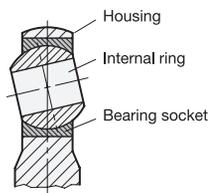


Ball joint heads DIN ISO 12240-4 / DIN 12240-1, Series K

Technical information



Steel version

Type N

Housing steel, zinc plated
 Pairings
 Internal ring steel, hardened
 Bearing socket brass

lubrication possible.

Type W

Housing steel, zinc plated
 Pairings
 Internal ring steel, hardened
 Bearing socket steel, zinc plated
 with PTFE-insert

self lubricated.

Features of general use:

For general use, and in particular for continuously changing thrust and shock loads in radial and axial plane.

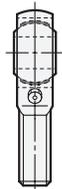
For general use, especially for application under dynamic operating conditions.
 Load bearing capacity than Type N.

Ball joint heads

with female thread



with threaded bolt



Ball joints

without housing



Stainless Steel version

Type NH

Housing Stainless Steel
 Pairings
 Internal ring, hardened, hard chrome plated
 Bearing socket bronze

lubrication possible.

Type WH

Housing Stainless Steel
 Pairings
 Internal ring steel, hardened
 Bearing socket bronze, with PTFE-insert

self lubricated.

Type WK

Housing Stainless Steel
 Pairings
 Internal ring Stainless Steel, hardened
 Bearing socket Stainless Steel, with PTFE-insert

self lubricated.

As Type N for use in corrosion endangered area.

As Type W for use in corrosion endangered area.

As Type W for use in areas where the highest degree of corrosion resistance is of paramount importance. Such as for instance in the food industry.

Bearing play

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

Types N, NH lubrication possible		Types W, WH, WK self lubricated		
d _i	Radial bearing play	d _i	Radial bearing play	Axial bearing play
Bore internal ring		Bore internal ring		
5 ... 10	0.005 ... 0.035	5 ... 10	0.005 ... 0.030	2 to 3 times radial play
12 ... 20	0.010 ... 0.040	12 ... 18	0.005 ... 0.035	
22 ... 30	0.010 ... 0.050	20 ... 30	0.005 ... 0.055	

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 805 K 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.

Ball joint heads DIN ISO 12240-4 / DIN ISO 12240-1, Series K

Technical information

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 use 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 bis +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 in kN

Co gives the permitted radial static load which can be applied to a ball joint 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 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

d _i Size	GN 648.1		GN 648.2		GN 648.5		GN 648.6		GN 648.8		GN 648.9
	Type N	Type W	Type N	Type W	Type NH/WH/WK	Type NH/WH/WK	Type N	Type W	Type N	Type W	Type WK
5	9.9	8	4.3	4.3	11.8	6.2	19.8	12.5	12.5		
6	11.9	8.9	6	6	13.1	8.8	25.8	15.5	15.5		
8	17.1	14.1	11	11	20.7	16.1	42.6	27.8	27.8		
10	21.4	19.3	17.4	17.4	28.3	25.5	60	39.0	39.0		
12	27	23.5	25.5	23.5	34.5	34.5	80	53.5	53.5		
14	24.5	21	24.5	21	39.5	39.5	102.5	70	70		
16	37	32	36.5	32	60.5	60.5	128.5	88	88		
18	43	38.5	43	38.5	73	73	157	106.5	106.5		
20	49.5	44	49.5	44	83	83	188.5	130	130		
22	57	53	57	53	100	100	229	162	162		
25	68	62	68	61	118	118	293	204	204		
30	82	82	82	82	155	155	381	281	281		

Dynamic load value C in kN

They help to evaluate the length of life for ball joint heads when use under dynamic conditions.

d _i Size	GN 648.1 / GN 648.2		GN 648.5/6		GN 648.8		GN 648.9	
	Type N	Type W	Type NH	Type WH/WK	Type N	Type W	Type N	Type WK
5	2.5	7.5	3.3	7.5	3.3	7.5	7.5	7.5
6	3.2	9.3	4.3	9.3	4.3	9.3	9.3	9.3
8	5.4	16.7	7.1	16.7	7.1	16.7	16.7	16.7
10	7.5	23.4	10	23.4	10	23.4	23.4	23.4
12	10	32	13.5	32	13.5	32.0	32.0	32.0
14	13	42	17	42	17	42.0	42.0	42.0
16	16	52.5	21.5	52.5	21.5	52.5	52.5	52.5
18	19.5	64	26	64	26	64.0	64.0	64.0
20	23.5	78	31.5	78	31.5	78.0	78.0	78.0
22	29	97	38	97	38	97.0	97.0	97.0
25	35	122	47	122	47	122	122	122
30	64	168	64	168	64	168	168	168