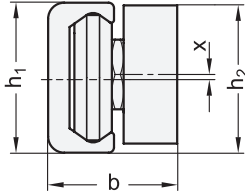


Tolerance for mounted cam roller linear guide rail systems

The following dimensions / tolerances result from the combination of GN 2422 cam roller linear guide rails and GN 2424 cam roller carriages.

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 .

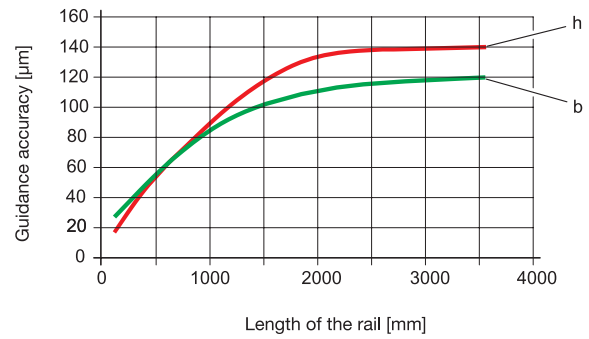
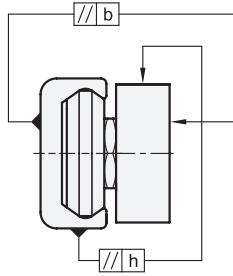
Dimensions in: millimeters - inches



h_1	b	h_2	x
18 <i>0.71</i> <small>+0.25 -0.10 +0.009 -0.004</small>	<small>+0.15 -0.16 +0.006 -0.006</small>	<small>+0.25 -0.25 +0.009 -0.009</small>	<small>±0.20 ±0.008</small>
28 <i>1.10</i> <small>+0.25 -0.10 +0.009 -0.004</small>	<small>+0.25 -0.10 +0.009 -0.004</small>	<small>+0.15 -0.35 +0.006 -0.014</small>	<small>±0.20 ±0.008</small>
35 <i>1.38</i> <small>+0.35 -0.10 +0.014 -0.004</small>	<small>+0.25 -0.10 +0.009 -0.004</small>	<small>+0.10 -0.30 +0.004 -0.012</small>	<small>±0.20 ±0.008</small>
43 <i>1.69</i> <small>+0.36 -0.10 +0.014 -0.004</small>	<small>+0.25 -0.10 +0.009 -0.004</small>	<small>+0.20 -0.35 +0.008 -0.014</small>	<small>±0.20 ±0.008</small>

Guidance accuracy

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



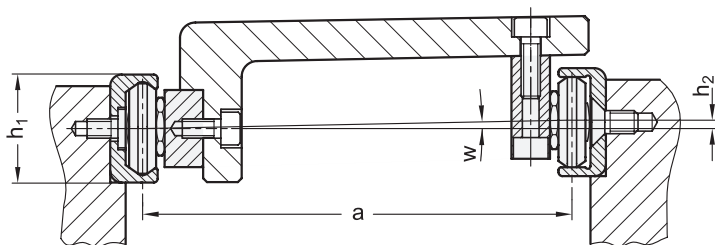
Permissible height offset

The fixed and floating bearing principle ensures that misalignments in the base construction are compensated. However, certain limit values should not be exceeded when using type UV / UT and XV / XT rails. 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 is reduced by 30% once the specified values are reached.

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

Example: $h_1 = 43$ mm, $a = 650$ mm, w max. = 0.171°

$$h_2 = 650 \text{ mm} \times \tan 0.171^\circ = 1.94 \text{ mm}$$



Dimensions in: millimeters - inches

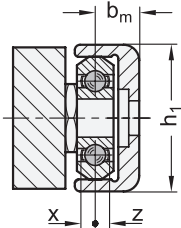
h_1	w max.
18 <i>0.71</i>	0.057°
28 <i>1.10</i>	0.143°
35 <i>1.38</i>	0.151°
43 <i>1.69</i>	0.171°

Permissible lateral offset

It is possible to compensate for angular errors 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.

