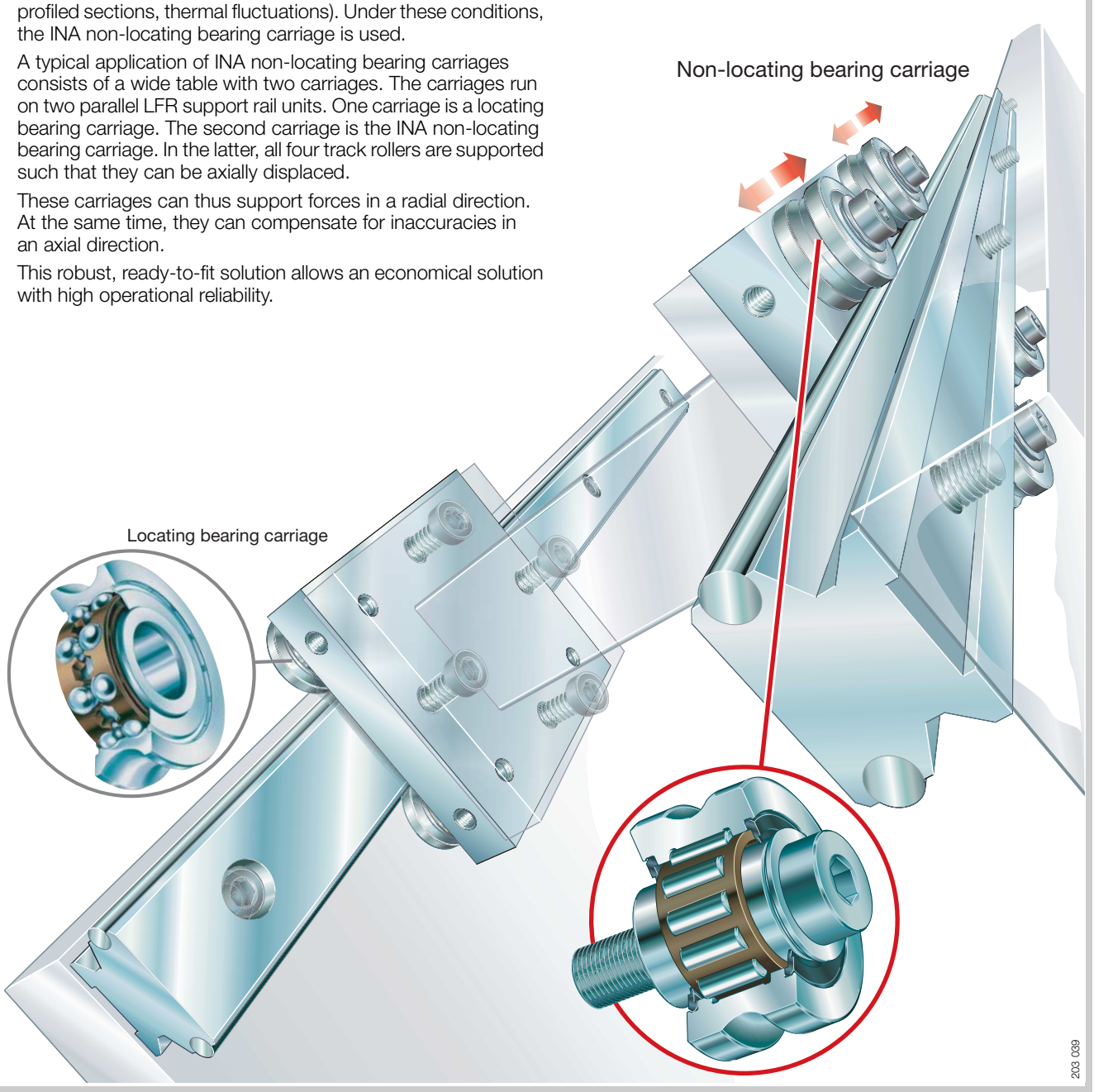
Non-locating bearing carriage

If the load carrying capacity of one support rail unit is not sufficient, two parallel LFR support rail units are used. If there is a considerable distance between the support rails, it is often not possible to ensure adequate parallelism. Deviations can be caused by inaccuracies or deformations in the adjacent construction (weldment, substructure with profiled sections, thermal fluctuations). Under these conditions, the INA non-locating bearing carriage is used.

