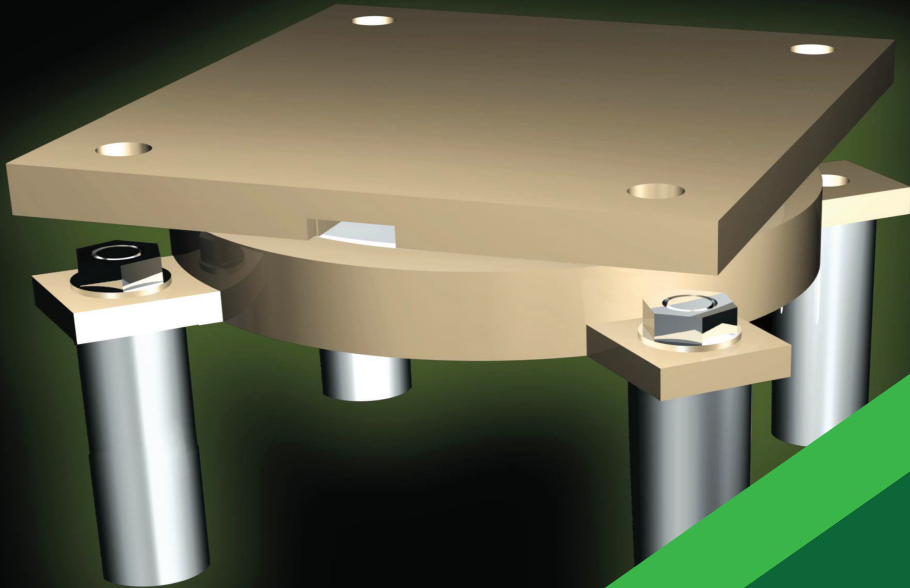




MECHANICAL POT BEARING

LT RUBBER MANUFACTURING SDN. BHD.



LT RUBBER MANUFACTURING SDN BHD

WE PROVIDE NOT ONLY PRODUCT BUY SOLUTION ...

Since 2006 LT Rubber Sdn Bhd has been manufacturing and supplying all type of quality rubber products for mining, automotive, building & infrastructure, food processing, engineering, marine, railway, furniture making and wholesale industries, just to name a few. We are the go-to company for rubber grommets, rubber chair tips, and more for manufacturers in Malaysia.

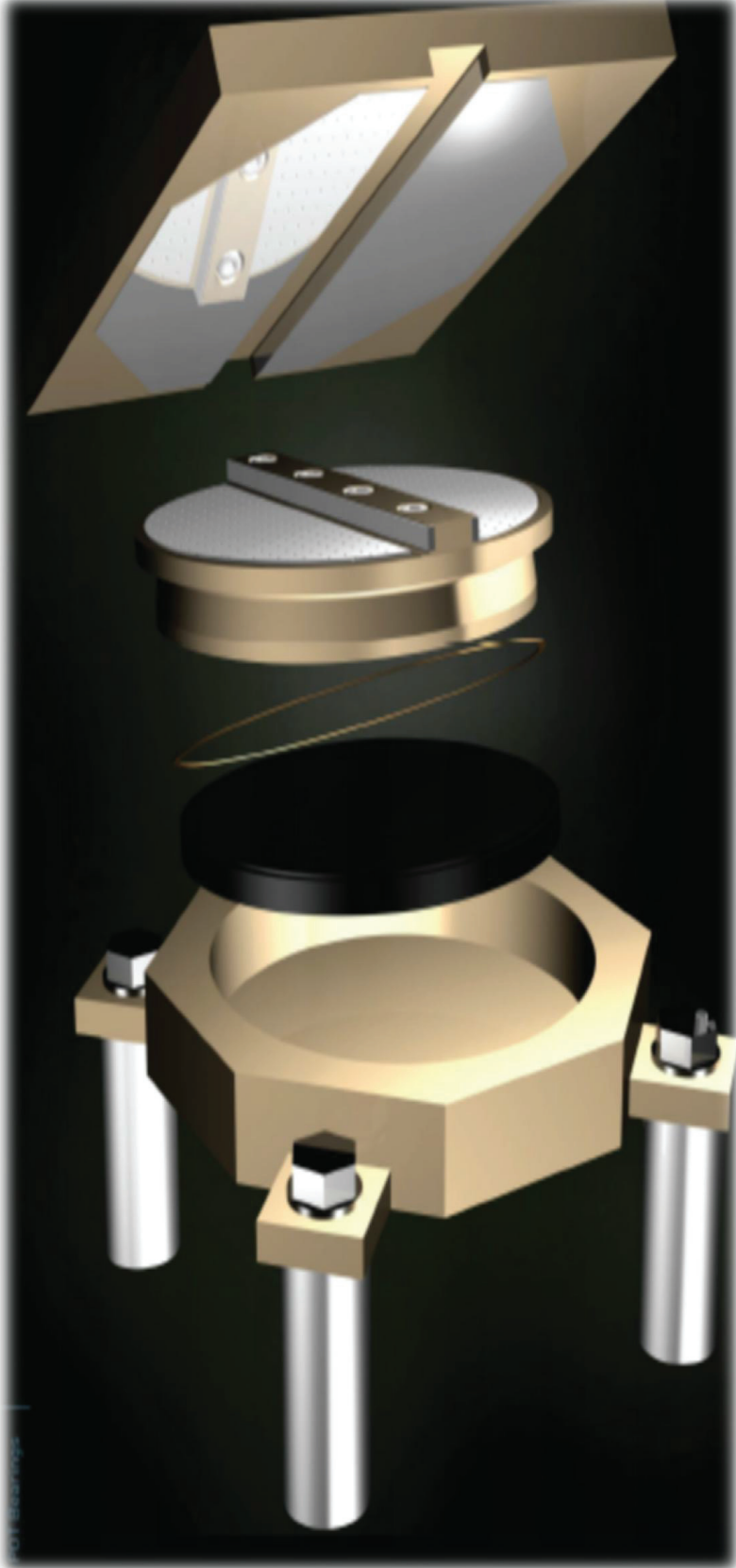
Our team of consulting experts are able to truly understand customers' needs, provide a cost competitive solution and full customer service before and after sale. We have our own rubber / DMC moulding and compounding facilities and out of our modern 3500 sqm factory we can provide a solution to almost any request as well as standard parts as listed in our catalogue.

