Pot Bearings

TRELLEBORG
ENGINEERED SYSTEMS

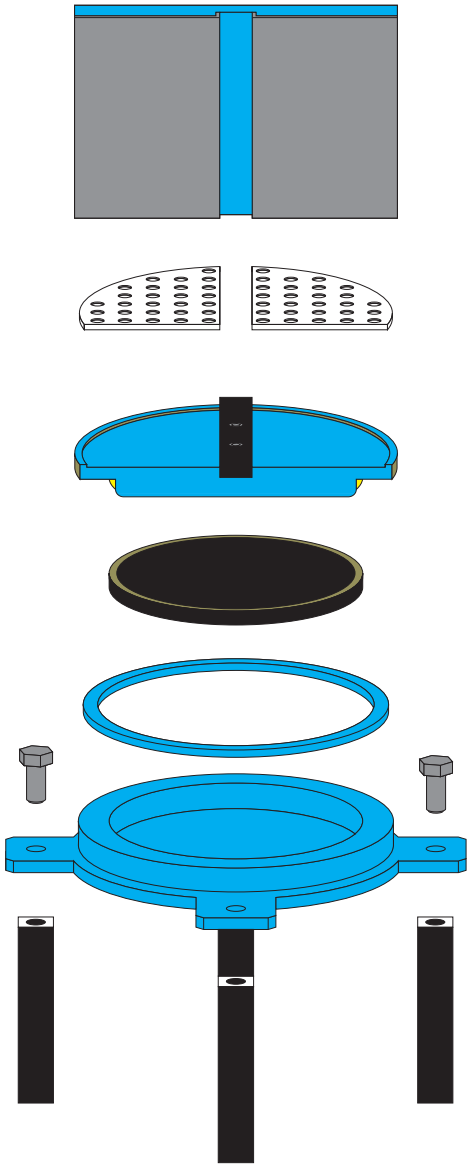
Trelleborg POT BEARINGS

Trelleborg POT bearings are designed and manufactured according to well-known international standards as BS5400, AASHTO or EN1337-5.

These bearings are suitable for high loads, displacements and rotations. They are conformed by an elastomeric pad placed into a metallic pot, so as by means of a piston it is confined, bearing pressures near 30 N/mm2 and rotations up to 0,03 rad, depending on the design standard. Combined with other sliding elements, movement capacity can be provided in one or both directions.

Standard Trelleborg POT bearings are totally detachable, which makes it easy to dismantle in case that any element must be replaced. However, based on the structure where bearings will be installed, they can be designed to achieve the best performance. Ask our technical department!

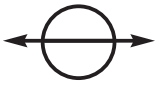
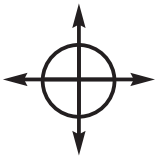
Trelleborg POT bearings are split into three main types: fixed (PF), guided (PU) and free (PL). The following tables describe those types in reference to load, displacement and standard rotation parameters.



ISO 14001

ISO 9001:2000

DESIGN PARAMETERS

			Reactions			Relative movements					
			Loads			Displacement			Rotation		
Type	**Id**	**Symbol**				ν_x	ν_y	ν_z	α_x	α_y	α_z
Fixed	PF		N	V_x	V_y	None	None	Limited	Deformation	Deformation	Deformation
Longitudinally guided	PU		N		V_y	Sliding	None				
Transversally guided	PU		N	V_x		None	Sliding				
Free	PL		N			Sliding	Sliding				

Note:

- Table and symbols according to EN 1337-1:2000
- For usual design requirements "none" means no more movements than those coming from deformation and manufacturing tolerances.
- In practise "x" is the main movement direction (longitudinally), "y" transversal direction and "z" the direction of the forces due to vertical loads. See ENV 1992-2 y ENV 1993-2.

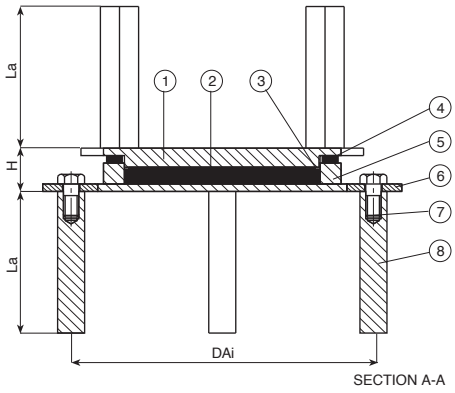
In the attached table there are shown actions that exist according to the type of bearing. As further information, it is advisable the knowledge of the following design parameters:

