

X-RAIL

Data sheet - rev. 1.0



LINEAR COMPONENTS

myRollon

MyRollon is **your digital working platform** for linear guides, telescopic rails, actuators and actuator systems.

With myRollon, it is possible to determine the best linear motion solution according to your application specifications.

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► ORDERING KEY

■ Rail / slider system

TEX-	960	/1/	CEX20-60	-2RS	X	
						Surface treatments [if different from standard]
				Roller seal		
			Slider type			
			Number of sliders in one rail			
			Rail length [mm]			
			Series			

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 zeros as a prefix when lengths are shorter.

■ Rail

TEX-	30	960	X	
				Surface treatments [if different from standard]
				Rail length [mm]
				Size
				Series

Ordering example: **TEX-30-00960**

Hole pattern: 40-11 x 80-40

Notes on ordering: the rail length codes are always 5 digits; use zeros as a prefix when lengths are shorter.

■ Slider

CES30-80	-2Z	K	
			Surface treatments [if different from standard]
			Roller seal
			Series

Ordering example: **CES30-080-2Z**

Notes on ordering: the slider length codes are always 3 digits; use zeros as a prefix when lengths are shorter.

■ Accessories - Roller

CRPAX	45	-2RS	
			Roller seal
			Size
			Series

Ordering example: **CRPAX45-2RS**

■ Accessories - Flat spanner for slider setting

CK	30	
		Size
		Series

Ordering example: **CK30**

► FEATURES AND ADVANTAGES



Fig.1

X-Rail linear bearings feature a bent C-profile design. They are available in stainless steel, zinc-plated steel or hardened steel with Rollon-Nox treatment.

X-Rail is a 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 feature a rolled C-profile (0 degrees of axial play) or U-profile (1 degree of axial play) and are available in three versions: hardened with the Rollon-Nox patented process of deep nitriding and black oxidation (N/P-series), zinc-plated steel ISO 2081 (S-series), and stainless steel (X-series).

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 a compact or solid body.

X-Rail is particularly suitable for construction and machine technology, medical technology, transport, the food and beverage industry, and building energy technology.

Performance characteristics

- Available sizes: 20, 26, 30, 40, 45
- Max. operating speed: 1.5 m/s (59 in/s)
- Max. acceleration: 2 m/s² (78 in/s²)
- Temperature range:
 - Zinc-plated steel and hardened steel: -20 °C + 120 °C (-4 °F + 248 °F)
 - Stainless steel: -20 °C + 100 °C (-4 °F + 212 °F)

Rails

- Material: stainless steel, zinc-plated steel, hardened steel
- Available rail lengths: from 160 mm up to 4000 mm (from 6.3 in to 157 in) in 80 mm increments (3.15 in)
- Hardening process: Rollon-Nox (only for TEN/UEN/TEP/UEP rails)
 - Max rail length: 4000 mm
 - Surface color: Black

Sliders

- Material: Stainless steel, Zinc-plated steel, E-coating coated steel.
- Roller material: Stainless steel, Carbon steel.
- Rollers lubricated for life

MAIN ADVANTAGES

Self-aligning system

Thanks to the self-alignment feature, it's possible to choose the structure without worrying about machining the mounting surface, resulting in reduced assembly time.

Corrosion resistant

Various surface treatments and material options make X-Rail a reliable choice for diverse environments, suitable for both indoor and outdoor applications.

Easy assembly

X-Rail can be easily mounted on non-machined structures, streamlining assembly. The roller adjustment system allows for simple regulation of sliding force during the assembly phase.

Strength and sturdiness

The carefully engineered design of the steel slider body help ensure superior sturdiness.

Reliability in dirty environments

The newly designed polymer heads help ensure optimal cleaning of the raceways, while an optional slow-release lubricating felt is available for reduced maintenance needs.

■ N/P-series

Linear guides and sliders are made of hardened steel. The Rollon-Nox hardening process provides the guide with long lifespan and resistance to wear, in addition to a black surface resistant to flame and abrasion. Sliders feature newly designed polymer heads with slow-release lubricating felt for low maintenance and optimal cleaning of the raceways.



Fig.2

■ S-series

Linear guides and sliders are made of zinc-plated steel. They offer a simple and economical solution for a wide range of applications where high frequency is not required.

Good load capacity-to-size ratio, tailor-designed sliders and ease of assembly are the features that make this product a winning choice compared to self-built or other similar solutions on the market.



Fig.3

■ X-series

Linear guides and sliders are made of stainless steel AISI 316L (1.4404) and bearings in AISI 440 (1.4125). They offer a simple and practical solution for all applications where high corrosion resistance is required, particularly in the food, chemical, pharmaceutical, and medical industries. The product is easily washable for applications subject to frequent cleaning.

For applications in severe marine environments, an electro-polished version is available for very high corrosion resistance.



Fig.4

■ System (T+U-System)

T and U-rails can be used together to compensate for deviations in parallelism and tolerances in the mounting structure. The T-rail (fixed rail) bears the main load, while the U-rail with flat raceways (compensating rail) allows the bearings to travel axially without constraints.



Fig.5

■ Rollers

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



Fig.6

► COMPONENTS AND DIMENSIONS

■ TEN/TEP - Rollon-Nox hardened steel guides with shaped raceways

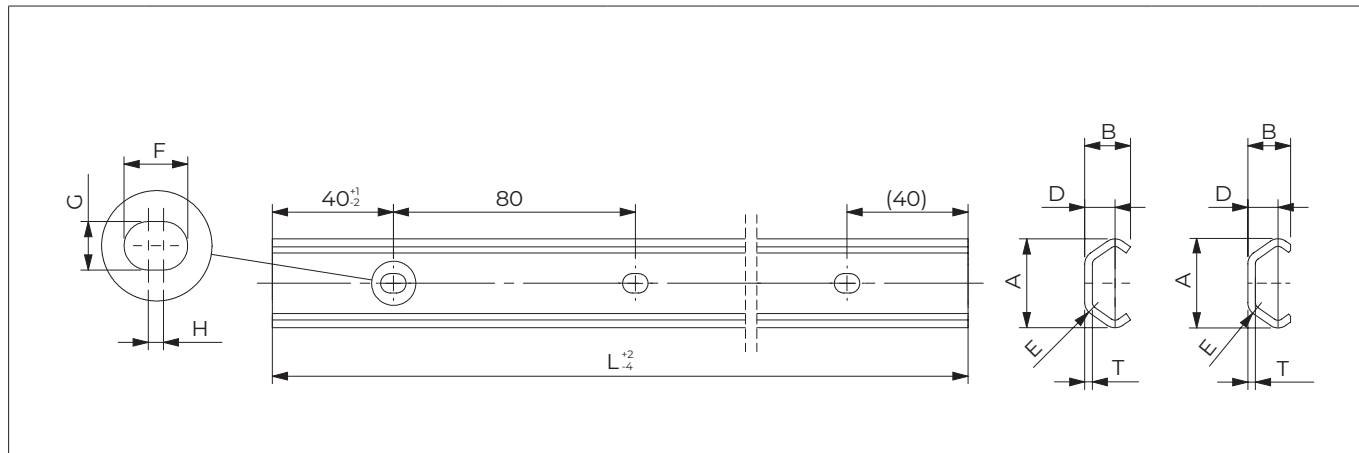


Fig.7

Rail type	Size	A [mm]	B [mm]	T [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
TEN	26	26.1	14	2.5	9.5	4.5	11	6	5	M5	0.80
TEP	30	29.5	14.1	2.5	10	4.5	11	6	5	M5	0.95
TEN	40	39.5	20	3	13	6	13	9	4	M8	1.55

Tab.1

Rail type	Size	Min length [mm]	Max length [mm]	Standard length L [mm]
TEN	26	160	4000	160 - 240 - 320 - 400 - 480 - 560 - 640 - 720 - 800 - 880 - 960 - 1040 - 1120 - 1200 - 1280 - 1360 - 1440 - 1520 - 1600 - 1680 - 1760 - 1840
TEP	30	160	4000	- 1920 - 2000 - 2080 - 2160 - 2240 - 2320 - 2400 - 2480 - 2560 - 2640 - 2720 - 2800 - 2880 - 2960 - 3040 - 3120 - 3200 - 3280 - 3360 - 3440
TEN	40	160	4000	3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000

Special lengths or pitches available upon request.
 We don't recommend the junction of rails.

Tab.2

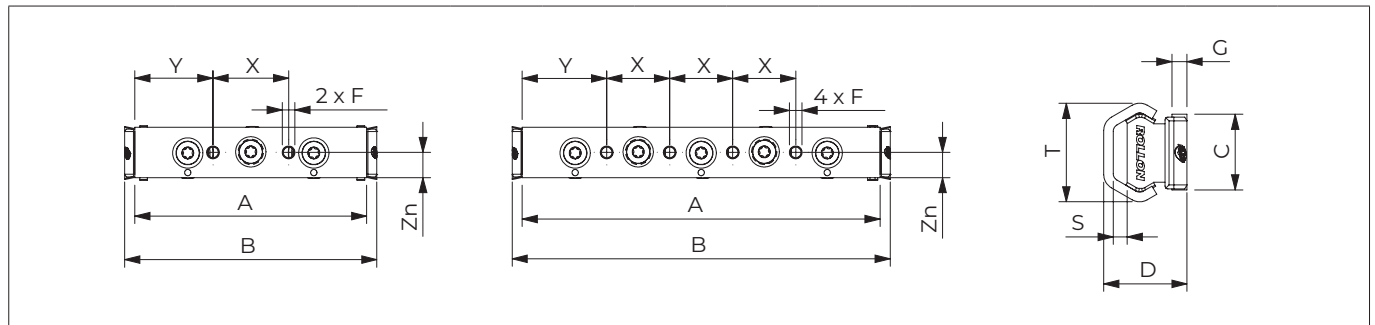
■ CEN26 slider for rail TEN26


Fig.8

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Zn [mm]	Weight [kg]
CEN26-92T	3	92	100	20	22	M5	4	3.7	26.1	30	31	10	0.11
CEN26-142T	5	142	150	20	22	M5	4	3.7	26.1	33.5	25	10	0.15

Tab.3

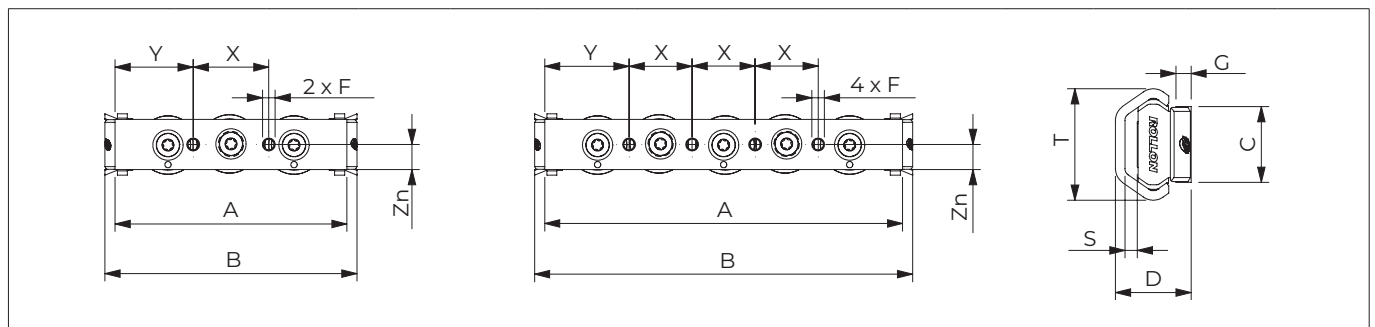
■ CEP30 slider for rail TEP30


Fig.9

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Zn [mm]	Weight [kg]
CEP30-3T	3	92	100	20	20	M5	4	3.3	29.5	30	31	10	0.13
CEP30-5T	5	142	150	20	20	M5	4	3.3	29.5	25	33.5	10	0.17

Tab.4

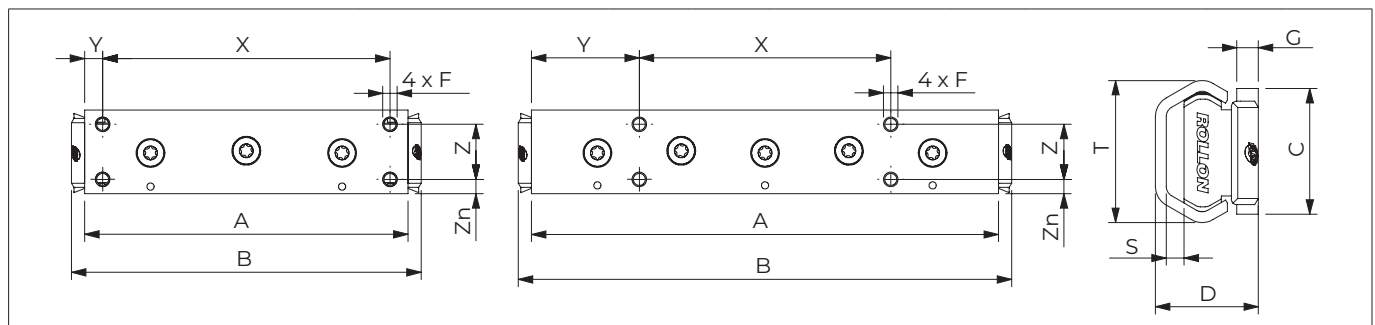
■ CEN40 slider for rail TEN40


Fig.10

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Z [mm]	Zn [mm]	Weight [kg]
CEN40-135T	3	135	146	35	28.65	M6	6	5	39.5	120	7.5	23	6	0.45
CEN40-195T	5	195	206	35	28.65	M6	6	5	39.5	105	45	23	6	0.62