A typical application of INA non-locating bearing carriages consists of a wide table with two carriages. The carriages run on two parallel LFR support rail units. One carriage is a locating bearing carriage. The second carriage is the INA non-locating bearing carriage. In the latter, all four track rollers are supported such that they can be axially displaced.

These carriages can thus support forces in a radial direction. At the same time, they can compensate for inaccuracies in an axial direction.

This robust, ready-to-fit solution allows an economical solution with high operational reliability.



Non-locating bearing carriage

Features

Non-locating bearing carriages are robust, ready-to-fit linear guidance systems. They are used exclusively for locating/non-locating bearing applications in two parallel support rail guidance systems.

Non-locating bearing carriages

- support radial forces
- compensate for inaccuracies.

These characteristics allow

- an economical adjacent construction
- high operational reliability.

In terms of design and sizes, they correspond to the carriage LFL. The adjacent construction and carriage can be attached to each other by four screws. The saddle plate has four threaded holes for this purpose.

Non-locating bearing carriages consist of

- an anodised aluminium saddle plate
- four bolts
- four track rollers.

The carriage is supplied with the track rollers fitted and the bolts are tightened to the necessary tightening torque. The preload is set to a factory-specified value.

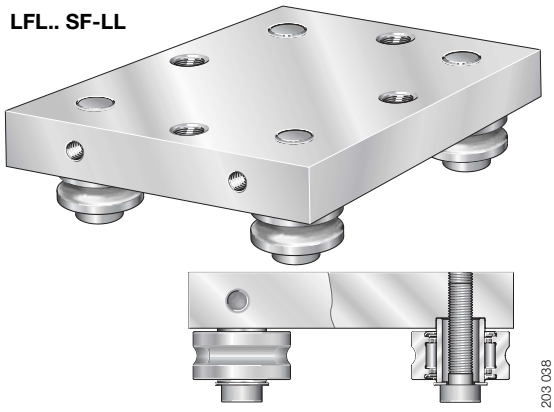
The four track rollers have a heavy-section outer ring and support high radial loads. The track rollers are sealed by contact seals.

The rollers are lubricated for life with high quality lithium soap grease.

⚠ Non-locating bearing carriages must not be used individually. They must only be used in combination with locating bearing carriages.

Non-locating bearing carriage

LFL.. SF-LL



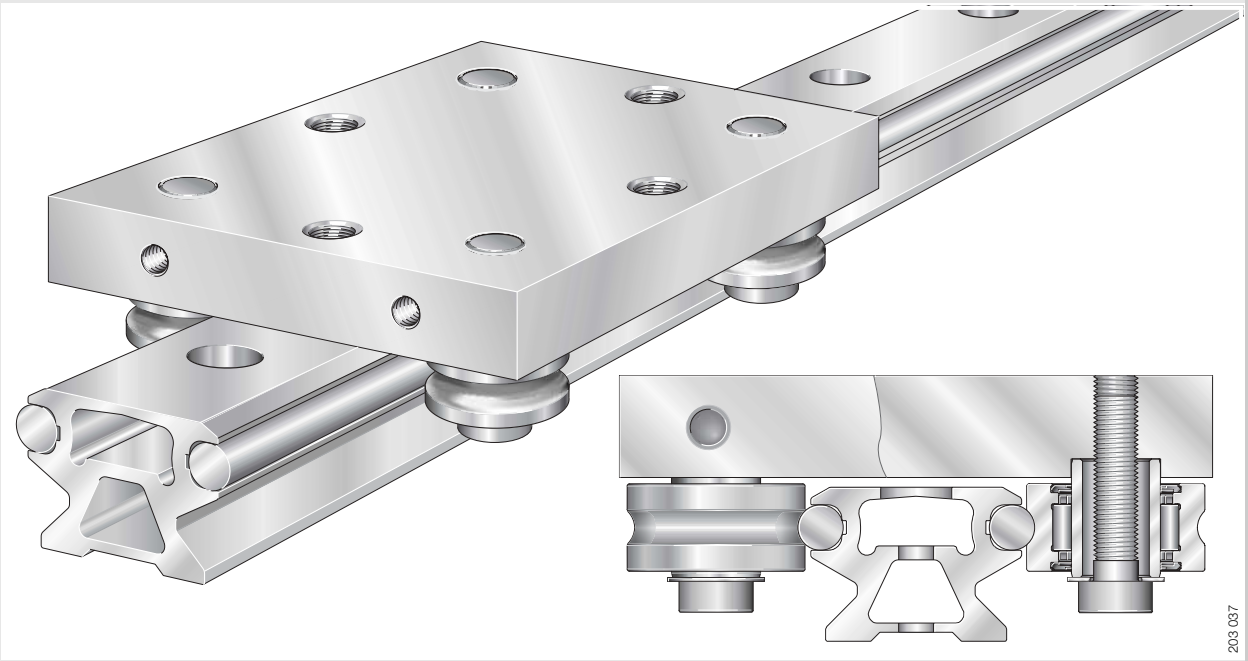
- non-locating bearing carriage
  - anodised aluminium saddle plate
  - with four bolts
  - with four movable track rollers