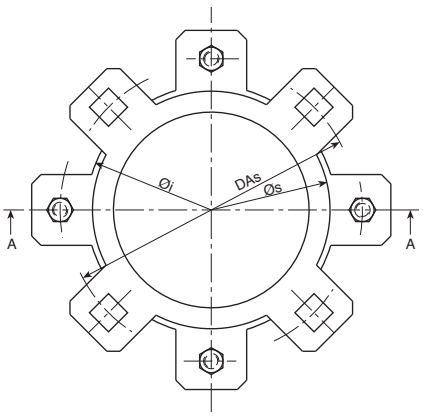
- Minimun service vertical load.
- Maximum allowable pressure (usually near 20N/mm^2) and seat material (i.e. cement mortar, epoxi mortar, "in situ" concrete, precast concrete, steel, wood) in pile and in deck.
- Concrete maximum allowable pressure.
- Required fixing method to both upper and lower structures.

Fixed POT BEARINGS (PF)

ITEM	DESCRIPTION	MATERIAL	FINISHED / SPECIFICATION / STANDARD
1	Piston	S355J2G3	Anticorrosive protection / EN 10 025:93
2	Elastomer	Chloroprene	R534
3	Sealing ring	Brass	
4	Foam	PE foam 2010N	98-020698
5	Pot	S355J2G3	Anticorrosive protection / EN 10 025:93
6	Lower plate	S355J2G3	Anticorrosive protection / EN 10 025:93
7	Fixing bolt	Quality 8.8	Hot dip galvanized
8	Socket	S355J2G3	EN 10 025:93

Anticorrosive protection: hot dip galvanized acc. to/UNE EN ISO 1461:99 or painted acc. to/UNE EN 1337-9:98





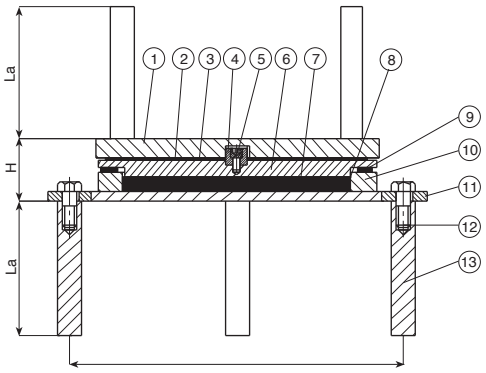
Nmax	Øs	Øi	H	La	DAs	DAi	Weight
kN	mm	mm	mm	mm	mm	mm	Kg
1.000	280	300	72	208	358	378	40
2.000	380	400	77	208	458	478	79
3.000	440	465	87	256	536	561	124
4.000	510	535	93	304	624	649	182
5.000	560	585	100	336	686	711	237
6.000	610	640	99	368	748	778	283
7.000	660	690	108	400	810	840	357
8.000	700	730	115	416	856	886	411
9.000	740	770	119	448	908	938	485
10.000	780	810	125	480	960	990	580
12.000	860	900	134	512	1.052	1.092	729
14.000	930	970	144	560	1.140	1.180	934
16.000	990	1.030	152	592	1.212	1.252	1.118
18.000	1.050	1.090	161	624	1.284	1.324	1.310
20.000	1.110	1.150	169	672	1.362	1.402	1.575
22.000	1.170	1.210	182	704	1.434	1.474	1.867
24.000	1.220	1.260	186	736	1.496	1.536	2.083
26.000	1.280	1.320	192	752	1.562	1.602	2.327
28.000	1.330	1.370	201	784	1.624	1.664	2.615
30.000	1.370	1.410	207	816	1.676	1.716	2.924
35.000	1.490	1.530	224	880	1.820	1.860	3.707
40.000	1.610	1.650	246	944	1.964	2.004	4.671
45.000	1.720	1.760	254	992	2.092	2.132	5.474
50.000	1.820	1.860	264	1.040	2.210	2.250	6.365
60.000	2.020	2.060	294	1.152	2.452	2.492	8.694

Horizontal load (Vx) = 10% Nmax
Horizontal load (Vy) = 10% Nmax

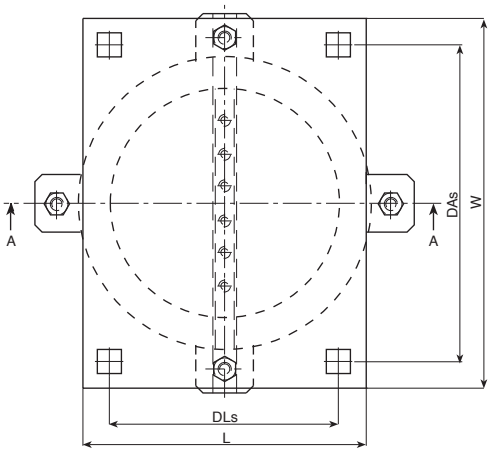
Guided POT BEARINGS (PU)

