AssaFlex
Manufacturer of Bridge Components

REINFORCED ELASTOMERIC BEARINGS
Structural Movements control Guide

Reinforced Elastomeric Bearings Type B
Based on BS-EN 1337 –3

Introduction to Reinforced Elastomeric Bearings:

In bridges there are structural movements due to various forces such as longitudinal, change of temperature, creep and rotation caused by traffic. The most effective and efficient methods of dealing with these forces is the use of Reinforced Elastomeric Bearing Pads.
The following provide a guide to most used Bearing pads (Type B) with the most required information by the consultants, engineers, etc.

The following table is selection of BPEN Series:

Type: BPEN	Dimensions W x L mm	Unloaded Height of Bearing mm	Total Effective Elastomer Thickness mm	Number of Elastomer layers	Maximum Shear Deflection (Along the Width) mm	Maximum Vertical Load (In Full Shear Deflection and Full Rotation) KN	Minimum Vertical Load KN	Vertical Deflection mm	Rotation In Full Load & Full Shear Deflection (Across the With) Rad	Max Horizontal Force Exerted (On Structure) KN
BPEN-1012	100x150	30	16	2	11.2	72	41	1.12	0.0346	12
BPEN-1013	100x150	41	24	3	16.8	67	41	1.56	0.0480	12
BPEN-1022	100x200	30	16	2	11.2	117	54	1.10	0.0339	16
BPEN-1023	100x200	41	24	3	16.8	108	54	1.52	0.0470	16
BPEN-1032	150x200	30	16	2	11.2	203	81	0.77	0.0157	24
BPEN-1033	150x200	41	24	3	16.8	188	81	1.07	0.0219	24

BPEN-1034	150x200	52	32	4	22.4	180	81	1.37	0.0280	24
BPEN-1042	150x250	30	16	2	11.2	297	101	0.76	0.0155	30
BPEN-1043	150x250	41	24	3	16.8	276	101	1.06	0.0216	30
BPEN-1044	150x250	52	32	4	22.4	264	101	1.35	0.0275	30
BPEN-1052	150x300	30	16	2	11.2	398	121	0.75	0.0153	36
BPEN-1053	150x300	41	24	3	16.8	370	121	1.04	0.0213	36
BPEN-1054	150x300	52	32	4	22.4	354	121	1.33	0.0272	36
BPEN-1063	200x250	41	24	3	16.8	393	135	0.82	0.0125	40
BPEN-1064	200x250	52	32	4	22.4	377	135	1.05	0.0160	40
BPEN-1065	200x250	63	40	5	28	367	135	1.28	0.0195	40
BPEN-1066	200x250	74	48	6	33.6	359	135	1.50	0.0229	40
BPEN-1073	200x300	41	24	3	16.8	537	162	0.81	0.0124	48
BPEN-1074	200x300	52	32	4	22.4	515	162	1.04	0.0159	48
BPEN-1075	200x300	63	40	5	28	500	162	1.27	0.0193	48
BPEN-1076	200x300	74	48	6	33.6	490	162	1.49	0.0227	48
BPEN-1083	200x350	41	24	3	16.8	690	188	0.81	0.0123	56

BPEN-1084	200x350	52	32	4	22.4	661	188	1.03	0.0157	56
BPEN-1085	200x350	63	40	5	28	643	188	1.25	0.0191	56
BPEN-1086	200x350	74	48	6	33.6	629	188	1.47	0.0225	56
BPEN-1093	200x400	41	24	3	16.8	849	215	0.80	0.0122	64
BPEN-1094	200x400	52	32	4	22.4	815	215	1.03	0.0157	64
BPEN-1095	200x400	63	40	5	28	792	215	1.25	0.0190	64
BPEN-1096	200x400	74	48	6	33.6	775	215	1.47	0.0223	64
BPEN-1103	250x300	41	24	3	16.8	691	202	0.67	0.0082	60
BPEN-1104	250x300	52	32	4	22.4	663	202	0.86	0.0104	60
BPEN-1105	250x300	63	40	5	28	646	202	1.04	0.0127	60
BPEN-1106	250x300	74	48	6	33.6	633	202	1.23	0.0149	60
BPEN-1107	250x300	85	56	7	39.2	623	202	1.41	0.0172	60
BPEN-1113	250x400	41	24	3	16.8	1113	269	0.66	0.0080	81
BPEN-1114	250x400	52	32	4	22.4	1069	269	0.84	0.0103	81
BPEN-1115	250x400	63	40	5	28	1040	269	1.03	0.0125	81
BPEN-1116	250x400	74	48	6	33.6	1020	269	1.21	0.0147	81

