

### Steel version

#### Type N

Steel housing, zinc plated

Pairings:

Steel internal ring, hardened

Brass bearing socket

**Lubrication possible**

#### Type W

Steel housing, zinc plated

Pairings:

Steel internal ring, hardened

Steel bearing socket, zinc plated, with

PTFE insert

**Self-lubricating**

### Features of general use:

For universal application conditions, especially with high alternating and shock loads in radial and in particular in axial direction.

For universal application conditions, especially with dynamic load; axial load capacity lower than for type N.

### Stainless steel version

#### Type NH

Stainless steel housing

Pairings:

Steel internal ring, hardened, hard chrome plated

Bronze bearing socket

**Lubrication possible**

#### Type WH

Stainless steel housing

Pairings:

Steel internal ring, hardened

Bronze bearing socket, with PTFE insert

**Self-lubricating**

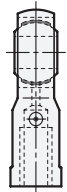
As Type N in areas exposed to corrosion.

As Type W in areas exposed to corrosion.

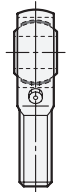
As Type W in areas exposed to corrosion with high requirements on corrosion resistance, e.g. in the food industry.

Ball joint heads

with internal thread



with threaded bolt



Ball joints

without housing



## Bearing play

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

Types N, NH Lubrication possible		Types W, WH, WK Self-lubricating		
$d_1$ Bore internal ring	Radial bearing play	$d_1$ 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 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

Rod end bearings of type N (lubrication possible) require regular lubrication. When delivered, the rod end bearings are not lubricated. The initial lubrication takes place when installed. Within the temperature range of -20 °C to +125 °C, a multipurpose grease has proven to be adequate. Under extreme conditions, a high quality grease such as Gleitmo 805 K should be used. Rod end bearings of type W (self-lubricating) **must not be lubricated**. The internal ring moves on a PTFE insert in the bearing socket.

## Operating temperature

Rod end bearings of type **N** (lubrication possible) can be used within a temperature range of -50 °C to +200 °C and if used with a high temperature grease, even higher. Rod end bearings of type **W** (self-lubricating) can be used from -50 °C to +200 °C. In general, use at higher temperatures is possible, but this reduces the service life.

## Load values

Load values are bearing related values, derived from the material data of the material used. They are used to select a rod end bearing for a given load, but may have to be reduced in case of special operating conditions.

## Static load values Co in kN

Co indicates the permitted radial load at standstill which a rod end bearing at its weakest cross section can withstand without causing permanent deformation when the load is at rest. The Co values listed in the catalog tables have been calculated based on the respective material characteristics and were verified on a representative number of rod end bearings in a tensile test at room temperature. An 80% utilisation of the yield strength was applied in each case, so that a safety factor of 1,25 is included. The static load value Co is also used to determine the permissible **axial load**, which is primarily limited by the axial fixing of the internal ring. Tests were carried out to determine the permissible axial load Fa at the largest tilting angle:

Fa = 0,4 Co for type N

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

d <sub>1</sub> 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 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 determine the service life of dynamically stressed rod end bearings.

d <sub>1</sub> 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 WK
5	2,5	7,5	3,3	7,5	3,3	7,5	7,5
6	3,2	9,3	4,3	9,3	4,3	9,3	9,3
8	5,4	16,7	7,1	16,7	7,1	16,7	16,7
10	7,5	23,4	10	23,4	10	23,4	23,4
12	10	32	13,5	32	13,5	32,0	32,0
14	13	42	17	42	17	42,0	42,0
16	16	52,5	21,5	52,5	21,5	52,5	52,5
18	19,5	64	26	64	26	64,0	64,0
20	23,5	78	31,5	78	31,5	78,0	78,0
22	29	97	38	97	38	97,0	97,0
25	35	122	47	122	47	122	122
30	64	168	64	168	64	168	168