Tab.5

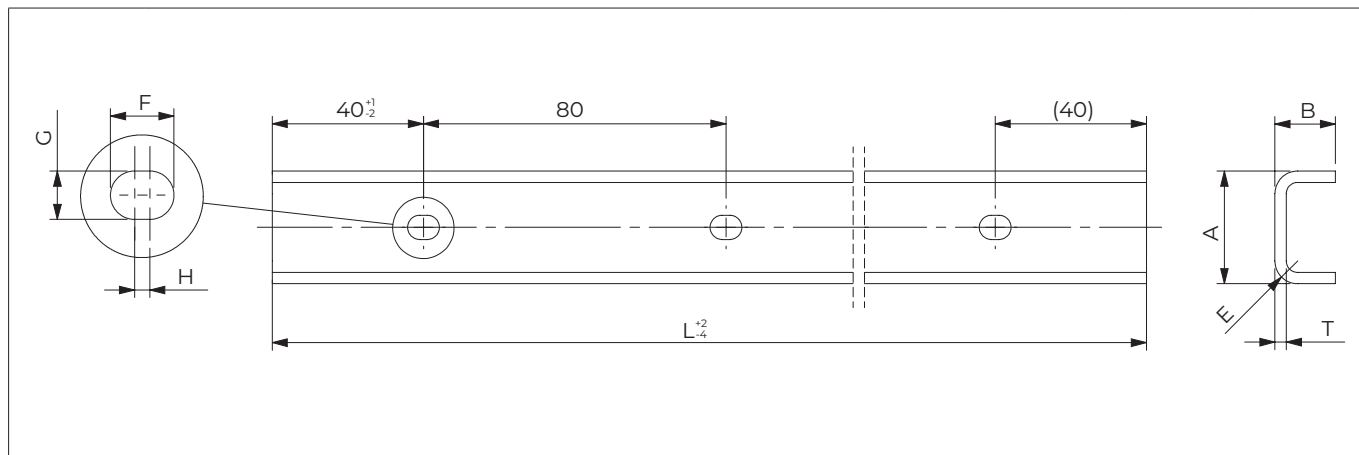
■ UEN/UEP - Rollon-Nox hardened steel guides with flat raceways


Fig.11

Rail type	Size	A [mm]	B [mm]	T [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
UEP	30	29.8	16	3	6	11	6	5	M5	1.19
UEN	40	38.5	21	3	6	13	9	4	M8	1.70

Tab.6

Rail type	Size	Min length [mm]	Max length [mm]	Standard length L [mm]
UEP	30	160	4000	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
UEN	40	160	4000	- 2720 - 2800 - 2880 - 2960 - 3040 - 3120 - 3200 - 3280 - 3360 - 3440 - 3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000

Special lengths or pitches available upon request.
 We don't recommend the junction of rails.

Tab.7

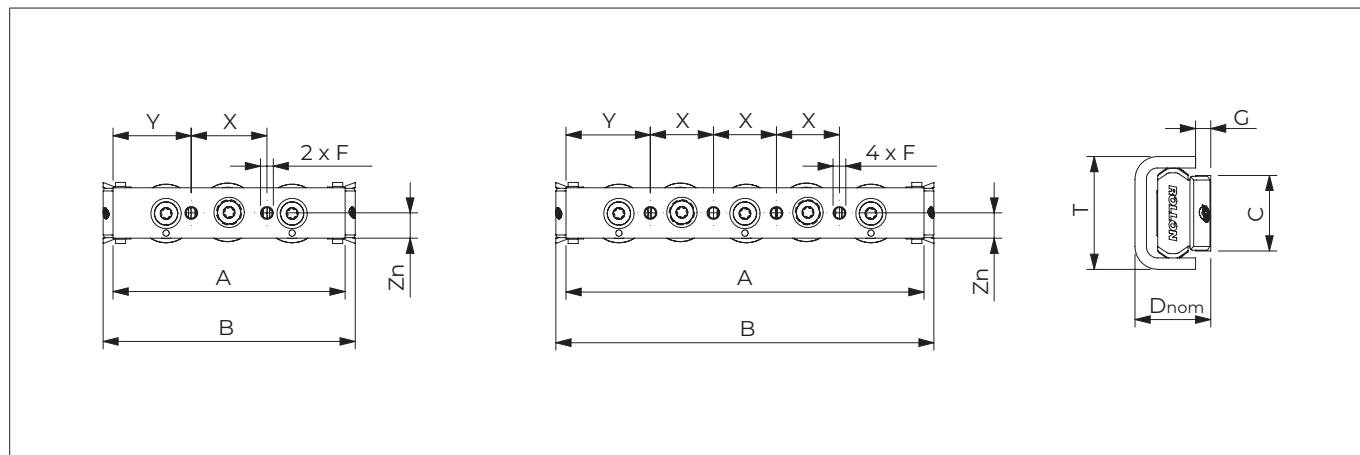
■ CEP30 slider for rail UEP30


Fig.12

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	X [mm]	Y [mm]	Zn [mm]	Weight [kg]
CEP30-3T	3	92	100	20	21.1 ±0.6	M5	4	29.8	30	31	10	0.13
CEP30-5T	5	142	150	20	21.1 ±0.6	M5	4	29.8	25	33.5	10	0.17

Tab.8

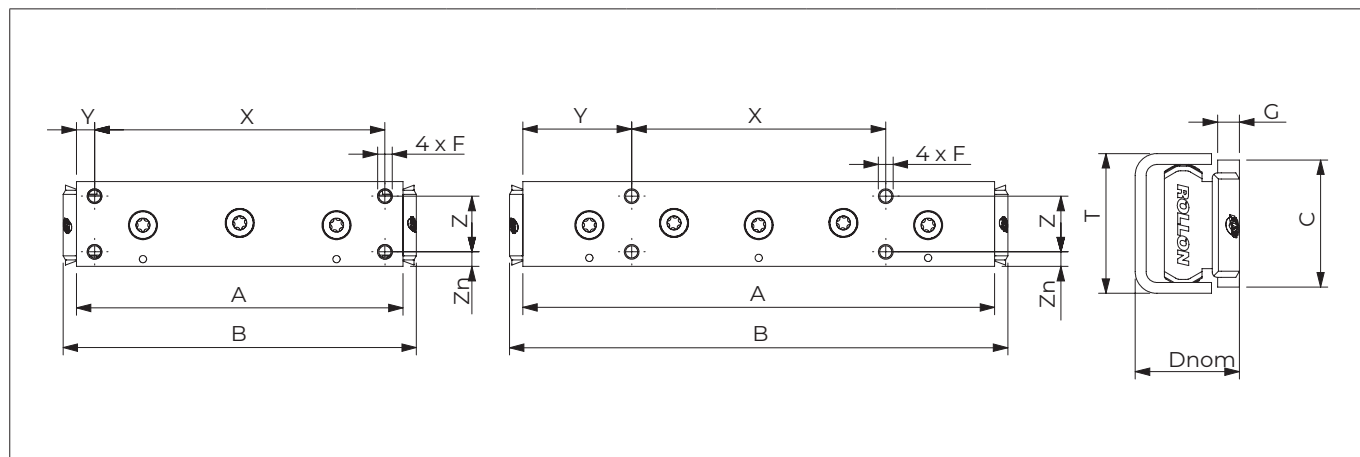
■ CEN40 slider for rail UEN40


Fig.13

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	X [mm]	Y [mm]	Z [mm]	Zn [mm]	Weight [kg]
CEN40-135T	3	135	146	35	29.95 ±1.6	M6	6	38.5	120	7.5	23	6	0.45
CEN40-195T	5	195	206	35	29.95 ±1.6	M6	6	38.5	105	45	23	6	0.62

Tab.9

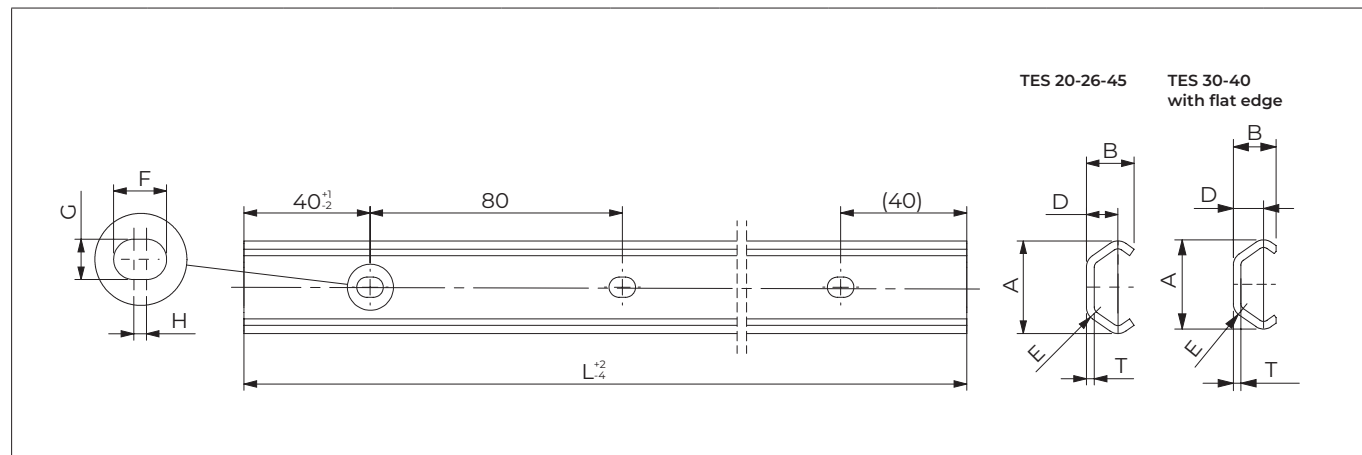
■ TES - Zinc-plated steel guides with shaped raceways


Fig.14

Rail type	Size	A [mm]	B [mm]	T [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
TES	20	19.2	10.2	2	6.9	3	7	4.5	2.5	M4	0.47
	26	26.1	14	2.5	9.5	4.5	11	6	5	M5	0.80
	30	29.5	14.1	2.5	10	4.5	11	6	5	M5	0.90
	40	39.5	20	3	13	6	13	9	4	M8	1.55
	45	46.4	24	4	15.5	6.5	11	9	2	M8	2.29

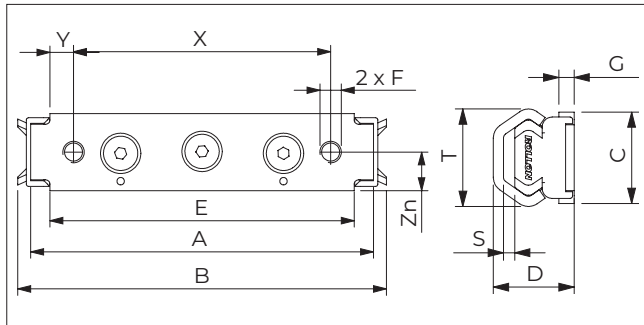
Tab.10

Rail type	Size	Min length [mm]	Max length [mm]	Standard length L [mm]
TES	20	160	3120	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 - 3280 - 3360 - 3440 - 3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000
	26	160	4000	
	30	160	4000	
	40	160	4000	
	45	320	4000	

Special lengths or pitches available upon request.
 We don't recommend the junction of rails.

