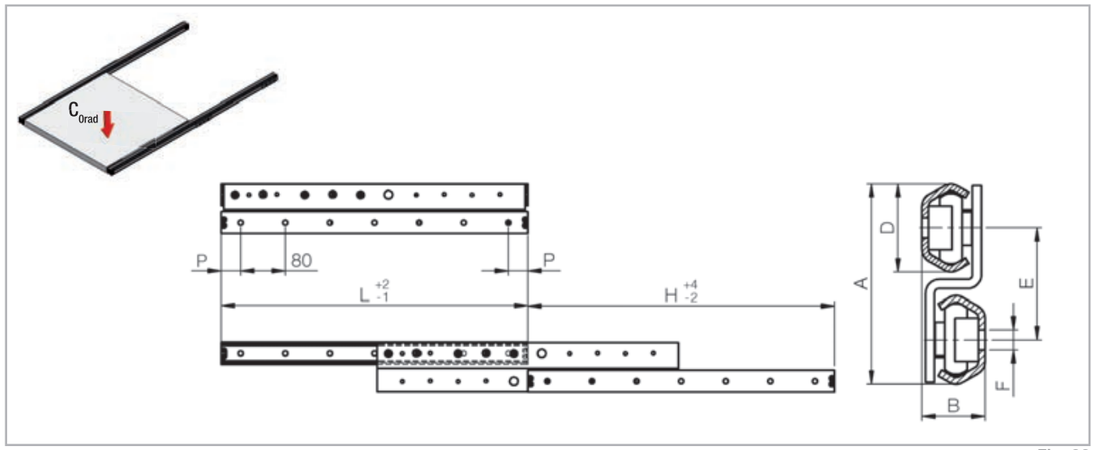


Fig. 39

Code	A (mm)	B (mm)	D (mm)	E (mm)	F (mm)	Type of Fixing screws
TLAX26	65	23	26	35	Ø 6,5	KIT-40.VC-SP01.0510.ZB
						M5 ISO7380
TLAX40	90	28,3	39,5	50	Ø 9	KIT-40.VC-SP01.0816.ZB
						M8 ISO7380

Tab. 19

The fixing holes on TLAX are through passing holes for standard Button-head screws ISO 7380 or alternatively very Flat-head ROLLON TORX screws 40.VC-SP01 TLAX must be mounted with upper rail fixed to structure and the movable lower rail fixed to the moving part. When used in pairs the same slide can be used both left and right side on mobile part, just by turning around the slide .

Order code	Version	Characteristics
TLAX40-1000	BASIC	Rails and intermediate S-element in AISI304 . Rollers in hardened AISI440C .
TLAX40-1000-X	X	As Basic version, but rails and intermediate S-element completely Electro-Polished for very high corrosion resistance, 1000hours in salt fog . The Electro Polishing also gives the product a very shiny surface.

Tab. 20

Code	Length L (mm)	Stroke H (mm)	P (mm)	N° of Y-access holes	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLAX26-300	300	300	30	4	640	1,2
TLAX26-350	350	350	55	4	800	1,4
TLAX26-400	400	400	40	5	914	1,5
TLAX26-450	450	450	25	6	1.000	1,7
TLAX26-500	500	500	50	6	1.066	1,9
TLAX26-550	550	550	35	7	1.120	2,1
TLAX26-600	600	600	20	8	1.164	2,3
TLAX26-650	650	650	45	8	1.200	2,4
TLAX26-700	700	700	30	9	1.230	2,6
TLAX26-750	750	750	55	9	1.258	2,8
TLAX26-800	800	800	40	10	1.280	3
TLAX26-850	850	850	25	11	1.300	3,2
TLAX26-900	900	900	50	11	1.318	3,3
TLAX26-1000	1000	1000	20	13	1.330	3,7
TLAX26-1100	1100	1100	30	14	1.218	4,1
TLAX26-1200	1200	1200	40	15	1.124	4,4

