

ROLLON[®]
BY TIMKEN

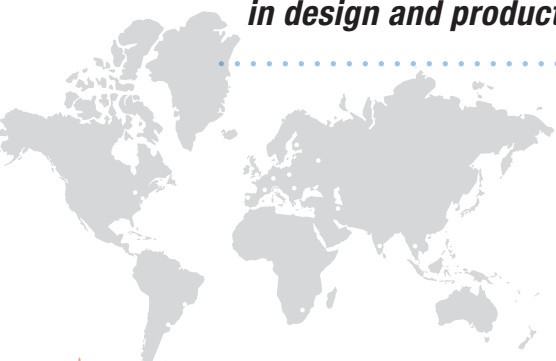
X-Rail



We design and produce in order to support you

*An international group
for technology,
a local support for service*

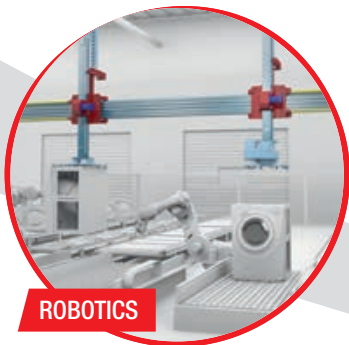
*Over 40 years of know how
in design and production*



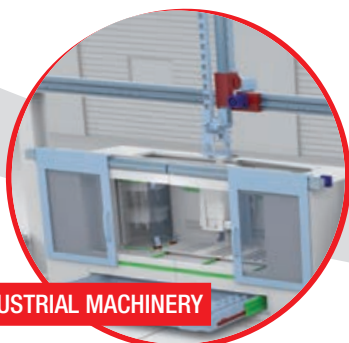
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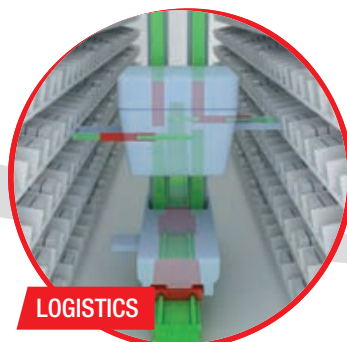
Applications



ROBOTICS



INDUSTRIAL MACHINERY



LOGISTICS



RAILWAY

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 performances

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



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 Line

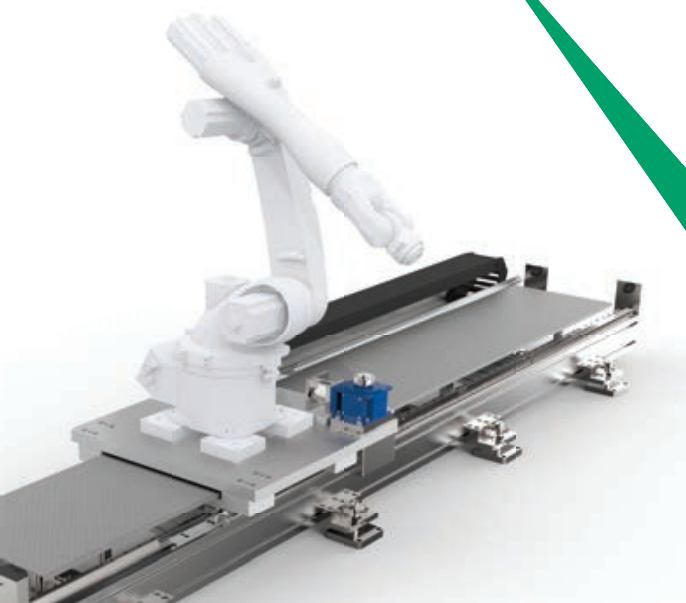
Linear actuators with different guide configurations and drives, available with belt, screw or rack and pinion drives according to different needs in terms of precision and speed. Guides with bearings or ball recirculating systems for different load capacities and critical environments.

*A global provider
of solutions
for applications
for linear motion*



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.



> X Rail



1 Product explanation

X-Rail: linear bearings in stainless steel, zinc-plated steel or hardened steel with Rollon-Nox process.

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UEX - guide with flat raceways in stainless steel

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TES - guide with shaped raceways in zinc-plated steel

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UES - guide with flat raceways in zinc-plated steel

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TES-UES: Mounted sliders and rails

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TEN and UEN - guide with shaped or flat raceways hardened with Rollon-Nox patented process.

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Product explanation



- > **X-Rail: linear bearings in stainless steel, zinc-plated steel or hardened steel with Rollon-Nox process.**



Fig. 1

X-Rail is the product family of roller embossed guide rails for applications in which an economical price to performance ratio and high corrosion resistance are required.

X-Rail linear guides features a rolled C-profile (0 degrees of axial play) or U-profile (1 degree of axial play) and are available in three versions: stainless steel (TEX/UEX), zinc-plated steel (TES/UES) or hardened with Rollon-Nox patented process (TEN/UEN).

Sizes range from 20 to 45 mm depending on the material of the guide and the type of profile. Every option features dedicated sliders, with compact or solid body.

The most important characteristics:

- Corrosion resistant, FDA/USDA compliant materials
- Compensates for deviations in mounting structure parallelism
- Optimal reliability in dirty environments thanks to internal raceways
- Wide range of operating temperature
- Easy adjustment of sliders

Preferred areas of application of the X-Rail product family:

- Construction and machine technology (e.g., safety doors, washing bay accessories)
- Medical technology (e.g., hospital accessories, medical equipment)
- Transport (e.g., rail transport, naval, automotive industry)
- Food and beverage industry (e.g., packaging, food processing)
- Building technology
- Energy technology (e.g., industrial furnaces, boilers)

TEX/UEX series

TEX/UEX linear guides, with their CEX/CEXU sliders and rollers, are made 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.



Fig. 2

TES/UES series

TES/UES linear guides with their CES/CESU sliders are made of zinc-plated. 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.



Fig. 3

TEN/UEN series

TEN/UEN linear guides, with their CEN sliders, are made of hardened steel. The Rollon-Nox hardening process provides the guide long life and resistance to wear, in addition to a black surface resistant to flame and abrasion.

Additional treatments Rollon e-coating and Rollon p-color are available for applications where an higher resistance to corrosion or a particular attention to design are required (see p. XR-19).



Fig. 4

System (T+U-System)

The T guide with shaped raceways (fixed rail) is used for the main load bearing in radial and axial forces. The U guide with flat raceways (compensating rail) is used for load bearing of radial forces and, in combination with fixed bearing rail, as support bearings for occurring moment loads. A pair of T and U-rail used together offers compensation for deviations in parallelism and tolerances in the mounting structure.



Fig. 5

Rollers

Concentric and eccentric radial ball bearings made of stainless or roller bearing steel are available for each slider. Roller sealing is dependent on the material: 2RS rubber seals or 2Z steel shields. All rollers are lubricated for life.



Fig. 6

Technical data

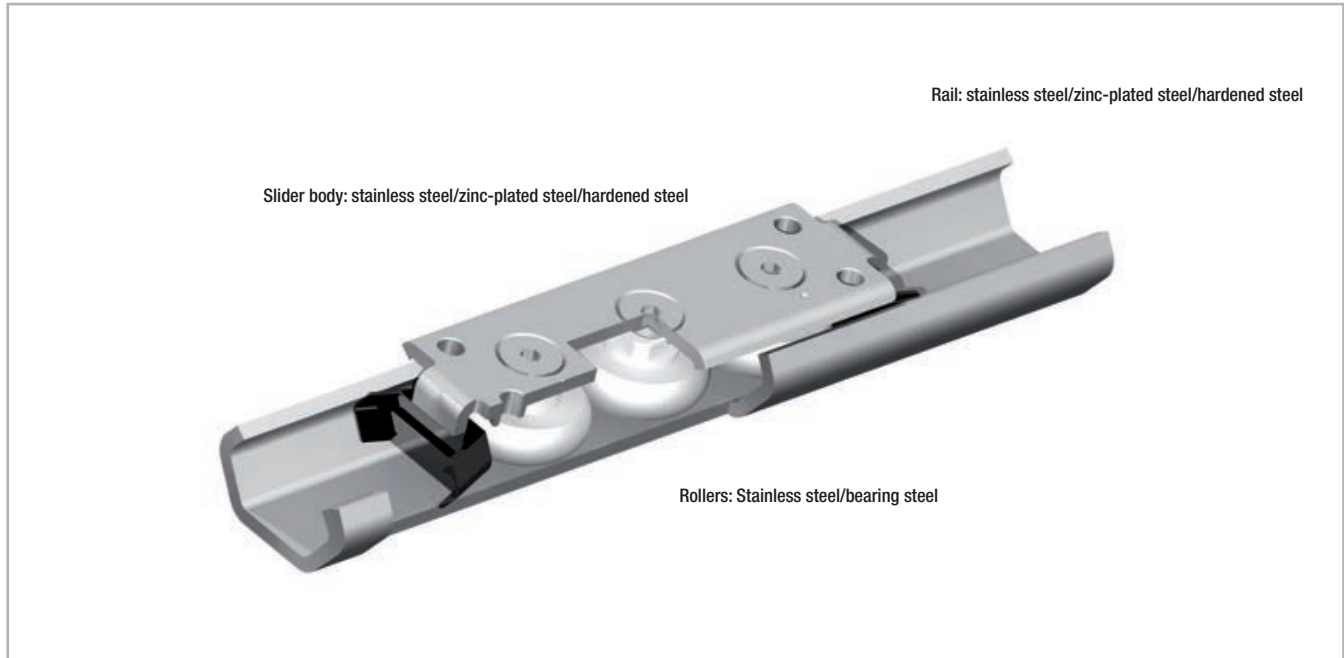


Fig. 7

Performance characteristics:

- Available sizes: 20-26-30-40-45 (depending on type of the guide)
- Max. slider operating speeds in the linear bearing rails:
1.5 m/s (59 in/s) (depending on application)
- Max. acceleration: 2 m/s² (78 in/s²) (depending on application)
- Max. radial load capacity: 1740 N for TEX/UEX series and TES/UES series; 3240 N for TEN/UEN series hardened with Rollon-Nox patented process.
- Operating temperature range: TEX/UEX series from -20 °C to +100°C (-4 °F to +212 °F); TES/UES series from -20 °C to +120 °C (-4 °F to +248 °F), TEN/UEN series from -20 °C to +120 °C (-22 °F to +338 °F).
- Available rail lengths: from 160 mm to 4000 mm (from 6,3 in to 157 in) in 80 mm increments (3,15 in).
- Rollers lubricated for life
- Roller seal/shield:
CEX... Sliders => 2RS (splashproof seal),
CES... Sliders => 2Z (dust cover seal)
CEN... Sliders => 2Z (dust cover seal)
- Material: TEX/UEX series in stainless steel 1.4404 (AISI 316L), TES/UES series in zinc-plated steel ISO 2081, TEN/UEN series in hardened steel with Rollon-Nox patented process.
- Rollers material: carbon steel for TES/UES series and TEN/UEN series, stainless steel AISI440 for TEX/UEX series.

Remarks:

- The sliders are equipped with rollers that are in alternating contact with both sides of the raceway. Markings on the body around the outer roller pins indicate the correct arrangement of the rollers to the external load.
Important note: Both outside rollers carry the radial load.
- With a simple adjustment of the eccentric roller, clearance or the desired preload can be set on the rail and slider.
- Sliders of Version 1 (with compact body) come standard with plastic wipers for cleaning the raceways.
- Wipers are available on request for sliders Version 2, 3, 4, 5 and 6 (please check availability for different sizes).
- Different sliders are available depending on the type and the size of the linear guide. Refer to every chapter for details.
- We do not recommend combining (stringing together) the rails.
- Recommended fixing screws: ISO 7380 with low head height (special TORX® screws are available on request).
- Do not use in applications with high number of cycles. For further information, please contact Rollon Technical Department.
- Sliders with wipers for TEN/UEN series are equipped with lubricating felts.