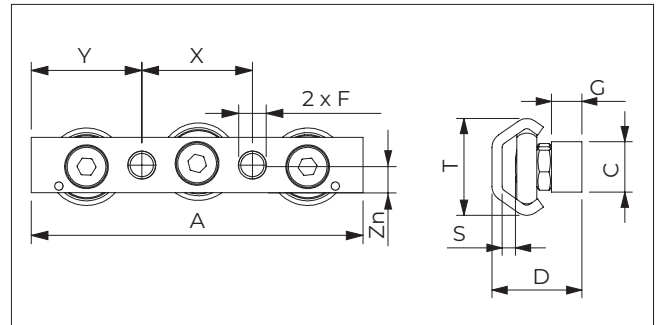
Tab.11

■ CES20 slider for rail TES20



CES20-80 with compact body and wipers

Fig.15



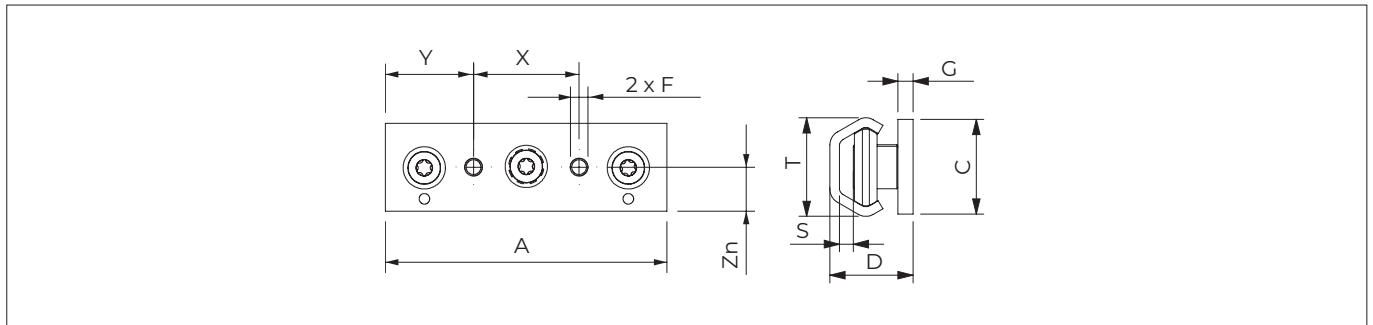
CES20-60 with solid body (wipers on request)

Fig.16

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	S [mm]	T [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CES20-80	3	80	86	18	15.9	71	M5	5.5	2.2	19.2	9	60	5.5	0.05
CES20-60		60	-	10	17.8	-	M5	6	2.6	19.2	5	20	20	0.04

Tab.12

■ CES26 slider for rail TES26



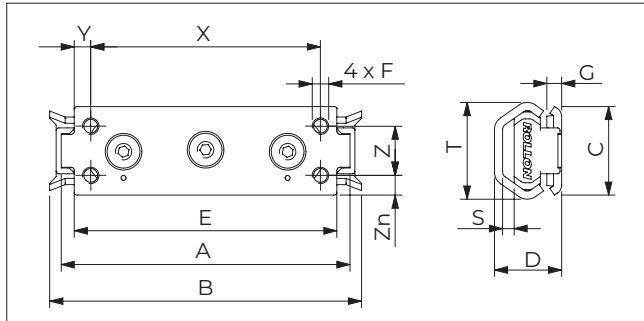
CES26-80 with compact body (wipers not available)

Fig.17

Slider type	No. of rollers	A [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Zn [mm]	Weight [kg]
CES26-80	3	80	25	22	M5	4	3.7	26.1	30	25	12.5	0.095

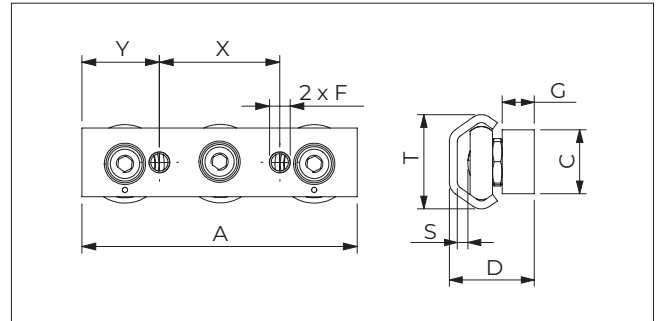
Tab.13

■ CES30 slider for rail TES30



CES30-88 with compact body and wipers

Fig.18



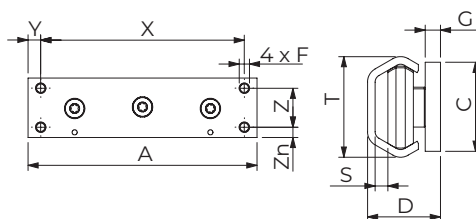
CES30-80 with solid body (wipers on request)

Fig.19

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	S [mm]	T [mm]	Z [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CES30-88	3	88	95	27	20.5	80	M5	4.5	3.5	29.5	15	6	70	5	0.11
CES30-80		80	-	20	26.5	-	M6	10	3.3	29.5	-	10	35	22.5	0.17

Tab.14

■ CES40 slider for rail TES40



CES40-135 with compact body (wipers on request)

Fig.20

Slider type	No. of rollers	A [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Z [mm]	Zn [mm]	Weight [kg]
CES40-135	3	135	35	28.65	M6	6	5	39.5	120	7.5	23	6	0.364

Tab.15

■ CES45 slider for rail TES45

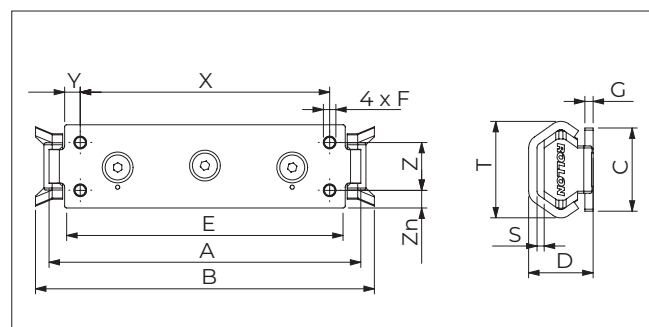


Fig.21

CES45-150 with compact body and wipers

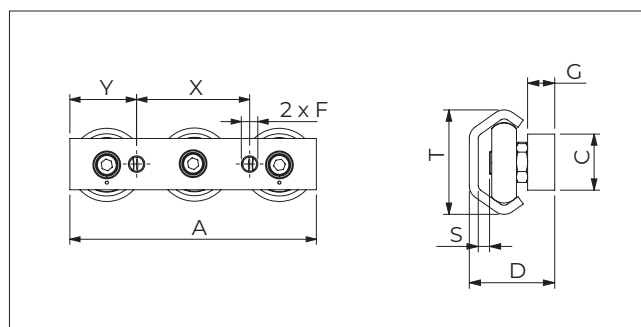


Fig.22

CES45-120 with solid body (wipers on request)

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	S [mm]	T [mm]	Z [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CES45-150	3	150	163	40	31	135	M6	4	5	46.4	23	8.5	120	7.5	0.40
CES45-120		120	-	25	38	-	M8	12	5.7	46.4	-	12.5	55	32.5	0.45

Tab.16

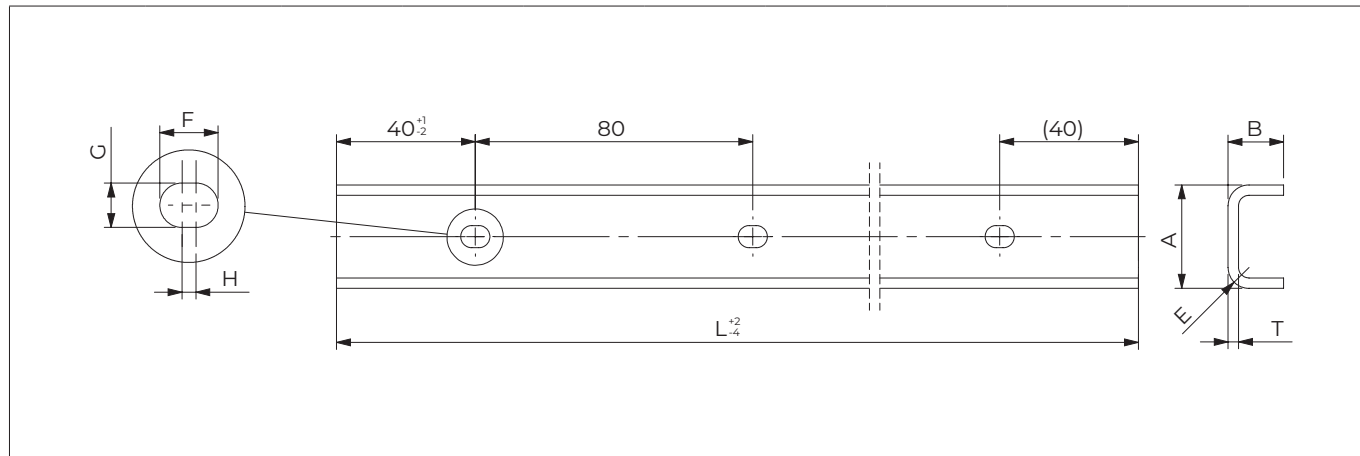
■ UES - Zinc-plated steel guides with flat raceways


Fig.23

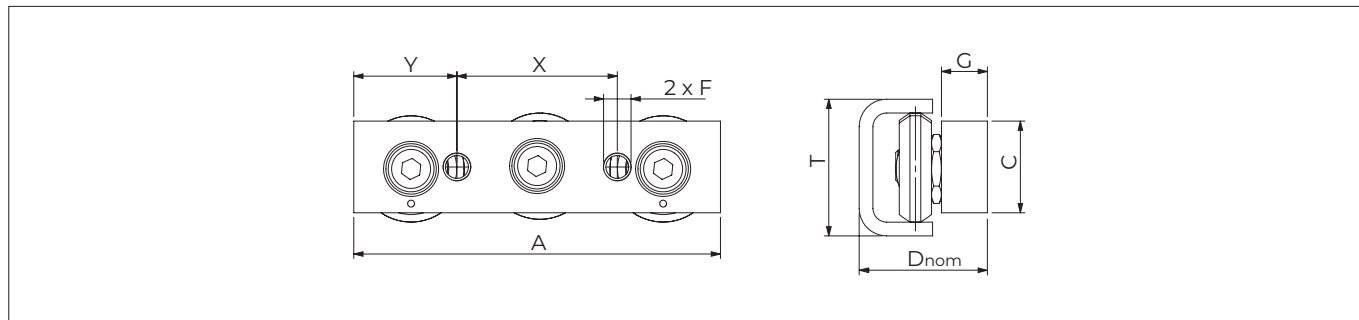
Rail type	Size	A [mm]	B [mm]	T [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
UES	30	29.8	16	3	6	11	6	5	M5	1.39
	40	38.5	21	3	6	13	9	4	M8	1.7
	45	43.8	24.5	4	9	11	9	2	M8	2.79

Tab.17

Rail type	Size	Min length [mm]	Max length [mm]	Standard length L [mm]
UES	30	160	4000	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 - 3280 - 3360 - 3440 - 3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000
	40	160	4000	
	45	320	4000	

Please specify hole pattern separately .
 Special lengths or pitches available upon request.
 We don't recommend the junction of rails.

Tab.18

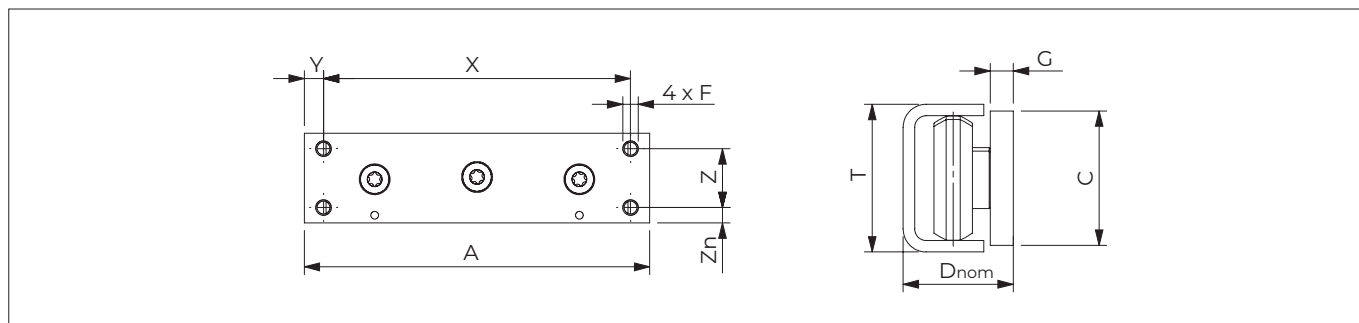
■ CESU30 slider for rail UES30


CESU30-80 with solid body (wipers on request)

Fig.24

Slider type	No. of rollers	A [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	X [mm]	Y [mm]	Weight [kg]
CESU30-80	3	80	20	27.95 ± 0.6	M6	10	29.8	35	22.5	0.16

Tab.19

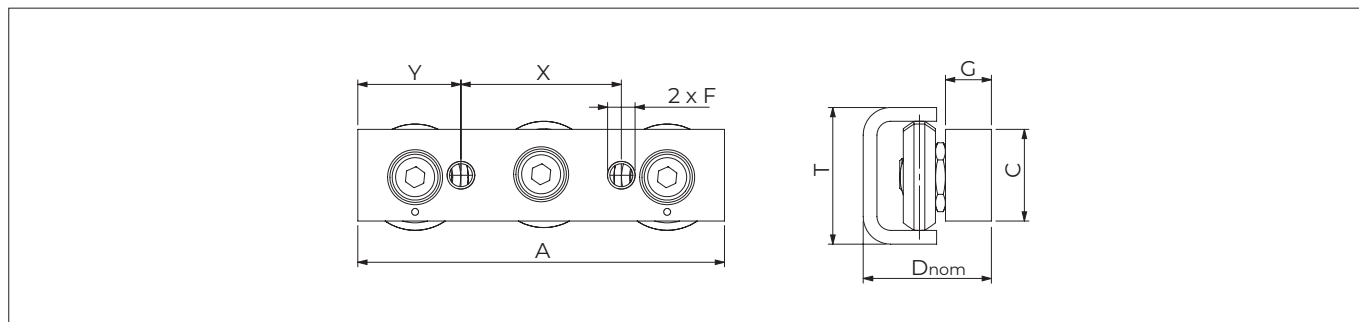
■ CES40 slider for rail UES40


CES40-135 with compact body (wipers on request)

Fig.25

Slider type	No. of rollers	A [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	Z [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CES40-135	3	135	35	29.95 ± 1.6	M6	6	38.5	23	6	120	7.5	0.45

Tab.20

■ CESU45 slider for rail UES45


CESU45-120 with solid body (wipers on request)

Fig.26

Slider type	No. of rollers	A [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	X [mm]	Y [mm]	Weight [kg]
CESU45-120	3	120	25	37.25 ± 1.75	M8	12	43.8	55	32.5	0.45

