

## FLEXIBLE LINEAR SYSTEM

FLEXRACE a very flexible linear system with unique assembly possibilities.

The FLEXRACE system provides an extremely versatile linear system, with great variety of rail / roller configurations for a wide range of applications. FLEXRACE is designed to be a strong and simple multitask linear system for larger handling and automation applications. It is a Low -cost, easy to assemble system, that offers smooth motion even on inaccurate surfaces.

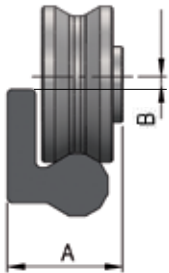


## FXR rail with rollers

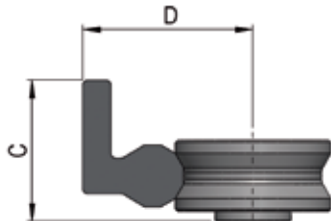
Depending on space and capacity requirements, two dimensions of rollers are available, size 43 - 63. The standard rollers are guiding of type R.V, but with use of the floating-rollers R.P43 or R.F43 and R.F63 a Selfaligning system is easily obtained.

For corrosive ambients INOX rollers are also available in size 43.

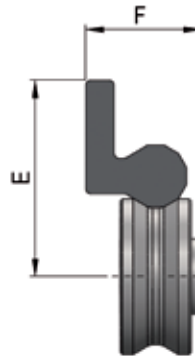
**Fig. 1**



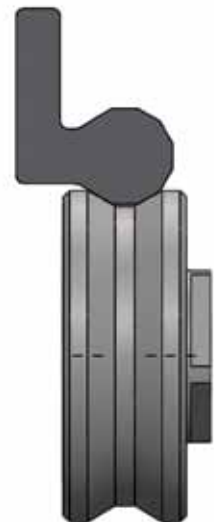
**Fig. 2**



**Fig. 3**



**Rail with roller  
R.V63**



### Possible roller positioning with FXR rail

Roller type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
R.V43	22,85	0,8	27,9	33,73	38,78	22,85
R.V63	24,8	1	29,85	39,41	44,46	24,8

For complete data and dimensions for rollers, please refer to page 23.

