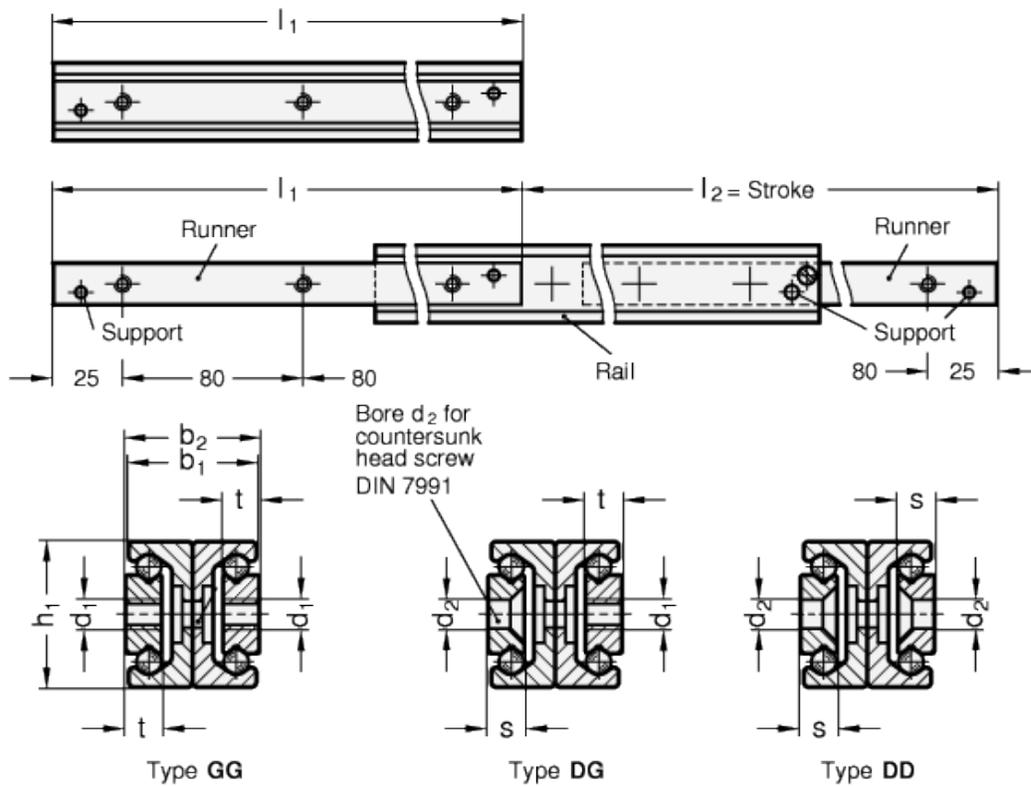


# GN 2408

Telescope-Linear motion bearings



technical informations

## Specification

Type

- Type GG: Runner with thread, on both sides
- Type DG: Runner 1x with countersink and 1 x with thread
- Type DD: Runner with countersink on both sides

Rail / Runner

Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened

#### Balls

Anti-friction bearing steel, hardened

#### Ball cage

Steel, zinc plated, blue passivated

#### Rail Connection

- Blank rivets, Stainless Steel (h1 = 28 and 35)
- Screws, Steel zinc plated (h1 = 43)

### *Information*

Telescope-Linear motion bearings GN 2408 consist of two interconnected linear motion bearings, used e.g. in handling or automation applications or in jigmaking for straight-line traversal distances if large strokes with low construction height of the rail are required. The H-shape of the rails gives the configuration a high degree of stability.

The rails and the runners are equal in length. Both runners can be extracted such that a stroke is reached which is longer than the rail base length  $l_1$ . Removing the support screws from the rails allows a stroke of the runners on both sides.

Depending on requirement, a choice of three types for fixing holes is available.

Limiting the maximum stroke should be ensured by external elements; the supports of the rail have been designed to guard against the inadvertent extraction of the runners.

#### On request

- other lengths (based on the standard lengths grid dimensions of 80 mm)
- Special lengths (bore, start and end distances)

### *Linear motion bearings*

All linear motion bearings consist of an outer rail with a runner moving inside. Anti-friction bearings, kept at a distance and in position by means of a ball cage, lie between the rail and the runner.