> Load capacities

Fixed bearings TEX, TES, TEN

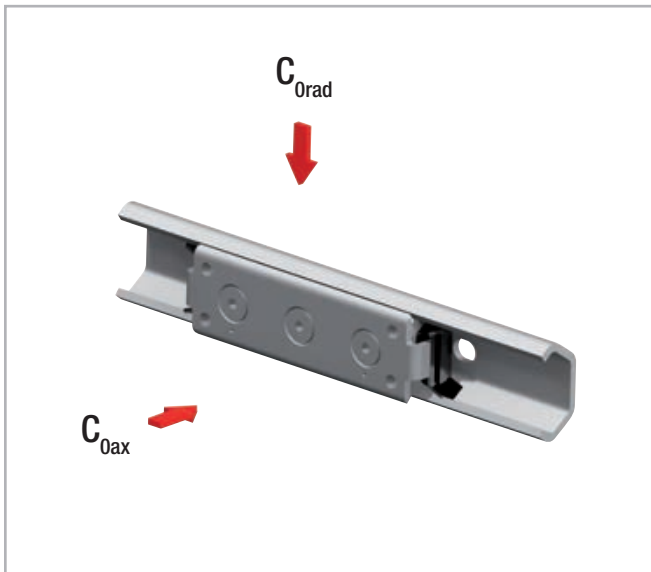


Fig. 8

Rail type	Configuration	C_{Orad} [N]	C_{Oax} [N]
TEX	TEX-20 – CEX20	300	170
	TEX-26 – CEX-26	800	400
	TEX-30 – CEX30	800	400
	TEX-40 – CEX-40	1600	800
	TEX-45 – CEX45	1600	860
TES	TES-20 – CES20	326	185
	TES-26 – CES-26	800	400
	TES-30 – CES30	870	435
	TES-40 – CES-40	1600	800
	TES-45 – CES45	1740	935
TEN	TEN-26 - CEN26-92	1120	380
	TEN-26 - CEN26-142	1520	540
	TEN-30 - CEN30-92	1200	420
	TEN-30 - CEN30-142	1620	580
	TEN-40 - CEN40-135	2400	820
	TEN-40 - CEN40-195	3240	1150

Resulting moment loads must be absorbed through the use of two sliders

Tab. 1

Compensating bearings UEX, UES, UEN

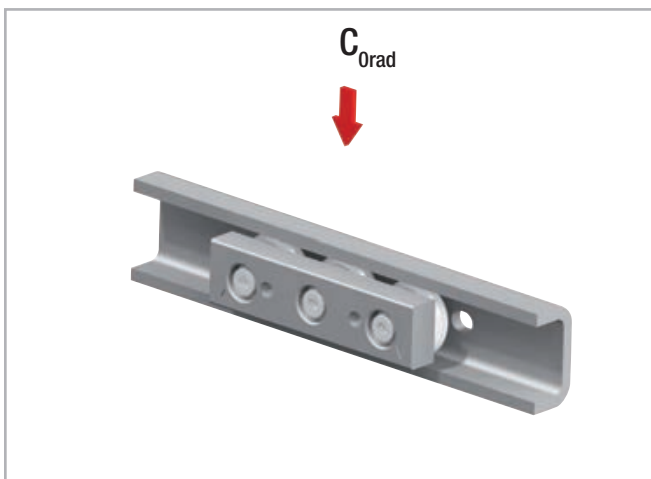


Fig. 9

Rail type	Configuration	C_{Orad} [N]
UEX	UEX-20 – CEXU20	300
	UEX-30 – CEXU30	800
	UEX-45 – CEXU45	1600
UES	UES-20 – CESU20	326
	UES-30 – CESU30	870
	UES-45 – CESU45	1740
UEN	UEN-40 - CEN40-135	1850
	UEN-40 - CEN40-195	2460

Tab. 2

Product dimensions

> TEX - guide with shaped raceways in stainless steel

TEX rail in stainless steel

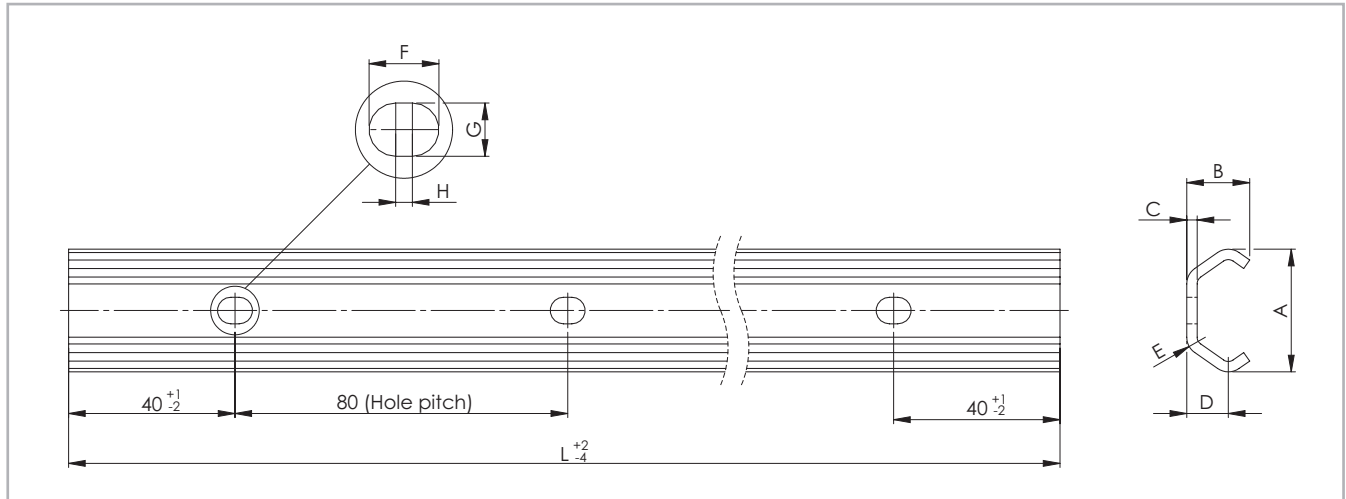


Fig. 10

Rail type	Size	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
TEX	20	19,2	10	2	7	3	7	4,5	2	M4	0,47
	26	26	14	2,5	9,5	4	6,5	6,5	*	M5	0,80
	30	29,5	15	2,5	10	4,5	8,4	6,4	2	M5	0,90
	40	39,5	21	3	13	6	9	9	*	M8	1,55
	45	46,4	24	4	15,5	6,5	11	9	2	M8	2,29

* Cylindrical holes.

Tab. 3

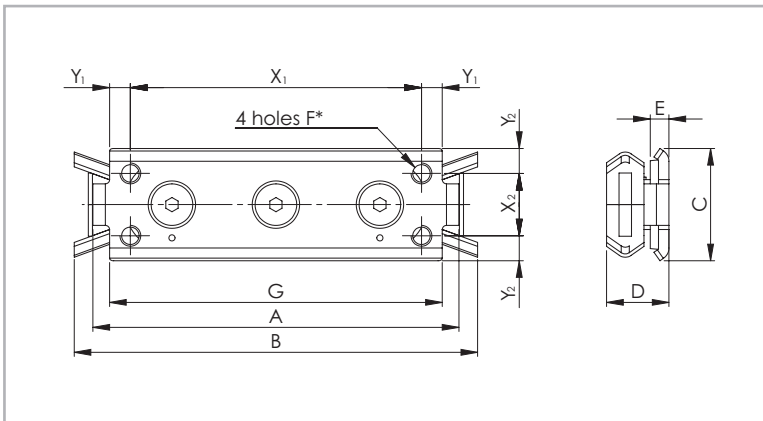
Rail type	Size	Standard length L [mm]
TEX	20 30 45	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 1440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 2080 - 2160 - 2240 - 2320 - 2400 - 2480 - 2560 - 2640 - 2720 - 2800 - 2880 - 2960 - 3040 - 3120
	26	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 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
	40	320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 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

Please specify hole pattern separately
 Special lengths or pitches available upon request, please contact the sales department
 The highlighted rail lengths are available from stock

Tab. 4

CEX slider for rail TEX 20, 30, 45

Version 1 (with compact body for fixed rails)



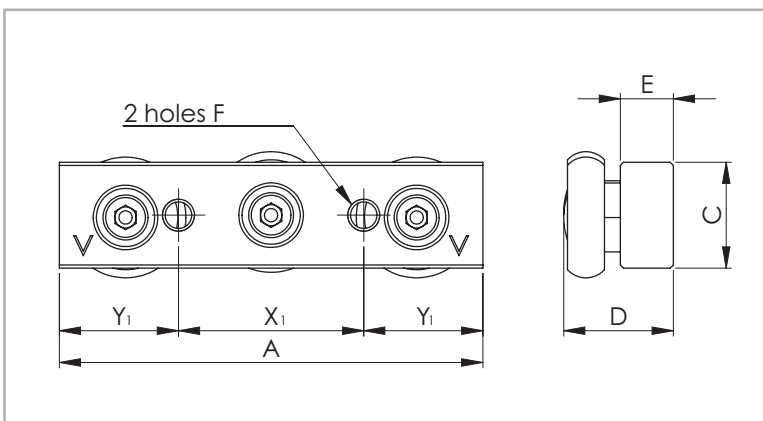
* For size 20: 2 M5 holes on the centreline with distance X_1

Fig. 11

Slider type	Size	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	X_1 [mm]	Y_1 [mm]	X_2 [mm]	Y_2 [mm]	Weight [kg]
CEX20-80	20	80	90	18	11,5	5,5	M5	71	60	5,5	-	9	0,05
CEX30-88	30	88	97	27	15	4,5	M5	80	70	5	15	6	0,11
CEX45-150	45	150	160	40	22	4	M6	135	120	7,5	23	8,5	0,40

Tab. 5

Version 2 (with solid body for fixed rails)



Slider version with wipers on request

Fig. 12

Slider type	Size	A [mm]	C [mm]	D [mm]	E [mm]	F	X_1 [mm]	Y_1 [mm]	Weight [kg]
CEX20-60	20	60	10	13	6	M5	20	20	0,04
CEX30-80	30	80	20	20,7	10	M6	35	22,5	0,17
CEX45-120	45	120	25	28,9	12	M8	55	32,5	0,47

Tab. 6

CEX slider for rail TEX 26, 40

Version 3 (with compact body for fixed rails)

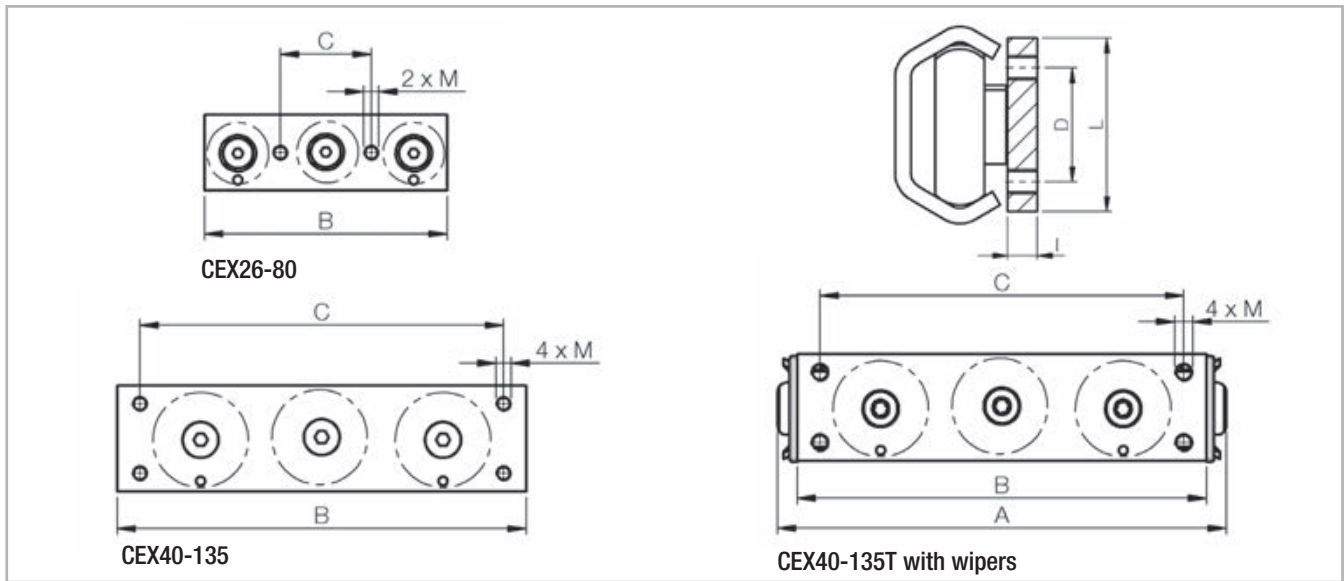


Fig. 13

Slider type	I [mm]	L [mm]	M	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]
CEX26-80	4	20	M5	-	80	30	-	0.095
CEX40-135	6	35	M6	-	135	120	23	0.430
CEX40-135T				148				0.450