LT Rubber Manufacturing Sdn Bhd is a leading manufacturer and exporter of custom made rubber moulded parts located in Malaysia. We are capable of producing all kind of rubber moulded products for various type of industrial sectors. Mainly automotive, car mat (full rubber & rubber backing carpet), electrical, electronic, water filter, all kind of seals, oil & gas industry and etc...

Beside general rubber moulded parts, we also produce rubber bonded to metal parts that meets OEM requirements.

“ Quality, Reliability & Satisfaction ”

MECHANICAL POT BEARING



FEATURES

- STABILITY FOR ROTATION DUE TO LOW HEIGHT
- ECONOMICAL DEVICES AS LOADS INCREASING

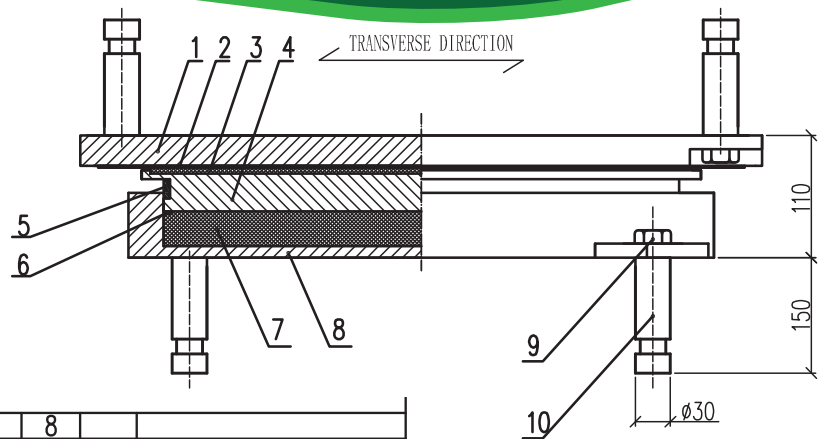
POT BEARINGS COMPRISE A PLAIN ELASTOMERIC DISK THAT IS CONFINED IN A POT AND BEHAVES LIKE VISCOUS FLUID WITHIN THE PORT AS THE BEARING ROTATES.

FLAT SEALING RINGS ARE USED TO CONTAIN THE ELASTOMER INSIDE THE POT.

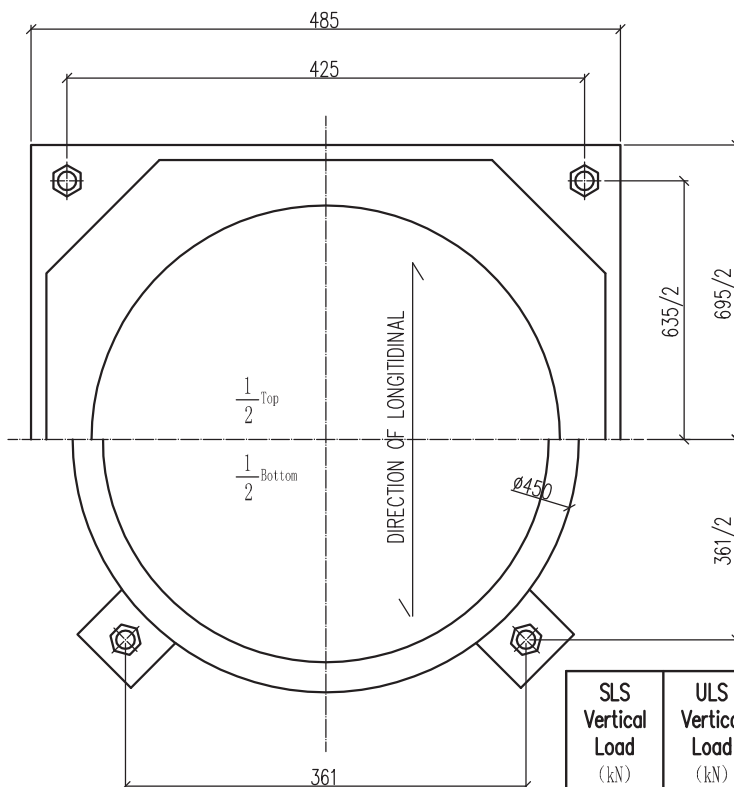
VERTICAL LOADS ARE TRANSMITTED THROUGH A STEEL PISTON THAT FITS CLOSELY TO THE POT WALL AND LATERAL LOADS ARE TRANSMITTED THROUGH THE STEEL PISTON MOVING AGAINST THE POT WALL. TO ACCOMMODATE TRANSLATIONAL MOVEMENT, A PTFE SLIDING PLATES USED.

POT BEARINGS ARE STABLE AND ECONOMIC DEVICES DUE TO OPTIMUM DIMENSION.

MECHANICAL POT BEARING



10	dowel	45#		8	
9	bolt	HR 10.9		8	
8	bottom plate	ASTM A709 Gr50		1	
7	Rubber	NR		1	
6	brass	H62		2/3	
5	Sealing strip	EPDM			
4	piston plate	ASTM A709 Gr50		1	
3	Sliding material	FPTE		1	
2	Stainless steel plate	ASTM 240-316L		1	
1	top plate	ASTM A709 Gr50		1	
No	Name	Material	Spec	Qty	Remark
			JPZE		
			Free Pot Bearing		
Sign	edition	The file number	Signatory	Date	Free-5000kN-e125
Designed		Standardized		Pattern marking	
Checked		Authorized			
Auditor					
Technology		Date			



SLS Vertical Load (kN)	ULS Vertical Load (kN)	SLS Horizontal Load (kN)		ULS Horizontal Load (kN)		Movement (mm)		Rotation (rad)
		Fx	Fy	Fx	Fy	Dx	Dy	
5000	7500	0	0	0	0	±20	±125	0.015