Tab.21

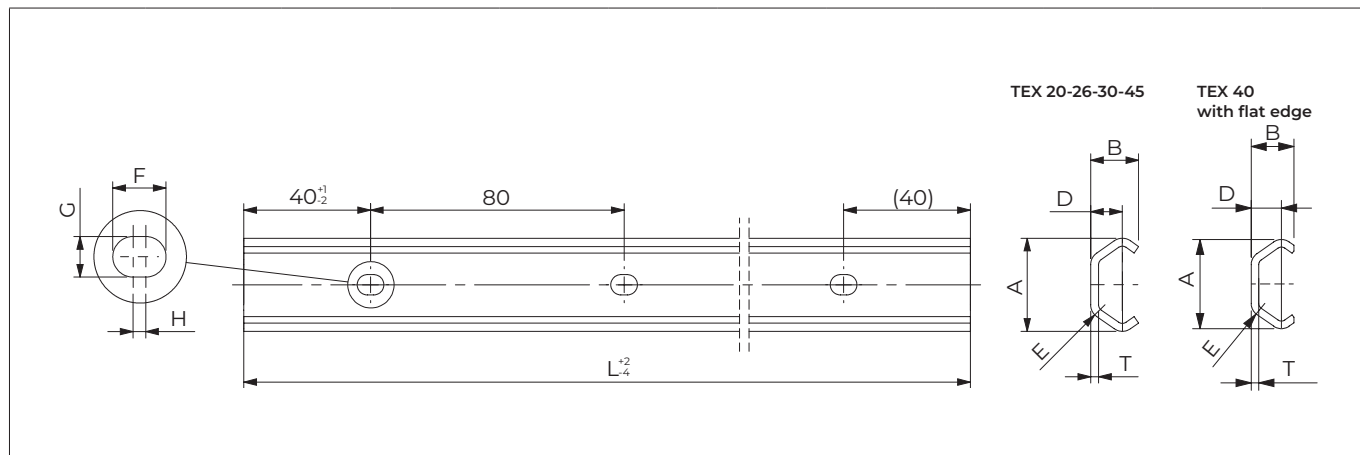
■ TEX - Stainless steel guides with shaped raceways


Fig.27

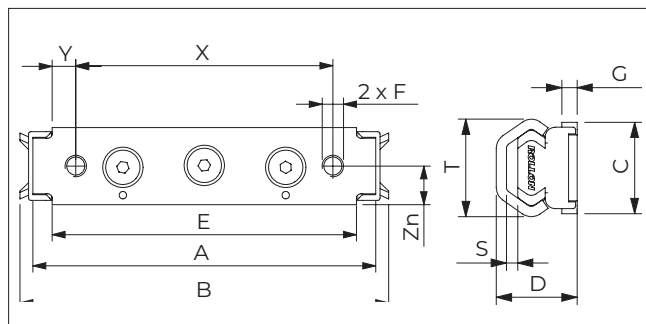
Rail type	Size	A [mm]	B [mm]	T [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
TEX	20	19.2	10.2	2	6.9	3	7	4.5	2.5	M4	0.47
	26	26.1	14	2.5	9.5	4.5	11	6	5	M5	0.80
	30	29.5	15	2.5	10	4.5	11	6	5	M5	0.90
	40	39.5	20	3	13	6	13	9	4	M8	1.55
	45	46.4	24	4	15.5	6.5	11	9	2	M8	2.29

Tab.22

Rail type	Size	Min length [mm]	Max length [mm]	Standard length L [mm]
TEX	20	160	3120	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 - 3280 - 3360 - 3440 - 3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000
	26	160	4000	
	30	160	4000	
	40	160	4000	
	45	320	4000	

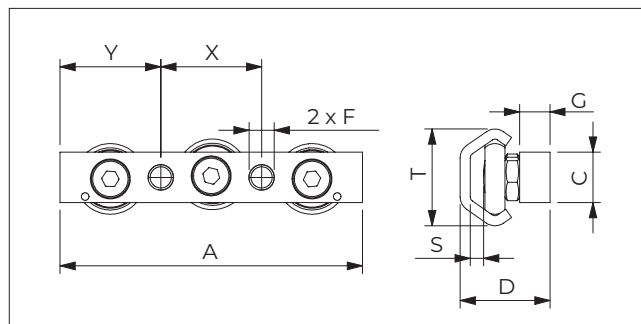
Please specify hole pattern separately.
 Special lengths or pitches available upon request.
 We don't recommend the junction of rails.

Tab.23

■ CEX20 slider for rail TEX20


CEX20-80 with compact body and wipers

Fig.28

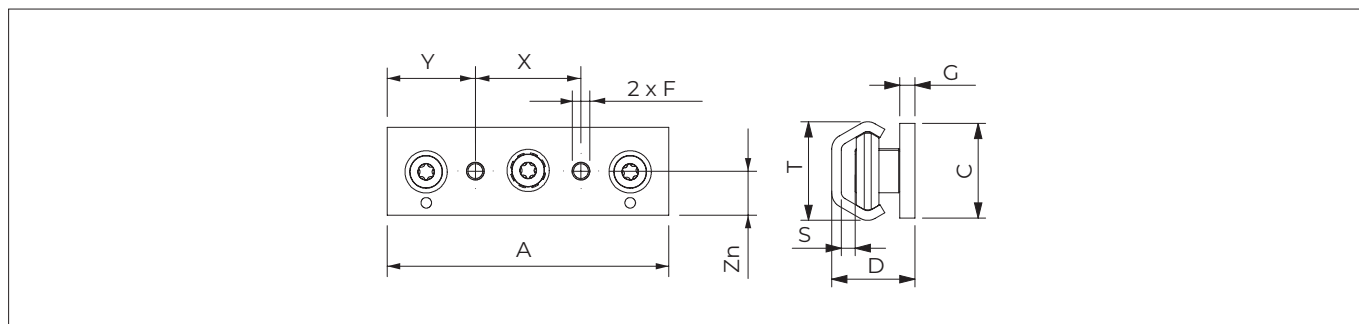


CEX20-60 with solid body (wipers on request)

Fig.29

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	S [mm]	T [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CEX20-80	3	80	86	18	15.9	71	M5	5.5	2.2	19.2	9	60	5.5	0.05
CEX20-60		60	-	10	17.8	-	M5	6	2.6	19.2	5	20	20	0.04

Tab.24

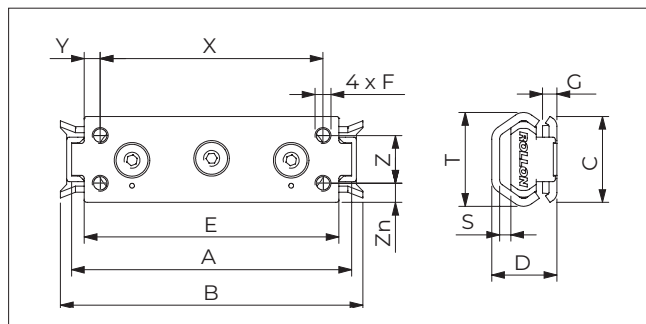
■ CEX26 slider for rail TEX26


CEX26-80 with compact body (wipers not available)

Fig.30

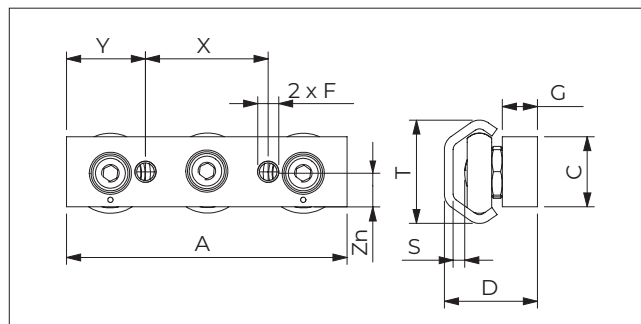
Slider type	No. of rollers	A [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Zn [mm]	Weight [kg]
CEX26-80	3	80	25	22	M5	4	3.7	26.1	30	25	12.5	0.095

Tab.25

■ CEX30 slider for rail TEX30


CEX30-88 with compact body and wipers

Fig.31



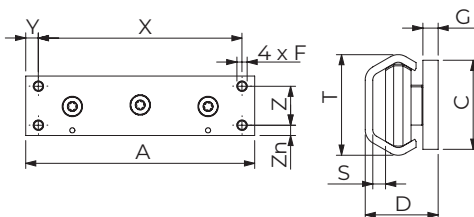
CEX30-80 with solid body (wipers on request)

Fig.32

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	S [mm]	T [mm]	Z [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CEX30-88	3	88	95	27	20.5	80	M5	4.5	3.5	29.5	15	6	70	5	0.11
CEX30-80		80	-	20	26.5	-	M6	10	3.3	29.5	-	10	35	22.5	0.17

Tab.26

■ CEX40 slider for rail TEX40



CEX40-135 with compact body (wipers on request)

Fig.33

Slider type	No. of rollers	A [mm]	C [mm]	D [mm]	F	G [mm]	S [mm]	T [mm]	X [mm]	Y [mm]	Z [mm]	Zn [mm]	Weight [kg]
CEX40-135	3	135	35	28.65	M6	6	5	39.5	120	7.5	23	6	0.450

Tab.27

■ CEX45 slider for rail TEX45

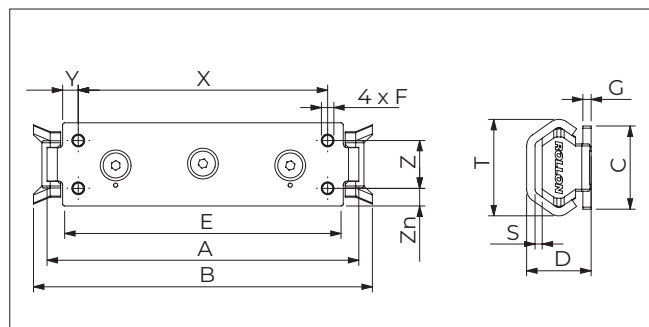


Fig.34

CEX45-150 with compact body and wipers

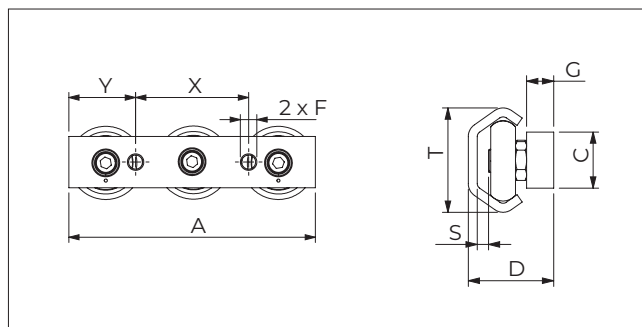


Fig.35

CEX45-120 with solid body (wipers on request)

Slider type	No. of rollers	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F	G [mm]	S [mm]	T [mm]	Z [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CEX45-150	3	150	163	40	31	135	M6	4	5	46.4	23	8.5	120	7.5	0.40
CEX45-120		120	-	25	38	-	M8	12	5.7	46.4	-	12.5	55	32.5	0.47

Tab.28

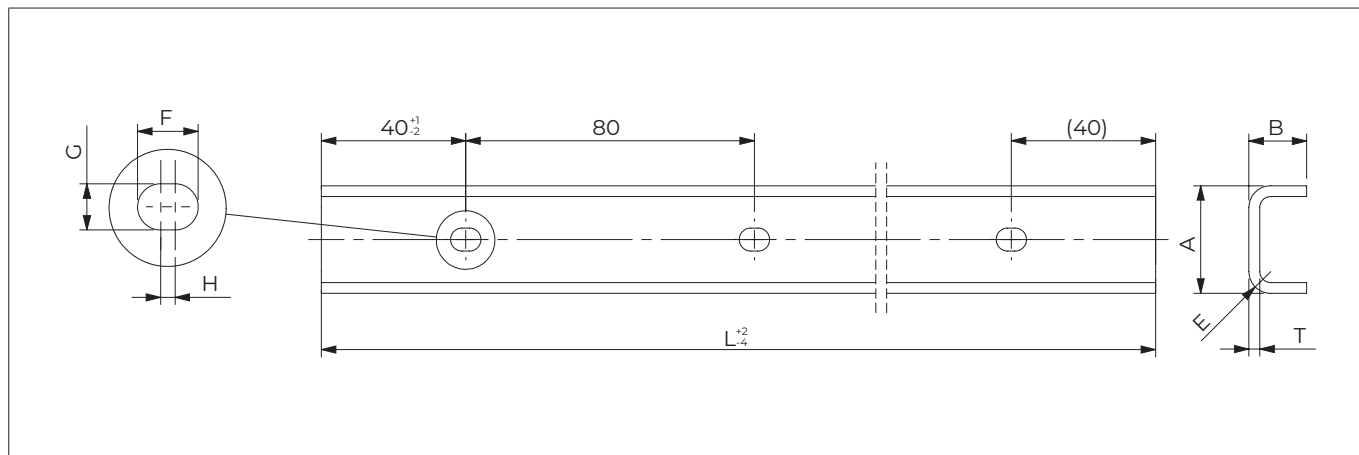
■ UEX - Stainless steel guides with flat raceways


Fig.36

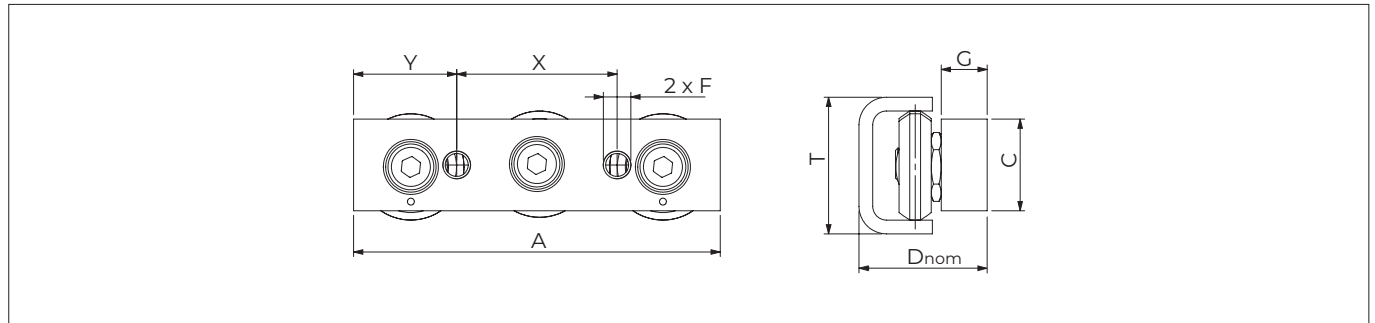
Rail type	Size	A [mm]	B [mm]	T [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Holes for screws	Weight [kg/m]
UEX	30	29.8	16	3	6	11	6	5	M5	1.39
	40	38.5	21	3	6	13	9	4	M8	1.7
	45	43.8	24.5	4	9	11	9	2	M8	2.79

Tab.29

Rail type	Size	Min length [mm]	Max length [mm]	Standard length L [mm]
UEX	30	160	4000	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 - 3280 - 3360 - 3440 - 3520 - 3600 - 3680 - 3760 - 3840 - 3920 - 4000
	40	160	4000	
	45	320	4000	

Please specify hole pattern separately .
 Special lengths or pitches available upon request.
 We don't recommend the junction of rails.