Tab. 7

> UEX - guide with flat raceways in stainless steel

UEX rail in stainless steel

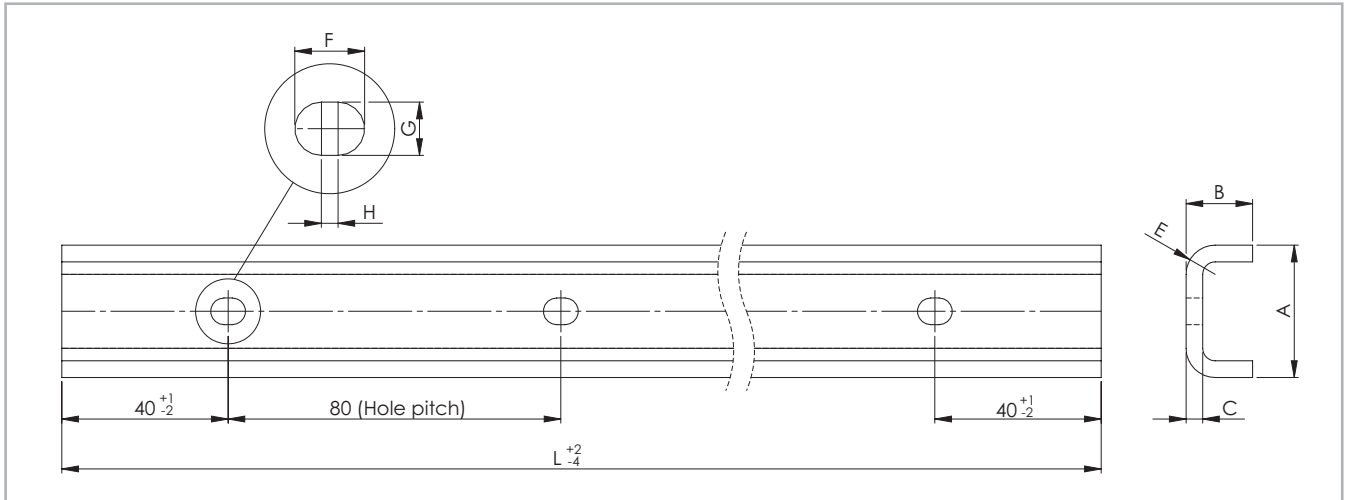


Fig. 14

Rail type	Size	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
UEX	20	20,5	11	3	5,5	7	4,5	2	M4	0,77
	30	31,8	16	4	7	8,4	6,4	2	M5	1,39
	45	44,8	24,5	4,5	9,5	11	9	2	M8	2,79

Tab. 8

Rail type	Standard length L [mm]
UEX	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 1440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 2080 - 2160 - 2240 - 2320 - 2400 - 2480 - 2560 - 2640 - 2720 - 2800 - 2880 - 2960 - 3040 - 3120

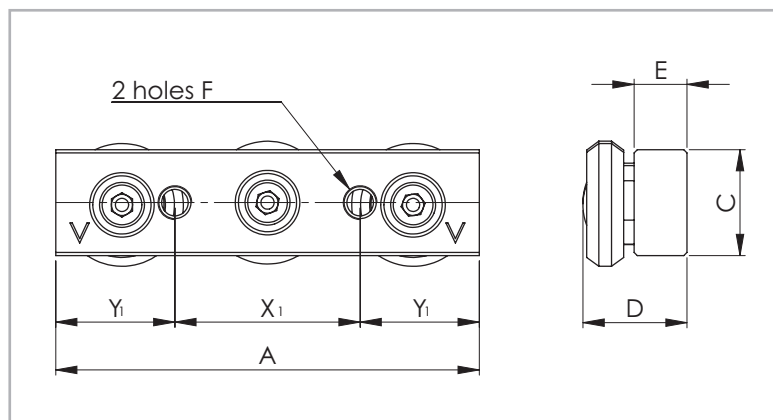
Tab. 9

Please specify hole pattern separately
 Special lengths or pitches available upon request, please contact the sales department
 The highlighted rail lengths are available from stock

X
R

CEXU slider for UEX rail

Version 4 (with solid body for compensating rail)



Slider version with wipers on request

Fig. 15

Slider type	Size	A [mm]	C [mm]	D [mm]	E [mm]	F [mm]	X ₁ [mm]	Y ₁ [mm]	Weight [kg]
CEXU20-60	20	60	10	11.85	6	M5	20	20	0.04
CEXU30-80	30	80	20	19.9	10	M6	35	22.5	0.16
CEXU45-120	45	120	25	26.4	12	M8	55	32.5	0.45

Tab. 10

> **TEX-UEx: Mounted sliders and rails**

Guide with shaped raceways

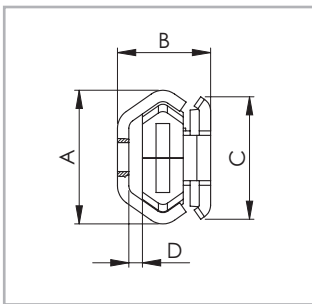


Fig. 16

Version 1
(Slider with compact body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TEX-20 – CEX20-80	19.2	16	18	2.5
TEX-30 – CEX30-88	29.5	20.5	27	3.5
TEX-45 – CEX45-150	46.4	31	40	5

Tab. 11

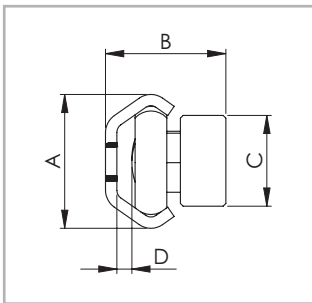


Fig. 17

Version 2
(Slider with solid body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TEX-20 – CEX20-60	19.2	17.8	10	2.6
TEX-30 – CEX30-80	29.5	26.5	20	3.3
TEX-45 – CEX45-120	46.4	38	25	5.1

Tab. 12

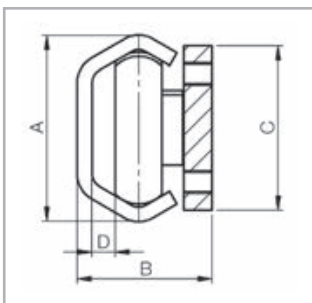


Fig. 18

Version 3
(Slider with compact body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TEX-26 – CEX26-80	26	22	20	3.7
TEX-40 – CEX40-135	39.5	28.65	35	5

Tab. 13

Guide with flat raceways

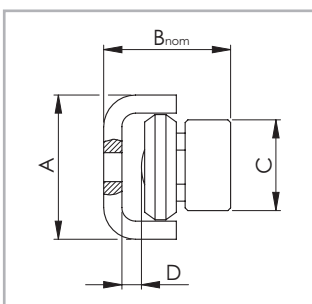


Fig. 19

Version 4
(Slider with solid body)

Configuration	A [mm]	B _{nom} [mm]	C [mm]	D [mm]
UEx-20 – CEXU20-60	20.5	18.25 ± 0.6	10	3.4
UEx-30 – CEXU30-80	31.8	27.95 ± 1.0	20	4.05
UEx-45 – CEXU45-120	44.8	37.25 ± 1.75	25	6.35

Tab. 14

> TES - guide with shaped raceways in zinc-plated steel

TES rail in zinc-plated steel

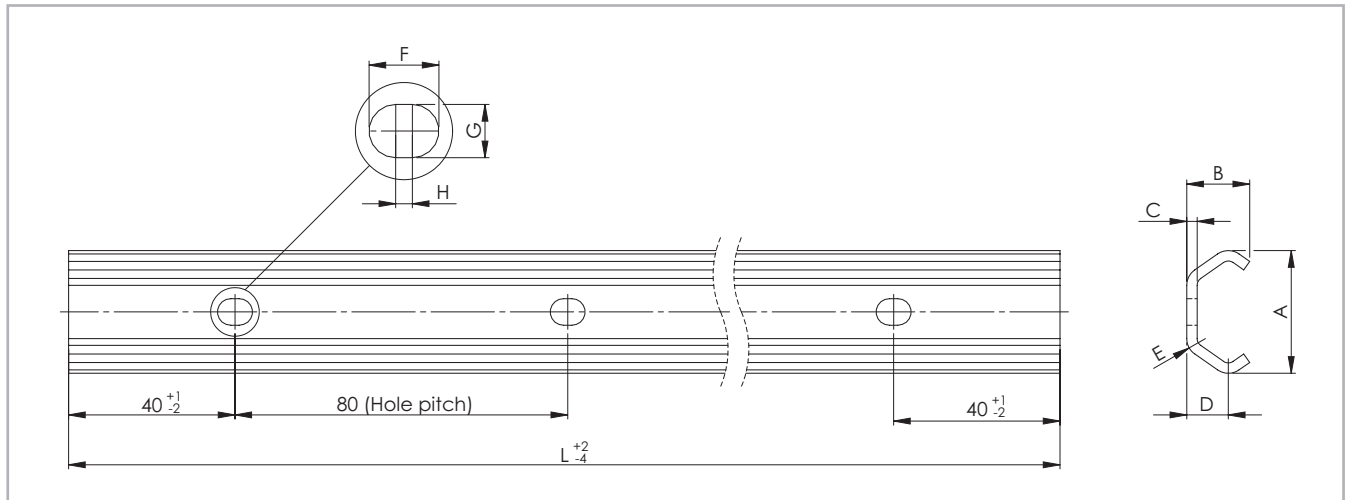


Fig. 20

Rail type	Size	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
TES	20	19.2	10	2	7	3	7	4.5	2	M4	0.47
	26	26	14	2.5	9.5	4	6.5	6.5	*	M5	0.80
	30	29.5	15	2.5	10	4.5	8.4	6.4	2	M5	0.90
	40	39.5	21	3	13	6	6.5	6.5	2	M8	1.55
	45	46.4	24	4	15.5	6.5	11	9	2	M8	2.29

* Rail size 26 have cylindrical holes.

Tab. 15

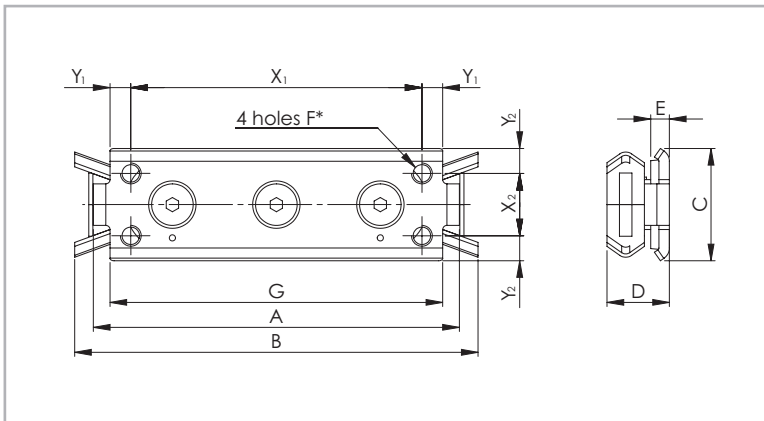
Rail type	Size	Standard length L [mm]
TES	20 30 45	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 1440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 2080 - 2160 - 2240 - 2320 - 2400 - 2480 - 2560 - 2640 - 2720 - 2800 - 2880 - 2960 - 3040 - 3120
	26	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 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
	40	320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 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

Please specify hole pattern separately
 Special lengths or pitches available upon request, please contact the sales department
 The highlighted rail lengths are available from stock

Tab. 16

CES slider for rail TES 20, 30, 45

Version 1 (with compact body for fixed rails)



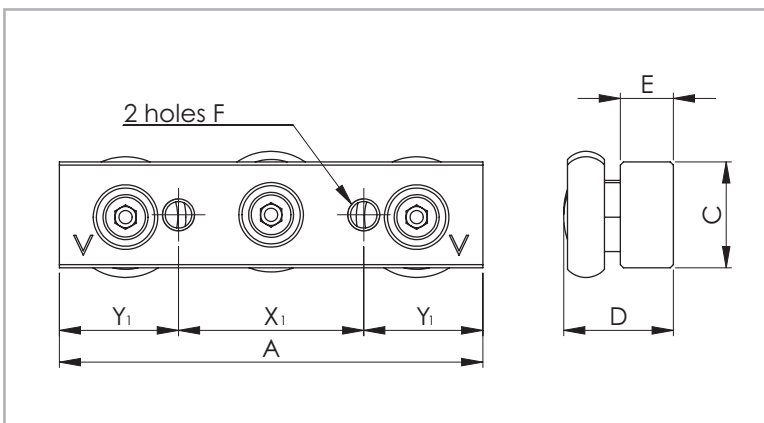
* For size 20: 2 M5 holes on the centreline with distance X_1