Note:

1. All dimensions are in mm.

2. Rotation: 0.015

3. Pot bearing shall be designed according to BS5400.

FIXED TYPE

FIXED TYPE

V(kN)	H _{SLS} (kN)	H _{ULS} (kN)	A	F	H	θc	θb	a
5000	500	650	510	425	106	27	70	150
	1000	1300	550	470	120	36	90	220
	1500	1950	580	505	133	45	110	270
	2000	2600	580	510	146	52	120	330
	2500	3250	580	520	164	56	130	380
5500	550	715	540	450	108	27	70	160
	1100	1430	570	485	124	39	90	240
	1650	2145	590	510	141	45	110	300
	2200	2860	610	535	151	52	120	360
	2750	3575	610	545	169	60	140	390
6000	600	780	560	460	113	27	70	170
	1200	1560	610	510	127	39	90	270
	1800	2340	610	525	145	48	110	320
	2400	3120	640	560	155	56	130	370
	3000	3900	660	580	171	60	140	420
6500	650	845	600	490	118	30	70	190
	1300	1690	630	535	132	42	100	260
	1950	2535	660	560	146	48	110	350
	2600	3380	660	575	164	56	130	400
	3250	4225	690	610	177	64	150	430
7000	700	910	620	505	117	30	70	200
	1400	1820	650	545	138	42	100	280
	2100	2730	670	575	154	52	120	350
	2800	3640	690	605	172	60	140	400
	3500	4550	710	625	186	64	150	460
7500	750	975	660	535	116	30	70	210
	1500	1950	690	580	139	45	110	270
	2250	2925	700	595	160	52	120	370
	3000	3900	730	630	170	60	140	420
	3750	4875	730	645	190	68	160	460
8000	800	1040	670	545	125	33	80	200
	1600	2080	700	590	142	45	110	290
	2400	3120	730	625	160	56	130	370
	3200	4160	740	645	183	64	150	420
	4000	5200	750	660	197	68	160	490
8500	850	1105	700	570	123	33	80	210
	1700	2210	730	610	145	45	110	310
	2550	3315	750	640	166	56	130	390
	3400	4420	760	660	187	64	150	450
	4250	5525	770	675	204	68	160	520
9000	900	1170	720	580	126	33	80	220
	1800	2340	760	630	149	48	110	320
	2700	3510	780	665	169	60	140	380
	3600	4680	790	690	190	68	160	440
	4500	5850	800	695	208	68	160	550

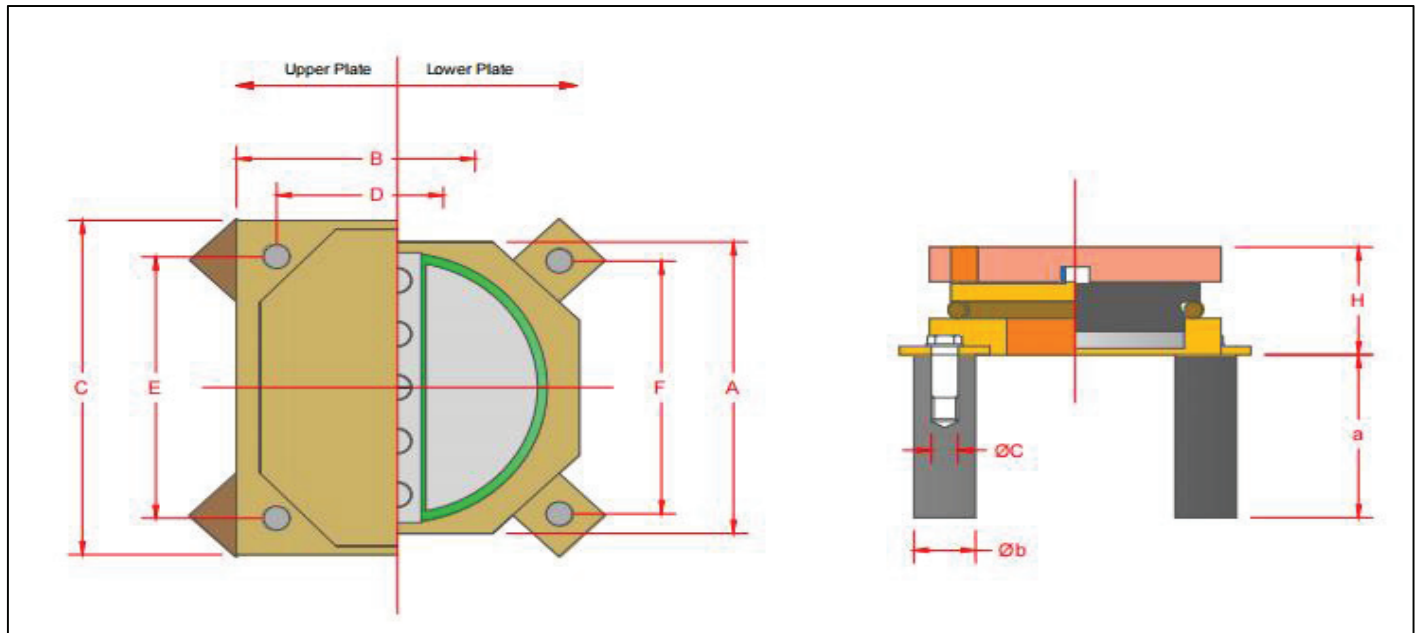
** The dimensions shown on the above are based on the standard specification and subject to change.

