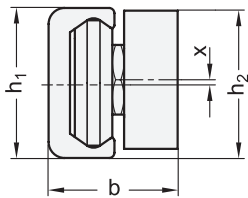## Tolerance for mounted linear guide rail systems

In the combination of rails GN 2422 and cam roller carriages GN 2424, the following dimensions / tolerances exist.

If several cam roller carriages are installed into one rail, an offset x can occur between the cam roller carriages which must be added to the dimension h_2.

h_1	b	h_2	x
18 +0,25/-0,10	+0,15/-0,16	+0,25/-0,25	±0,20
28 +0,25/-0,10	+0,25/-0,10	+0,15/-0,35	±0,20
35 +0,35/-0,10	+0,25/-0,10	+0,10/-0,30	±0,20
43 +0,36/-0,10	+0,25/-0,10	+0,20/-0,35	±0,20

Guidance accuracy

Linear guide rail systems feature the linear guidance accuracy shown in the diagram.
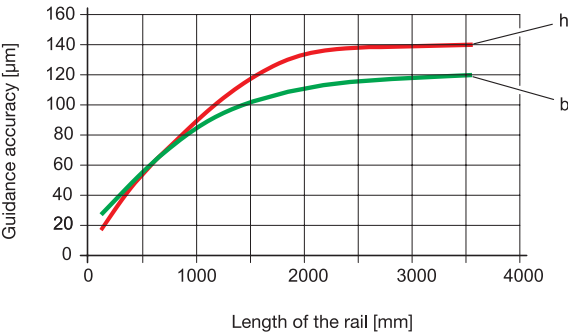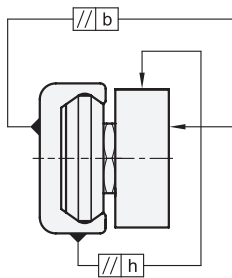

Permissible height offset

The fixed and floating bearing principle ensures that misalignments in the base construction are compensated. However, when using Type UV / UT and XV / XT rails, certain limits should not be exceeded. The following table shows the maximum permissible angle of the height offset of the fixed and floating bearing rails. Please note that the load rating must be reduced by 30% once the specified value is reached.

To calculate h_2, the following equation should be used: $h_2 = a \times \tan w$, with the tabular values shown below used for w.

Example: $h_1 = 43$, $a = 650$ mm, w max. = 0,171°

$h_2 = 650$ mm $\times \tan 0{,}171° = 1{,}94$ mm
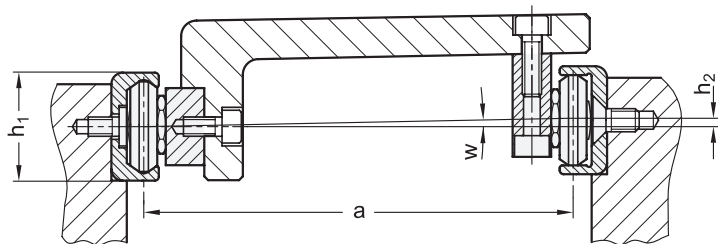
h_1	w max.
18	0,057°
28	0,143°
35	0,151°
43	0,171°

Permissible lateral offset

It is possible to compensate for angular defects and the offset of the mounting surface with the help of fixed and floating bearing rails. The permissible offset of cam rollers and cam roller carriages in the Type UT / UV rails is given by the values for x and z. The reference is the nominal middle of the raceway b_m.

A parallelism or angular error can thus be compensated for across the whole length of the rail, which corresponds to an offset from the sum of the values for x and z.
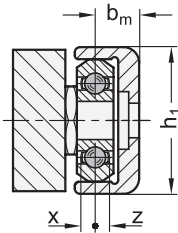
h_1	b_m	x	z
18	6,3	1,1	0,3
28	8,6	1,3	0,7
35	10,5	2,7	1,3
43	14,5	2,5	1,5

Support widths

To guarantee the proper running motion, outside dimensions must be observed during the assembly of linear guide rail systems. Suitable components include supports at the rail and at the roller carriage which should not be smaller than the widths a or b. Also, forces acting from the outside can thus be transferred reliably from the linear guide rail systems without submitting the mounting screw to shear stress.
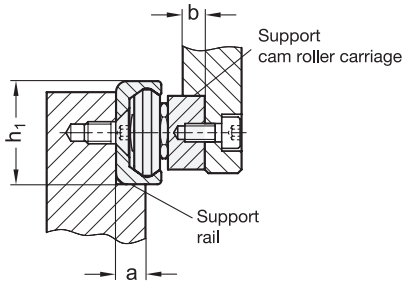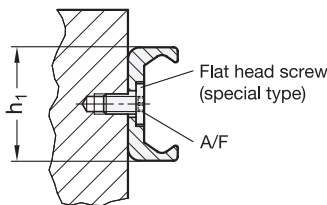
h_1	a	b
18	5	4
28	8	4
35	11	5
43	14	5

Tightening torque

When positioning the rails with countersunk mounting holes, Type UT and XT, make sure the surface is flat and the mating tapped holes are tapped deep enough so the flat head screw is flush with the rail.

The specified tightening torque of the flat head screws must be maintained.

h_1	Screw	A/F Drive	Tightening torque in Nm
18	M 4 x 8	T20	3
28	M 5 x 10	T25	9
35	M 6 x 12	T30	14
43	M 8 x 16	T40	24

3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9