Fig. 21

Slider type	Size	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	X_1 [mm]	Y_1 [mm]	X_2 [mm]	Y_2 [mm]	Weight [kg]
CES20-80	20	80	90	18	11.5	5.5	M5	71	60	5.5	-	9	0.05
CES30-88	30	88	97	27	15	4.5	M5	80	70	5	15	6	0.11
CES45-150	45	150	160	40	22	4	M6	135	120	7.5	23	8.5	0.40

Tab. 17

Version 2 (with solid body for fixed rails)



Slider version with wipers on request

Fig. 22

Slider type	Size	A [mm]	C [mm]	D [mm]	E [mm]	F	X_1 [mm]	Y_1 [mm]	Weight [kg]
CES20-60	20	60	10	13	6	M5	20	20	0.04
CES30-80	30	80	20	20.7	10	M6	35	22.5	0.17
CES45-120	45	120	25	28.9	12	M8	55	32.5	0.47

Tab. 18

3 Product dimensions

CES slider for rail TES 26, 40

Version 3 (with compact body for fixed rails)

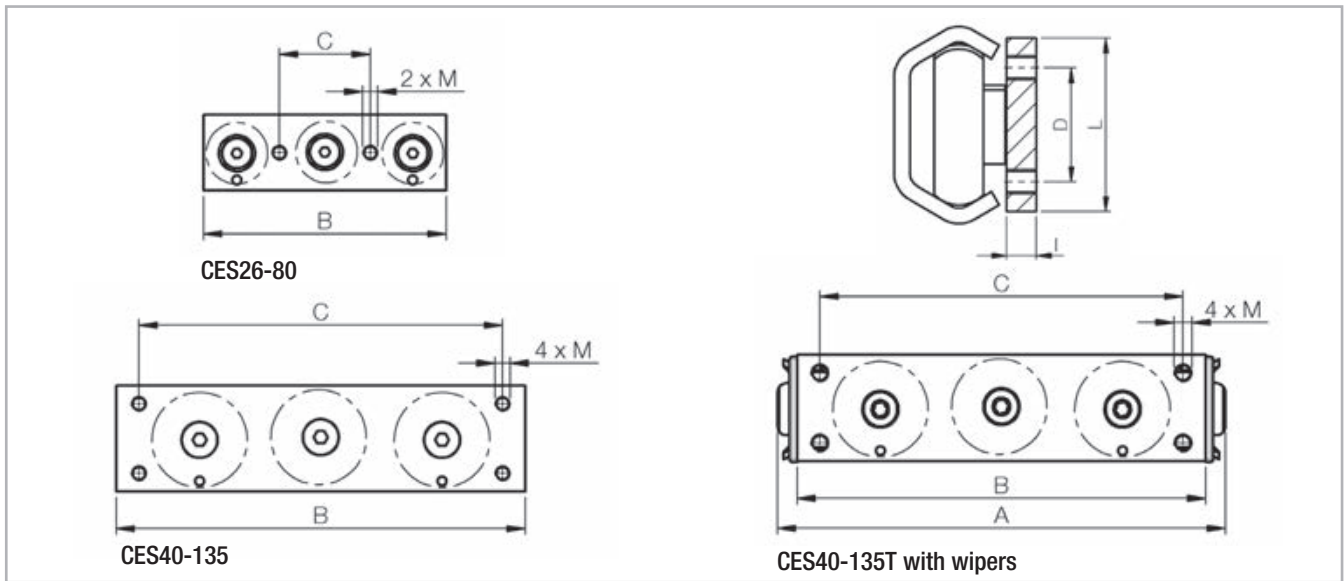


Fig. 23

Slider type	I [mm]	L [mm]	M	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]
CES26-80	4	20	M5	-	80	30	-	0.095
CES40-135	6	35	M6	-	135	120	23	0.430
CES40-135T				148				0.450

Tab. 19

> UES - guide with flat raceways in zinc-plated steel

UES rail in zinc-plated steel

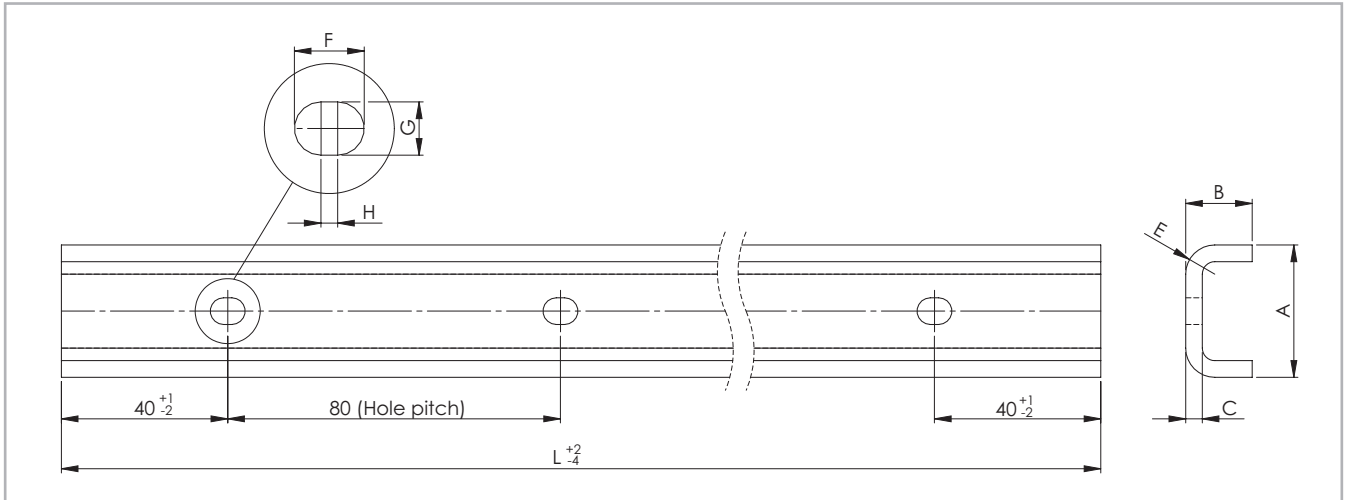


Fig. 24

Rail type	Size	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
UES	20	20.5	11	3	5.5	7	4.5	2	M4	0.77
	30	31.8	16	4	7	8.4	6.4	2	M5	1.39
	45	44.8	24.5	4.5	9.5	11	9	2	M8	2.79

Tab. 20

Rail type	Standard length L [mm]
UES	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 1440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 2080 - 2160 - 2240 - 2320 - 2400 - 2480 - 2560 - 2640 - 2720 - 2800 - 2880 - 2960 - 3040 - 3120

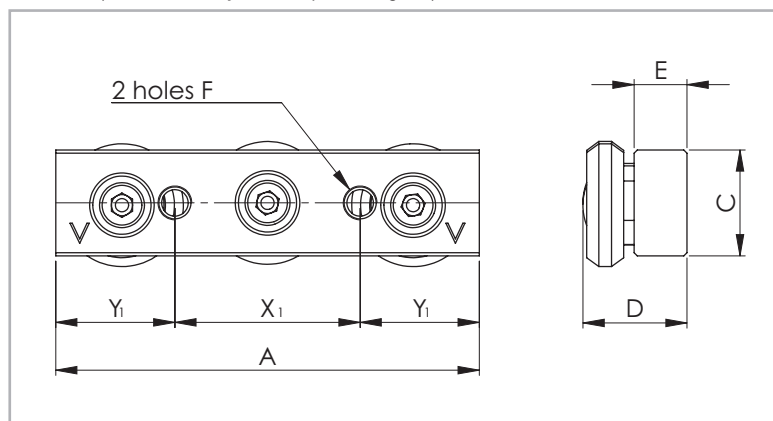
Tab. 21

Please specify hole pattern separately
 Special lengths or pitches available upon request, please contact the sales department
 The highlighted rail lengths are available from stock

X
R

CESU slider for UES rail

Version 4 (with solid body for compensating rail)



Slider version with wipers on request

Fig. 25

Slider type	Size	A [mm]	C [mm]	D [mm]	E [mm]	F [mm]	X_1 [mm]	Y_1 [mm]	Weight [kg]
CESU20-60	20	60	10	11.85	6	M5	20	20	0.04
CESU30-80	30	80	20	19.9	10	M6	35	22.5	0.16
CESU45-120	45	120	25	26.4	12	M8	55	32.5	0.45

Tab. 22

> TES-UES: Mounted sliders and rails

Guide with shaped raceways

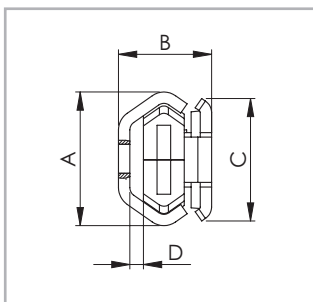


Fig. 26

Version 1
(Slider with compact body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TES-20 – CES20-80	19.2	16	18	2.5
TES-30 – CES30-88	29.5	20.5	27	3.5
TES-45 – CES45-150	46.4	31	40	5

Tab. 23

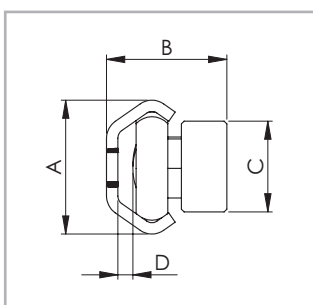


Fig. 27

Version 2
(Slider with solid body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TES-20 – CES20-60	19.2	17.8	10	2.6
TES-30 – CES30-80	29.5	26.5	20	3.3
TES-45 – CES45-120	46.4	38	25	5.1

Tab. 24

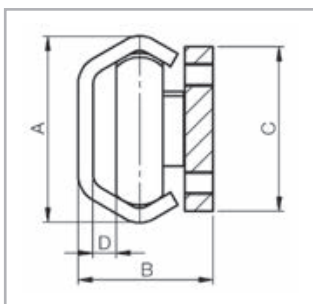


Fig. 28

Version 3
(Slider with compact body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TES-26 – CES26-80	26	22	20	3.7
TES-40 – CES40-135	39.5	28.65	35	5

Tab. 25

Guide with flat raceways

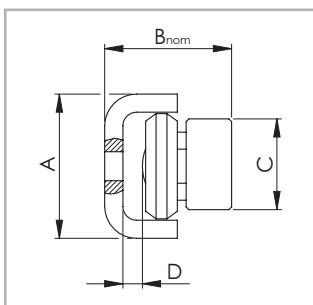


Fig. 29

Version 4
(Slider with solid body)

Configuration	A [mm]	B _{nom} [mm]	C [mm]	D [mm]
UES-20 – CESU20-60	20.5	18.25 ± 0.6	10	3.4
UES-30 – CESU30-80	31.8	27.95 ± 1.0	20	4.05
UES-45 – CESU45-120	44.8	37.25 ± 1.75	25	6.35

Tab. 26

> **TEN and UEN - guide with shaped or flat raceways hardened with Rollon-Nox patented process.**