Tab.30

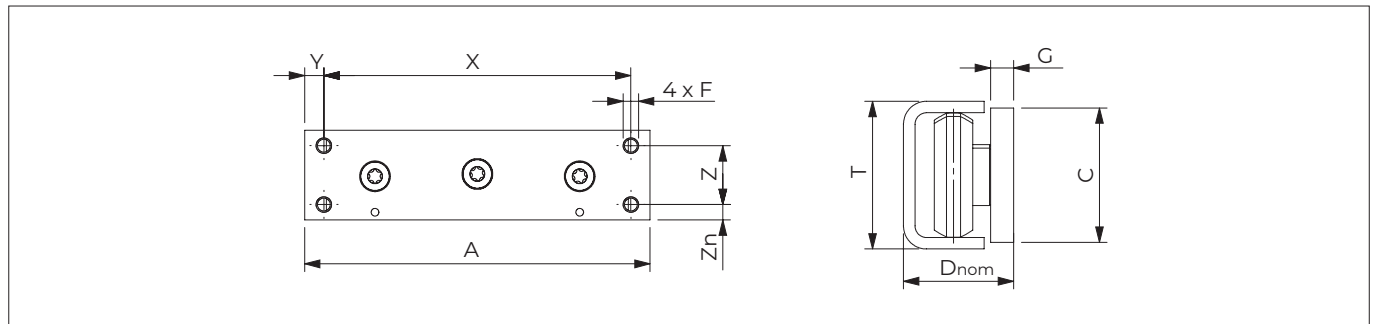
■ CEXU30 slider for rail UEX30


CEXU30-80 with solid body (wipers on request)

Fig.37

Slider type	No. of rollers	A [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	X [mm]	Y [mm]	Weight [kg]
CEXU30-80	3	80	20	27.95 ± 0.6	M6	10	31.8	35	22.5	0.16

Tab.31

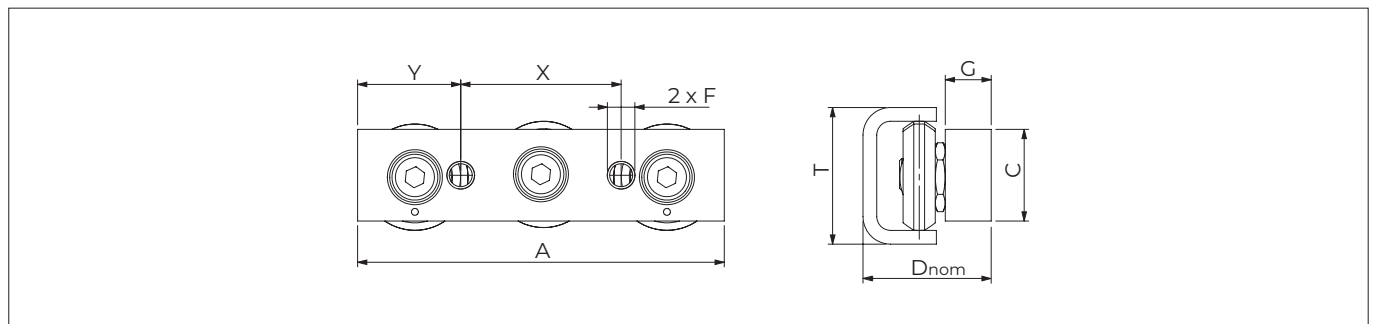
■ CEX40 slider for rail UEX40


CEX40-135 with compact body (wipers on request)

Fig.38

Slider type	No. of rollers	A [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	Z [mm]	Zn [mm]	X [mm]	Y [mm]	Weight [kg]
CEX40-135	3	135	35	29.95 ± 1.6	M6	6	38.5	23	6	120	7.5	0.45

Tab.32

■ CEXU45 slider for rail UEX45


CEXU45-120 with solid body (wipers on request)

Fig.39

Slider type	No. of rollers	A [mm]	C [mm]	D _{nom} [mm]	F	G [mm]	T [mm]	X [mm]	Y [mm]	Weight [kg]
CEXU45-120	3	120	25	37.25 ± 1.75	M8	12	44.8	55	32.5	0.45

Tab.33

■ Load capacities

Rail type	Configuration	No. of rollers	C_{0rad} [N]	C_{0ax} [N]	Dynamic [coefficient] C [N]
TEN/TEP	TEN26 - CEN26-92T	3	1120	380	1280
	TEN26 - CEN26-142T	5	1520	540	1730
	TEP30 - CEP30-3T	3	1200	420	1360
	TEP30 - CEP30-5T	5	1620	580	1830
	TEN40 - CEN40-135T	3	2400	820	2720
	TEN40 - CEN40-195T	5	3240	1150	3670
TES	TES20 - CES20-...	3	326	185	-
	TES26 - CES26-80	3	800	400	-
	TES30 - CES30-...	3	870	435	-
	TES40 - CES40-135	3	1600	800	-
	TES45 - CES45-...	3	1740	935	-
TEX	TEX20 - CEX20-...	3	300	170	-
	TEX26 - CEX26-80	3	740	370	-
	TEX30 - CEX30-...	3	800	400	-
	TEX40 - CEX40-135	3	1470	740	-
	TEX45 - CEX45-...	3	1600	860	-

Tab.34

Rail type	Configuration	No. of rollers	C_{0rad} [N]	Dynamic [coefficient] C [N]
UEN/UEP	UEP30 - CEP30-3T	3	1200	1360
	UEP30 - CEP30-5T	5	1620	1830
	UEN40 - CEN40-135T	3	1900	2720
	UEN40 - CEN40-195T	5	2560	3670
UES	UES30 - CESU30-80	3	870	-
	UES40 - CES40-135	3	1600	-
	UES45 - CESU45-120	3	1740	-
UEX	UEX30 - CEXU30-80	3	800	-
	UEX40 - CEX40-135	3	1180	-
	UEX45 - CEXU45-120	3	1600	-

Tab.35

Guides with shaped raceways type T

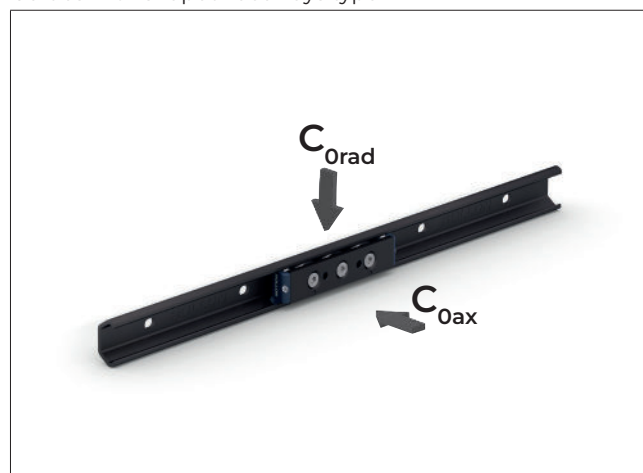


Fig.40

Guides with flat raceways type U

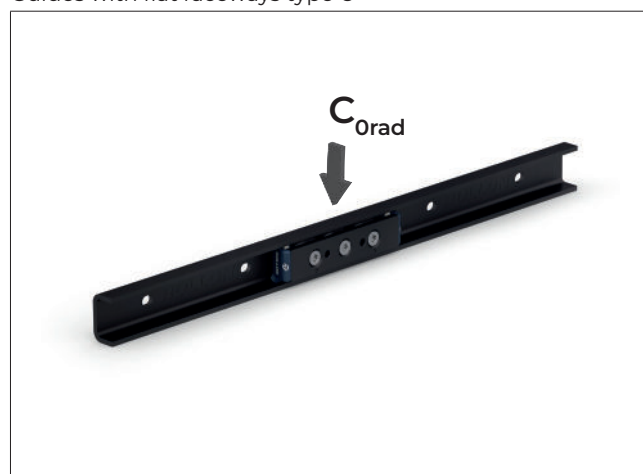


Fig.41

Rollers RLN / RLA

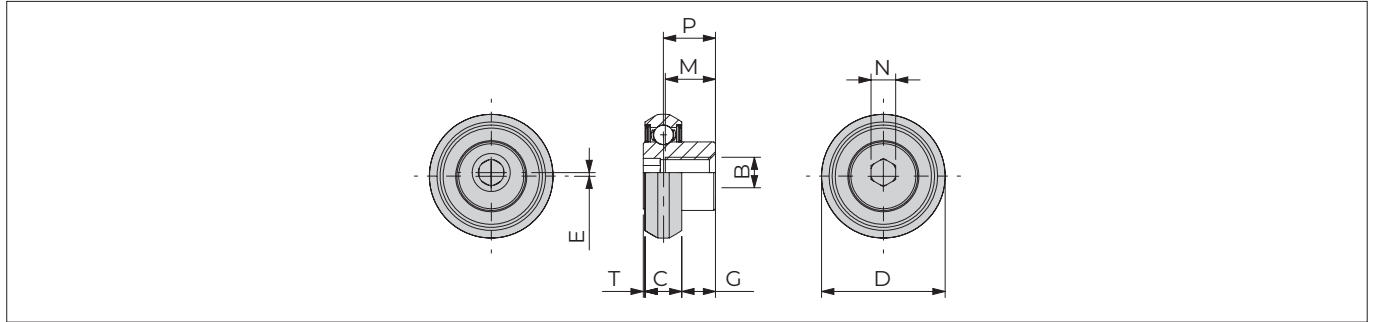


Fig.42

Roller	Type	For rail	For slider	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	T [mm]	N Key	C _{brad} [N]	Weight [kg]
RLN26	Conc.	TEN 26	CEN 26-...	M5	6	20.2	-	5.5	8.2	8.5	0.3	4	560	0.013
RLA26	Ecc.	TES 26	CES 26-80	M5	6	20.2	0.6	5.5	8.2	8.5	0.3	4	560	0.013
RLN40	Conc.	TEN 40	CEN 40-...	M6	10	31.5	-	4.65	9.65	10	-	5	1200 (950*)	0.048
RLA40	Ecc.	UES 40	CES 40-135	M6	10	31.5	0.7	4.65	9.65	10	-	5	1200 (950*)	0.048

2Z (dust cover seal).

*If used in U-Rail.

Tab.36

Rollers RLNX / RLAX

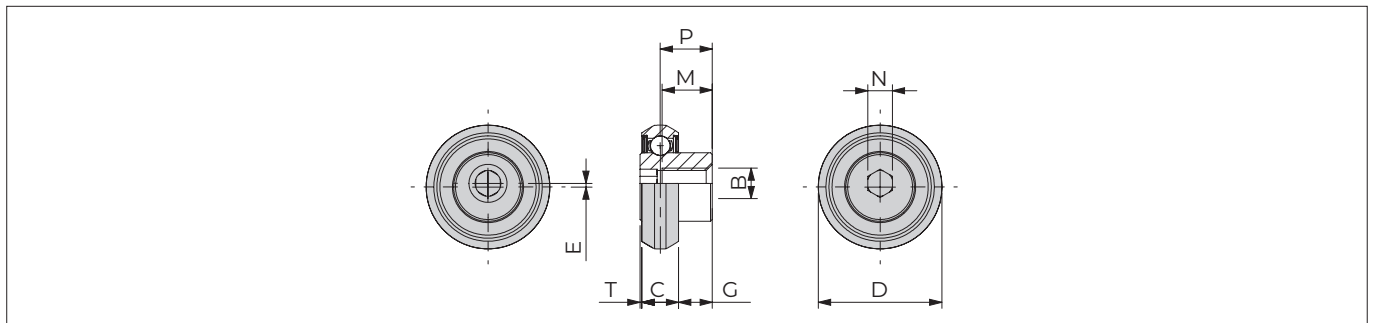


Fig.43

Roller	Type	For rail	For slider	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	T [mm]	N Key	C _{brad} [N]	Weight [kg]
RLNX26	Conc.	TEX 26	CEX 26-80	M5	6	20.2	-	5.5	8.2	8.5	0.3	4	370	0.013
RLAX26	Ecc.	TEX 26	CEX 26-80	M5	6	20.2	0.6	5.5	8.2	8.5	0.3	4	370	0.013
RLNX40	Conc.	TEX 40	CEX 40-135	M6	10	31.5	-	4.65	9.65	10	-	5	735 (590*)	0.048
RLAX40	Ecc.	UES 40	CEX 40-135	M6	10	31.5	0.7	4.65	9.65	10	-	5	735 (590*)	0.048

2RS (splashproof seal).