FIXED TYPE

V(kN)	H _{SLS} (kN)	H _{ULS} (kN)	A	F	H	θc	θb	a
9500	950	1235	760	620	132	36	90	210
	1900	2470	780	645	150	48	110	340
	2850	3705	800	680	175	60	140	400
	3800	4940	830	715	197	68	160	470
	4750	6175	820	710	214	68	160	590
10000	1000	1300	780	630	140	36	90	220
	2000	2600	810	675	158	52	120	330
	3000	3900	820	695	178	60	140	420
	4000	5200	840	725	203	68	160	490
	5000	6500	850	730	224	68	160	620
11000	1100	1430	820	660	139	39	90	240
12000	1200	1560	850	680	150	39	90	270
13000	1300	1690	900	725	148	42	100	260
14000	1400	1820	930	745	153	42	100	280
15000	1500	1950	990	795	158	45	110	270
16000	1600	2080	1000	800	167	45	110	290
17000	1700	2210	1030	825	170	45	110	310
18000	1800	2340	1100	870	176	48	110	320
19000	1900	2470	1110	880	178	48	110	340
20000	2000	2600	1160	920	183	52	120	330
22000	2200	2860	1210	955	189	52	120	360
24000	2400	3120	1270	1005	205	56	130	370
26000	2600	3380	1320	1040	212	56	130	400
28000	2800	3640	1380	1090	219	60	140	400
30000	3000	3900	1440	1135	225	60	140	420

** The dimensions shown on the above are based on the standard specification and subject to change.

GUIDED TYPE



GUIDED TYPE

V(kN)	H _{SLS} (kN)	H _{ULS} (kN)	A	F	B	C	D	E	H	θ _c	θ _b	a
2000	200	260	310	265	310	410	250	350	106	16	40	150
	400	520	340	290	340	440	270	370	114	22	50	160
	600	780	390	340	390	490	300	400	129	27	70	170
	800	1040	410	365	410	510	310	410	153	33	80	200
	1000	1300	440	390	440	540	330	430	168	36	90	220
2500	250	325	360	305	360	460	300	400	102	18	50	150
	500	650	390	340	390	490	300	400	125	27	70	150
	750	975	410	355	410	510	320	420	143	30	70	210
	1000	1300	450	400	450	550	340	440	166	36	90	220
	1250	1625	490	425	490	590	370	470	182	39	90	280
3000	300	390	380	320	380	480	320	420	105	20	50	150
	600	780	430	370	430	530	340	440	130	27	70	170
	900	1170	440	385	440	540	340	440	159	33	80	220
	1200	1560	500	435	500	600	380	480	177	39	90	270
	1500	1950	530	470	530	630	390	490	199	45	110	270
3500	350	455	430	355	430	530	360	460	108	22	50	150
	700	910	450	385	450	550	360	460	137	30	70	200
	1050	1365	480	420	480	580	370	470	172	36	90	230
	1400	1820	530	460	530	630	400	500	192	42	100	280
	1750	2275	570	495	570	670	420	520	209	48	110	320
4000	400	520	460	375	460	560	390	490	112	22	50	160
	800	1040	490	420	490	590	390	490	136	33	80	200
	1200	1560	490	425	490	590	370	470	182	39	90	270
	1600	2080	540	475	540	640	400	500	206	45	110	290
	2000	2600	590	520	590	690	430	530	227	52	120	330
4500	450	585	480	400	480	580	400	500	117	24	60	150
	900	1170	490	420	490	590	390	490	159	33	80	220
	1350	1755	530	460	530	630	400	500	184	42	100	270
	1800	2340	590	510	590	690	440	540	216	48	110	320
	2250	2925	660	570	660	760	500	600	239	52	120	370

**** The dimensions shown on the above are based on the standard specification and subject to change.**

GUIDED TYPE

V(kN)	H _{SLS} (kN)	H _{ULS} (kN)	A	F	B	C	D	E	H	θc	θb	a
5000	500	650	510	425	510	610	420	520	127	27	70	150
	1000	1300	530	455	530	630	420	520	162	36	90	220
	1500	1950	560	490	560	660	420	520	193	45	110	270
	2000	2600	620	540	620	720	460	560	225	52	120	330
	2500	3250	680	590	680	780	510	610	251	56	130	380
5500	550	715	550	455	540	650	460	560	129	27	70	160
	1100	1430	560	475	570	660	440	540	157	39	90	240
	1650	2145	610	525	590	710	470	570	200	45	110	300
	2200	2860	640	555	610	740	480	580	234	52	120	360
	2750	3575	710	620	610	810	530	630	264	60	140	390
6000	600	780	580	475	560	680	490	590	133	27	70	170
	1200	1560	590	495	610	690	470	570	163	39	90	270
	1800	2340	610	525	610	710	460	560	218	48	110	320
	2400	3120	680	590	640	780	510	610	245	56	130	370
	3000	3900	750	645	660	850	570	670	276	60	140	420
6500	650	845	600	490	600	700	510	610	139	30	70	190
	1300	1690	610	520	630	710	480	580	172	42	100	260
	1950	2535	640	545	660	740	490	590	214	48	110	350
	2600	3380	700	605	660	800	530	630	253	56	130	400
	3250	4225	770	665	690	870	570	670	290	64	150	430
7000	700	910	630	510	620	730	540	640	141	30	70	200
	1400	1820	650	545	650	750	520	620	170	42	100	280
	2100	2730	690	590	670	790	530	630	222	52	120	350
	2800	3640	750	645	690	850	570	670	262	60	140	400
	3500	4550	820	705	710	920	620	720	293	64	150	460
7500	750	975	660	535	660	760	570	670	145	30	70	210
	1500	1950	670	570	690	770	530	630	183	45	110	270
	2250	2925	680	580	700	780	520	620	238	52	120	370
	3000	3900	760	655	730	860	580	680	270	60	140	420
	3750	4875	830	715	730	930	620	720	307	68	160	460
8000	800	1040	680	555	670	780	580	680	147	33	80	200
	1600	2080	700	590	700	800	560	660	179	45	110	290
	2400	3120	730	625	730	830	560	660	231	56	130	370
	3200	4160	780	675	740	880	580	680	281	64	150	420
	4000	5200	850	730	750	950	640	740	321	68	160	490
8500	850	1105	710	575	700	810	610	710	152	33	80	210
	1700	2210	730	610	730	830	590	690	184	45	110	310
	2550	3315	750	640	750	850	580	680	246	56	130	390
	3400	4420	860	730	760	960	660	760	278	64	150	450
	4250	5525	900	765	770	1000	690	790	324	68	160	520
9000	900	1170	730	590	720	830	630	730	155	33	80	220
	1800	2340	750	625	760	850	600	700	189	48	110	320
	2700	3510	780	665	780	880	600	700	251	60	140	380
	3600	4680	820	710	790	920	610	710	296	68	160	440
	4500	5850	900	765	800	1000	690	790	334	68	160	550