TEN rail with shaped raceways

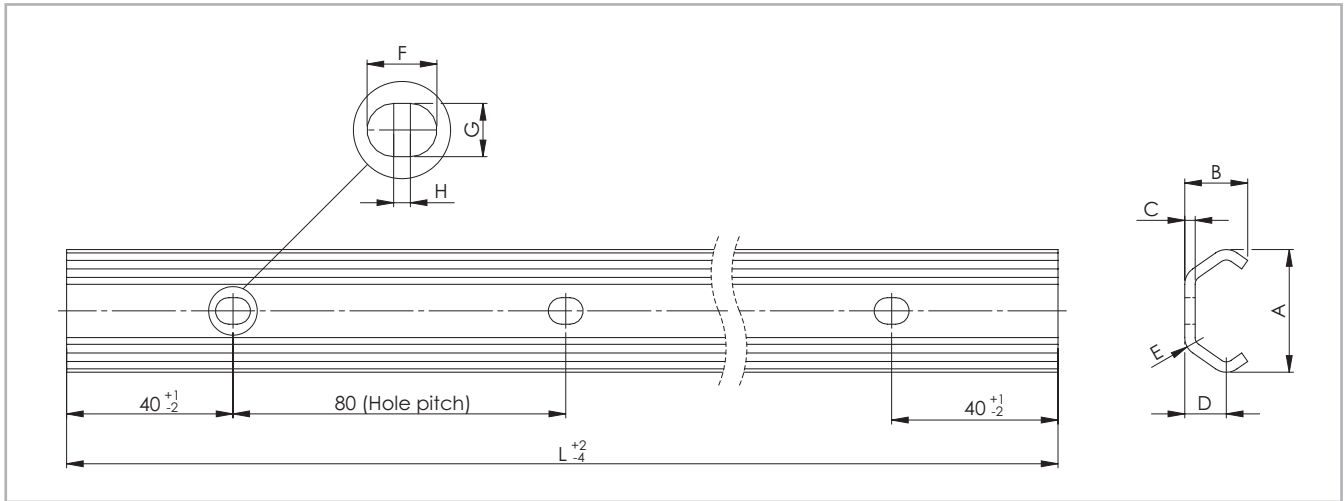


Fig. 30

UEN rail with flat raceways

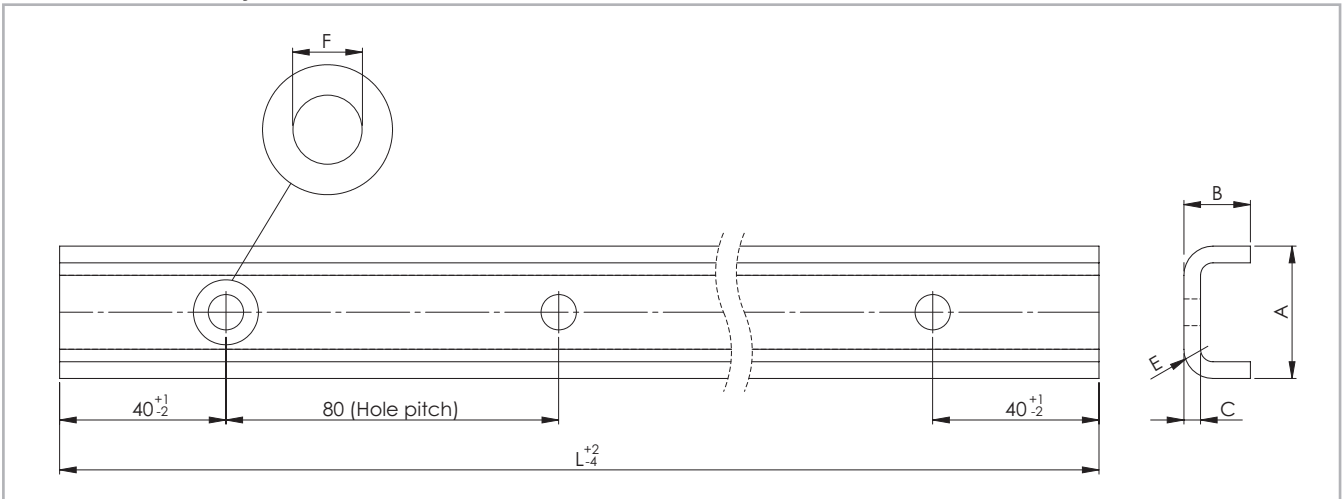


Fig. 31

Rail type	Sezione	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
TEN	26	26	14	2.5	4	6.5	6.5	*	M5	0.80
	30	29.5	15	2.5	4	8.4	6.4	2	M5	0.95
	40	39.5	21	3	6	11	9	2	M8	1.55
UEN	40	38.5	21	3	4	9	9	*	M8	1.70

* Cylindrical holes.

Tab. 27

Rail type	Standard length L [mm]
TEN UEN	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 1440 - 1520 - 1600 - 1680 - 1760 - 1840 - 1920 - 2000 - 2080 - 2160 - 2240 - 2320 - 2400 - 2480 - 2560 - 2640 - 2720 - 2800 - 2880 - 2960 - 3040 - 3120 - 3200 - 3360 - 3440 - 3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000

Please specify hole pattern separately
 Special lengths or pitches available upon request, please contact the sales department
 The highlighted rail lengths are available from stock

Tab. 28

Version	Characteristics
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.
K	As base version, but with additional treatment "ROLLON e-coating" black epoxy resin electrodeposition 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.
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. 29

Optional surface treatments where high corrosion resistance is required: Rollon e-coating technology, black epoxy resin electrodeposition with controlled thickness on the entire surface, except on the raceways, as masked before electrodeposition. 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
- Black glossy finish
- Excellent resistance in humid ambients
- Good resistance to oils and hydrocarbons

Optional customized rail coloring for application where special design look and high corrosion resistance are required: based on epoxy paint, standard in white and red color (versions CW and CR) with controlled thickness on the entire surface except 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.

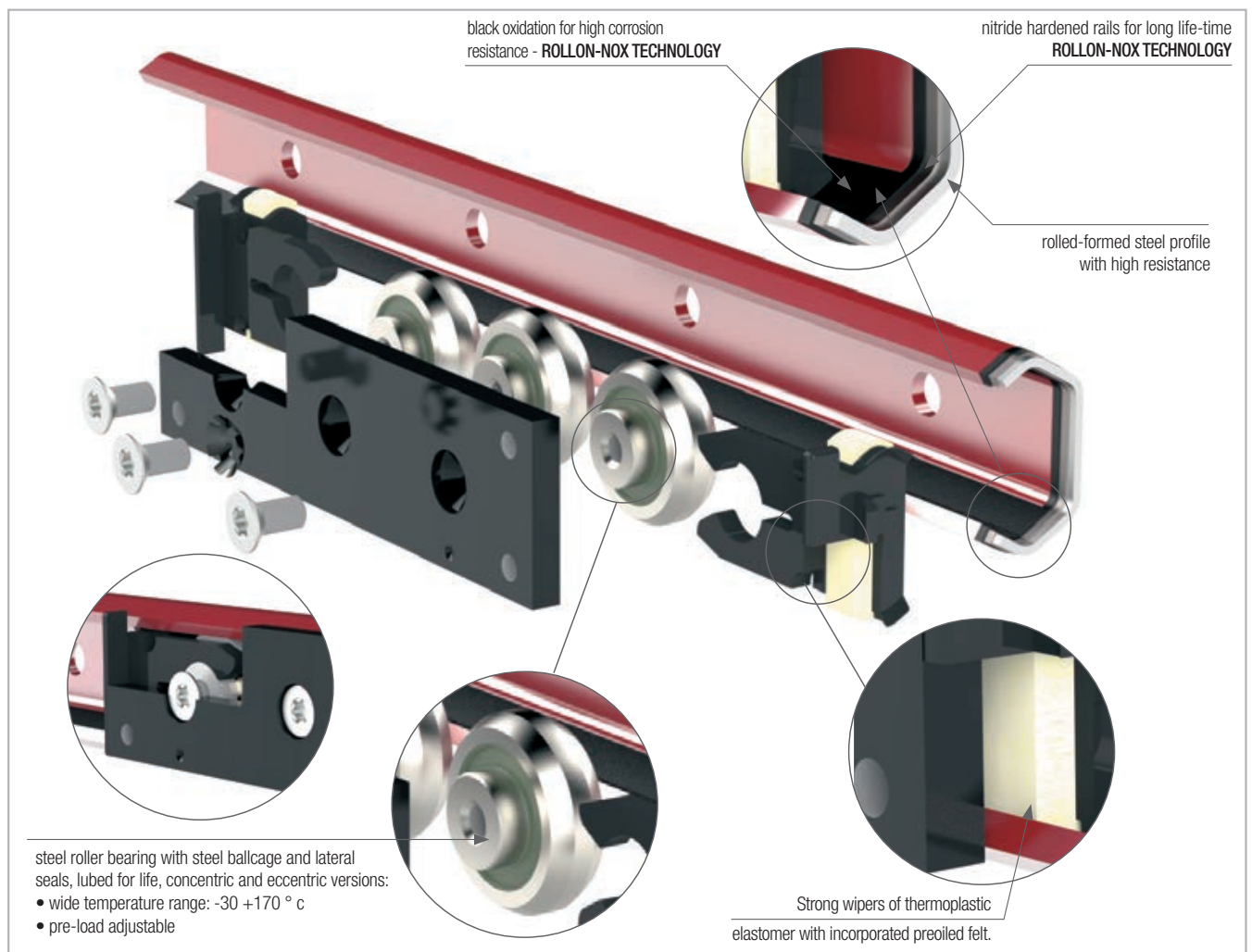


Fig. 32

3 Product dimensions

CEN slider for rail TEN 26, 30

The CEN 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.

Version 5 (slider with compact body for fixed rails)

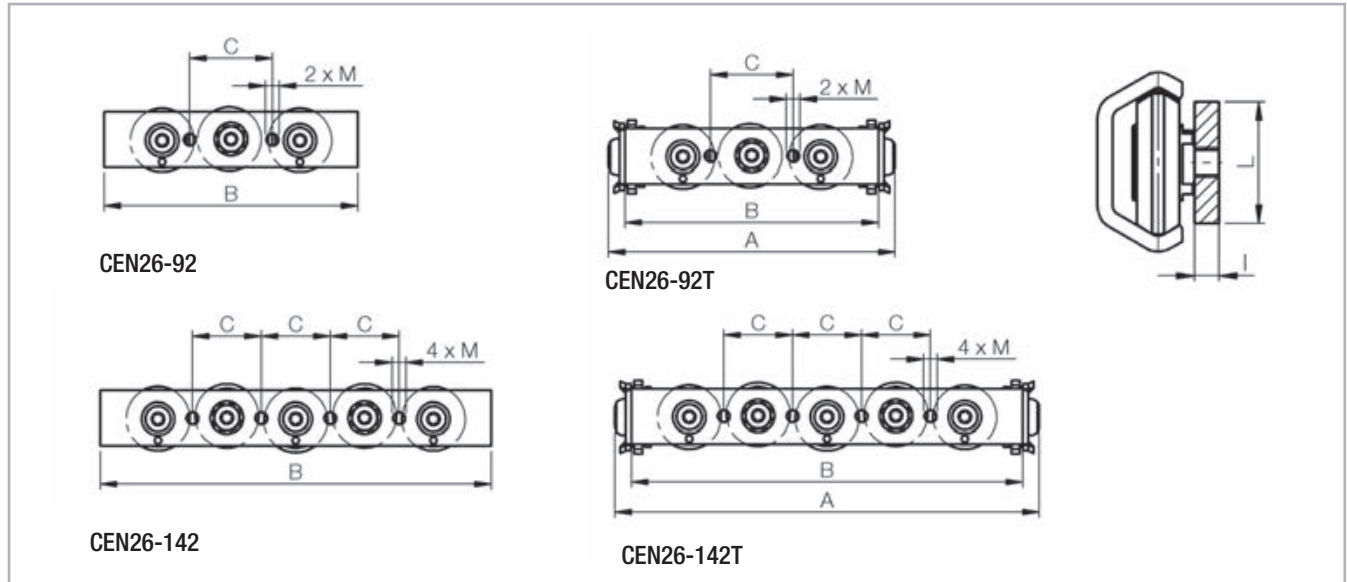


Fig. 33

Slider type	I [mm]	L [mm]	M [mm]	A [mm]	B [mm]	C [mm]	Weight [kg]	Dynamic coefficient C [N]
CEN26-92	4	20	M5	-	92	30	0.10	1280
CEN26-92T				104			0.11	
CEN26-142	4	20	M5	-	142	25	0.14	1730
CEN26-142T				154			0.15	
CEN30-92	4	20	M5	-	92	30	0.12	1360
CEN30-92T				104			0.13	
CEN30-142				-			142	
CEN30-142T	154	0.17						

Tab. 30

CEN slider for rail TEN-40 and UEN-40

Version 6 (slider with compact body for fixed rails and compensating rails)