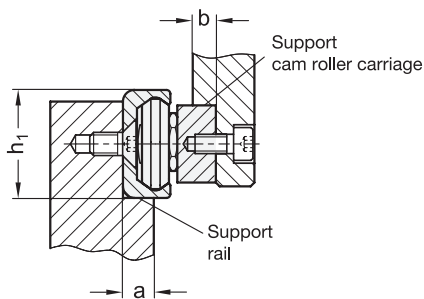
Dimensions in: millimeters - inches



h_1	b_m	x	z
18 0.71	6.3 0.25	1.1 0.04	0.3 0.01
28 1.10	8.6 0.34	1.3 0.05	0.7 0.03
35 1.38	10.5 0.41	2.7 0.11	1.3 0.05
43 1.69	14.5 0.57	2.5 0.10	1.5 0.06

Support widths

To guarantee the proper running motion, outside connecting dimensions must be observed during the assembly of cam roller linear guide rail systems. Suitable components include supports at the rail and at the cam roller carriage, which should not be smaller than the widths a or b. In addition, forces acting from the outside can thus be transferred reliably from the cam roller linear guide rail system without submitting the mounting screws to shear stress.



Dimensions in: millimeters - inches

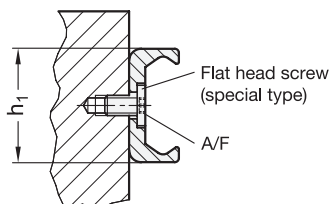
h_1	a	b
18 0.71	5 0.20	4 0.16
28 1.10	8 0.31	4 0.16
35 1.38	11 0.43	5 0.20
43 1.69	14 0.55	5 0.20

Tightening torques

When positioning the type UT and XT rails with cylindrical countersunk holes, make sure that the mounting holes of the mounting surface are tapped deep enough.

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

Dimensions in: millimeters - inches



h_1	Screw	A/F Drive	Tightening torque in Nm
18 0.71	M 4 x 8	T20	3
28 1.10	M 5 x 10	T25	9
35 1.38	M 6 x 12	T30	14
43 1.69	M 8 x 16	T40	24

Traversal speed

Depending on the application and installation length, the maximum traversal speed of cam roller linear guide rail systems is 7 m/s.

Lubrication

Once the cam roller carriage has been placed in the rail, it is recommended to slightly grease the raceway surfaces of the rail with a high-performance lubricant for linear guide rail systems, such as Klüberplex BE 31-222, using a brush.

The lubricant film should be checked at regular intervals for any dirt or pollution, e.g. by chips.

If the lubricant is visibly soiled or discolored, use a clean rag to clean the rail and the rollers and apply new lubricant.

Applying new lubricant is normally necessary once a year or after 100 km of running distance.

Operating temperatures

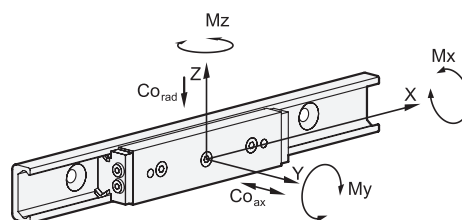
The components of the cam roller linear guide rail systems are suitable for use in a temperature range of -22 °F to +266 °F (-30 °C to +130 °C).

Load rating

The available installation space, the desired mounting method and the load to be carried are the determining factors when selecting the suitable cam roller linear guide rail system. The values listed below can be used as a guidance in selecting a suitable cam roller carriage or cam rollers.

The load rating details are non-binding guide values given without liability and do not constitute a guarantee of quality. The user must determine in each individual case whether a product is suitable for the intended application. Environmental factors and aging may affect the stated values.

