

Ball joints DIN ISO 1220-4 Series K

Technical information

Bearing play

Bearing play refers to the amount of play by which the internal ring inside a bearing socket without lubrication can be moved in either a radial or an axial plane.

Types N, NH lubrication possible		Types W, WH, WK self lubricated		
d _i		d _i		
Bore internal ring	Radial bearing play	Bore internal ring	Radial bearing play	Axial bearing play
5...10	0,005...0,035	5...10	0,005...0,030	2 to 3 times
12...20	0,010...0,040	12...18	0,005...0,035	Radial play
22...25	0,010...0,050	20...25	0,005...0,045	Radial play

Load applied to obtain the measured results: 100 N at room temperature.

Lubrication

Ball joint heads of type **N** (lubrication possible) require regular lubrication. On delivery the ball joint heads are not lubricated. The initial lubrication takes place when installed. Within the temperature range of -20° C to + 125° C, a multipurpose grease proved to be adequate. Under extreme conditions a high quality grease such as for instance Gleitmo 805K should be used.

Ball joint heads of the type **W** (self lubricated) **must never be lubricated**. The internal ring moves on a PTFE insert of the bearing socket.

Operating temperature

Ball joint heads of the type **N** (lubrication possible) can be used within the temperature range -50° C to + 200° C and if used with a high temperature grease even higher.

Ball joint heads of the type **W** (self lubricated) can be used in the temperature range of -50° C to + 200° C.

In general use at higher temperature is possible, but this will of course shorten the working life of the head.

Load values

Load values are bearing related values, arrived at from the raw material data of the basic material of construction used. The latter is used to determine the choice of a ball joint head for a given load. These might, however, have to be reduced to meet the requirements of particular circumstances.

Static load values Co

Co gives the permitted radial static load which can be applied to a ball jointed head with the weakest cross section without causing permanent deformation. The Co-values quoted in the catalogue table have been calculated, based on the corresponding raw material specification. Subsequently a random number of the ball joint heads was stress tested at room temperature. Each and every time the stress tests were based on using up to 80 % before the onset of deformation thus leaving a safety factor of 1,25.

The static load value Co is used to obtain the permissible **axial load** which in general is limited by the mounting strength of the internal bearing. To obtain the maximum axial load Fa tests were carried out at the largest permissible slant angle and the results obtained are shown in the table below:

Fa = 0,4 Co for type N

Fa = 0,2 Co for types NH, W, WH, WK

Static load values Co [kN]										
d _i	GN 648.1		GN 648.2		GN 648.5			GN 648.6		
Size	Type N	Type W	Type N	Type W	Type NH	Type WH	Type WK	Type NH	Type WH	Type WK
5	9,9	8	4,3	4,3	11,8	11,8	11,8	6,2	6,2	6,2
6	11,9	8,9	6	6	13,1	13,1	13,1	8,8	8,8	8,8
8	17,1	14,1	11	11	20,7	20,7	20,7	16,1	16,1	16,1
10	21,4	19,3	17,4	17,4	28,3	28,3	28,3	25,5	25,5	25,5
12	27	23,5	25,5	23,5	34,5	34,5	34,5	34,5	34,5	34,5
14	24,5	21	24,5	21	39,5	39,5	39,5	39,5	39,5	39,5
16	37	32	36,5	32	60,5	60,5	60,5	60,5	60,5	60,5
18	43	38,5	43	38,5	73	73	73	73	73	73
20	49,5	44	49,5	44	83	83	83	83	83	83
22	57	53	57	53	100	100	100	100	100	100
25	68	62	68	61	118	118	118	118	118	118

Dynamic load value C

They help to evaluate the length of life for ball joint heads when used under dynamic conditions. Nominal values are available if required.

GN 648.1

Ball joints with female thread

- **Housing**

Zinc-plated steel, blue passivated.

- **Internal ring**

Hardened, ground and polished steel.

- **Bearing socket**

- Execution **N** (lubrication possible): brass.

- Execution **W** (self lubricated): zinc-plated steel with PTFE-insert.

Other standard executions available

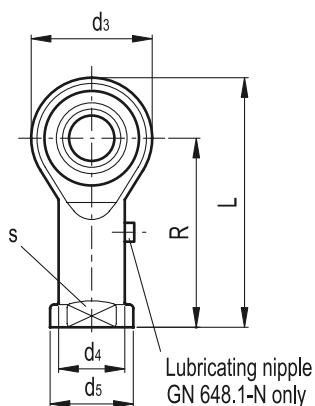
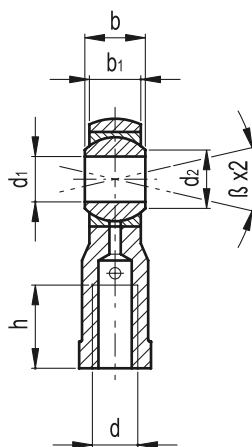
Ball joints DIN ISO 12240-4, series E (narrow model) on request.

Features and applications

Ball joints GN 648.1 are similar to DIN ISO 12240-4, series K (formerly DIN 648 K).



GN 648.1-N



GN 648.1-W