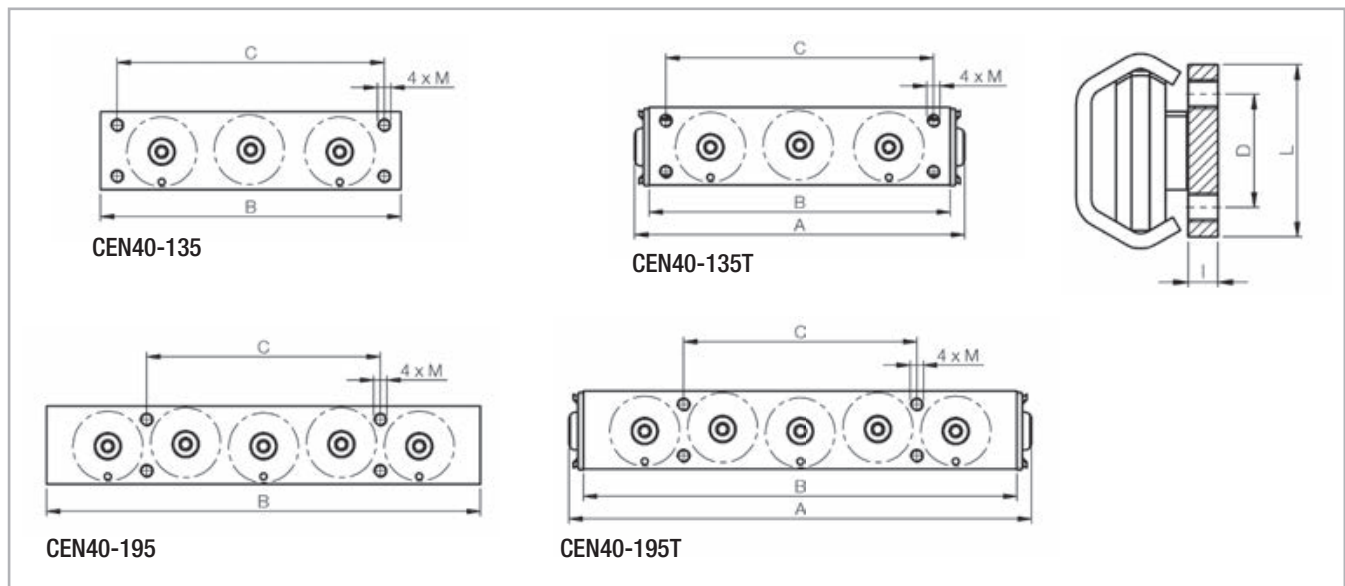


Fig. 34

Slider type	Rail type	I [mm]	L [mm]	M [mm]	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]	Dynamic coefficient C [N]
CEN40-135	TEN40	6	35	M6	-	135	120	23	0.43	2720
CEN40-135T					148					
CEN40-195					-	195	105		0.60	3670
CEN40-195T					208					
CEN40-135	UEN40	6	35	M6	-	135	120	23	0.43	1850
CEN40-135T					148					
CEN40-195					-	195	105		0.60	2460
CEN40-195T					208					

When sliders are mounted in UEN rails load capacities are reduced (see p. XR-5, Tab. 2)

Tab. 31

XR

> **TEN-UEN: Mounted sliders and rails**

Guide with shaped raceways

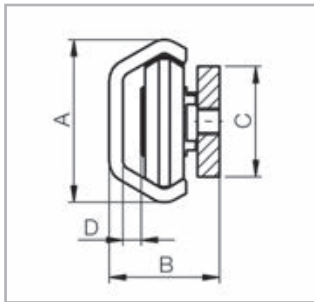


Fig. 35

Version 5
(Slider with compact body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TEN-26 – CEN26-92 TEN-26 – CEN26-142	26	22	20	3.7
TEN-30 – CEN30-92 TEN-30 – CEN30-142	29.5	19.9	20	3.3

Tab. 32

Guide with flat or shaped raceways

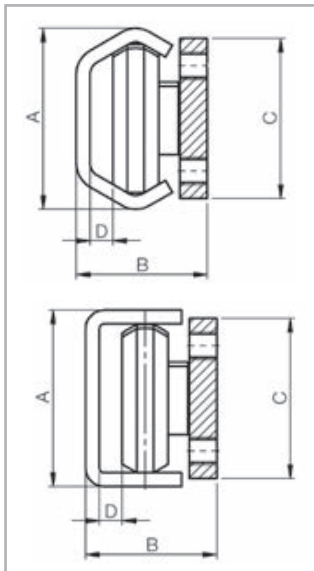


Fig. 36

Version 6
(Slider with compact body)

Configuration	A [mm]	B [mm]	C [mm]	D [mm]
TEN-40 – CEN40-135 TEN-40 – CEN40-195	39.5	28.65	35	5
UEN-40 – CEN40-135 UEN-40 – CEN40-195	38.5	28.65	35	5

Tab. 33

Accessories



Rollers

Version 1

(Slider with compact body for fixed rails)

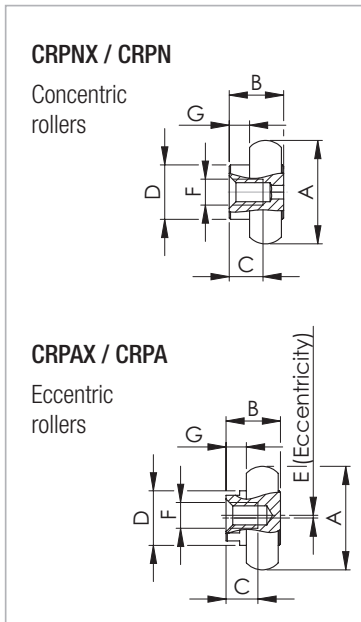


Fig. 37

Roller type	for slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	Weight [kg]
CRPNX20-2RS	CEX20-80	14	8.5	6	8	-	M4	4.0	0.006
CRPN20-2Z	CES20-80								
CRPAX20-2RS	CEX20-80					0.5			
CRPA20-2Z	CES20-80								
CRPNX30-2RS	CEX30-88	22.8	12	7	12	-	M5	4.5	0.02
CRPN30-2Z	CES30-88								
CRPAX30-2RS	CEX30-88					0.6			
CRPA30-2Z	CES30-88								
CRPNX45-2RS	CEX45-150	35.6	18	12	16	-	M6	6.0	0.068
CRPN45-2Z	CES45-150								
CRPAX45-2RS	CEX45-150					0.8			
CRPA45-2Z	CES45-150								

Load rate per roller: radial 50 %, axial 33 % of the given slider load rate
 2RS (splashproof seal for CEX slider), 2Z (dust cover seal for CES slider)

Tab. 34

Version 2

(Slider with solid body for fixed rails)

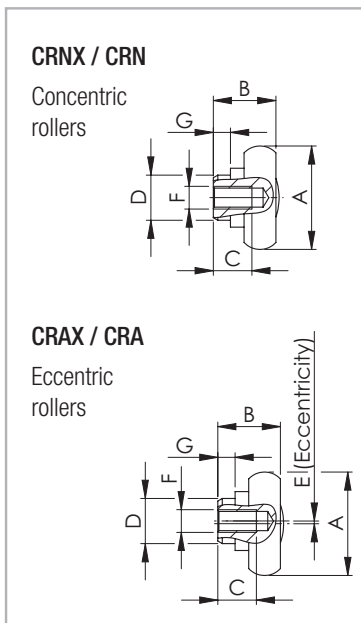


Fig. 38

Roller type	for slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	Weight [kg]
CRNX20-2RS	CEX20-60	14	8.7	6	6	-	M4	1.8	0.006
CRN20-2Z	CES20-60								
CRAX20-2RS	CEX20-60					0.5			
CRA20-2Z	CES20-60								
CRNX30-2RS	CEX30-80	22.8	14	9	10	-	M5	3.8	0.022
CRN30-2Z	CES30-80								
CRAX30-2RS	CEX30-80					0.6			
CRA30-2Z	CES30-80								
CRNX45-2RS	CEX45-120	35.6	20.5	14.5	12	-	M6	4.5	0.07
CRN45-2Z	CES45-120								
CRAX45-2RS	CEX45-120					0.8			
CRA45-2Z	CES45-120								

Load rate per roller: radial 50 %, axial 33 % of the given slider load rate
 2RS (splashproof seal for CEX slider), 2Z (dust cover seal for CES slider)

Tab. 35

Version 3

Slider with compact body for fixed rails

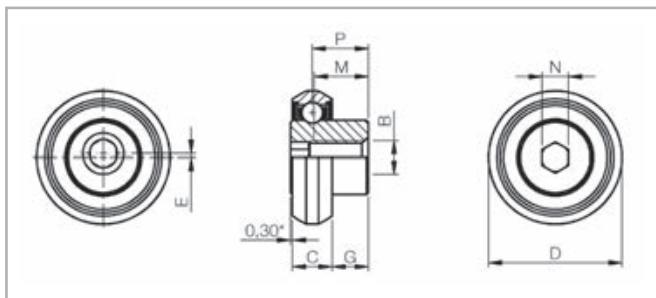


Fig. 39

RLN/RLNX

Concentric rollers

RLA/RLAX

Eccentric rollers

Type	for slider	E [mm]	D [mm]	C [mm]	M [mm]	G [mm]	P [mm]	N (Key)		B [mm]	Weight [Kg]
								Key	N [mm]		
RLNX26	CEX26-80	-	20.3	6	8.5	5.5	8.2	4	4	M5	0.013
RLAX26		0.6									
RLN26	CES26-80	-	20.2	6	8.5	5.5	8.2	4	4	M5	0.013
RLA26		0.6									
RLNX40	CEX40-135	-	31.5	6	8.5	4.65	10	5	5	M6	0.048
RLAX40		0.7									
RLN40	CES40-135	-	31.5	6	8.5	4.65	10	5	5	M6	0.048
RLA40		0.7									

Load rate per roller: radial 50 %, axial 33 % of the given slider load rate
 2RS (splashproof seal for CEX slider), 2Z (dust cover seal for CES slider)

Tab. 36

Version 4

(Slider with solid body for compensating rails)

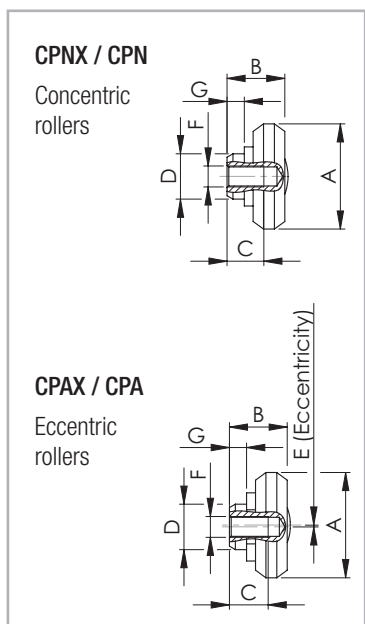


Fig. 40

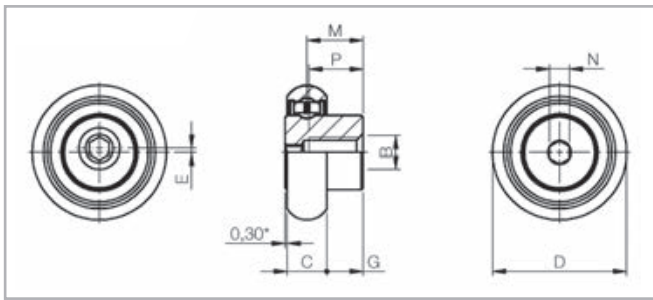
Roller type	for slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	Weight [kg]
CPNX20-2RS	CEXU20-60	14	7.35	5.5	6	-	M4	1.8	0.004
CPN20-2Z	CESU20-60								
CPAX20-2RS	CEXU20-60					0.4			
CPA20-2Z	CESU20-60								
CPNX30-2RS	CEXU30-80	23.2	13	7	10	-	M5	3.8	0.018
CPN30-2Z	CESU30-80								
CPAX30-2RS	CEXU30-80					0.6			
CPA30-2Z	CESU30-80								
CPNX45-2RS	CEXU45-120	35	18	12	12	-	M6	4.5	0.06
CPN45-2Z	CESU45-120								
CPAX45-2RS	CEXU45-120					0.8			
CPA45-2Z	CESU45-120								

Load rate per roller: radial 50 % of given slider load rate
 2RS (splashproof seal for CEX slider), 2Z (dust cover seal for CES slider)

Tab. 37

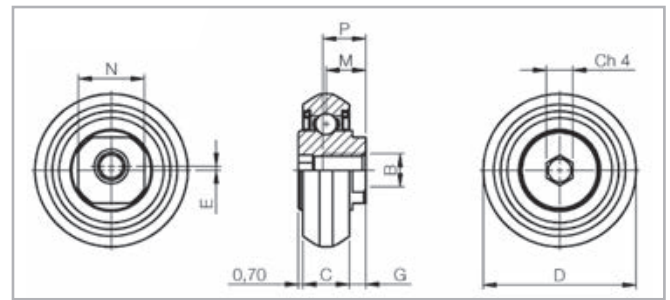
Version 5

(Slider with compact body for fixed rails)



RLN26/RLA26

Fig. 41



RLN30/RLA30

Fig. 42

Type	for slider	E [mm]	D [mm]	C [mm]	M [mm]	G [mm]	P [mm]	N (Key)		B [mm]	Weight [Kg]	
								Key	N [mm]			
RLN26	CEN30-92	-	20.2	6	8.5	5.5	8.2	4	4	M5	0.013	
RLA26	CEN30-142	0,6										
RLN30	CEN26-92	-	23.15	7	6	2.5	6.5	KLM28	4	10	M5	0.020
RLA30	CEN26-142	0,6										

Load rate per roller: radial 50 %, axial 33 % of the given slider load rate
 2Z (dust cover seal for CEN slider)

Tab. 38

Version 6

(Slider with compact body for fixed rails and compensating rails)

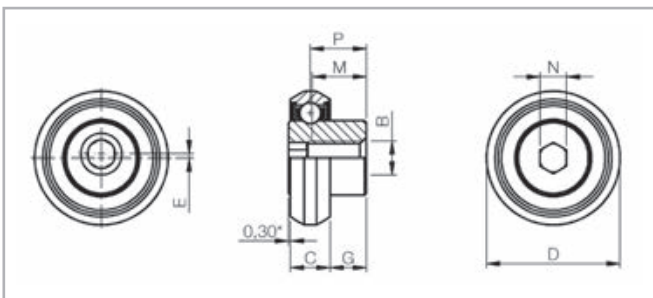


Fig. 43

- RLN
Concentric rollers
- RLA
Eccentric rollers

Type	for slider	E [mm]	D [mm]	C [mm]	M [mm]	G [mm]	P [mm]	N (Key)		B [mm]	Weight [Kg]
								Key	N [mm]		
RLN40	CEN40-135	-	31.5	10	9.65	4.65	10	5	5	M6	0.048
RLA40	CEN40-195	0.7									

Load rate per roller: radial 50 %, axial 33 % of the given slider load rate
 2Z (dust cover seal for CEN slider)

Tab. 39

> Fixing screws

We recommend fixing screws according to ISO 7380 with low head height or TORX® screws (see fig. 44) on request.