*If used in U-Rail.

Tab.37

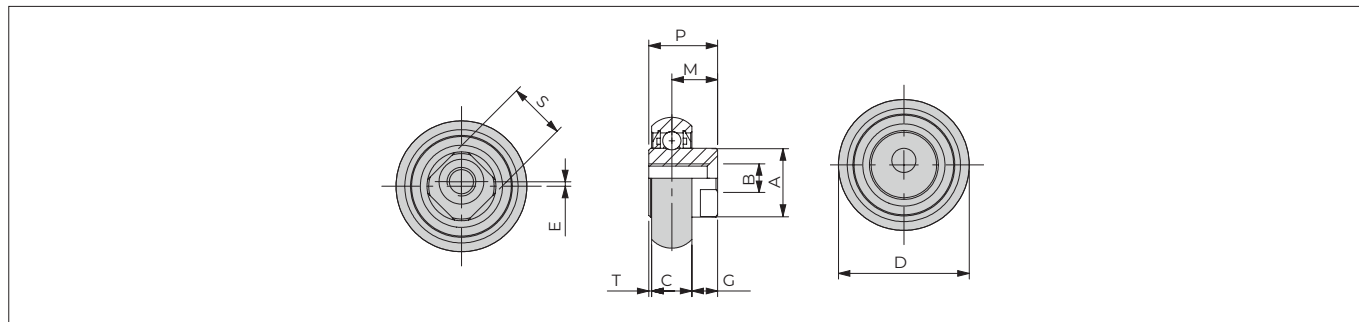
■ Rollers CRPN / CRPA


Fig.44

Roller	Type	For rail	For slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	S [mm]	T [mm]	Key*	C _{Orad} [N]	Weight [kg]
CRPN20-2Z	Conc.	TES 20	CES 20-80	8	M4	4	14	-	4	6	8.2	6	0.2	CK20	163	0.006
CRPA20-2Z	Ecc.							0.5								
CRPN30-2Z	Conc.	TES 30	CES 30-88	12	M5	7	22.8	-	4.5	8	12	10	0.5	CK30	435	0.018
CRPA30-2Z	Ecc.							0.8								
CRPN45-2Z	Conc.	TES 45	CES 45-150	16	M6	11	35.6	-	6	11.5	17.3	13	0.3	CK28	870	0.068
CRPA45-2Z	Ecc.							0.8								

2Z (splashproof seal).

* The key must be ordered separately.

Tab.38

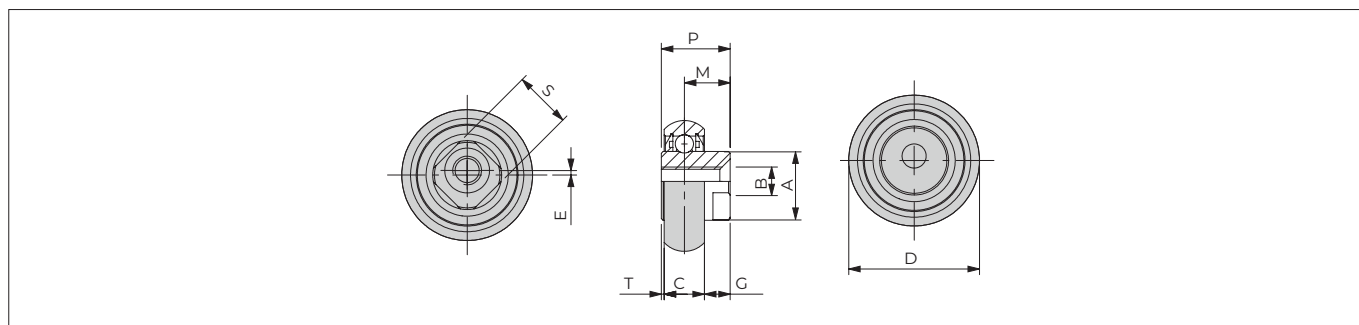
■ Rollers CRPNX / CRPAX


Fig.45

Roller	Type	For rail	For slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	S [mm]	T [mm]	Key*	C _{Orad} [N]	Weight [kg]
CRPNX20-2RS	Conc.	TEX 20	CEX 20-80	8	M4	4	14	-	4	6	8.2	6	0.2	CK20	150	0.006
CRPAX20-2RS	Ecc.							0.5								
CRPNX30-2RS	Conc.	TEX 30	CEX 30-88	12	M5	7	22.8	-	4.5	8	12	10	0.5	CK30	400	0.02
CRPAX30-2RS	Ecc.							0.8								
CRPNX45-2RS	Conc.	TEX 45	CEX 45-150	16	M6	11	35.6	-	6	11.5	17.3	13	0.3	CK28	800	0.068
CRPAX45-2RS	Ecc.							0.8								

2RS (dust cover seal).

* The key must be ordered separately.

Tab.39

■ Rollers CRN / CRA

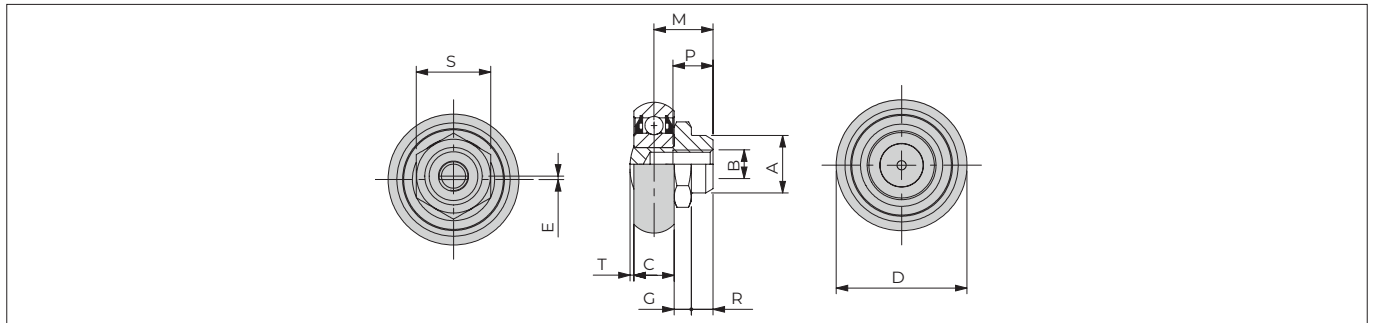


Fig.46

Roller	Type	For rail	For slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	R [mm]	S [mm]	T [mm]	Key*	C _{rad} [N]	Weight [kg]
CRN20-2Z	Conc.	TES 20	CES 20-60	6	M4	4	14	-	2.9	6.7	6	1.8	8	0.25		163	0.006
CRA20-2Z	Ecc.							0.5									
CRN30-2Z	Conc.	TES 30	CES 30-80	10	M5	7	22.8	-	3	10.3	7	3.8	13	0.7		435	0.002
CRA30-2Z	Ecc.							0.6									
CRN45-2Z	Conc.	TES 45	CES 45-120	12	M6	11	35.6	-	5	15	14.5	4.5	15	1		870	0.068
CRA45-2Z	Ecc.							0.8									

2Z (dust cover seal).

* The key must be ordered separately.

Tab.40

■ Rollers CRNX / CRAX

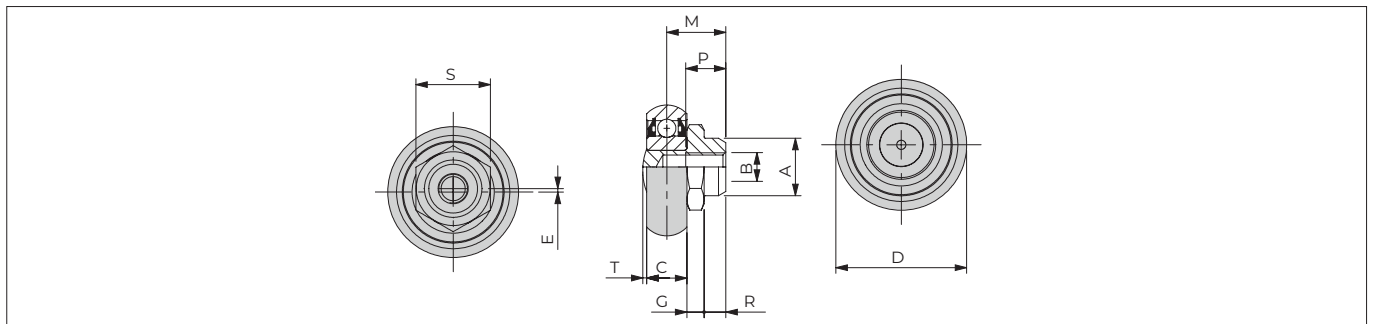


Fig.47

Roller	Type	For rail	For slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	R [mm]	S [mm]	T [mm]	Key*	C _{rad} [N]	Weight [kg]
CRNX20-2RS	Conc.	TEX 20	CEX 20-60	6	M4	4	14	-	2.9	6.7	6	1.8	8	0.25		150	0.006
CRAX20-2RS	Ecc.							0.4									
CRNX30-2RS	Conc.	TEX 30	CEX 30-80	10	M5	7	22.8	-	3	10.3	7	3.8	13	0.7		400	0.022
CRAX30-2RS	Ecc.							0.6									
CRNX45-2RS	Conc.	TEX 45	CEX 45-120	12	M6	11	35.6	-	5	15	14.5	4.5	15	1		800	0.07
CRAX45-2RS	Ecc.							0.8									

2RS (splashproof seal).

* The key must be ordered separately.

Tab.41

■ Rollers CPN / CPA

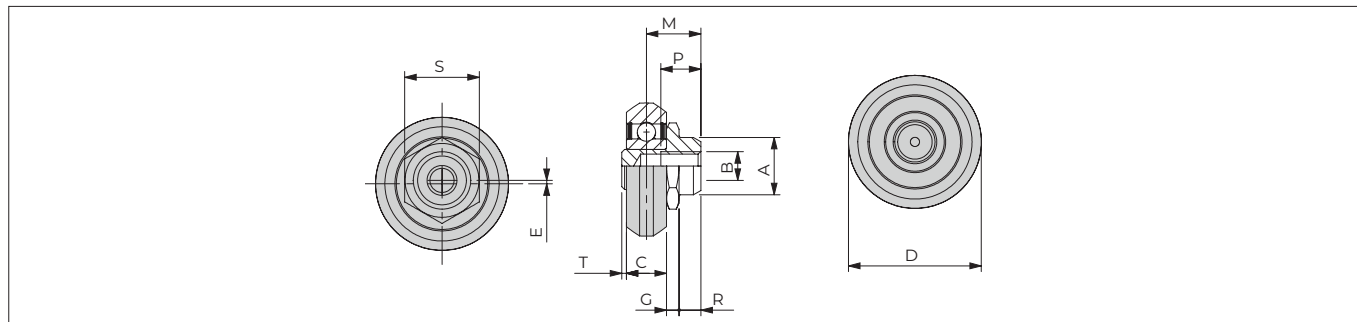


Fig.48

Roller	Type	For rail	For slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	R [mm]	S [mm]	T [mm]	Key*	C _{0rad} [N]	Weight [kg]
CPN30-2Z	Conc.	UES 30	CESU 30-80	10	M5	7	23.2	-	2.2	9.5	7	3.8	13	0.7		435	0.018
CPA30-2Z	Ecc.							0.6									
CPN45-2Z	Conc.	UES 45	CESU 45-120	12	M6	11	35	-	2.5	12.5	12	4.5	15	0.9		870	0.06
CPA45-2Z	Ecc.							0.8									

2Z (dust cover seal).

* The key must be ordered separately.

Tab.42

■ Rollers CPNX / CPAX

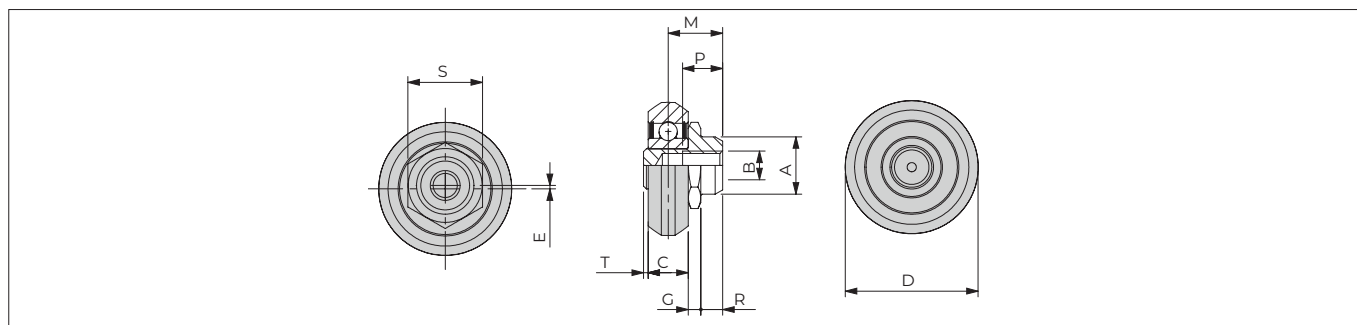


Fig.49

Roller	Type	For rail	For slider	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	R [mm]	S [mm]	T [mm]	Key*	C _{0rad} [N]	Weight [kg]
CPNX30-2RS	Conc.	UEX 30	CEXU 30-80	10	M5	7	23.2	-	2.2	9.5	7	3.8	13	0.7		400	0.018
CPAX30-2RS	Ecc.							0.6									
CPNX45-2RS	Conc.	UEX 45	CEXU 45-120	12	M6	11	35	-	2.5	12.5	12	4.5	15	0.9		800	0.06
CPAX45-2RS	Ecc.							0.8									

2RS (splashproof seal).

