



Spherical Bearings

Rod end bearings and bearing blocks for hydro-cylinders and block cylinders

Rod end bearings



Description - Rod end bearings

The rod end bearings consist of a spherical bearing mounted in a housing that can be screwed onto the piston rod of hydraulic cylinders or block cylinders. The spherical bearing is a plain bearing that allows a force transmission with a tilting angle of maximally 4°.

Mounting of rod end bearings

Screwing onto the rod end

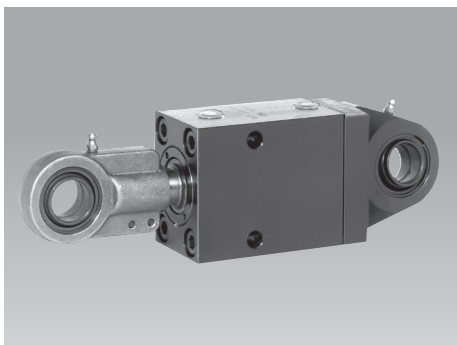
The rod end bearing has to be screwed firmly against the piston rod shoulder and fastened by two clamping screws.

Thus the thread gets an initial tension that prevents loosening in case of alternating loads.

Proceed as follows:

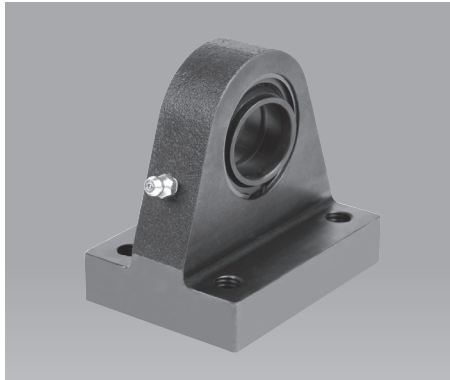
1. Tighten clamping screws so that the rod end bearing can be returned on the piston rod thread.
2. Clamp rod end bearing carefully in a vice and tighten piston rod firmly with fork spanner.
3. Tighten clamping screws.

Mounting examples



Block cylinder with rod end bearing and bearing block

Bearing blocks



Description - Bearing blocks

The bearing blocks consist of a spherical bearing mounted in a housing that can be screwed onto the cylinder base of hydrocylinders or block cylinders.

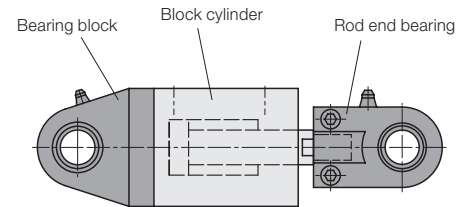
The spherical bearing is a plain bearing that allows a force transmission with a tilting angle of maximally 4°.

Cylinders for mounting of spherical bearings:

Hydro-cylinders: data sheet B 1.282

Block cylinders: data sheet B 1.542

Mounting principle



Guide lines for spherical bearings

1. Admissible operating pressure of cylinders with spherical bearings

- Block cylinders B 1.542
When using spherical bearings the maximum operating pressure is:
- 250 bar for dynamic load
- 500 bar for static load
- Hydro-cylinders B 1.282
When using spherical bearings the maximum operating pressure is:
- 160 bar for dynamic load
- 200 bar for static load

2. Service life

Service life of the spherical bearings is dependent upon specific bearing load, load direction, swing angle, tilting angle and lubrication.

A general statement is impossible due to the number of these factors. Adequate service life will be obtained under "normal" operating conditions. If in doubt, please check with us.

3. Lubrication

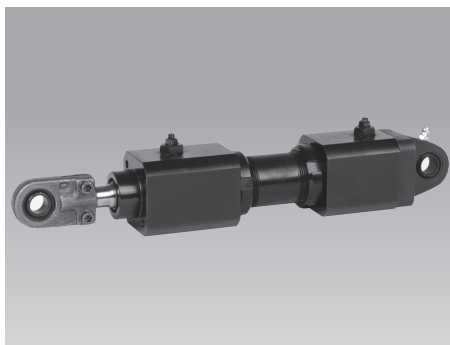
Lubrication intervals must be adapted to existing operating conditions. If operation is near the load limit, daily lubrication is recommended, opposed to weekly lubrication, life is then increased 7-fold.

4. Design of clevis pin

Clevis pin fit to be m6 (DIN). Exceptionally, f7 may be used for a case-hardened pin with lubrication through the pin.