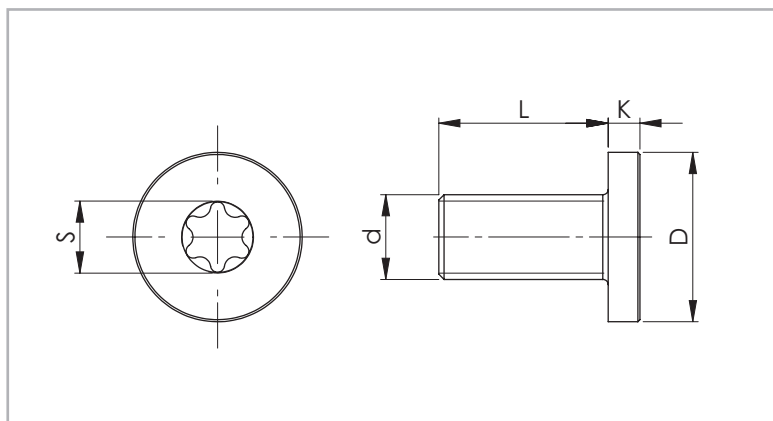


Fig. 44

Rail size	Screw type	d	D [mm]	L [mm]	K [mm]	S	Tightening torque [Nm]
20	M4 x 8	M4 x 0.7	8	8	2	T20	3
26	M5 x 10	M5 x 0.8	10	10	2	T25	9
30	M5 x 10	M5 x 0.8	10	10	2	T25	9
40	M8 x 16	M8 x 1.25	16	16	3	T40	20
45	M8 x 16	M8 x 1.25	16	16	3	T40	22

Tab. 40

Technical instructions



> Lubrication

All radial ball bearing rollers in the X-Rail series are lubricated for life. It is advisable to lubricate the raceways with specific bearing grease. The interval between lubrication treatments depends mainly on environmental conditions, bearing speed and temperature.

Under normal conditions, it is advisable to lubricate locally after 100 km of use or after six months of service. In case of critical applications, lubrication treatments should be more frequent. Before lubricating, remember to clean the raceway surfaces carefully. We advise using a lithium grease of medium consistency for rolling-element bearings.

Different lubricants are available on request for special applications:

- FDA-approved lubricant for use in the food industry
- specific lubricant for clean rooms
- specific lubricant for the marine technology sector
- specific lubricant for high and low temperatures

For specific information, contact Rollon technical support.

Under normal conditions, correct lubrication:

- reduces friction
- reduces wear
- reduces stress on contact surfaces due to elastic deformation
- reduces noise during operation
- increases the regularity of the rolling movement

> T+U-System

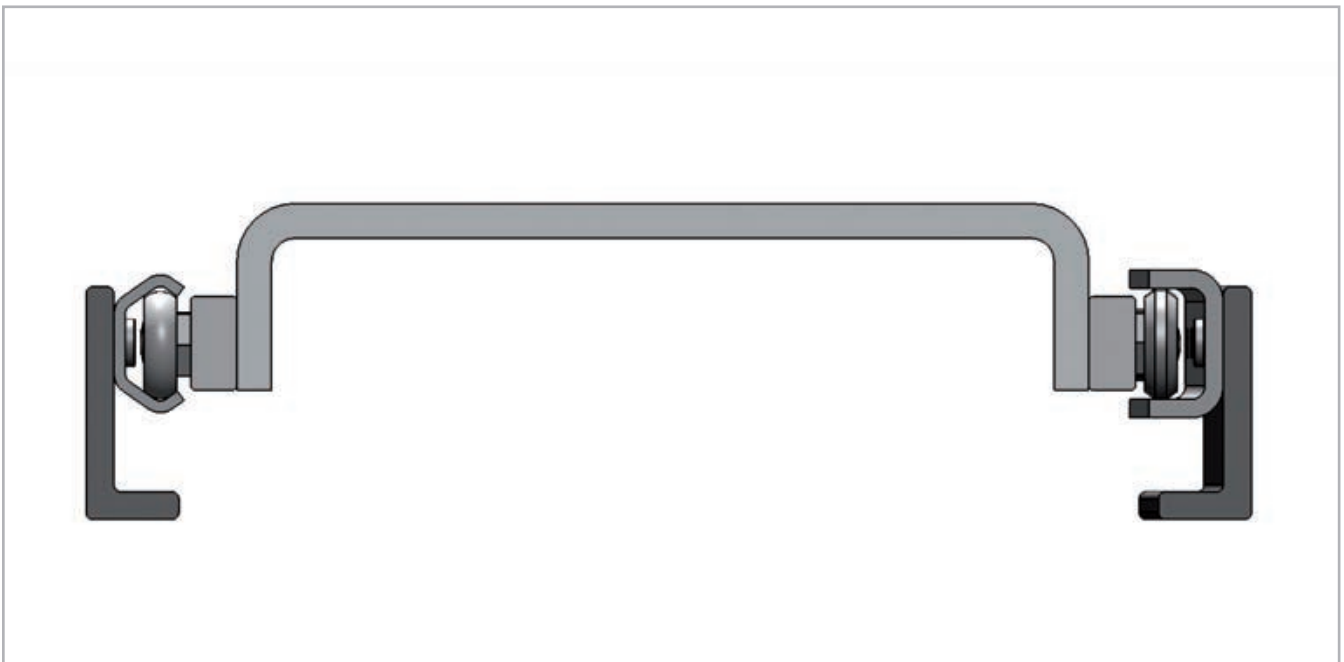


Fig. 45

Solves axial deviations in parallelism

Mounting two linear bearing rails in a parallel manner is always important but rarely easy. Distortions in axial alignment can drastically reduce the life of the rails. These distortions can bind and overload sliders. Rollon offers an outstanding solution for the alignment of dual track carriages. Using shaped and flat raceways it is possible to avoid axial deviation in parallelism of the mounting surfaces without additional modifications of those surfaces. T+U rails easily address these alignment issues to create an economical parallel rail system.

In a T+U-System, the slider in the T rail carries axial and radial loads and guides the movement of the U, which has lateral freedom.

U rails have flat parallel raceways that allow free lateral movement of the sliders. The maximum freedom a slider in the U rail can offer can be calculated using the values S_1 and S_2 (see pg. XR-28, fig. 46, tab. 41). With nominal value B_{nom} as the starting point, S_1 indicates the maximum allowed movement into the rail, while S_2 represents the maximum offset towards the outside of the rail.

If the length of the guide rail is known, the maximum allowable angle deviation of the mounting surface (see pg. XR-28, fig. 47) can be obtained. In this case the slide in the U rail has the freedom to travel from the innermost position S_1 to the outermost position S_2 .

Maximum offset

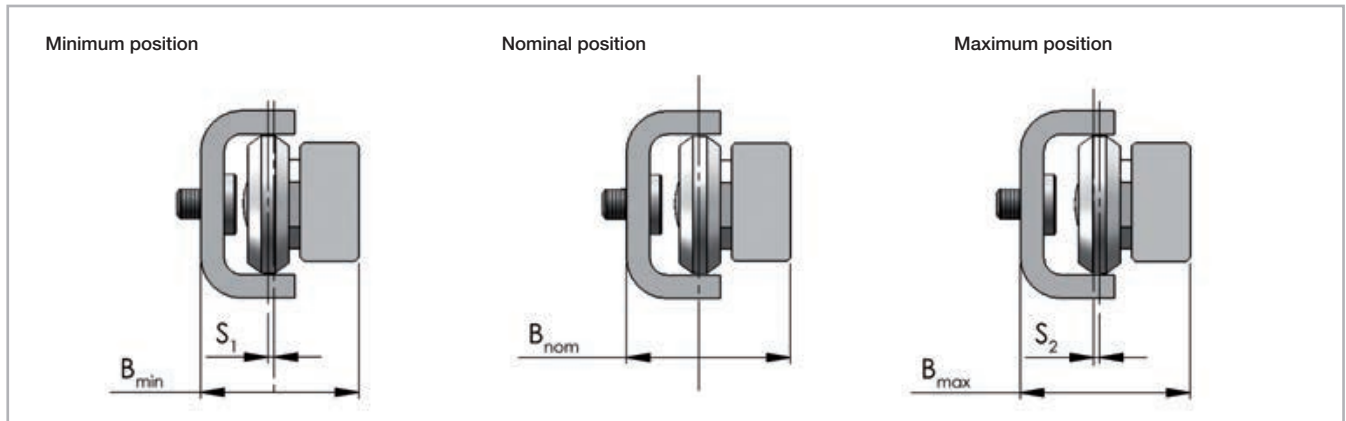


Fig. 46

Slider type (Version 4 with solid body)	S ₁ [mm]	S ₂ [mm]	B _{min} [mm]	B _{nom} [mm]	B _{max} [mm]
CEXU.../CESU20-60	0.6	0.6	17.65	18.25	18.85
CEXU.../CESU30-80	1	1	26.95	27.95	28.95
CEXU.../CESU45-120	1.75	1.75	35.50	37.25	39

Tab. 41

Guideline for the maximum angle deviation α , achievable with the longest guide rail

$$\alpha = \arctan \frac{S^*}{L}$$

S* = sum of S₁ and S₂
L = length of the rail

Fig. 47

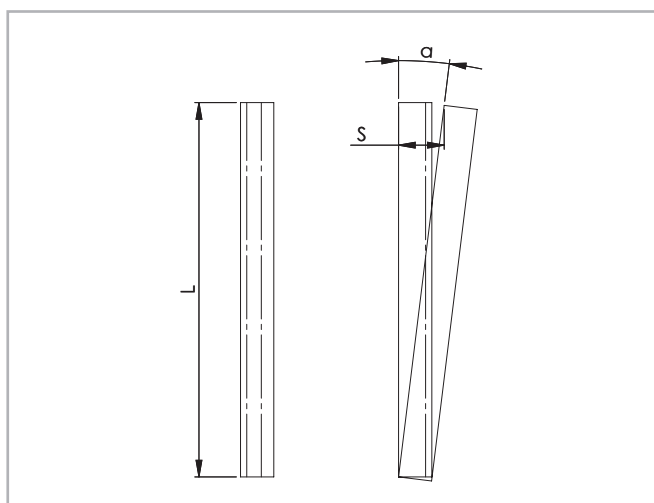


Fig. 48

Size	Rail length [mm]	Offset S* [mm]	Angle α [°]
20	3120	1.2	0.022
30	3120	2	0.037
45	3120	3.5	0.064

Tab. 42

> TEN40+UEN40 self-aligning system

Used in pair with CEN-40 sliders in both rails, TEN-40 can be combined with UEN-40 to create a self-aligning system capable of tolerating alignment errors of up to 3.4 mm.