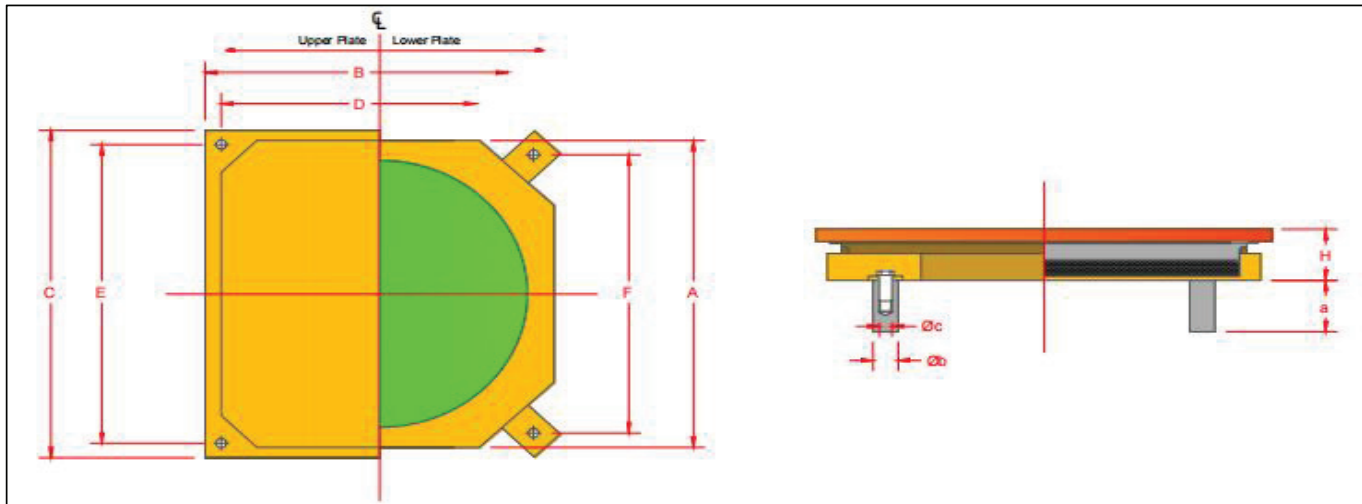
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GUIDED TYPE

GUIDED TYPE

V(kN)	H _{SLS} (kN)	H _{ULS} (kN)	A	F	B	C	D	E	H	θc	θb	a
9500	950	1235	760	620	760	860	650	750	159	36	90	210
	1900	2470	790	655	780	890	640	740	193	48	110	340
	2850	3705	780	665	800	880	600	700	261	60	140	400
	3800	4940	850	730	830	950	640	740	303	68	160	470
	4750	6175	930	785	820	1030	720	820	342	68	160	590
10000	1000	1300	790	640	780	890	680	780	168	36	90	220
	2000	2600	830	690	810	930	670	770	195	52	120	330
	3000	3900	830	705	820	930	650	750	256	60	140	420
	4000	5200	870	745	840	970	660	760	313	68	160	490
	5000	6500	970	815	850	1070	760	860	352	68	160	620
11000	1100	1430	820	660	820	920	700	800	167	39	90	240
12000	1200	1560	870	695	850	970	750	850	179	39	90	270
13000	1300	1690	900	725	900	1000	770	870	183	42	100	260
14000	1400	1820	940	750	930	1040	810	910	189	42	100	280
15000	1500	1950	1000	800	990	1100	860	960	197	45	110	270
16000	1600	2080	1010	810	1000	1110	870	970	201	45	110	290
17000	1700	2210	1040	830	1030	1140	900	1000	207	45	110	310
18000	1800	2340	1110	880	1100	1210	960	1060	213	48	110	320
19000	1900	2470	1100	870	1110	1200	950	1050	226	48	110	340
20000	2000	2600	1170	930	1160	1270	1010	1110	227	52	120	330
22000	2200	2860	1220	965	1210	1320	1060	1160	233	52	120	360
24000	2400	3120	1270	1005	1270	1370	1100	1200	254	56	130	370
26000	2600	3380	1320	1040	1320	1420	1150	1250	263	56	130	400
28000	2800	3640	1380	1090	1380	1480	1200	1300	271	60	140	400
30000	3000	3900	1440	1135	1440	1540	1260	1360	280	60	140	420

*** The dimensions shown on the above are based on the standard specification and subject to change.*



MULTI TYPE

V(kN)	A	F	B	C	D	E	H	$\varnothing c$	$\varnothing b$	a
2000	360	300	400	460	340	400	96	12	40	150
2500	380	320	420	480	360	420	98	14	40	150
3000	430	370	470	530	410	470	105	14	40	150
3500	440	380	480	540	420	480	104	16	40	150
4000	460	400	500	560	440	500	116	16	40	150
4500	490	430	530	590	470	530	108	18	50	150
5000	520	460	560	620	500	560	112	18	50	150
5500	540	480	580	640	520	580	119	20	50	150
6000	560	500	600	660	540	600	129	20	50	150
6500	580	520	620	680	560	620	132	20	50	150
7000	610	540	650	710	580	640	139	22	50	150
7500	660	590	700	760	630	690	145	22	50	150
8000	670	600	710	770	640	700	145	22	50	150
8500	690	610	730	790	650	710	147	24	60	150
9000	730	650	770	830	690	750	151	24	60	150
9500	740	650	780	840	690	750	153	27	70	150
10000	760	670	800	860	710	770	157	27	70	150
11000	820	730	860	920	770	830	162	27	70	150
12000	860	770	900	960	810	870	169	27	70	160
13000	900	810	940	1000	850	910	171	30	70	170
14000	980	890	1020	1080	930	990	178	30	70	190
15000	1000	900	1040	1100	940	1000	179	33	80	170