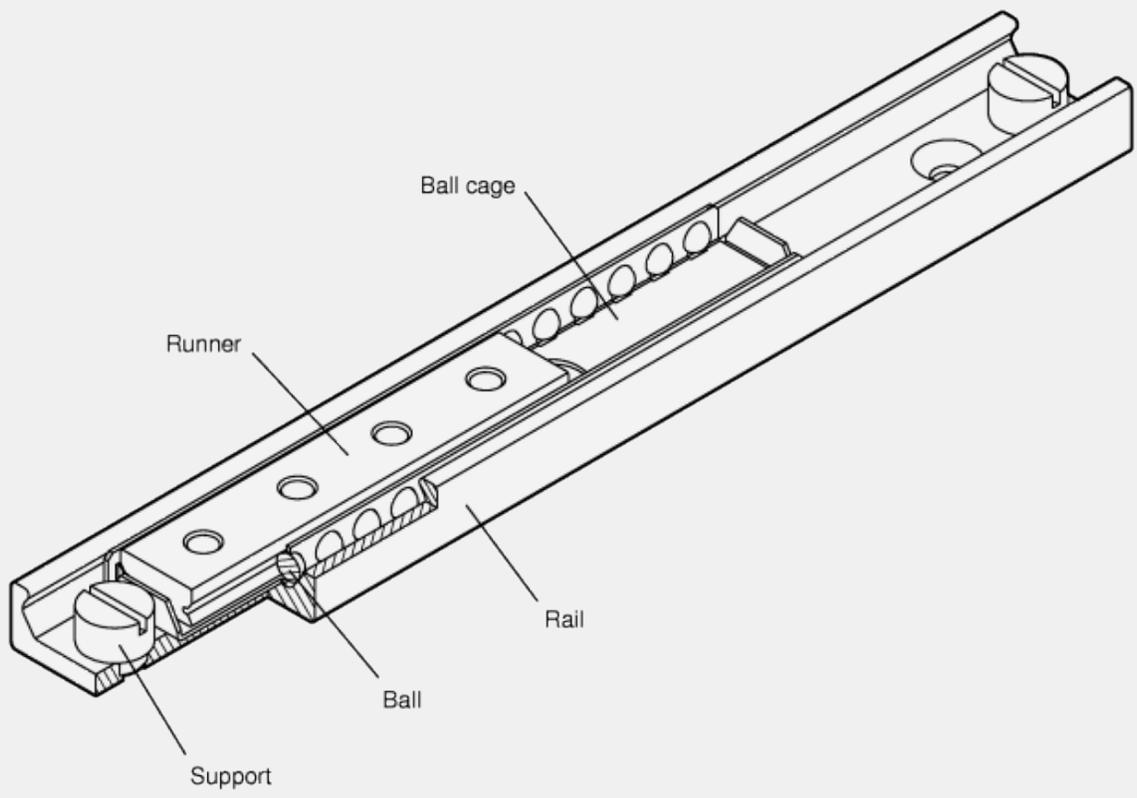
Rail and runner are made of heat treatable steel, allowing their use in the industrial environment with higher requirements in terms of load rating, quiet running and useful service life.

All designs are available in the nominal rail dimensions  $h_1 = 28, 35$  and  $43$  mm and may also be supplied beyond the standard range in lengths from 130 mm to 1970 mm for individual requirements.

The linear motion bearings are normally adjusted such that a clearance-free (i.e. moderately pre-stressed) pairing is generated between rail and runner. The raceways of the rails and runners are induction hardened, combined with the anti-friction bearings resulting in lower wear and longer service life. The linear motion bearings are permanently lubricated with a high-grade special grease designed for linear guide systems.

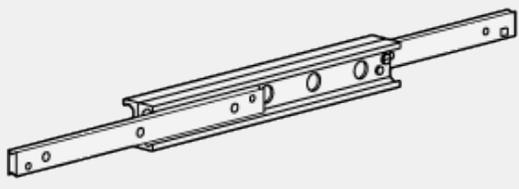
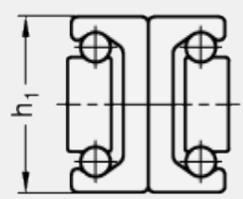
Depending on requirements, a variety of different types are available for selection. The traversal distances of the runners are inside, partly outside or entirely outside the length of the rails. The fully extendable telescope linear motion bearings consist of linear motion bearing units directly interconnected at the rails, the runners or with the help of an intermediate profile.