Important notes

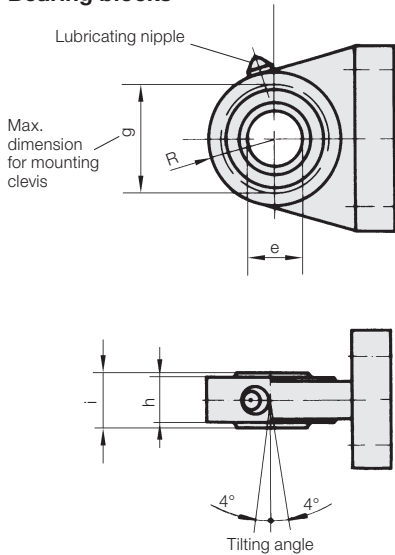
Tolerances, further operating conditions and other data see data sheet A 0.100.



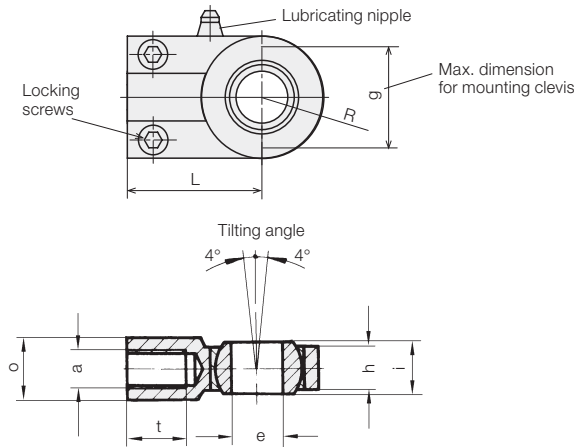
Hydro-cylinder with rod end bearing and bearing block

Dimensions Technical Data

Bearing blocks



Rod end bearings

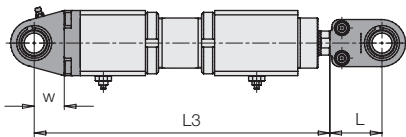


a	[mm]	M 12x1.25	M 14x1.5	M 16x1.5	M 20x1.5	M 27x2	M 33x2
e H7	[mm]	12	16	20	25	32	40
g	[mm]	25	32	40	50	62	80
h	[mm]	10.5	13	17	21	27	32
i	[mm]	12	16	20	25	32	40
L	[mm]	38	44	52	65	80	97
o	[mm]	16.5	21	25	30	38	47
R	[mm]	16	20	23.5	29	35	44.5
t	[mm]	16	18	22	28	36	45

For hydro-cylinders B 1.282	12931XXXXX	12941XXXXX	12951XXXXX	12961XXXXX	12971XXXXX	12981XXXXX
Rod end bearing Part no.	3890023	3890012	3890017	3890014	3890018	3890025
Bearing block Part no. (incl. fixing screws)	1293940	1294940	1295940	1296940	1297940	1298940
For block cylinders B 1.542	-	154326X	154426X	154526X	154626X	154727X
Rod end bearing Part no.	-	3890012	3890017	3890014	3890018	3890025
Bearing block Part no.	-	0155300	0155400	0155500	0155600	0155700
Fixing screws for bearing block Dimensions ISO EN 4762-8.8		M 8x100	M 10x100	M 10x110	M 12x120	M 16x140
Part no. (1 off)		3300271	3300663	3300763	3300037	3301205

Dimensions of cylinders with assembled spherical bearings

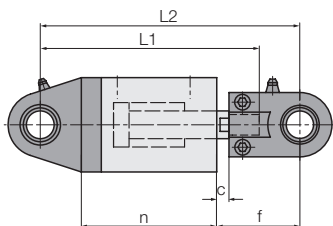
Hydro-cylinder B 1.282 (160/200 bar)*



Size		1293	1294	1295	1296	1297	1298
Piston rod Ø d	[mm]	16	20	25	32	40	50
L	[mm]	38	44	52	65	80	97
L3 = stroke +	[mm]	140 (178)	162 (206)	195 (231)	219 (257)	259 (289)	313 (332)
w	[mm]	20	25	30	37	45	55

Dimensions in () as per DIN ISO 6020 available on request

Block cylinder B 1.542 (250/500 bar)*



Size		1543	1544	1545	1546	1547
Piston rod Ø d	[mm]	16	20	25	32	40
c	[mm]	8	11	11	11	18
f	[mm]	52	63	76	91	115
n = stroke +	[mm]	56	62	72	85	97
L1 = stroke +	[mm]	107	125	148	177	215
L2 = stroke +	[mm]	133	155	185	221	267

*dynamic/static