* The key must be ordered separately.

Tab.43

Rollers CPN...Z / CPA...Z

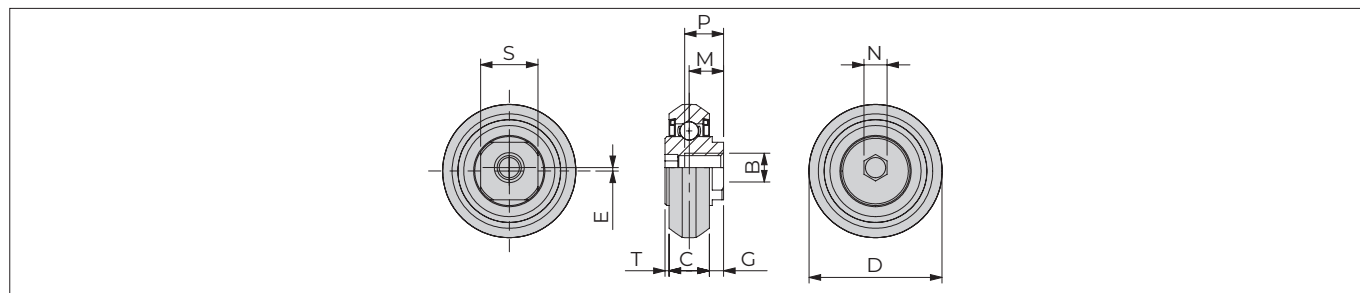


Fig.50

Roller	Type	For rail	For slider	B [mm]	C [mm]	D [mm]	E [mm]	G [mm]	M [mm]	P [mm]	S [mm]	T [mm]	Key*	C _{rad} [N]	Weight [kg]
CPN30Z-55	Conc.	TEP 30	CEP 30-...	M5	7	23.2	-	2.5	6	6.8	10	0.3	CK30	600	0.020
CPA30Z-55	Ecc.	UEP 30					0.6						4		

2RS (splashproof seal).

* The CK30 key must be ordered separately.

Tab.44

Wipers

For wipers indicated as "on request" from pg. 11 to pg. 20, please contact our Technical Department.

Slider type	Ordering code (for a pair of wipers)
CEN26-...	ZK-WCEN26
CEP30-...	ZK-WCEP30
CEN40-...	ZK-WCEN40
CES20-80 - CEX20-80	ZK-WCES20
CES30-88 - CEX30-88	ZK-WCES30
CES45-150 - CEX45-150	ZK-WCES45

Tab.45

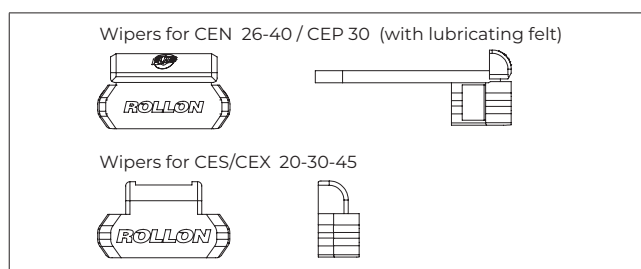


Fig.51

► ACCESSORIES

■ Fixing screws

We recommend using fixing screws according to ISO 7380 with a low head height. We can supply TORX® screws (see Fig. 52) on request.

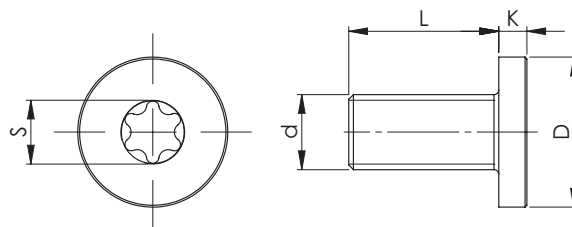


Fig.52

Rail type	Rail size	Screw type	d [mm]	D [mm]	L [mm]	K [mm]	S [mm]	Tightening torque [mm]	Description
TEN/TEP UEN/UEP	26	M5 x 10	M5 x 0.8	10	10	2	T25	9	TORX® screw TC 28 M5x10
	30	M5 x 10	M5 x 0.8	10	10	2	T25	9	TORX® screw TC 28 M5x10
	40	M8 x 16	M8 x 1.25	16	16	3	T40	20	TORX® screw TC 43 M8x16
TES/UES	20	M4 x 8	M4 x 0.7	8	8	2	T20	3	TORX® screw TC 18 M4x8
	26	M5 x 10	M5 x 0.8	10	10	2	T25	9	TORX® screw TC 28 M5x10
	30	M5 x 10	M5 x 0.8	10	10	2	T25	9	TORX® screw TC 28 M5x10
	40	M8 x 16	M8 x 1.25	16	16	3	T40	20	TORX® screw TC 43 M8x16
	45	M8 x 16	M8 x 1.25	16	16	3	T40	22	TORX® screw TC 43 M8x16
TEX/UEX	26	M5 x 10	M5 x 0.8	10	10	2	T25	9	TORX® screw TC 28 M5x10 NIC
	30	M5 x 10	M5 x 0.8	10	10	2	T25	9	TORX® screw TC 28 M5x10 NIC
	40	M8 x 16	M8 x 1.25	16	16	3	T40	20	TORX® screw TC 43 M8x16 NIC
	45	M8 x 16	M8 x 1.25	16	16	3	T40	22	TORX® screw TC 43 M8x16 NIC

Tab.46

USE AND MAINTENANCE

■ Lubrication

All sliders CEN/CEP are supplied with high-quality thermoplastic elastomer wipers with optimized lips and a synthetic felt soaked in lubricating oil, which releases a thin lubricating film on the raceways and ensures proper operation.

The period of self-lubrication depends on the conditions of use and the level of environmental cleanliness. Under normal conditions, the self-lubricating wipers can last up to 1000 Km, after which they need to be replaced with a new pair.

New wipers can be ordered from Rollon using the codes shown on pg. 26. To replace them, simply extract the old ones and insert the new ones frontally. The rollers are lubricated for life with lithium soap grease and feature 2Z lateral seals.



Fig.53

Other sliders can be supplied with wipers in high-quality thermoplastic elastomer, without lubricating felt. Please check the availability from pg. 11 to pg. 20, and contact Rollon for wipers indicated as “on request”. In this case, 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 the 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. The rollers are lubricated for life with lithium soap grease and feature 2RS or 2Z lateral seals.



Fig.54

For industry-specific requirements and norms different lubricants are available on request:

- ▣ FDA-approved lubricants
- ▣ Cleanroom-approved lubricants
- ▣ Marine lubricants
- ▣ High-/low-temperature lubricants

Under normal conditions, correct lubrication:

- ▣ Reduces friction
- ▣ Reduces wear
- ▣ Reduces stress on contact surfaces caused by elastic deformation
- ▣ Reduces noise during operation
- ▣ Improves the consistency of the rolling movement

■ T+U-System

Solves parallelism axial deviations between two rails

When two parallel rails are mounted on surfaces that are not parallel axially, the result is extreme stress on the sliders, considerably reducing their lifespan. By combining shaped and flat raceways it is possible to compensate for axial deviation in parallelism of the mounting surfaces without additional modifications to those surfaces. T+U rails easily address these alignment issues creating 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. U rail which has lateral freedom to compensate deviations, support only radial loads.

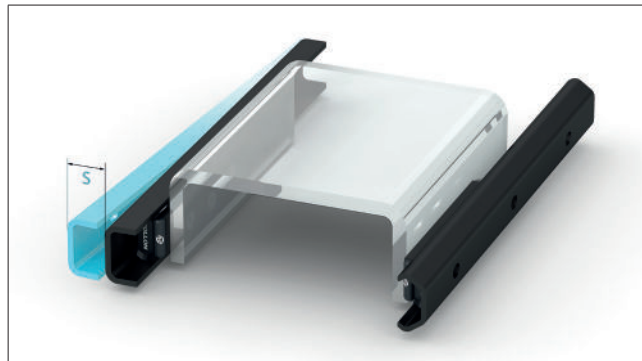


Fig.55

Maximum/Minimum offset

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 is calculated using the values S_1 and S_2 (see Fig. 56, Tab. 47 and the formula in Fig. 57). 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 toward the outside of the rail.

If the length of the guide rail is known, the maximum allowable angular deviation of the mounting surface (Fig. 58 and Tab. 48) can be calculated. In this case, the slider in the U rail has the freedom to travel from the innermost position S_1 to the outermost position S_2 .

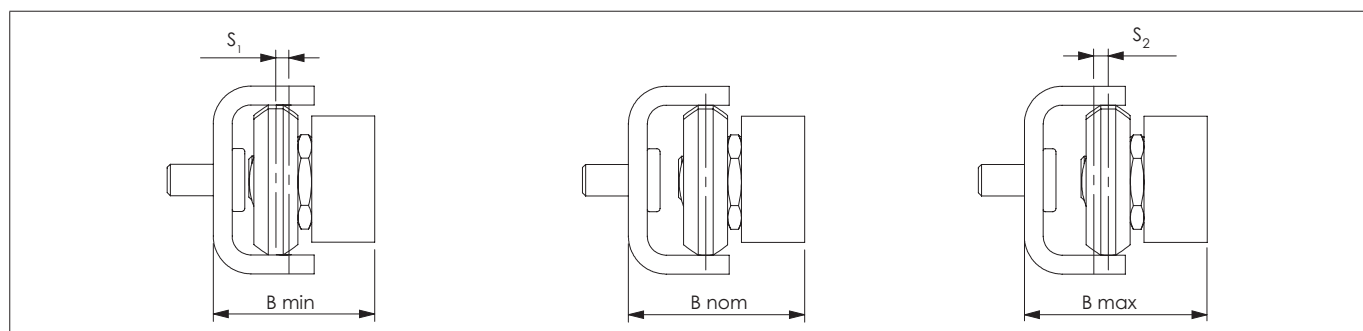


Fig.56

Slider type	S_1 [mm]	S_2 [mm]	B_{min} [mm]	B_{nom} [mm]	B_{max} [mm]
CESU30 / CEXU30	0.8	1.0	27.15	27.95	28.95
CEP30	0.6	0.6	20.5	21.1	21.7
CEN40 / CES40 / CEX40	1.6	1.6	28.35	29.95	31.55
CESU45 / CEXU45	1.75	1.75	35.50	37.25	39

Tab.47

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

$\alpha = \arctan \frac{S^*}{L}$	S^* = sum of S_1 and S_2 L = length of the rail
----------------------------------	--

Fig.57

Size	Rail length [mm]	Offset S^* [mm]	Angle α [°]
30	4000	2	0.028
40	4000	3.4	0.048
45	4000	3.5	0.050

Tab.48

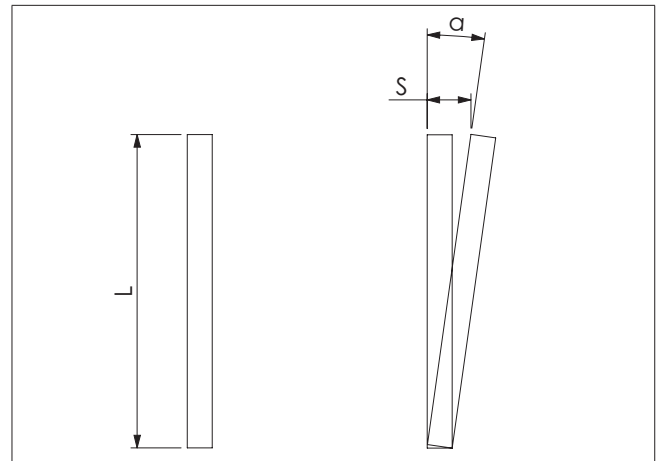


Fig.58

■ How to adjust the slider

If requested in the order, rails and sliders are delivered as a system with factory adjustment. If rails and sliders are supplied separately or if the slider is to be mounted in another rail, the bearings will need to be adjusted. The suitable tool is a hexagonal spanner for slider sizes 26 and 40, and a flat spanner for slider sizes 20, 30, and 45. The CEP30 slider can be adjusted in both ways.

Common preliminary operations:

- (1) Check that the raceways are clean and remove the wipers to increase sensitivity for proper preload.
- (2) Place the slider in the rail. It may be necessary to align the bearings to be adjusted with the fixed ones to facilitate insertion, as excessive offset may make insertion difficult. Use a flat or hexagonal spanner.
- (3) Use a medium-strength thread-locking adhesive on the screws.
- (4) Lightly tighten the upper bearing screw without over-tightening. Conversely, if the screw has already been tightened previously loosen it slightly. The bearing must be able to rotate but should not be completely free. Only adjust the eccentric bearings (without the center marking).