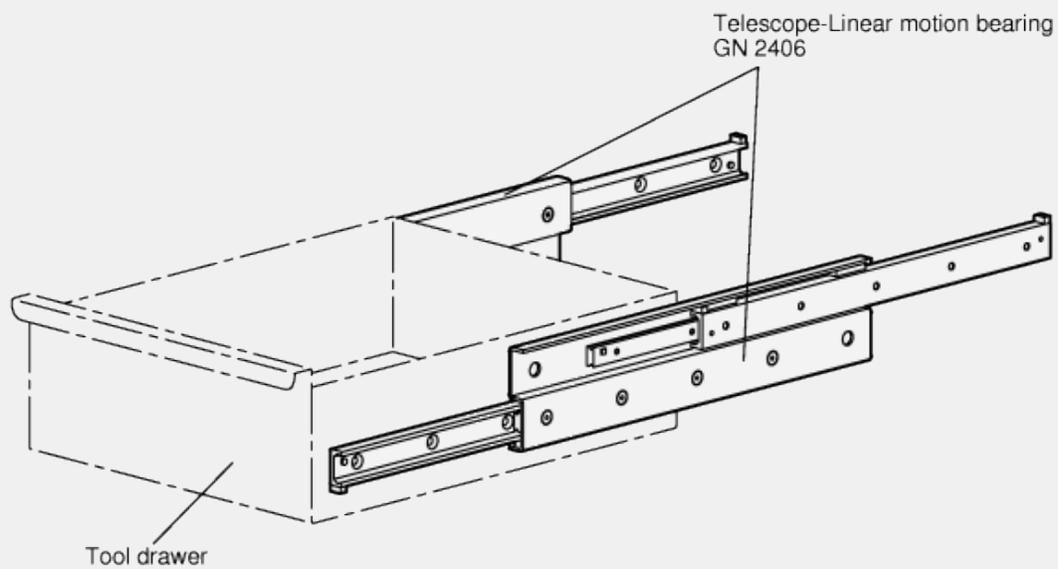
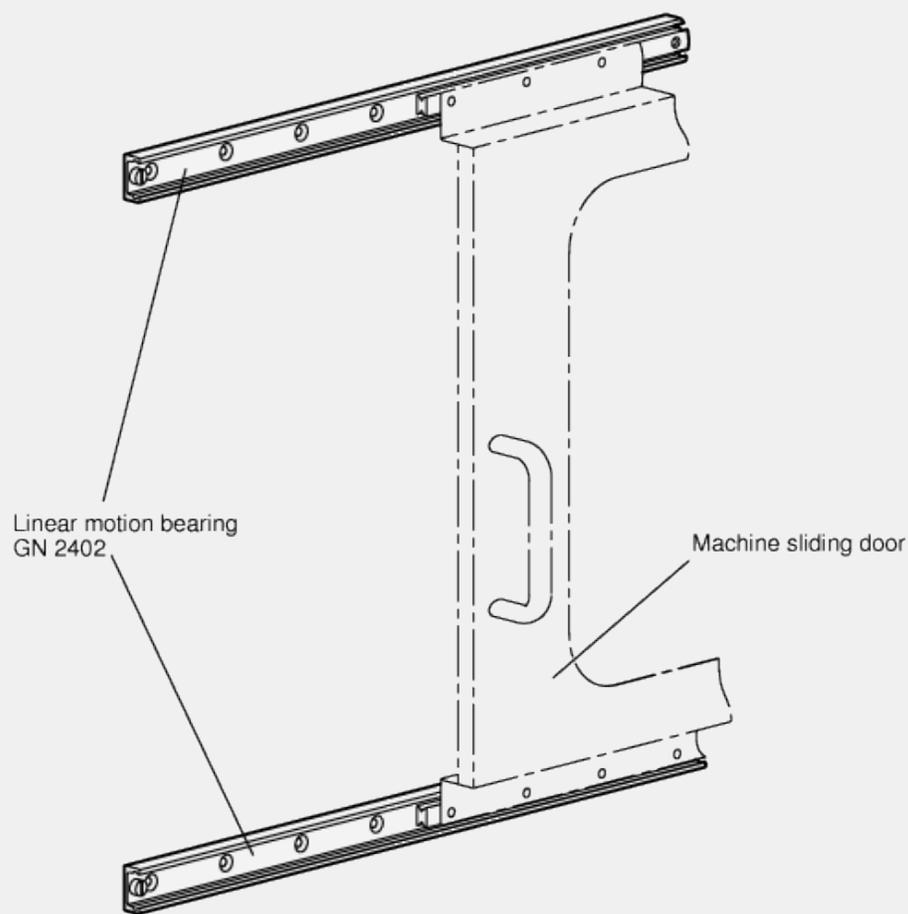
To mount the linear motion bearings, countersinks in the rails and, depending on type of construction, threaded or countersunk bores in the runners are available. The compact style is generally advantageous for use in tight spaces.