ITEM	DESCRIPTION	MATERIAL	FINISHED / SPECIFICATION / STANDARD
1	Upper plate	S355J2G3	Anticorrosive protection / EN 10 025:93
2	Stainless steel	14401	Polished / DIN 17440
3	PTFE plate	Virgin PTFE	Dimpled / EN1337-2
4	Guide	S355J2G3	with DU-B metal/EN1337-2
5	Guide bolt	Quality 10.9	DIN 912
6	Piston	S355J2G3	Anticorrosive protection / EN 10 025:93
7	Elastomer	Chloroprene	R534
8	Sealing ring	Brass	
9	Foam	PE FOAM 2010N	98-020698
10	Pot	S355J2G3	Anticorrosive protection / EN 10 025:93
11	Lower plate	S355J2G3	Anticorrosive protection / EN 10 025:93
12	Fixing bolt	Quality 8.8	Hot dip galvanized
13	Socket	S355J2G3	EN 10 025:93

Anticorrosive protection: hot dip galvanized acc. to/UNE EN ISO 1461:99 or painted acc. to/UNE EN 1337-9:98



SECTION A-A



Nmax	L	W	H	La	DAi	DLs	DAs	Weight
kN	mm	mm	mm	mm	mm	mm	mm	Kg
1.000	290	434	101	150	354	230	374	62
2.000	390	534	103	150	454	330	474	108
3.000	450	606	123	176	531	378	534	170
4.000	520	691	117	216	616	433	604	219
5.000	570	750	131	240	675	474	654	284
6.000	620	809	133	264	739	515	704	344
7.000	670	868	147	288	798	556	754	433
8.000	710	908	149	288	838	596	794	477
9.000	750	957	151	312	887	627	834	549
10.000	790	1.006	157	336	936	658	874	637
12.000	870	1.095	191	360	1.035	729	954	914
14.000	940	1.174	195	384	1.114	790	1.024	1.077
16.000	1.000	1.246	220	416	1.186	838	1.084	1.384
18.000	1.060	1.318	224	448	1.258	886	1.144	1.584
20.000	1.120	1.378	232	448	1.318	946	1.204	1.813
22.000	1.180	1.462	257	512	1.402	982	1.264	2.297
24.000	1.230	1.512	259	512	1.452	1.032	1.314	2.483
26.000	1.290	1.572	284	512	1.512	1.092	1.374	2.946
28.000	1.340	1.622	286	512	1.562	1.142	1.424	3.154
30.000	1.380	1.662	292	512	1.602	1.182	1.464	3.411
35.000	1.500	1.782	319	512	1.722	1.302	1.584	4.304
40.000	1.620	1.902	346	512	1.842	1.422	1.704	5.380
45.000	1.730	2.012	358	512	1.952	1.532	1.814	6.283
50.000	1.830	2.112	383	512	2.052	1.632	1.914	7.480
60.000	2.030	2.312	433	512	2.252	1.832	2.114	10.302

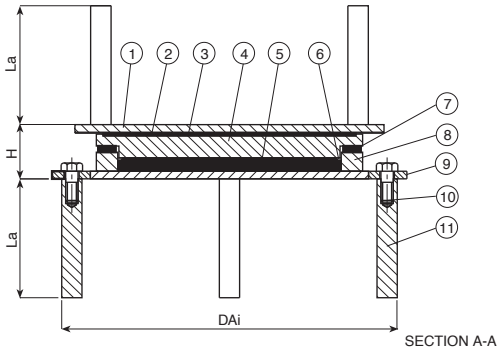
Horizontal load (Vx ó Vy) = 5% Nmax

Longitudinal (νx) or transversal (νy) displacement: +/-50 mm

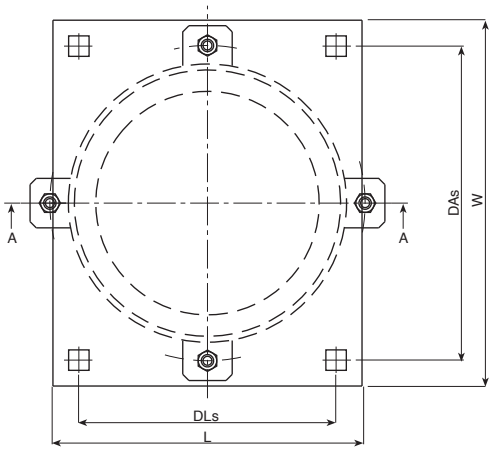
Free POT BEARINGS (PL)