Part number	Load ratings in main load direction		Permissible load torques		
	$C_{O_{rad}}$	$C_{O_{ax}}$	M_x	M_y	M_z
GN 2424 -18-...	825 N <i>185 lbf</i>	260 N <i>58 lbf</i>	1.6 Nm	8.3 Nm	4.8 Nm
-28-...	2210 N <i>497 lbf</i>	650 N <i>146 lbf</i>	6.4 Nm	28 Nm	16.4 Nm
-35-...	3550 N <i>798 lbf</i>	1070 N <i>241 lbf</i>	13.2 Nm	63 Nm	34.1 Nm
-43-...	5520 N <i>1241 lbf</i>	1580 N <i>355 lbf</i>	23.7 Nm	104.7 Nm	60.1 Nm
GN 2426 -18-...	410 N <i>92 lbf</i>	-	-	-	-
-28-...	1100 N <i>247 lbf</i>	-	-	-	-
-35-...	1760 N <i>396 lbf</i>	-	-	-	-
-43-...	2700 N <i>607 lbf</i>	-	-	-	-



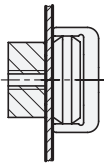
Cam Roller Carriages

Installation Instruction - Cam Roller Linear Guide Rail Systems

Cam roller linear guide rail systems consist of a GN 2422 cam roller linear guide rail and a GN 2424 cam roller carriage. All components are supplied separately packed and unassembled. When delivered, the play between cam roller carriage and rail is not preset.

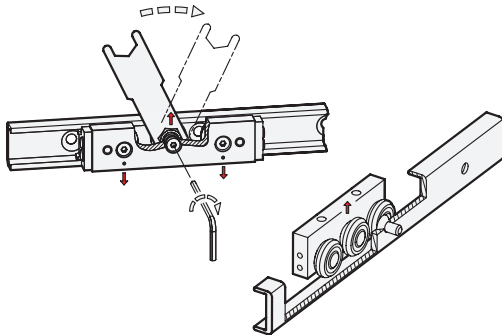
During assembly, set the cam roller carriage as follows:

1. Make sure that the raceways and the cam rollers are clean.
2. Slightly loosen the mounting screw of the central, eccentrically adjustable cam roller and insert the cam roller carriage (without the wipers supplied) into the rail (see also items 4 and 6).
3. Position the cam roller carriage at one end of the rail. For the floating bearing rails of type UT and UV, a thin and stable support (e.g. open-end wrench or a feeler gauge) must be placed underneath the ends of the cam roller carriage body and the rail to ensure the parallel alignment of the cam roller carriage in the level raceways.



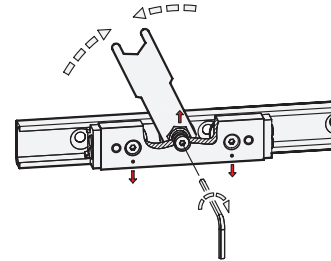
Use support for floating bearing rails!

4. Insert the GN 2424.1 open-end wrench (included) between the eccentric cam roller and the cam roller carriage body. (The centering bores to the left and right mark the position of the running side of the concentric / load-bearing cam rollers)



5. Turning the open-end wrench clockwise will press the cam roller to be adjusted against the top raceway, which will set the cam roller carriage free of play. Excessive pre-tensioning is to be avoided because this will increase friction and reduce the service life.

6. While using the open-end wrench to hold the bearing pivot in the correct position, the mounting screw may be moderately tightened. The correct tightening torque will be checked later.



7. Move the cam roller carriage in the rail and make sure that the play / the moderate pre-tensioning is constant along the full length of the rail. The running motion should be smooth, with the cam roller carriage having no play or jamming at any point inside the rail.

8. Now tighten the mounting screw with the prescribed tightening torque shown in the table, with the open-end wrench holding the angular position of the cam rollers in place.

Dimensions in: millimeters - *inches*

h_1	Tightening torque in Nm
18 <i>0.71</i>	3
28 <i>1.10</i>	7
35 <i>1.38</i>	7
43 <i>1.69</i>	12

9. Now mount the wipers, and for cam rollers carriage type N also the longitudinal seal. To do so, remove the cam roller carriage from the rail.

10. Before reinserting the cam roller carriage, make sure that the raceways / cam rollers are properly lubricated using a high-performance lubricant for linear guide rail systems.

3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
3.10