*Telescope-Linear motion bearings*

with rails connected in H-shape (Full extension).

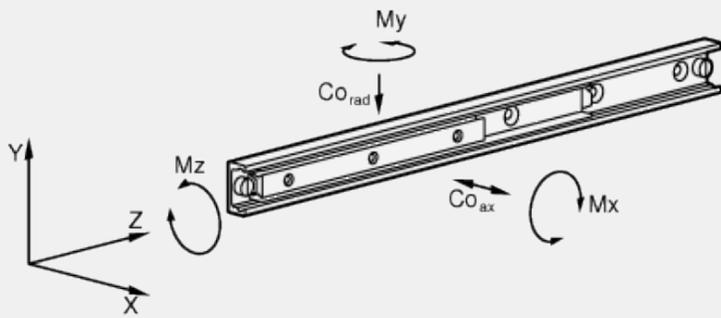




### *Load rating of Telescope-Linear motion bearings*

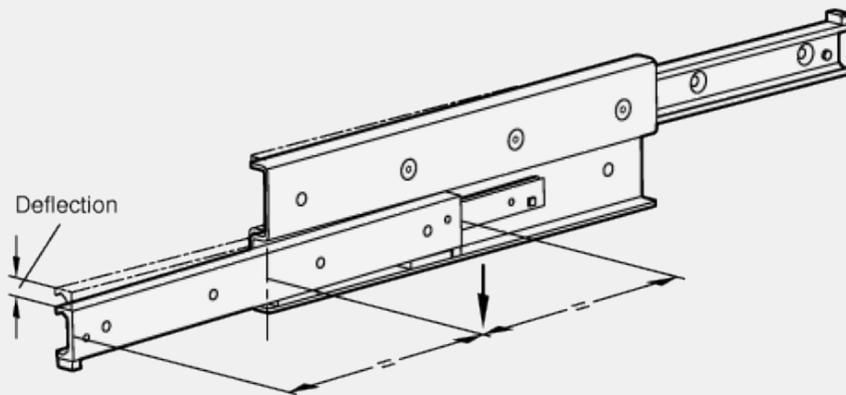
When selecting a suitable linear motion bearing, it is primarily the available space, the desired stroke and the load carried which must be taken into consideration. The values listed below are intended as guidelines for selecting the most suitable nominal rail size.

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



**Static load and deflection**

The load values given in the tables refer to a maximum permissible force allowed to act in the middle of the fully extended profile rail at the third segment.  
 If the given values are observed and if the telescope linear motion bearing is fully extended, a minor deflection (sag) occurs at the end of the runner or of the rail. This has normally no detrimental effect on the proper function of the application. If required, guide values may be given if requested.



**Fixing screws, assignment of the fixing holes**

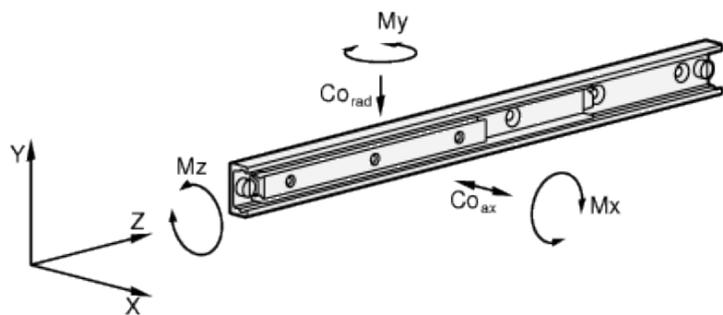
The standard fixing elements are DIN 7991-10.9 countersunk head screws, to be mounted with the prescribed tightening torque. Depending on type, not all fixing holes may be reached or assigned. In general, these holes can be left unused. In exceptional cases, especially in bilateral stroke, the fixing holes can be reached by loosening the support screws and by pulling out the runner. The support screws are then put back in place.