Track roller

LFRN..

- track roller
  - movable in axial direction
  - sealed by contact seals
  - with heavy-section outer ring
  - lubricated for life

Non-locating bearing carriage on LF shaft and support rail unit



Track roller guidance system with non-locating bearing carriage

Series LFL.. SF-LL

and shaft and support rail units

Series LFS
LFS.. E
LFS.. C
LFS.. CE

Dimension table · Dimensions in mm

Non-locating bearing carriage	Mass	Shaft and support rail units	Mass	Dimensions						Mounting dimensions				
				Non-locating bearing carriage			Shaft and support rail unit							
				H	A	C	h	a	$L^{5)}$	A_1	A_2	A_3	a_1	a_2
	≈kg		≈kg							±0,2				
LFL 32 SF-LL	0,4	**LFS 32**	1,6	35,5[1)]	80	90	20	32	6 000	59	54	56	24	26
		LFS 32 E												
		LFS 32 C	1,1											
		LFS 32 CE												
LFL 52 SF-LL	1	**LFS 52**	4,4	54,3[2)]	120	100	34	52	8 000	90	83	65	40	42
		LFS 52 E												
		LFS 52 C	3,3											
		LFS 52 CE												

Further information is given in *INA Catalogue "801".*

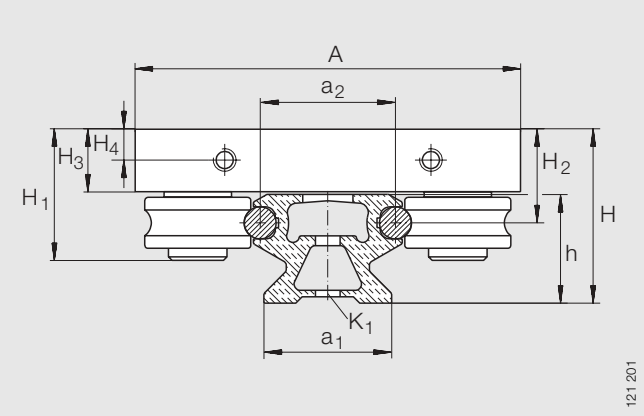
1) LFL 32 SF-LL: ±0,7.

2) LFL 52 SF-LL: ±1.

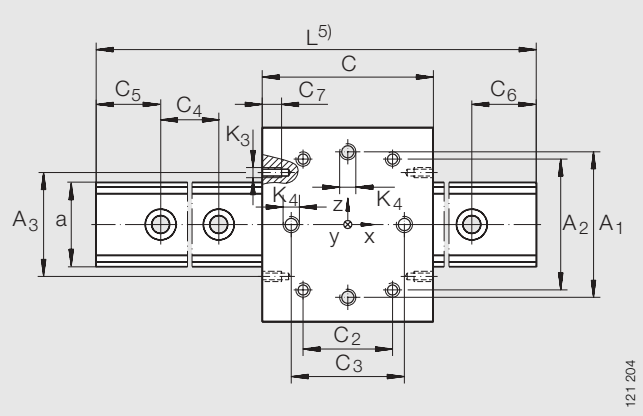
3) C_5 and C_6 are dependent on the support rail unit, for calculation see page 6.