*** The dimensions shown on the above are based on the standard specification and subject to change.*

MULTI TYPE

MULTI TYPE

V(kN)	A	F	B	C	D	E	H	θ_c	θ_b	a
16000	1020	920	1060	1120	960	1020	179	33	80	190
17000	1110	1010	1150	1210	1050	1110	191	33	80	200
18000	1100	1000	1140	1200	1040	1100	192	33	80	210
19000	1160	1050	1200	1260	1090	1150	202	36	90	200
20000	1190	1080	1230	1290	1120	1180	204	36	90	210
22000	1270	1150	1310	1370	1190	1250	219	39	90	230
24000	1330	1210	1370	1430	1250	1310	228	39	90	250
26000	1380	1250	1420	1480	1290	1350	232	42	100	240
28000	1440	1310	1480	1540	1350	1410	242	42	100	260
30000	1490	1350	1530	1590	1390	1450	248	45	110	250

*** The dimensions shown on the above are based on the standard specification and subject to change.*

1- INTRODUCTION

1.1 Purpose

- This installation procedure defines the general criteria and procedure to be executed for a correct installation of Pot Bearing.

1.2 Reference

- EN 1337-11 Structural Bearings, Part 11 : Transport, Storage and Installation
- EN ISO 15612 : SPECIFICATION AND Qualification of welding procedures for metallic materials
- Qualification adoption of a standard welding procedure.

2-GENERAL REQUIREMENTS

2.1 Quality control

To achieve the quality assurance system complying with the relevant specification of the structural bearing, it is recommendable to carry out by experienced technician in proper manner that described in this procedure.

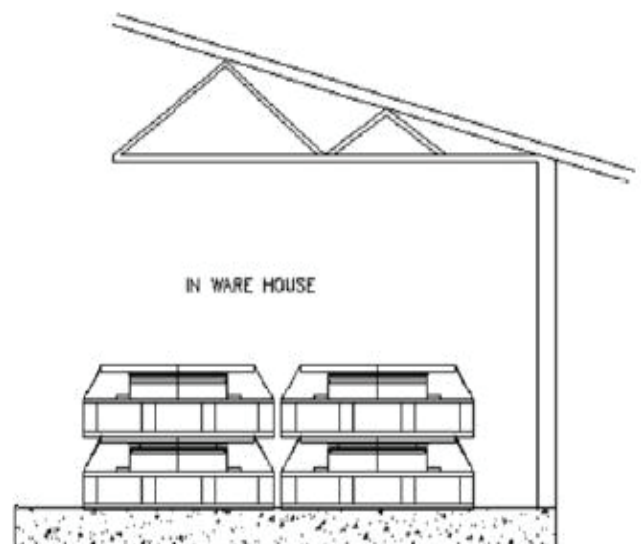
During transportation and installation, the special care should be taken to protect the bearing from any part damage, corrosion effect and contamination of dirt.

2.2 Storage

If bearings would not be installed at the proper position after delivery immediately, the bearing should be stored safely in proper manner with providing the protection cover and ventilation system e.g, the warehouse or etc.

The bearing should keep in warehouse in order of type and size or location to be installed.

Without permission, the bearing should not be dissembled or installed the parts by parts at site separately.



3 - EQUIPMENT

3.1 Safety equipment

All workers, inspector or the technician should obey the program of safety for themselves while on the jobsite. The followings are a suggested typical list of useful safety equipment.

- Safety guard rail and working platform
- Safety helmet
- Safety shoes with no slip soles
- Safety/welding glasses
- Work gloves

3.2 Equipment for installation

- Suitable capacity of crane for lifting materials
- Breaker for concrete surface chipping
- Generator
- Water tank with pump
- Blender for mortar grouting
- Plywood for formwork
- Measuring tape
- Tool kit
- Screw driver, pliers, open end wrenches and hammer
- Carpenter's level
- Cleaning kit

3.3 Equipment for welding work (if necessary)

- Oxygen source
- Fuel gas source
- Pressure regulators
- Two flexible hoses
- Oxygen torch
- Welding machine set

4 - INSTALLATION SEQUENCE

4.1 Import inspection

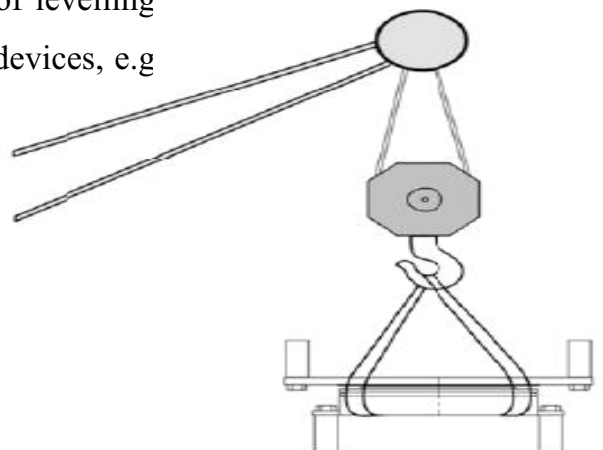
When the bearings are arrived at site, the condition and total quantity of bearing shall have inspection and the result shall report. The check points of inspection are:

- Visible damage
- Cleanliness
- Security of the temporary clamping devices
- Mark of bearing's size or dimension and axis line on the top surface of the bearing.
- Alignment of all means used to ensure the exact positioning and installation of the bearings, where specified.
- Indicating device required for movable bearings in main direction of movement , where required
- The magnitude and direction of pre-setting, if specified.
- Possibility of readjustment, if provided
- Temporary storage on site

4.2 Handling and preparation

4.2.1 For site trans[oration and lifting, it must be taken special care to protect the corrosion protection system of bridge bearing in manner to avoid any scratch or damage by using of fabric rope or suitable hanger or forklift, etc.

4.2.2 All bearings shall be installed onto the intermediate cement mortar bed or a sole plate which serves as a way of levelling course. If the sole plate is not level, other suitable devices, e.g seam plates may be used.