**Traversal speed, cage slip**

The traversal speed in linear motion bearings can be as much as 0,8 m/s, with the application in hand and the installation length having an effect on this value. In the event of rapid changes of direction and high accelerating forces, cage slip may occur in some cases, especially in long ball cages. In cases such as these, the cage does not move synchronous with half the speed of the runner, but gradually loses its correct position owing to the slip. Whenever possible, running a blank stroke to the end of the traversal distance should be provided for back positioning.

| Standard Elements | Main dimensions |           |           |       |       |       |       |      | Weight |
|-------------------|-----------------|-----------|-----------|-------|-------|-------|-------|------|--------|
|                   | Description     | $h_1$     | $l_{1-1}$ | $b_1$ | $b_2$ | $d_1$ | $d_2$ | s    |        |
| GN 2408-28-210-GG | 28              | 210 - 232 | 24.6      | 25.8  | M 5   | -     | -     | 7    | 920    |
| GN 2408-28-370-GG | 28              | 370 - 380 | 24.6      | 25.8  | M 5   | -     | -     | 7    | 1630   |
| GN 2408-28-450-GG | 28              | 450 - 464 | 24.6      | 25.8  | M 5   | -     | -     | 7    | 1980   |
| GN 2408-28-530-GG | 28              | 530 - 548 | 24.6      | 25.8  | M 5   | -     | -     | 7    | 2330   |
| GN 2408-35-370-GG | 35              | 370 - 406 | 33        | 34    | M 6   | -     | -     | 10   | 2260   |
| GN 2408-35-450-GG | 35              | 450 - 494 | 33        | 34    | M 6   | -     | -     | 10   | 2750   |
| GN 2408-35-530-GG | 35              | 530 - 558 | 33        | 34    | M 6   | -     | -     | 10   | 3220   |
| GN 2408-35-610-GG | 35              | 610 - 464 | 33        | 34    | M 6   | -     | -     | 10   | 3720   |
| GN 2408-43-450-GG | 43              | 450 - 486 | 42        | 44    | M 8   | -     | -     | 13.5 | 4730   |

|                   |    |           |       |      |     |     |     |      |      |
|-------------------|----|-----------|-------|------|-----|-----|-----|------|------|
| GN 2408-43-610-GG | 43 | 610 - 626 | 42    | 44   | M 8 | -   | -   | 13.5 | 6410 |
| GN 2408-43-770-GG | 43 | 770 - 796 | 42    | 44   | M 8 | -   | -   | 13.5 | 8090 |
| GN 2408-43-930-GG | 43 | 930 - 966 | 42    | 44   | M 8 | -   | -   | 13.5 | 9770 |
| GN 2408-28-210-DG | 28 | 210 - 232 | 24.6  | 25.8 | M 5 | 5.5 | 4   | -    | 920  |
| GN 2408-28-370-DG | 28 | 370 - 380 | 24.6  | 25.8 | M 5 | 5.5 | 4   | -    | 1630 |
| GN 2408-28-450-DG | 28 | 450 - 464 | 24.6  | 25.8 | M 5 | 5.5 | 4   | -    | 1980 |
| GN 2408-28-530-DG | 28 | 530 - 548 | 24.6  | 25.8 | M 5 | 5.5 | 4   | -    | 2330 |
| GN 2408-35-370-DG | 35 | 370 - 406 | 33    | 34   | M 6 | 6.5 | 3.5 | -    | 2260 |
| GN 2408-35-450-DG | 35 | 450 - 494 | 33    | 34   | M 6 | 6.5 | 3.5 | -    | 2750 |
| GN 2408-35-530-DG | 35 | 530 - 558 | 33    | 34   | M 6 | 6.5 | 3.5 | -    | 3220 |
| GN 2408-35-610-DG | 35 | 610 - 646 | 33    | 34   | M 6 | 6.5 | 3.5 | -    | 3720 |
| GN 2408-43-450-DG | 43 | 450 - 486 | 42    | 44   | M 8 | 8.5 | 4.5 | -    | 4730 |
| GN 2408-43-610-DG | 43 | 610 - 626 | 42    | 44   | M 8 | 8.5 | 4.5 | -    | 6410 |
| GN 2408-43-770-DG | 43 | 770 - 796 | 42    | 44   | M 8 | 8.5 | 4.5 | -    | 8090 |
| GN 2408-43-930-DG | 43 | 930 - 966 | 42    | 44   | M 8 | 8.5 | 4.5 | -    | 9770 |
| GN 2408-28-210-DD | 28 | 210 - 232 | 24.6  | 25.8 | -   | 5.5 | 4   | -    | 920  |
| GN 2408-28-370-DD | 28 | 370 - 380 | 224.6 | 25.8 | -   | 5.5 | 4   | -    | 1630 |
| GN 2408-28-450-DD | 28 | 450 - 464 | 24.6  | 25.8 | -   | 5.5 | 4   | -    | 1980 |
| GN 2408-28-530-DD | 28 | 530 - 548 | 24.6  | 25.8 | -   | 5.5 | 4   | -    | 2330 |
| GN 2408-35-370-DD | 35 | 370 - 406 | 33    | 34   | -   | 6.5 | 3.5 | -    | 2260 |
| GN 2408-35-450-DD | 35 | 450 - 494 | 33    | 34   | -   | 6.5 | 3.5 | -    | 2750 |
| GN 2408-35-530-DD | 35 | 530 - 558 | 33    | 34   | -   | 6.5 | 3.5 | -    | 3220 |
| GN 2408-35-610-DD | 35 | 610 - 646 | 33    | 34   | -   | 6.5 | 3.5 | -    | 3720 |
| GN 2408-43-450-DD | 43 | 450 - 486 | 42    | 44   | -   | 8.5 | 4.5 | -    | 4730 |
| GN 2408-43-610-DD | 43 | 610 - 626 | 42    | 44   | -   | 8.5 | 4.5 | -    | 6410 |
| GN 2408-43-770-DD | 43 | 770 - 796 | 42    | 44   | -   | 8.5 | 4.5 | -    | 8090 |
| GN 2408-43-930-DD | 43 | 930 - 966 | 42    | 44   | -   | 8.5 | 4.5 | -    | 9770 |