4) For screws to DIN ISO 4 762-8.8, if the maximum load is to be used, support washers to DIN 433 are required.

5) Maximum length of single-piece guideways;
longer guideways are supplied in several sections and are marked accordingly.



LFL.. SF-LL with LFS, LFS..C, LFS..CE



LFL.. SF-LL with LFS, LFS..C, LFS..CE · view X (rotated 90°)

C_2	C_3 ±0,2	C_4	C_5 3)		C_6 3)		C_7	H_1	H_2	H_3	H_4	K_1 4)	K_3	K_4
			min.	max.	min.	max.								
60	70	125	11	116	11	116	7	32	20,5 1)	13,75	7	M 6	M6	M 8
		62,5		52		52								
		125		116		116								
		62,5		52		52								
60	70	250	17	235	17	235	12	46	29,2 2)	19,5	9,75	M10	M6	M10
		125		110		110								
		250		235		235								
		125		110		110								

Load carrying capacity table

Designation	Forces		Moment ratings	
	$F_{z\,max}$ N	$F_{0z\,max}$ N	$M_{y\,max}$ N	$M_{0y\,max}$ N
LFS 32 SF-LL with LFS 32	1000	1000	30	30
LFS 32 SF-LL with LFS 32 E	1400	1400	42	42
LFS 32 SF-LL with LFS 32 C	930	930	27	27
LFS 32 SF-LL with LFS 32 CE	1300	1300	39	39
LFS 52 SF-LL with LFS 52	2500	2500	75	75
LFS 52 SF-LL with LFS 52 E	3500	3500	105	105
LFS 52 SF-LL with LFS 52 C	2000	2000	60	60
LFS 52 SF-LL with LFS 52 CE	3500	3500	105	105

Hole patterns

Unless stated otherwise, shaft and support rail units are supplied with a symmetrical hole pattern.

On request, an asymmetrical hole pattern is also possible where $C_5 \geqq C_{5\,min}$ and $C_6 \geqq C_{6\,min}$.

For a symmetrical hole pattern, $C_5 = C_6$ (Figure 1 a).

For a symmetrical hole pattern, $C_5 \neq C_6$ (Figure 1 b).

The number of pitches between holes is the nearest whole number equivalent to:

$$n = \frac{L - (2 \cdot C_{5\,min})}{C_4}$$

The dimensions C_5 and C_6 are generally subject to:

$$C_5 + C_6 = L - n \cdot C_4$$

Distance between end of guideway and nearest hole centre:

$$C_5 = \frac{1}{2} \cdot (L - n \cdot C_4)$$

Number of holes:

$$x = n + 1$$

L mm
Support rail unit length

C_4 mm
Hole pitch or recommended distance between screws on support rail units with T-slots

C_5, C_6 mm
Distance between start or end of guideway and nearest hole

$C_{5\,min}$, $C_{6\,min}$ mm
Minimum value for C_5 and C_6: see *dimension table*

n –
Maximum possible number of hole pitches

x –
Number of holes on support rail units with T-slots: number of screws.

⚠ If the minimum and maximum values for C_5 and C_6 are not observed, the counterbores of the holes may be intersected.

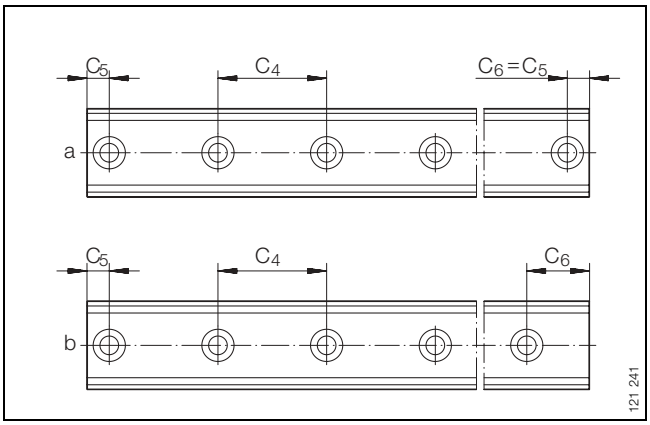


Figure 1 · Symmetrical (a) and asymmetrical hole pattern (b)