ITEM	DESCRIPTION	MATERIAL	FINISHED / SPECIFICATION / STANDARD
1	Upper plate	S355J2G3	Anticorrosive protection / EN 10 025:93
2	Stainless steel	14401	Polished / DIN 17440
3	PTFE plate	virgin PTFE	Dimpled / EN1337-2
4	Piston	S355J2G3	Anticorrosive protection / EN 10 025:93
5	Elastomer	Chloroprene	R534
6	Sealing ring	Brass	
7	Foam	PE foam 2010N	98-020698
8	Pot	S355J2G3	Anticorrosive protection / EN 10 025:93
9	Lower plate	S355J2G3	Anticorrosive protection / EN 10 025:93
10	Fixing bolt	Quality 8.8	Hot dip galvanized
11	Socket	S355J2G3	EN 10 025:93

Anticorrosive protection: hot dip galvanized acc. to/UNE EN ISO 1461:99 or painted acc. to/UNE EN 1337-9:98



SECTION A-A



N	L	W	H	La	DAi	DLs	DAs	Weight
kN	mm	mm	mm	mm	mm	mm	mm	Kg
1.000	362	428	91	150	348	308	374	52
2.000	466	534	95	150	454	406	474	91
3.000	534	606	113	176	531	462	534	140
4.000	608	682	107	192	607	530	604	171
5.000	650	720	121	160	645	584	654	218
6.000	704	776	123	176	706	632	704	264
7.000	758	832	141	192	762	680	754	347
8.000	798	872	143	192	802	720	794	387
9.000	844	921	149	216	851	757	834	456
10.000	890	970	151	240	900	794	874	520
12.000	970	1.050	116	240	990	826	954	442
14.000	1.046	1.129	123	264	1.069	890	1.024	554
16.000	1.112	1.198	131	288	1.138	944	1.084	673
18.000	1.172	1.258	135	288	1.198	1.004	1.144	754
20.000	1.238	1.327	142	312	1.267	1.052	1.204	905
22.000	1.304	1.396	150	336	1.336	1.106	1.264	1.072
24.000	1.354	1.446	154	336	1.386	1.156	1.314	1.182
26.000	1.420	1.515	166	360	1.455	1.210	1.374	1.411
28.000	1.476	1.574	169	384	1.514	1.254	1.424	1.548
30.000	1.516	1.614	173	384	1.554	1.294	1.464	1.695
35.000	1.644	1.746	186	416	1.686	1.404	1.584	2.137
40.000	1.772	1.878	199	448	1.818	1.514	1.704	2.678
45.000	1.898	2.012	215	512	1.952	1.604	1.814	3.375
50.000	1.998	2.112	224	512	2.052	1.704	1.914	3.874
60.000	2.198	2.312	242	512	2.252	1.904	2.114	5.023

Longitudinal displacement (νx):+/- 50 mm

Transversal displacement (νy):+/- 25 mm

BUILDING WORKS SUPPLIED

Gabalwia & Khiniza bridge
EGYPT 2002

Bridge over Tajo river
SPAIN 2006

Muga Port - Tallin
ESTONIA 2007

Skywalk bridge - Dubai
EAU 2003

Wadi Abdoum Bridge
JORDAN 2007

L.A.V Madrid – Barcelona
Mejorada del Campo (Madrid)
SPAIN 2000 - 2001

Abbas Ibn Firna bridge
SPAIN 2008

Wusan Tou Reservoir
TAIWAN 2001

Kuwait Oil Complex
KUWAIT 2001 -2002

TRELLEBORG
ENGINEERED SYSTEMS

Trelleborg Izarra, S.A.U.
Factory & Head Office:
c/ San Vicente, 23
E 01440 Izarra (Alava) - Spain
Tel.: +34 945 437 000 • Fax: +34 945437050
izarra@trelleborg.com

Trelleborg Izarra, S.A.U.
Expandite Division:
c/ Manzanares, 20-22 • P. Industrial Jose Luis Velasco
E 28500 Arganda del Rey (Madrid) - Spain
Tel.: +34 918701700 • Fax: +34 918703465
expandite@trelleborg.com

www.trelleborg.com/iesa