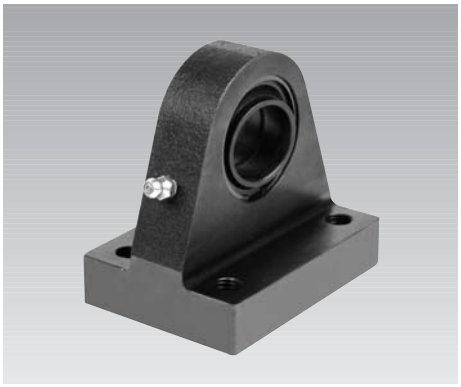
Spherical Bearings

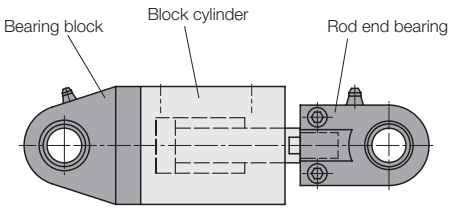
Rod end bearings and bearing blocks for hydro-cylinders and block cylinders

Rod end bearings

Bearing blocks



Mounting principle



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°.

Description - Bearing blocks

The bearing blocks consist of a spherical bearing mounted in a housing that can be screwed onto the cylinder base of hydro-cylinders 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

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.

Mounting of rod end bearings

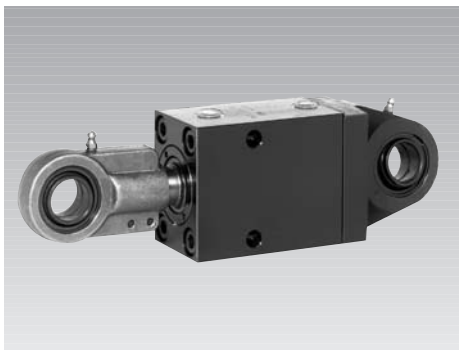
Screwing onto the rod end

The rod end bearing has to be screwed firmly against the piston rod shoulder and fastend by two clamping screws.
Thus the thread gets an initial tension that prevents loosening in case of alternating loads.

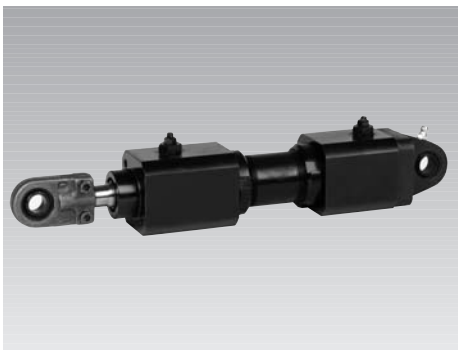
Proceed as follows:

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

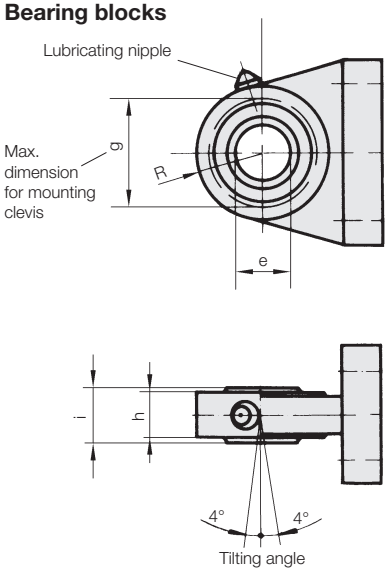


Hydro-cylinder with rod end bearing and bearing block

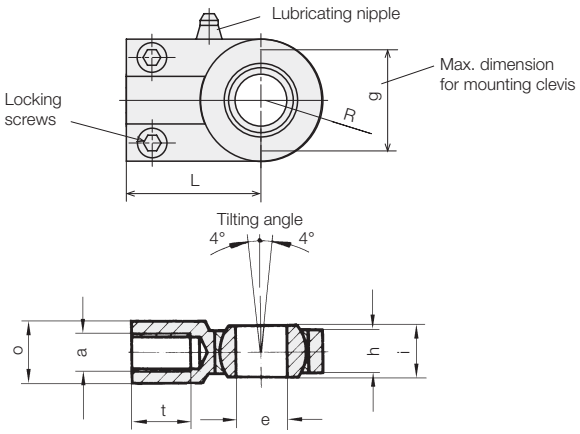
Important notes

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

Bearing blocks



Rod end bearings



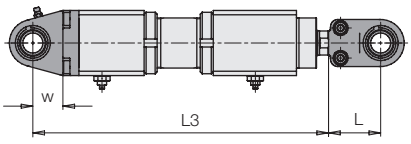
a	[mm]	M 12x1.25	M 14x1.5	M 16x1.5	M 20x1.5	M 27x2	M 33x2
e H7	[mm]	12	16	20	25	32	40
g	[mm]	25	32	40	50	62	80
h	[mm]	10.5	13	17	21	27	32
i	[mm]	12	16	20	25	32	40
L	[mm]	38	44	52	65	80	97
o	[mm]	16.5	21	25	30	38	47
R	[mm]	16	20	23.5	29	35	44.5
t	[mm]	16	18	22	28	36	45

For hydro-cylinders B 1.282	**1293-1X-XXXX**	**1294-1X-XXXX**	**1295-1X-XXXX**	**1296-1X-XXXX**	**1297-1X-XXXX**	**1298-1X-XXXX**
Rod end bearing part-no.	**3890-023**	**3890-012**	**3890-017**	**3890-014**	**3890-018**	**3890-025**
Bearing block part-no. (incl. fixing screws)	**1293-940**	**1294-940**	**1295-940**	**1296-940**	**1297-940**	**1298-940**

For block cylinders B 1.542	**-**	**1543-26X**	**1544-26X**	**1545-26X**	**1546-26X**	**1547-27X**
Rod end bearing part-no.	**-**	**3890-012**	**3890-017**	**3890-014**	**3890-018**	**3890-025**
Bearing block part-no.	**-**	**0155-300**	**0155-400**	**0155-500**	**0155-600**	**0155-700**
Fixing screws for bearing block						
Dimensions ISO EN 4762-8.8		M8x100	M10x100	M10x110	M12x120	M16x140
Part-no. (1 off)		**3300-271**	**3300-663**	**3300-763**	**3300-037**	**3301-205**

Dimensions of cylinders with assembled spherical bearings

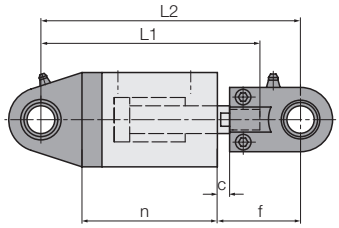
Hydro-cylinder B 1.282 (160/200 bar)*



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