The slider in the TEN-40 guiding rail is rigidly connected, via the mobile element, to the sliders in the UEN-40 floating rail on the other side. The TEN-40 guiding rail ensures play-free linear motion. The slider in the UEN-40 floating rail is also play-free but able to move axially across the rail raceways. This system avoids overload on the sliders as the result of rail alignment error.

The limit of axial movement of CEN-40 sliders towards the inside of UEN-40 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 UEN-40 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.

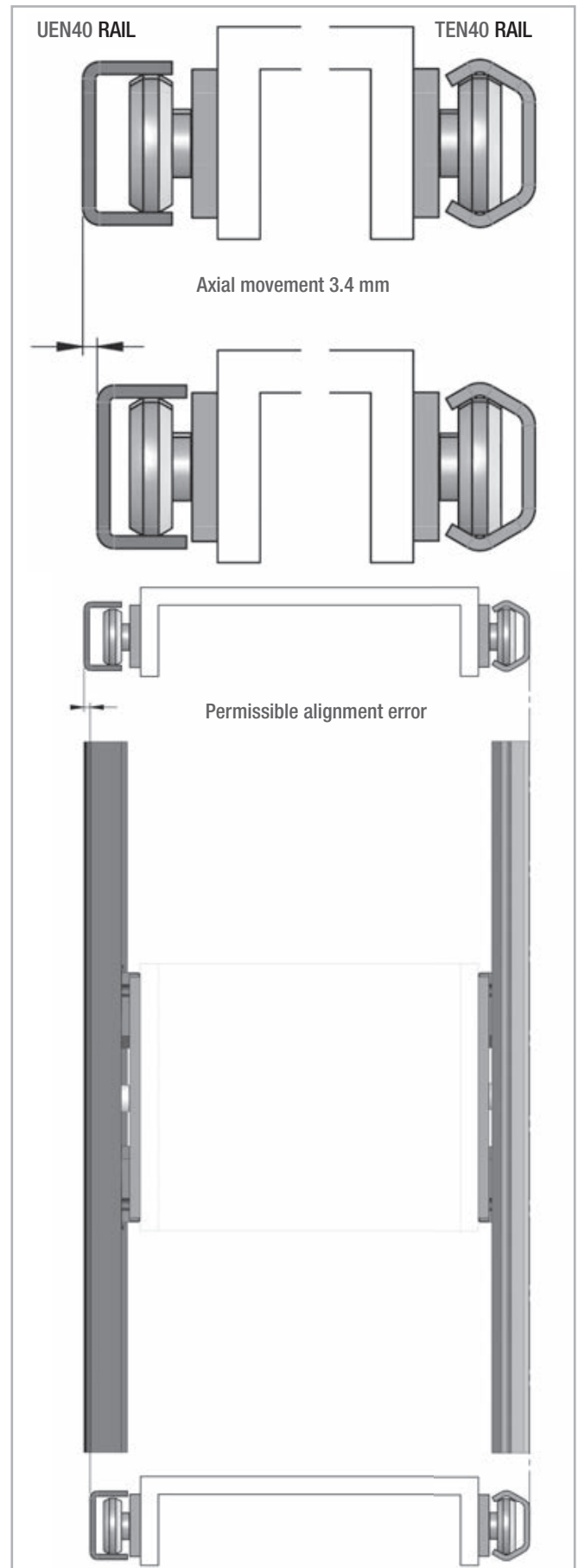
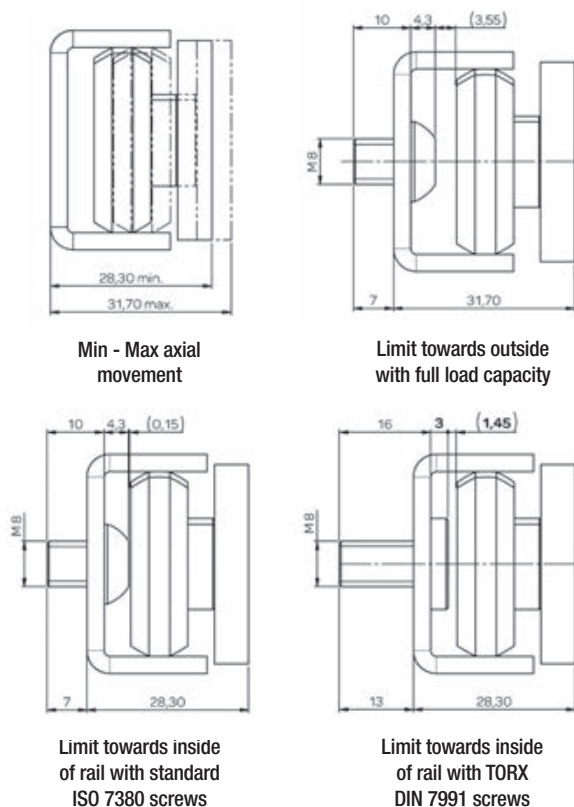


Fig. 49
XR-29

> Setting preload

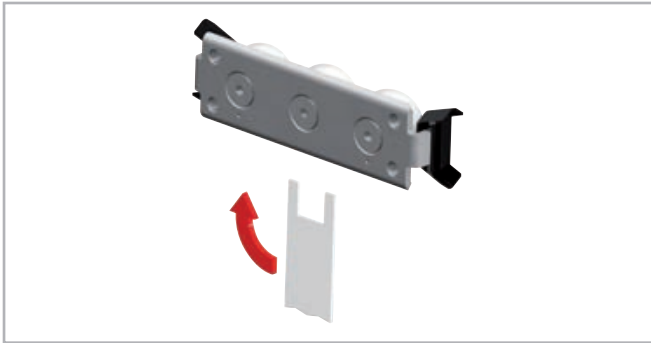


Fig. 50

If the product is delivered with the sliders in the rails, the sliders are already preloaded. If delivered separately, or if the sliders need to be installed in another rail, the sliders must be readjusted. In this case, follow the instructions below:

- Wipe the raceways of any dirt and debris.
- If necessary, remove existing wipers and insert the sliders into the rails. Slightly loosen the fixing screw of the center roller pin.
- Position the slider(s) at the ends of the rail.
- For the U rails there must be a thin support (e.g. set key) under the ends of the slider body to ensure the horizontal alignment of the slider in the flat raceways.
- The included special flat key is inserted from the side between the rail and the slider and inserted onto the hexagonal or square shaft of the eccentric pin to be adjusted (see fig. 50).

Size	Tightening torque [Nm]
20	3
26	7
30	7
40	10
45	12

Tab. 43

- By turning the flat key clockwise, the eccentric roller is pressed against the upper raceway, thereby removing clearance and setting the correct preload. During this process, absence of play is desired; avoid setting a preload that is so high that it generates high friction and reduces service life.
- Hold the roller with the adjustment key in the desired position and carefully tighten the fixing screw. The exact tightening torque will be checked later.
- Move the slider in the rail and check the preload over the entire length of the rail. It should move easily and the slider should not have play at any location of the rail.
- Tighten the fixing screw with the specified tightening torque (see tab. 43), while holding the flat key and maintaining the angle position of the roller so as to not change the preload while tightening the screw. It is recommended to use thread locking compound.
- Now re-attach the existing wipers if desired.

> Use of radial ball bearing rollers

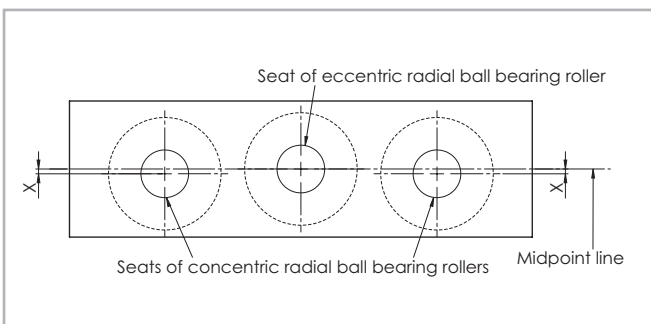


Fig. 51

Slider size	X [mm]
20	0.60
26	0.40
30*	0.65
40	0.90
45	0.60

* for TEN-30 X=0,45

Tab. 44

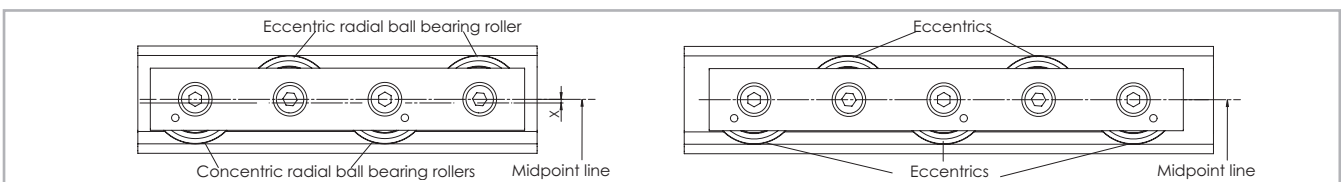


Fig. 40

If purchasing "Radial ball bearing rollers" to install on your own structure (see from p. XR-3 to XR-25) we advise:

- Using a maximum of 2 concentric radial ball bearing rollers

- Offset the seats of the concentric radial ball bearing rollers with respect to those of the eccentric radial ball bearing rollers according to the table (tab. 44).

Ordering key



> Rail / slider system

TEX-	960	/1/	CEX20-60	-2RS	
				Roller seal	see pg. XR-4 Performance characteristics
				Slider type	see pg. XR-7, tab. 5 and 6 / pg. XR-9, tab. 9
				Number of sliders in one rail	
				Rail length in mm	see pg. XR-6, tab. 4 / pg. XR-8, tab. 8
Rail type	see pg. XR-6, tab. 3 / pg. XR-8, tab. 7				

Ordering example: TEX-00960/1/CEX20-060-2RS

Hole pitch: 40-11 x 80-40

Notes on ordering: The rail length codes are always 5 digits, the slider length codes are always 3 digits; use zeroes as a prefix when lengths are shorter

> Rail

TEX-	30-	960	
		Rail length in mm	see pg. XR-6, tab. 4 / pg. XR-8, tab. 8
		Size	see pg. XR-6, tab. 3 / pg. XR-8, tab. 7
Rail type	see pg. XR-6, tab. 5 / pg. XR-8, tab. 7		

Ordering example: TEX-30-00960

Hole pattern: 40-11 x 80-40

Notes on ordering: The rail length codes are always 5 digits; use zeroes as a prefix when lengths are shorter

> Slider

CES30-80	-2Z	
	Roller seal	see pg. XR-6 Performance characteristics
Slider type	see pg. XR-7, tab. 5 and 6 / pg. XR-9, tab. 9	

Ordering example: CES30-080-2Z

Notes on ordering: The slider length codes are always 3 digits; use zeroes as a prefix when lengths are shorter

> Accessories

Roller pins

CRPAX	45	-2RS	
		Roller seal	<i>see pg. XR-6 Performance characteristics</i>
	Size	<i>see pg. XR-11, tab. 13-15</i>	
Roller type	<i>see pg. XR-11, tab. 13-15</i>		

Ordering example: CRPAX45-2RS

Fixing screws

Rail type	Size	Ordering description
TEX / UEX	20	TORX® screw TC 18 M4x8 NIC
	26	TORX® screw TC 28 M5x10 NIC
	30	TORX® screw TC 28 M5x10 NIC
	40	TORX® screw TC 43 M8x16 NIC
	45	TORX® screw TC 43 M8x16 NIC
TES / UES	20	TORX® screw TC 18 M4x8
	26	TORX® screw TC 28 M5x10
	30	TORX® screw TC 28 M5x10
	40	TORX® screw TC 43 M8x16
	45	TORX® screw TC 43 M8x16
TEN	26	TORX® screw TC 28 M5x10
	30	TORX® screw TC 28 M5x10
	40	TORX® screw TC 43 M8x16
UEN	40	TORX® screw TC 43 M8x16

see pg. XR-12, fig. 20, tab. 16



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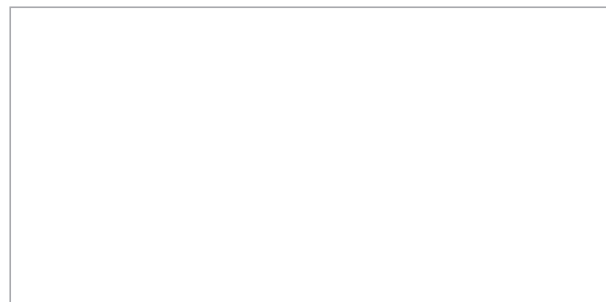
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