With flat spanner

- (5) For U-rails there must be a thin support (e.g., a set key) under the ends of the slider body to ensure the horizontal alignment of the slider in the flat raceways. Also the slider must not fall in the bottom of the rail.
- (6) The adjustment can be made at any point on the rail. If possible, position the slider at one end of the rail to simplify the insertion of the flat spanner.
- (7) Insert the supplied flat spanner to the side and use it to engage the hexagonal or square shaft of the eccentric pin to be adjusted (see Fig. 59).
- (8) Turn the flat adjustment spanner clockwise so that the excentric bearing contacts the raceway opposite the factory-set fixed bearings, thus reducing the slider clearance to zero. Avoid applying a too high preload, which would cause high wear and reduce service life.

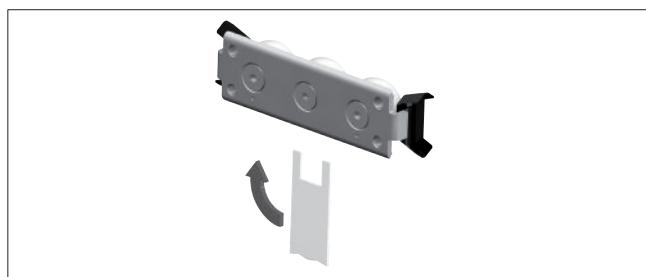


Fig.59

(9) While holding the pin in the correct position with the flat adjustment spanner, tighten the fixing screw to ensure that the pin is locked in position.

(10) Run the slider and check the preload over the entire length of the rail. The movement must be smooth. If any oscillation, clearance or excessive force is observed, repeat the adjustment operation. Preload is optimized when the slider runs smoothly and without play.

(11) Preload values can be checked by slowly inserting the slider at the end of the rail. The insertion force is proportional to the preload. Preload is optimized when the slider runs smoothly and without play.

(12) For sliders with more than 3 bearings, repeat this procedure for each one that needs adjustment. Ensure that all bearings have uniform contact with the raceways.

(13) While maintaining the angular position of the pin with the flat spanner, tighten the adjusted bearing fixing screw with a torque spanner. The prescribed tightening torque is shown in Table 49.

(14) Reinstall the wipers.

With hexagonal spanner

(5) Lock the rail on a stable support so that your hands are free.

(6) Insert the hexagonal spanner into the eccentric pin, passing it through one of the fixing holes in the rail.

(7) Turn the hexagonal key slightly so that the eccentric bearings contacts the raceway opposite the factory-set fixed bearing, thus reducing the slider clearance to zero. When turning, support the upper screw by running it in the same direction with a second hexagonal spanner to prevent loosening or changes in preload settings.

(8) While firmly holding the hexagonal spanner inserted in the eccentric bearing with one hand, use the other hexagonal spanner to turn and tighten the upper screw of the pin. Do not lock or unlock the eccentric bearing by rotating the pin; always turn the top screw.

(9) Run the slider and check the preload over the entire length of the rail.

The movement must be smooth. If any oscillation, clearance, or excessive force is observed, repeat the adjustment operation. Preload is optimized when the slider runs smoothly and without play.

(10) Preload values can be checked by slowly inserting the slider at the end of the rail. The insertion force is proportional to the preload. Preload is optimized when the slider runs smoothly and without play.

(11) For sliders with more than 3 bearings, repeat this procedure for each one that needs adjustment. Ensure that all bearings have uniform contact with the raceways.

(11) Tighten the pin/screw securely using a torque wrench to ensure the correct tightening torque, in accordance with the values in Table 49, while holding the hexagonal spanner to the pin to avoid variations in the preload parameters. Always turn the top screw to lock or loosen the bearing.

(12) Reinstall the wipers.

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

Tab.49

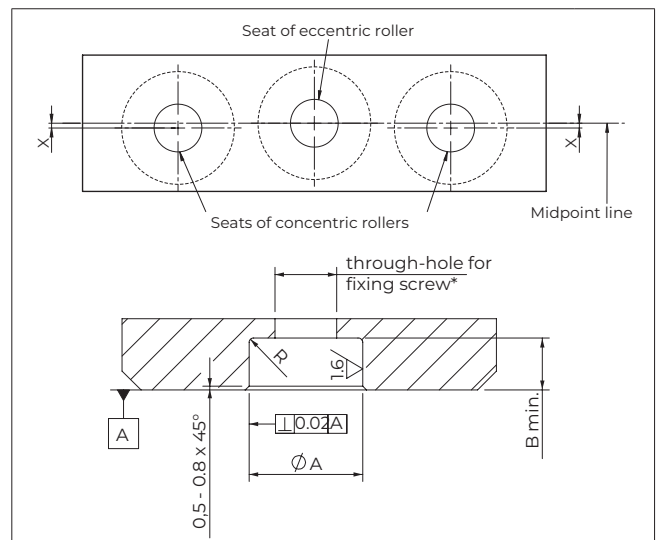


Fig.60

■ Assembly of single rollers

Slider size	X [mm]	Ø A [mm]	B min. [mm]	Radius R [mm]
20	0.60	6 +0.01/+0.03	2.1	0.5
26	0.40	-	-	-
30 (CES.../CEX...)	0.63	10 + 0.01 /+ 0.03	4.1	0.5
30 (CEP...)	0.40	-	-	-
40	0.90	-	-	-
45	0.60	12 + 0.01 /+ 0.03	5	1

Tab.50



Only for CRN/CRA, CRNX/CRAX, CPN/CPA, CPNX/CPAX

Fig.61

How install X-Rail rollers on your own structure (see from pg.22 to pg.26):

- Using a maximum of 2 concentric rollers.
- Offset the seats of the concentric rollers with respect to those of the eccentric rollers according to the table (tab. 50).
- To install roller types CPN/CPA, CPNX/CPAX, CRN/CRA, and CRNX/CRAX, a slot must be made in the structure according to the dimensions shown in Fig. 61.
- Two concentric and two eccentric rollers are recommended for the four-roller slider. The two concentric rollers must engage with the lower raceway of the rail.
- Maintain the recommended offset distance between the midpoint line of the concentric rollers and that of the eccentric rollers (Fig. 62).
- Two concentric rollers are recommended for the slider with five or more rollers (Fig. 63). The two concentric rollers must engage with the lower raceway of the rail. The other rollers must all be eccentric and engage with the upper or lower raceway, depending on the application. Maintain the recommended offset distance between the midpoint line of the concentric rollers and that of the eccentric rollers.
- In the case of a configuration with all eccentric rollers, the seats must all be drilled along the midpoint line, and the rollers must then be adjusted to engage with either the upper or lower raceway of the rail.

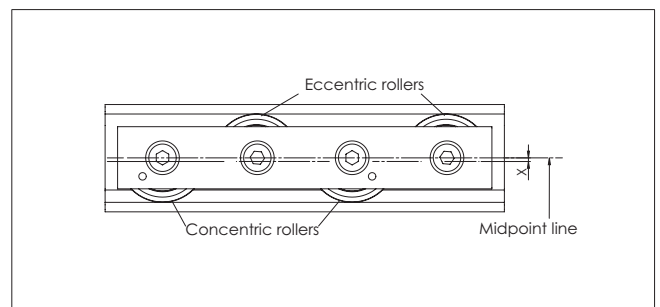


Fig.62

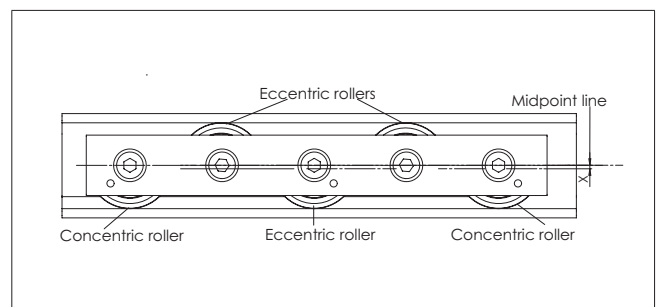


Fig.63

■ Anticorrosion treatments

Rail type	Treatment	Features
TEN/TEP UEN/UEP	Rollon-Nox	Patented deep nitride hardening and black oxidation treatment provide good durability under high loads or frequencies and excellent corrosion resistance. This treatment is standard for all sizes.
	Rollon E-coating (K)	As Rollon-Nox version with additional electro painting that provides a fine black finishing to the entire rail. It can be partially removed from the raceways on the running contact point of the rollers after a period of use. Rails with Rollon E-Coating are supplied with stainless steel rollers to further increase the corrosion resistance.
TES/UES	Zinc Plating ISO 2081	Standard plating on TES and UES rails and sliders. Ideal for indoor applications. Zinc-plated sliders are supplied with steel rollers.
	Rollon E-coating (K)	Similar to the zinc-plated ISO 2081 version but with additional electro-painting that provides a fine black finish to the entire rail. This coating may be partially removed from the raceways at the running contact points of the rollers after a period of use. Rails with Rollon E-Coating are supplied with stainless steel rollers to further increase corrosion resistance.
TEX/UEX	Electro-polish (X)	Rails are completely electro-polished to further improve corrosion resistance. The electro-polishing treatment also gives the product a highly reflective surface.

Tab.51

▶ LIFE CALCULATION

■ Service life calculation for N/P-series

The calculation of service life can be performed only for rails with nitrided raceways, for which the dynamic load capacity (C) is provided. The dynamic load capacity C is a conventional variable that corresponds to a nominal service life of 100 km. For individual slider values, see pg. 21. The following formula (see Fig.64) links the calculated theoretical service life to the dynamic load capacity and the equivalent load:

$$L_{km} = 100km \cdot \left(\frac{C}{P} \cdot \frac{f_c}{f_i} \cdot f_h \right)^3$$

L_{km} = theoretical service life (km)
 C = dynamic load capacity (N)
 P = applied equivalent load (N)
 f_c = contact factor
 f_i = application coefficient
 f_h = stroke factor

Fig.64

The equivalent load (P) corresponds, in its effects to the sum of the forces acting simultaneously on a slider. If these different load components are known, P is calculated as follows:

$$P = P_r + \left(\frac{P_a}{C_{Oax}} \right) \cdot C_{Orad}$$

Fig.65

Here, the external loads are assumed to be constant over time. Brief loads that do not exceed the maximum load capacities have no significant effect on service life and can therefore be neglected. The contact factor (fc) applies to applications in which several sliders pass over the same rail section. If two or more sliders move over the same point of a rail, the contact factor, according to Table 52, must be taken into account in the formula for calculating service life.

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

Tab.52

The application coefficient (f_i) accounts for the operational conditions in the service life calculation. It is determined as described in the following table:

f_i	
No shocks or vibrations smooth and low-frequency direction changes; clean operating conditions; low speeds (<1 m/s)	1 - 1.5
Slight vibrations, average speeds (1-1.5 m/s), and a moderate frequency of direction changes.	1.5 - 2
Shocks and vibrations, high speeds (> 1.5 m/s), and high-frequency direction change; extreme dirt contamination	2 - 3.5

Tab.53

The stroke factor f_h accounts for the increased load on the raceways and rollers during short strokes over the same total length of run. The corresponding values are taken from the following graph (for strokes longer than 1 m, $f_h = 1$):

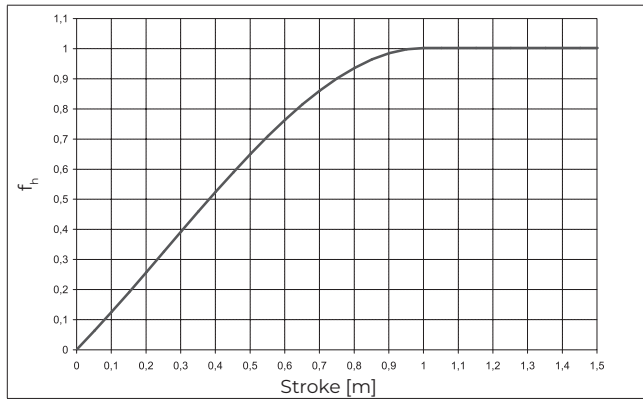


Fig.66

■ Static load

The radial load capacity rating, C_{0rad} and the axial load capacity rating C_{0ax} , indicate the maximum capacity load values (see pg. 21). Higher loads will negatively affect running quality.

A safety factor, S_0 , is used to check the static loads, taking into account the basic parameters of the application. It is defined in more detail in the following table:

Safety factor S_0

No shocks or vibrations, smooth and low-frequency reversals, high assembly accuracy, no elastic deformations.	1 - 1.5
Normal installation conditions	1.5 - 2
Shocks and vibrations, high-frequency reversals, significant elastic deformation.	2 - 3.5

Fig.67

The ratio of the actual load to the maximum permissible load may be as large as the reciprocal of the accepted safety factor, S_0 , at the most.

The above formulas are valid for a single load case. If two or more forces act simultaneously, please refer to the following formula:

$\frac{P_{0rad}}{C_{0rad}} \leq \frac{1}{S_0}$	$\frac{P_{0ax}}{C_{0ax}} \leq \frac{1}{S_0}$	$\frac{P_{0rad}}{C_{0rad}} + \frac{P_{0ax}}{C_{0ax}} \leq \frac{1}{S_0}$	P_{0rad} = applied radial load (N) C_{0rad} = radial load capacity (N) P_{0ax} = applied axial load (N) C_{0ax} = axial load capacity (N)
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Fig.68

Fig.69

The safety factor (S_0) can be at lower given limit if the occurring forces can be determined with sufficient precision. If shocks and vibrations are present, the higher value should be selected. For dynamic applications, a higher safety factor is required. Please contact Rollon technical support.



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