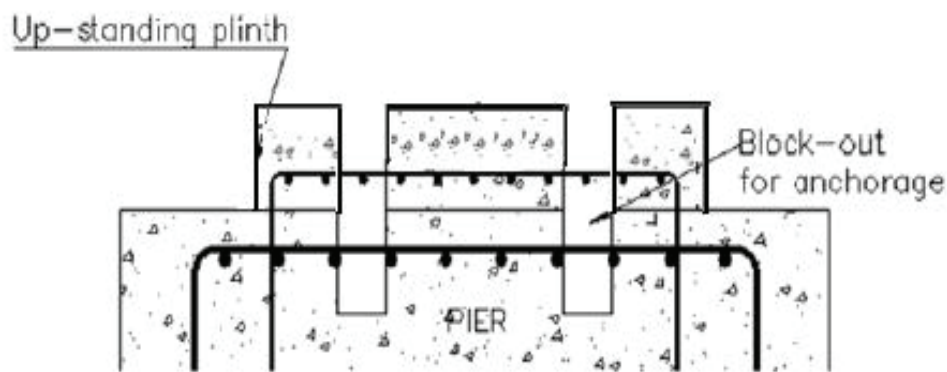


4.2.3 The levelling screws shall be recommended to adjust the level of the bearing. As an alternative, wedges or other suitable devices may be used.

4.3 Set-up bearing

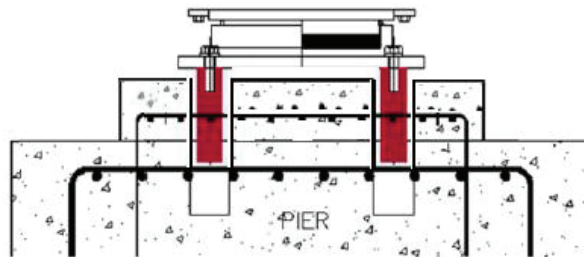
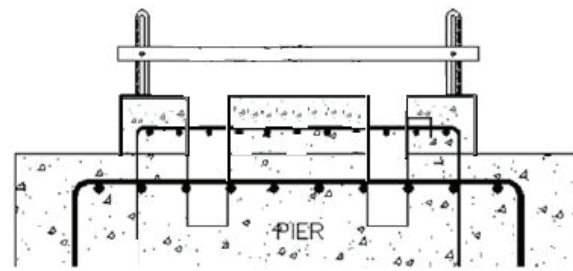
4.3.1 The bridge bearing shall be used to the concrete block-out method for helping easy set-up of the correct position of bearing.

4.3.2 The size of block-out shall be decided to enlarge 50~100 mm each side from the bottom size of bridge bearing.



4.3.3 The surface of 'Concrete Block-Out' shall be cleaned prior to start of installation work of the bearing be cleaned prior to start of the installation work of the bearing.

4.3.4 The bearings shall be level and parallel to within $\pm 3\text{mm}$. Any deviations in excess of the allowed tolerances shall be corrected.

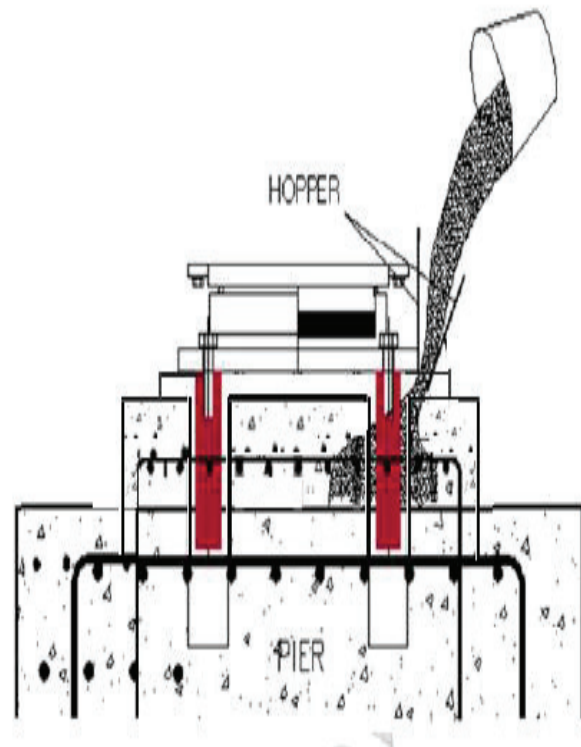


4.4 Casting Non Shrinkage Mortar

Only experienced personnel shall be employed because this is the most important step of bearing installation.

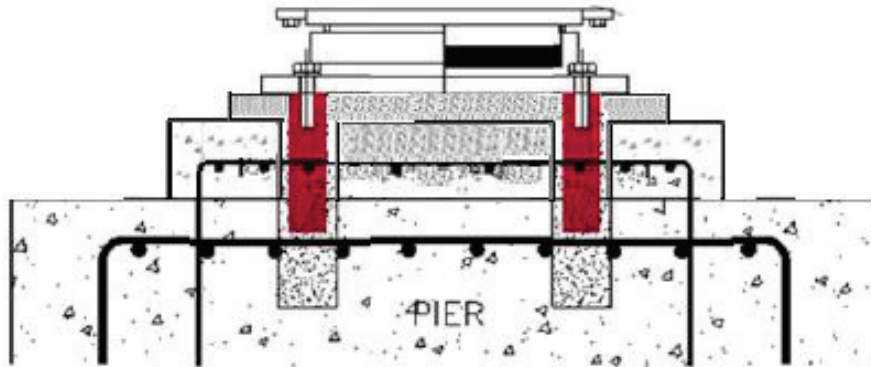
Bearing may be placed on the bedding mortar that made by the method of appropriate air ventilation such as not to allow air voids at the underneath the bottom of bearing with using its self-levelling characteristic (fluidity).

For the grouting mortar, the cement mortar shall be used a type of non-shrinkage characteristic and the compressive strength more than 600 kg/cm².