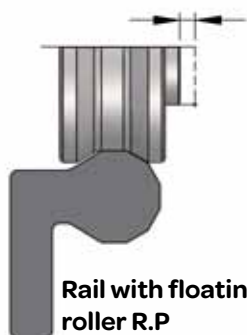
**For R.F43=4mm**

**Lateral floating 1mm  
(+/-0,5) only for R.P43**

**Lateral floating**



**Rail with guiding  
roller R.V**



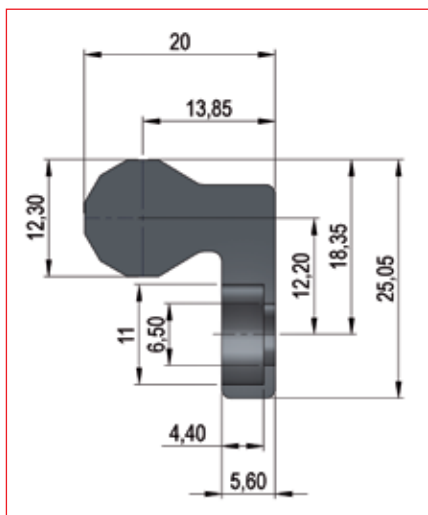
**Rail with floating  
roller R.P**



**Rail with freely  
floating roller R.F**

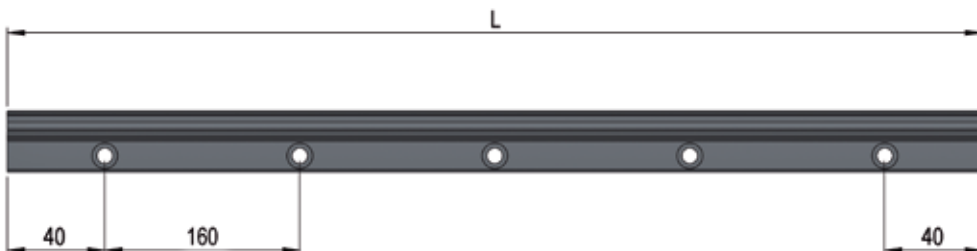
**Rail with roller  
R.V43**





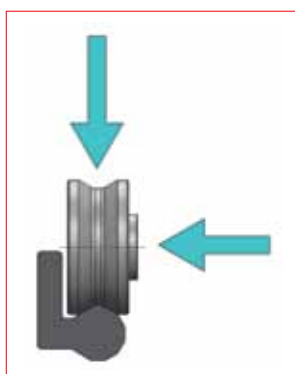
The rail is made from special carbon steel alloy to assure a good nitride hardening with our T RACE-NOX treatment. An innovative hardening technology applied to the linear rail products able to increase the hardness on the surface and in depth, enough to guarantee to support the typical Hertz's stress in the point of contacts with the rollers, and to grant a strong resistance against corrosion, reducing the friction and the wear, for a long life of the rail.

After nitride hardening the rails are processed with an oxidation treatment and subsequently a hot-oil impregnation to assure a nice black color and a high corrosion resistance. Now is also available the version FXR-P80 with holes pitches 80 mm, recommended for high load application.



L (mm)												Weight (kg/m)
400	560	720	880	1040	1200	1360	1520	1680	1840	2000	2160	2,09
2320	2480	2640	2800	2960	3120	3280	3440	3600	3760	3920		

## Roller positioning

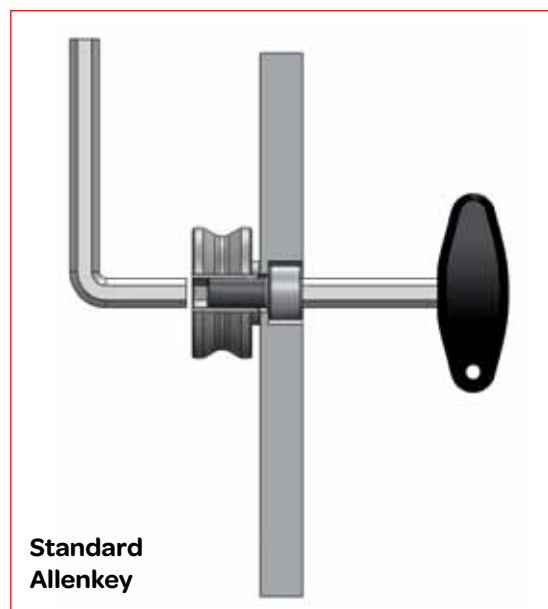


The roller must be correctly positioned with regards to load direction and also with sufficient number of rollers to assure requested load capacity and life-time.

The load capacities are listed on page 23. Generally it is always preferable to position the rollers so the main loads are acting radially on the rollers, as highest load capacity for the rollers, i.e. Co rad. Load capacity is higher than axial load capacity Co ax, as the axial load is only acting on one raceway, compared to two raceways for radial loads.

The rollers must be fixed to complete rigid and plan steel support and fixed with the below indicated tightening torques for each type of rollers.

While fixing screw of the rollers is maintained blocked with the key on the rear-end, each type of rollers has its own key/tool. When use of eccentric rollers, it is suggested to use a spring-washer, between screw and roller, to facilitate the preload regulation before final tightening of roller. The preloading of the eccentric rollers are done, like explained for the sliders on page 32.

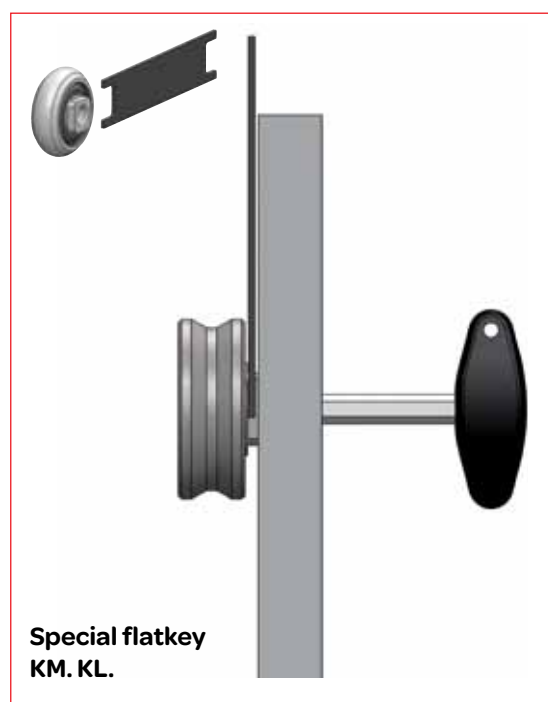


Roller type	Roller key	Screw type	Tightening torque (Nm)
R..18	Allenkey 3	M4	3
R..28	Allenkey 4	M5	7
R..43	Allenkey 6	M8	23
R..63	KMR63	M10	38
L..28	KLM28	M5	7
L..43	KLM43	M8	23
P..26	Allenkey 3	M5	7
P..40	Allenkey 5	M8	23