Non-locating bearing carriage

Application example

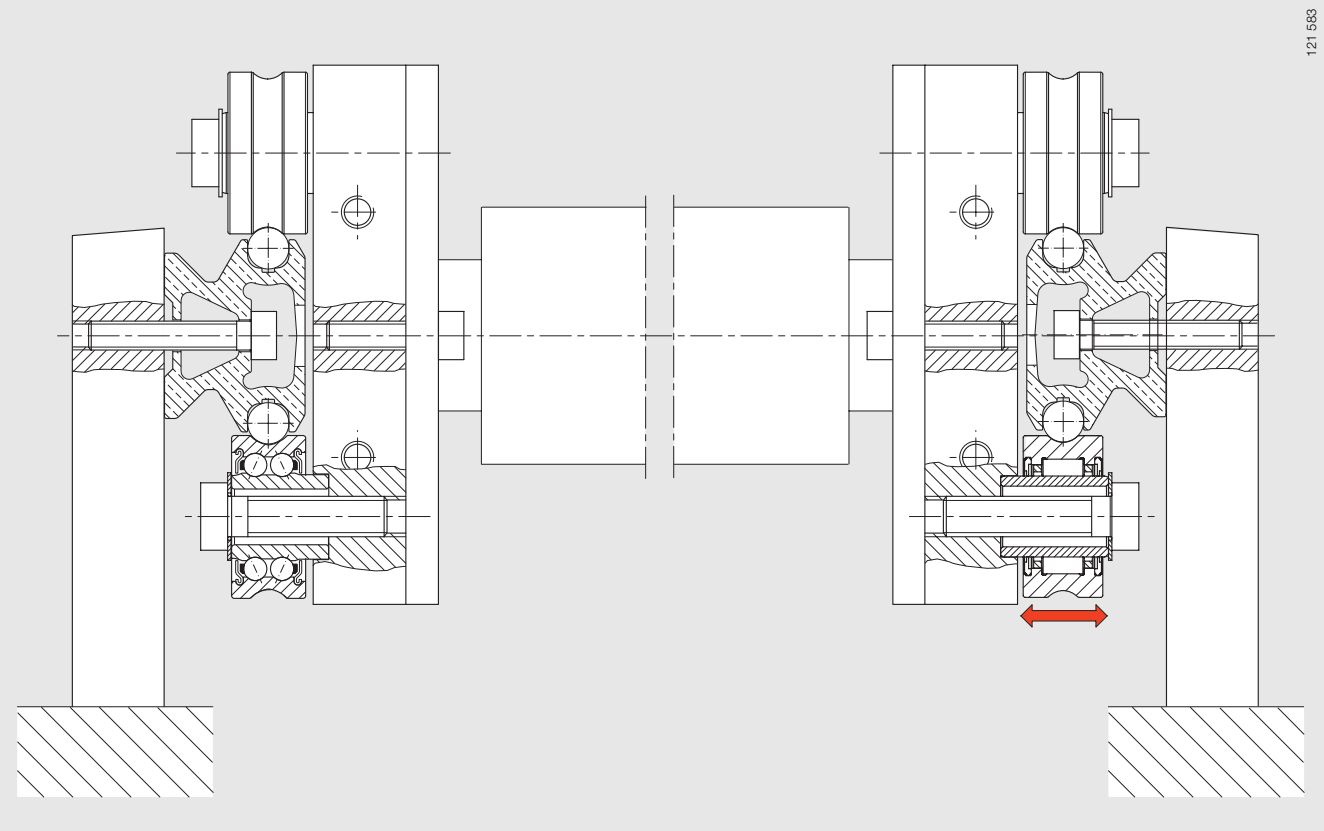


Figure 2 · Application example

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