Before casting the non-shrinkage cement mortar, the concrete surface to be contacted with the cement mortar should be saturated with water prior to casting mortar in order to prevent dehydration. Also any remaining water on the surface of concrete shall be cleaned by such as compressed air.

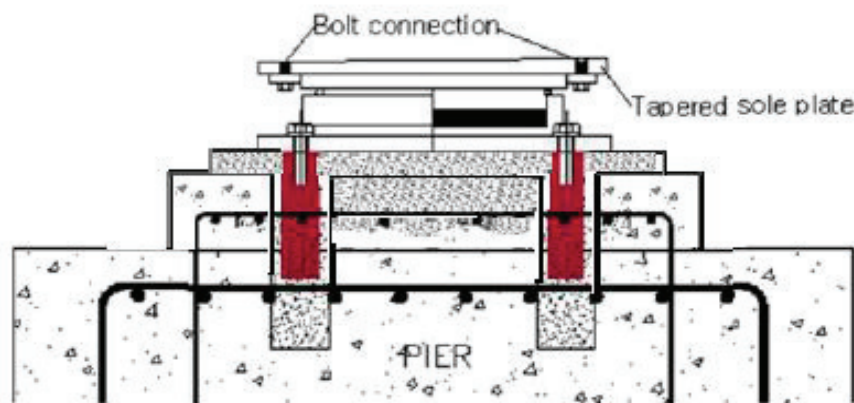
Formwork shall not be allowed to remove until the mortar has cured sufficiently, and then it must be removed after passing the required complete curing period of cement mortar.



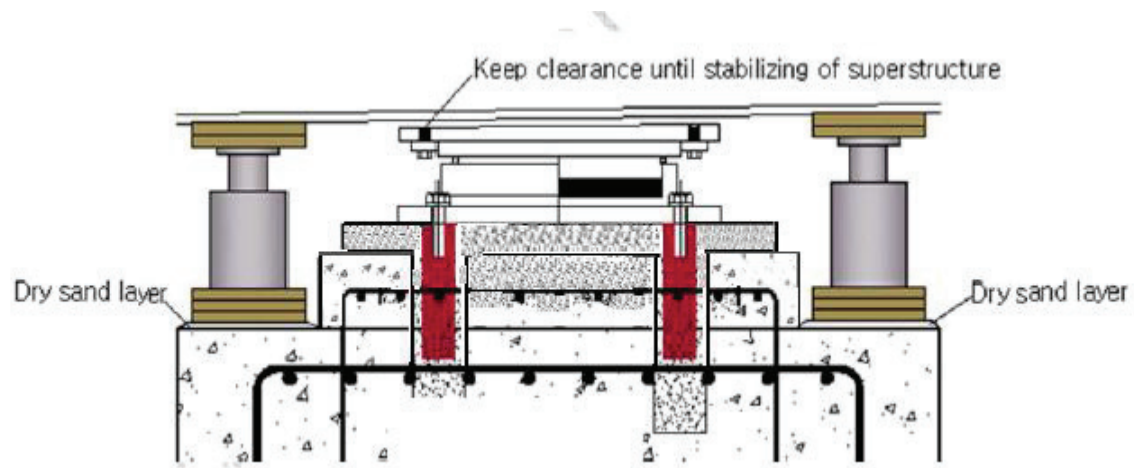
For the welding connection type

In case of the type of superstructure that are PSC Beam, PSC Box girder, the temporary devices shall be removed immediately after bearing connection to the superstructure by welding. The sequence as following:

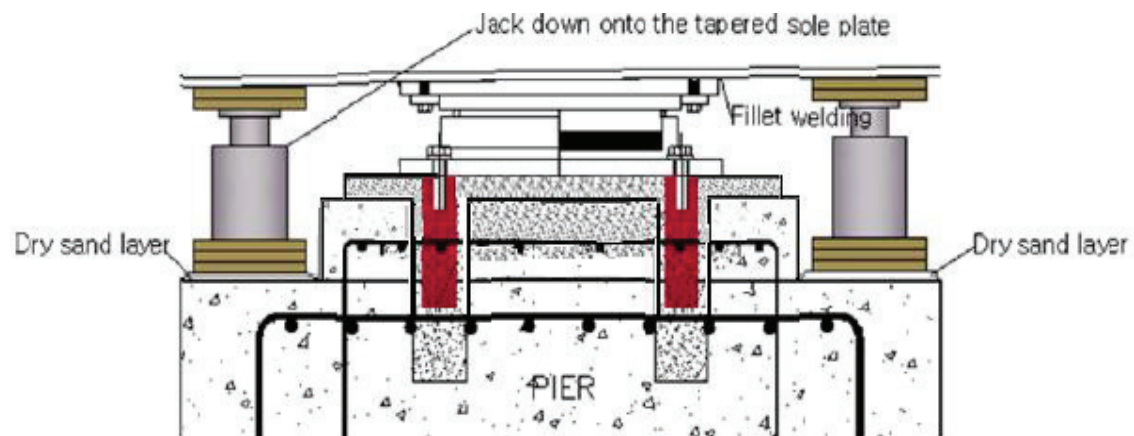
Steps 1 - Install the tapered sole plate onto the bearing by bolting (the bolt holes in tapered sole plate should be threaded to fit with bolt)



Step 2 – Install the superstructure (H-Beam or U-Beam)



Step 3 – Jack down the bridge girder till to the bearing slowly.



Step 4- Connect sole plate to bearing by site fillet welding

Steps5 - Remove temporary fixing device by loosen bolt or cutting.

5 – CLEANING AND FINAL INSPECTION

The bearings should not be obstructed in its function and keep maintain cleanness around the bearing.

After installation, all condition of bearing shall be inspected by engineer.

6 - RECORDS

If not agreed otherwise, it is recommendable to record the check points as following:

- Date and time of installation
- Temperature of structure
- Setting of bearing
- Position of bearing relative to superstructure/substructure and to the axes
- Condition of bearing , including its protection system against corrosion
- An adjustment made to the setting
- State of temporary clamping devices
- Condition of the support and bearing base
- Suitability of the joint mortar /welding performance.



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