## Lubrication of rails and rollers

The correct lubrication of rails and rollers is very important to assure long life of the products, in case of high frequency applications. In such cases it is suggested to clean raceways and rollers and re-lubricate every approx. 100.000 cycles, in normal operation conditions.

We suggest to use grease for high precision of type "Classe NLGI2 (ISO2137) .



The FXR rail allows for many different rail configurations for linear moments with 2 or more parallel rails fixed to plan or tubular supports, on which rollers or carriers are running. With its unique 3-raceways, compact and space saving linear solutions can be obtained.

The below illustrated configurations are all customized solutions T RACE have been offering its customers and are made to order. Naturally these solutions can also be made locally by end user, just

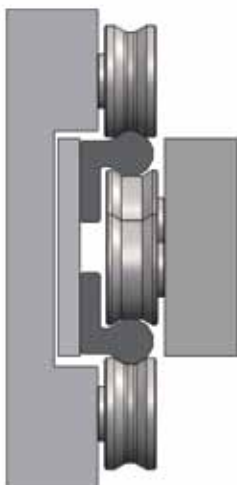
buying the components, FXR rails and rollers.

If requested T RACE's Technical office can assist to assure correct dimensioning according to requested load/moment capacities.

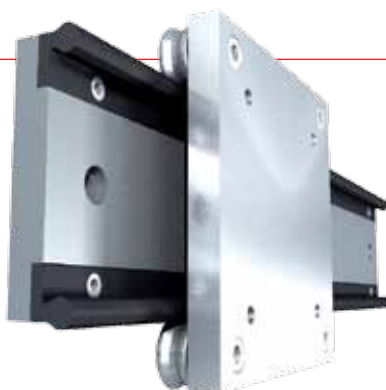
Main advantages are that linear solutions with high Mx moment capacities can easily be assembled. Solutions which too can substitute a monorail solution with parallel rails.



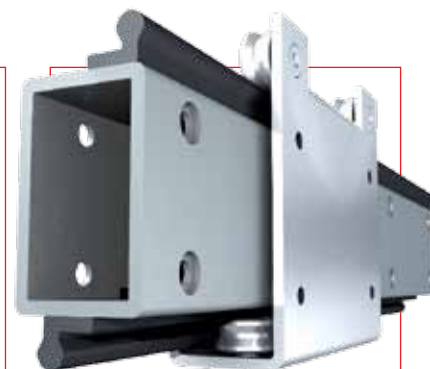
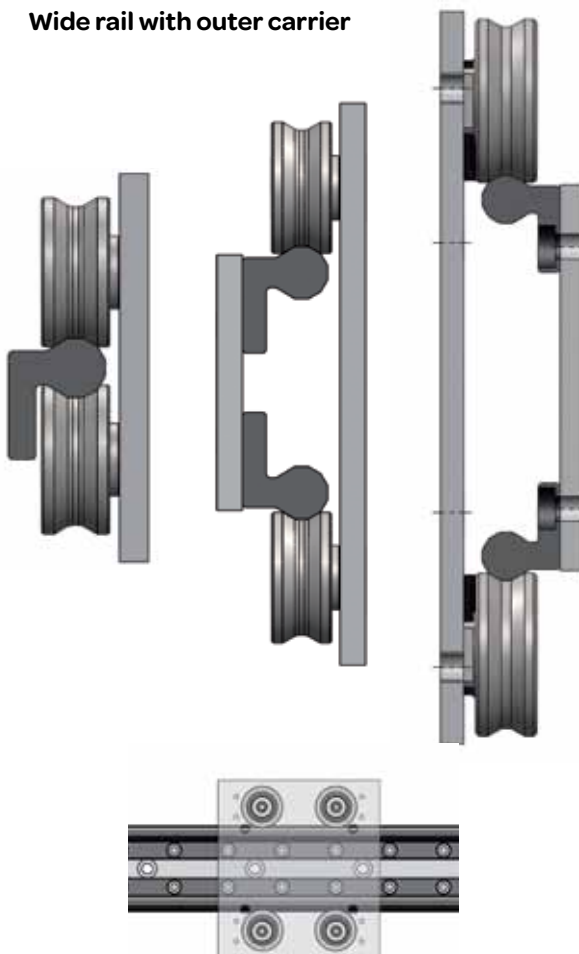
**Wide rail with inner carrier**