Tab. 21

Code	Length L (mm)	Stroke H (mm)	P (mm)	N° of Y-access holes	Load capacity for a pair of rails Co rad (N)	Weight (kg)
TLAX40-500	500	500	50	6	1.504	3,4
TLAX40-550	550	550	35	7	1.684	3,7
TLAX40-600	600	600	20	8	1.828	4,1
TLAX40-650	650	650	45	8	1.948	4,4
TLAX40-700	700	700	30	9	2.048	4,7
TLAX40-750	750	750	55	9	2.134	5
TLAX40-800	800	800	40	10	2.206	5,3
TLAX40-850	850	850	25	11	2.270	5,7
TLAX40-900	900	900	50	11	2.328	6
TLAX40-1000	1000	1000	20	13	2.422	6,6
TLAX40-1100	1100	1100	30	14	2.316	7,3
TLAX40-1200	1200	1200	40	15	2.144	7,9
TLAX40-1300	1300	1300	50	16	1.996	8,5
TLAX40-1400	1400	1400	20	18	1.868	9,2
TLAX40-1500	1500	1500	30	19	1.754	9,8
TLAX40-1600	1600	1600	40	20	1.654	10,5

Tab. 22

Roller telescopic slides TQAX series “INOX”

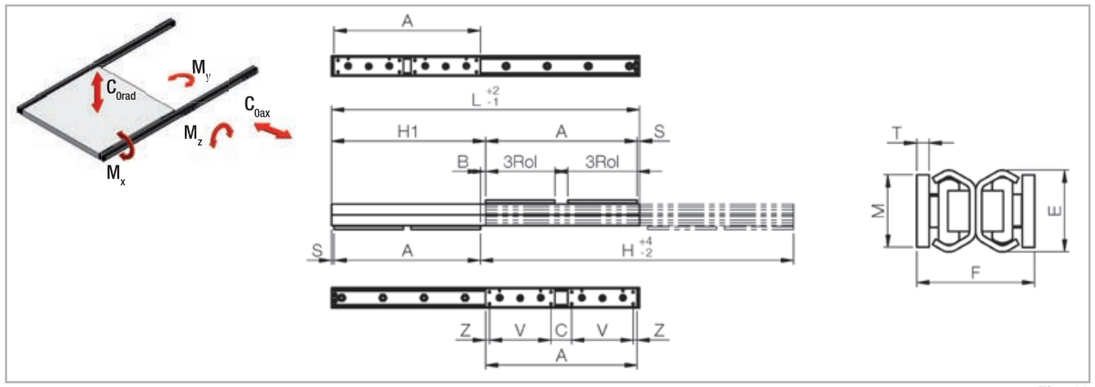


Fig. 40

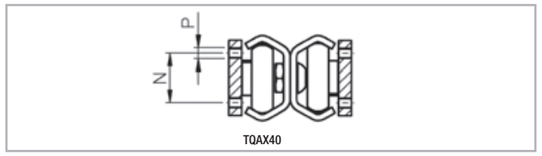


Fig. 41

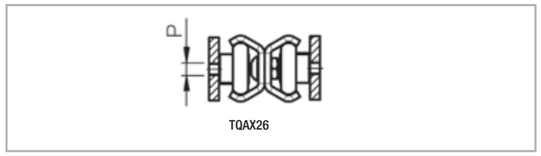


Fig. 42

Code	E (mm)	F (mm)	M (mm)	T (mm)	N (mm)	P (mm)	Sliders		Z (mm)	V (mm)	S (mm)	N° holes	B (mm)	Rail weight (Kg/m)	Weight 4 sliders (Kg)
							Type	Length (mm)							
TQAX26	26	44	25	4	-	M5	3Rol	80	25	30	14	2	28	1,6	0,4
TQAX40	39,5	57,3	35	6	23	M6	3Rol	135	7,5	120	0	4	0	3,1	1,5

Tab. 23

Customized stroke

TQAX slides offer the unique possibility to easily customize the actual stroke H, to individual needs by the standard products. This obtained simply by repositioning the slider distance “A” for “Fixed sliders” and “Mobile sliders”, with different distance than indicated on this page. The concept is that by reducing distances the total stroke increases but the Load capacity decreases, conversely increasing the distances the total stroke is reduced, while the load capacity increases. Contact ROLLON’s Technical department for load capacities according to customized stroke. For radial loading the slide must be installed with the mark “Up-side” facing upwards. The sliders fixed to structure are marked “Fix-sliders” while the once fixed to mobile part are marked “Mobile sliders”. When used in pairs, the same slide can be installed left or right, just by rotating the slide, keeping the mark “Up-side” facing upwards for radial loading.