| Article No.       | Load ratings    |
|-------------------|-----------------|
| Description       | $Co_{rad}$ in N |
| GN 2408-28-210-GG | 447             |
| GN 2408-28-370-GG | 1000            |
| GN 2408-28-450-GG | 1205            |
| GN 2408-28-530-GG | 1140            |
| GN 2408-35-370-GG | 1035            |
| GN 2408-35-450-GG | 1265            |
| GN 2408-35-530-GG | 1705            |

|                   |      |
|-------------------|------|
| GN 2408-35-610-GG | 1930 |
| GN 2408-43-450-GG | 1890 |
| GN 2408-43-610-GG | 3035 |
| GN 2408-43-770-GG | 2580 |
| GN 2408-43-930-GG | 2580 |
| GN 2408-28-210-DG | 447  |
| GN 2408-28-370-DG | 1000 |
| GN 2408-28-450-DG | 1205 |
| GN 2408-28-530-DG | -    |
| GN 2408-35-370-DG | 1035 |
| GN 2408-35-450-DG | 1265 |
| GN 2408-35-530-DG | 1705 |
| GN 2408-35-610-DG | 1930 |
| GN 2408-43-450-DG | 1890 |
| GN 2408-43-610-DG | 3035 |
| GN 2408-43-770-DG | 3145 |
| GN 2408-43-930-DG | 2580 |
| GN 2408-28-210-DD | 447  |
| GN 2408-28-370-DD | 1000 |
| GN 2408-28-450-DD | 1205 |
| GN 2408-28-530-DD | 1140 |
| GN 2408-35-370-DD | 1035 |
| GN 2408-35-450-DD | 1265 |
| GN 2408-35-530-DD | 1705 |
| GN 2408-35-610-DD | 1930 |
| GN 2408-43-450-DD | 1890 |
| GN 2408-43-610-DD | 3035 |
| GN 2408-43-770-DD | 3145 |
| GN 2408-43-930-DD | 2580 |

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

No details on the permissible load torques are given for the telescope-linear motion bearings as these are normally used for paired applications. Loads of these dimensions occur to a minor degree because it may be assumed that the surrounding construction has sufficient rigidity and stiffness. Transferring load torques within certain limited is permitted.



STANDARD MACHINE ELEMENTS WORLDWIDE