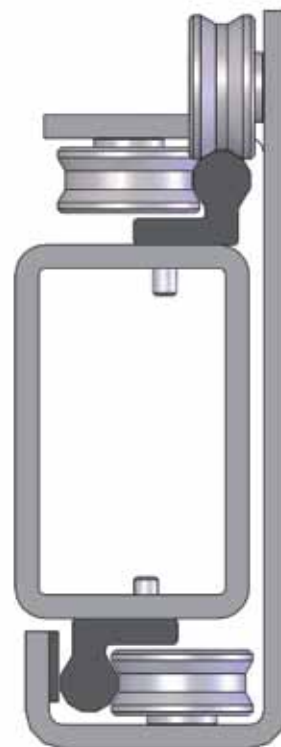
**Telescopic slide with rollers. Two elements moving to assure 100% extension.**



**Wide rail with outer carrier**

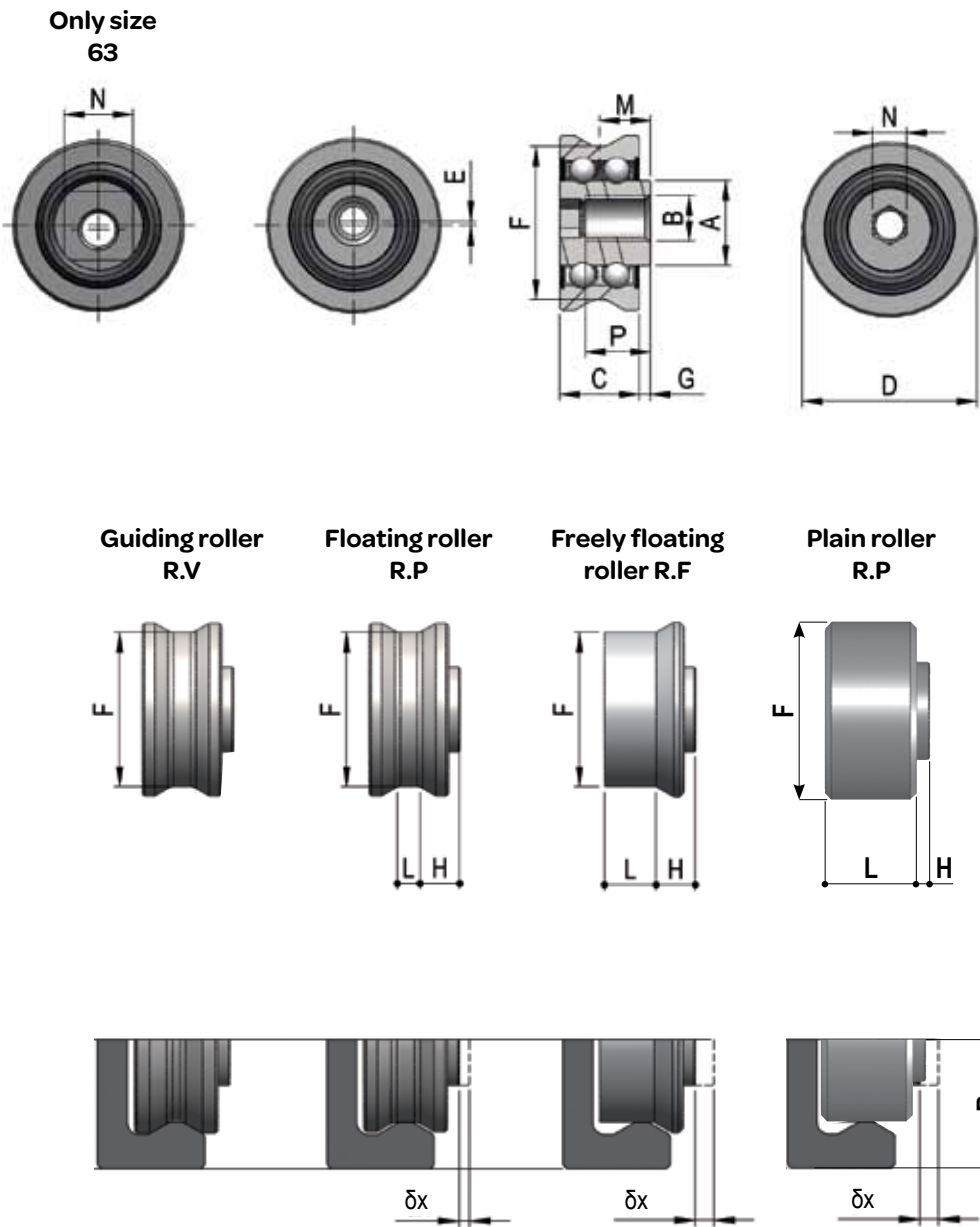


**Tubular rail with external carrier for heavy loads/ moments.**



The ROLLERACE rollers are designed around a double-row precision ball bearing to guarantee both high radial and axial load capacities. The rollers are protected by a double lip sealing system (2RS) to assure long lifetime, even in difficult environments. The integrated roller pivot has concentric or eccentric shape, to allow for preload setting in the different systems. The bearings are made to precision class DIN620 of core-hardened carbon steel. The rollers are available in series R.V with 2 contact points on the protruding

raceways to obtain, a rigid guiding movement. The R.P has the rollers with some limited floating/compensation capacity, as only having one contact point at the central part of the raceways. The R.F rollers offer much more floating capacity, as one side is completely flat (only rollers in size 43/63) . The rollers of size 28 and 43 are also available in INOX stainless steel series R..X. All made from AISI440 steel, core hardened and ground, for applications in corrosive ambients.



Roller code	Type	E (mm)	D (mm)	C (mm)	M (mm)	G (mm)	N Flat key	A (mm)	B (mm)	P (mm)	R (mm)	F (mm)	L (mm)	H (mm)	Version	Lateral floating $\delta x$	For rail	Dynamic coeff. C (N)	Load capacity (N)		Weight (g)				
																			Co rad	Co ax					