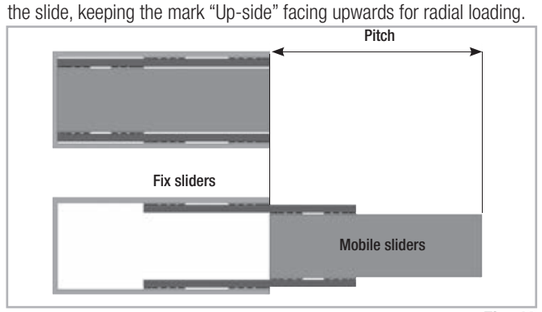


Fig. 43

Order code	Version	Characteristics
TQAX40-1000	BASIC	Roll formed inox rails in AISI304 . Rollers in hardened AISI440C .
TQAX40-1000-X	X	As Basic version, but rails and intermediate S-element completely Electro-Polished for very high corrosion resistance, 1000hours in salt fog. The Electro Polishing also gives the product a very shiny surface.

Tab. 24

Code	L (mm)	H (mm)	Fix & Mobile sliders (mm)			Load capacity and moments for a pair of rails				
			A (mm)	C (mm)	H1 (mm)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TQAX26-400	400	400	172	62	200	836	292	6	98	144
TQAX26-450	450	450	197	87	225	932	326	6	124	184
TQAX26-500	500	500	222	112	250	1008	352	6	152	224
TQAX26-550	550	550	247	137	275	956	374	6	170	264
TQAX26-600	600	600	272	162	300	890	390	6	170	304
TQAX26-650	650	650	297	187	325	830	406	6	170	316
TQAX26-700	700	700	322	212	350	780	418	6	170	316
TQAX26-750	750	750	347	237	375	734	394	6	170	316
TQAX26-800	800	800	372	262	400	694	372	6	170	316
TQAX26-850	850	850	397	287	425	658	352	6	170	316
TQAX26-900	900	900	422	312	450	626	334	6	170	316
TQAX26-950	950	950	447	337	475	596	318	6	170	316
TQAX26-1000	1000	1000	472	362	500	568	304	6	170	316
TQAX26-1100	1100	1100	522	412	550	522	280	6	170	316
TQAX26-1200	1200	1200	572	462	600	482	258	6	170	316
Slider type			All sliders type 3Rol							

Tab. 25

* The value Mx refers to a single rail

Code	L (mm)	H (mm)	Fix & Mobile sliders (mm)			Load capacity and moments for a pair of rails				
			A (mm)	C (mm)	H1 (mm)	Co_{rad} (N)	Co_{ax} (N)	M_x* (Nm)	M_y (Nm)	M_z (Nm)
TQAX40-600	600	600	300	45	300	1978	692	18	468	526
TQAX40-650	650	650	325	70	325	2082	728	18	468	606
TQAX40-700	700	700	350	95	350	2170	760	18	468	686
TQAX40-750	750	750	375	120	375	2168	786	18	468	766
TQAX40-800	800	800	400	145	400	2052	808	18	468	846
TQAX40-850	850	850	425	170	425	1948	828	18	468	926
TQAX40-900	900	900	450	195	450	1854	846	18	468	960
TQAX40-950	950	950	475	220	475	1768	860	18	468	960
TQAX40-1000	1000	1000	500	245	500	1690	824	18	468	960
TQAX40-1100	1100	1100	550	295	550	1554	758	18	468	960
TQAX40-1200	1200	1200	600	345	600	1438	702	18	468	960
TQAX40-1300	1300	1300	650	395	650	1338	652	18	468	960
TQAX40-1400	1400	1400	700	445	700	1250	610	18	468	960
TQAX40-1500	1500	1500	750	495	750	1174	572	18	468	960
TQAX40-1600	1600	1600	800	545	800	1106	540	18	468	960
Slider type			All sliders type 3Rol							

Tab. 26

* The value Mx refers to a single rail

Sizing of telescopic applications

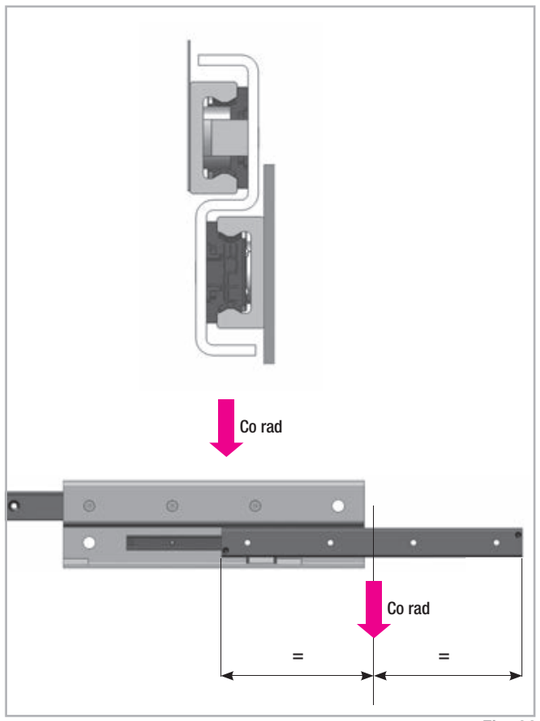


Fig. 44

The main factors for sizing the slides for a telescopic movement:

- The weight/forces of mobile part and their position compared to slides.
- Presence of dynamic forces / eventual abuse
- max. acceptable flexion
- max. acceptable extraction/closing force of mobile part
- Ambients, frequency, speed
- Expected lifetime

All load capacities Co rad, are indicated per pair of slides and with the load perfectly centered. I.e an homogeneous load placed between 2 slides. Hereby the load P is acting as a radial point load, at half the extension and in the middle between the 2 slides. The load capacity for a single is then:

$$P = \frac{\text{Co rad}}{2}$$

When sizing a telescopic application, it must be carefully evaluated if the load is centered. Also it must be considered if any external dynamic forces, or possible abuse could further increase the load forces acting on the slides.

In case the load isn't centered. i.e. load center Pe1 more towards one of the slides, and/or more towards the tip of the load, the center weighted load must be calculated

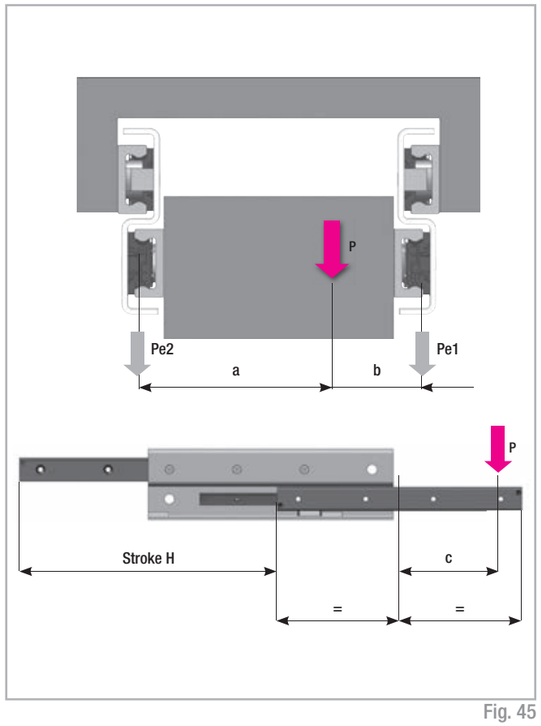


Fig. 45

= Pe1 , to be inserted in formula on next page.

$$Pe1 = \frac{(P \bullet a)}{(a + b)} \bullet fp$$

Where :

P = Weight/load of mobile part

a, b = distances from centered load to left/right slide

fp = load position coefficient, based on relation of "c" distance between actual load P and load Co rad position, compared stroke H.

The coefficient fp is obtained from below diagram. as the ratio between "c/H" .

When only 1 slide the formula is Pe = P • fp Pe = P • fp

Capaticy load reduction - According to the position of the load p

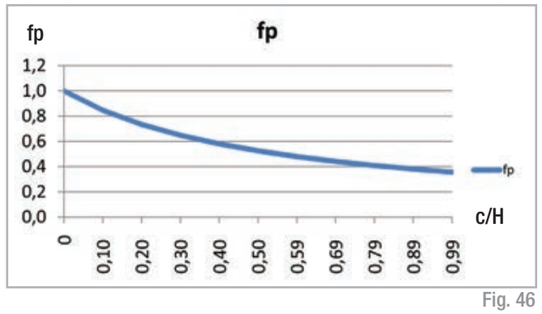


Fig. 46

Verification of load capacity

To assure a correct selection of the slides according to the slide's load capacity, it is assumed the known different forces acting on the slides, which then must be decomposed in : radial, axial or moment forces. Then again compared to load/moment capacities indicated for each single product in previous pages. For the slides with intermediate element TLR, TLN and TLAX the verification is mainly down to comparing the load capacity Co Rad. to Pe including a safety factor Z.