RCV18G	concentric	0	13,2	7,0	4,6	1,1	Allen key 3	6,8	M4	5,4	8,8				guiding		MRG18	1650	800	230	10				
REV18G	eccentric	0,4																							
RCP18G	concentric	0																							
REP18G	eccentric	0,4																							
												11,9	2,5	3,4	floating	1 (+/-0,5)									
RCV28	concentric	0	20,0	9,0	6,3	1,75	Allen key 4	10,8	M5	7,0	13,9	17,6			guiding		MR28	3000	1600	460	20				
RCV28X																									
REV28	eccentric	0,6																							
REV28X																									
RCP28	concentric	0											floating	1,2 (+/-0,6)											
RCP28X																									
REP28	eccentric	0,6																							
REP28X																									
REU28	eccentric	0,6	17,7							17,7	9	1,8	plain	2 (+/- 1)											
RCV43	concentric	0	30,8	14,0	9,0	2,0	Allen key 6	15,0	M8	10,5	21,3	27,2			guiding		MR43 FXR	7100	3600	1070	50				
RCV43X																									
REV43	eccentric	0,8																							
REV43X																									
RCP43	concentric	0	30,4										floating	2 (+/-1)											
RCP43X																									
REP43	eccentric	0,8																							
REP43X																									
RCF43	concentric	0	27,2									9,0	7,0	freely floating	4 (+3/-1)										
REF43	eccentric	0,8																							
RCU43	concentric	0														27,2						14	2	plain	4,5 (+3/-1,5)
REU43	eccentric	0,8																							
RCV63	concentric	0	42,4	15,7	10,95	3,1	Flat key 17 Outer dim. for KMR 63	22,1	M10	18,8		38,4			guiding		FXR	11200	6400	2000	80				
REV63	eccentric	1,2																							

Position R referred to FXR rail is indicated at page 26