$$Pe <= \text{Co rad} \bullet Z$$

Where Z is the safety coefficient as per below table

Safety coefficient - Z	Application conditions
1-1,5	Precise calculation of load/forces, precise assembly and rigid structures
1,5-2	Intermediate conditions
2-3,5	Roughly estimation of load/forces, not precise and not rigid structures

Tab. 27

Lifetime calculation

Theoretical lifetime calculation

The theoretical life of the rollers and raceways of rail should be determined by the conventional formula as indicated below in km of running, however, should keep in mind that the value thus calculated must be taken with caution just for orientation, in fact, the real service life achieved can be very different from that calculated value, because the phenomena of wear and fatigue are caused by factors not easy to predetermine, for example:

- Inaccuracy in the estimation of the real loading condition
- Overloading for inaccuracies in assembling
- Vibration, shock and dynamic pulse stress
- Raceways status of lubrication
- Thermal excursions
- Environmental pollution and dust
- Damage mounting
- Stroke length and frequency of movement

$$Lcy = 50 \cdot \left(\frac{C}{P} \cdot \frac{1}{fi} \right)^3 \cdot \frac{1}{H} \cdot 10^6$$

Where:

Lcy =N° of cycles open/close

C = Dynamic load coefficient

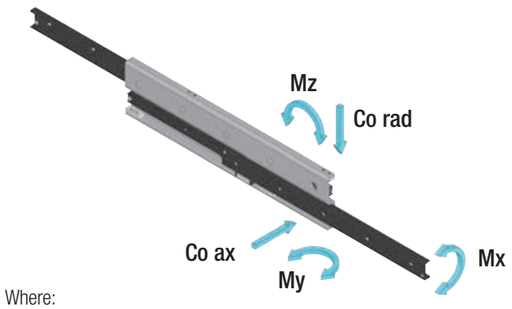
P = Weight/load of single rail (N)

H = Stroke (mm)

fi = Coefficient taking into account operational ambient and level of correct lubrication

The correction factor fi applied to the theoretical calculation formula have the sole purpose of guiding the designer qualitatively on the influence in the lifetime estimation of the real application conditions without any pretense of precision. For more details please contact Rollon's technical department.

The slides TLAX and TQAX is expected to reach approx. 100.000 cycles, with a load of 70% of max load capacity.



Where:

Pe rad = applied radial load

Pe ax = applied axial load

Mex, Mey, Mez = applied moments

Co rad = radial load capacity

Co ax = axial load capacity

Mx, My, Mz = moment capacities

For full telescopic slides TLQ, TQN and TQAX, the calculation might also includes moments.

$$\left(\frac{Pe\ ax}{Co\ ax} + \frac{Pe\ rad}{Co\ rad} + \frac{Mex}{Mx} + \frac{Mey}{My} + \frac{Mez}{Mz} \right) <= \frac{1}{Z}$$

Coefficient fi	Operating conditions
1-1.5	Correct load sizing, rigid structures, constantgood lubrication, clean ambient
1.5-2	Intermediate conditions
2-3.5	Approximative load sizing, unprecise non rigid structures, dusty not clear ambient.

Tab. 28

The actual lifetime very much depends on constant good lubrication of the raceways. Without good constant lubrication and/or in very dusty ambients the actual lifetime expectations can be much reduced.

Calculation of load P to be used for lifetime calculation

The load P to be used in below formular is referred to single slide, with load in the centre. If used in pair, load on each single slide must be calculated.

The slides TLQ, TQN might include moments Mex, Mey and Mez, in addition to radial and axial loads. The formula in case of moments is:

$$Pe = Co\ rad \cdot \left(\frac{Pe\ rad}{Co\ rad} + \frac{Pe\ ax}{Co\ ax} + \frac{Mex}{Mx} + \frac{Mey}{My} + \frac{Mez}{Mz} \right)$$

Notes

Notes

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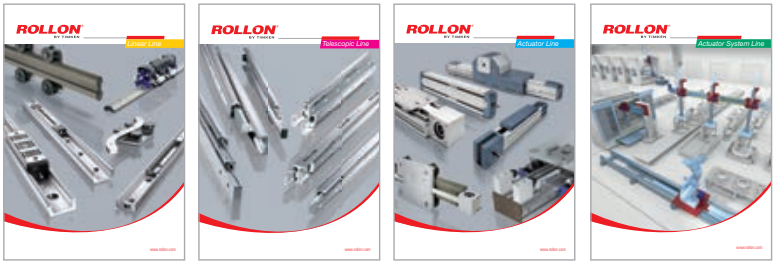

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