BPEN-1117	250x400	85	56	7	39.2	1004	269	1.39	0.0169	81
BPEN-2013	300x400	57	36	3	25.2	711	323	0.86	0.0088	96
BPEN-2014	300x400	73	48	4	33.6	689	323	1.12	0.0113	96
BPEN-2015	300x400	89	60	5	42	676	323	1.37	0.0139	96
BPEN-2016	300x400	105	72	6	50.4	666	323	1.62	0.0164	96
BPEN-2023	300x500	57	36	3	25.2	1036	403	0.86	0.0087	120
BPEN-2024	300x500	73	48	4	33.6	1004	403	1.11	0.0113	120
BPEN-2025	300x500	89	60	5	42	984	403	1.36	0.0138	120
BPEN-2026	300x500	105	72	6	50.4	969	403	1.61	0.0163	120
BPEN-2033	300x600	57	36	3	25.2	1384	484	0.85	0.0087	144
BPEN-2034	300x600	73	48	4	33.6	1341	484	1.11	0.0112	144
BPEN-2035	300x600	89	60	5	42	1314	484	1.36	0.0137	144
BPEN-2036	300x600	105	72	6	50.4	1295	484	1.60	0.0162	144
BPEN-2043	350x450	57	36	3	25.2	1027	423	0.74	0.0065	126
BPEN-2044	350x450	73	48	4	33.6	996	423	0.96	0.0084	126
BPEN-2045	350x450	89	60	5	42	976	423	1.18	0.0103	126

BPEN-2046	350x450	105	72	6	50.4	963	423	1.40	0.0121	126
BPEN-2047	350x450	121	84	7	58.8	952	423	1.62	0.0140	126
BPEN-2054	400x500	73	48	4	33.6	1364	537	0.85	0.0064	161
BPEN-2055	400x500	89	60	5	42	1338	537	1.04	0.0079	161
BPEN-2056	400x500	105	72	6	50.4	1320	537	1.23	0.0093	161
BPEN-2057	400x500	121	84	7	58.8	1306	537	1.42	0.0108	161
BPEN-2058	400x500	137	96	8	67.2	1295	537	1.61	0.0122	161
BPEN-2064	400x600	73	48	4	33.6	1848	645	0.85	0.0064	193
BPEN-2065	400x600	89	60	5	42	1812	645	1.04	0.0079	193
BPEN-2066	400x600	105	72	6	50.4	1787	645	1.23	0.0093	193
BPEN-2067	400x600	121	84	7	58.8	1769	645	1.42	0.0107	193
BPEN-2068	400x600	137	96	8	67.2	1754	645	1.613	0.0122	193
BPEN-2074	450x600	73	48	4	33.6	2073	725	0.76	0.0051	217
BPEN-2075	450x600	89	60	5	42	2034	725	0.93	0.0063	217
BPEN-2076	450x600	105	72	6	50.4	2007	725	1.10	0.0074	217
BPEN-2077	450x600	121	84	7	58.8	1986	725	1.27	0.0086	217

BPEN-2078	450x600	137	96	8	67.2	1970	725	1.44	0.0097	217
BPEN-2079	450x600	153	108	9	75.6	1957	725	1.61	0.0108	217
BPEN-2084	500x600	73	48	4	33.6	2281	806	0.68	0.0042	241
BPEN-2085	500x600	89	60	5	42	2238	806	0.84	0.0051	241
BPEN-2086	500x600	105	72	6	50.4	2208	806	1.00	0.0060	241
BPEN-2087	500x600	121	84	7	58.8	2186	806	1.15	0.0070	241
BPEN-2088	500x600	137	96	8	67.2	2169	806	1.31	0.0079	241
BPEN-2089	500x600	153	108	9	75.6	2155	806	1.46	0.0088	241
BPEN-2081	500x600	169	120	10	84	2143	806	1.61	0.0098	241
BPEN-3014	600x600	94	64	4	44.8	1712	967	0.77	0.0039	289
BPEN-3015	600x600	115	80	5	56	1687	967	0.94	0.0048	289
BPEN-3016	600x600	136	96	6	67.2	1670	967	1.12	0.0057	289
BPEN-3017	600x600	157	112	7	78.4	1657	967	1.30	0.0066	289
BPEN-3018	600x600	178	128	8	89.6	1647	967	1.48	0.0075	289
BPEN-3019	600x600	199	144	9	100.8	1639	967	1.66	0.0083	289
BPEN-3024	600X700	94	64	4	44.8	2245	1280	0.77	0.0039	338

BPEN-3025	600x700	115	80	5	56	2212	1280	0.94	0.0048	338
BPEN-3026	600X700	136	96	6	67.2	2189	1280	1.12	0.0057	338
BPEN-3027	600x700	157	112	7	78.4	2173	1280	1.30	0.0065	338
BPEN-3028	600X700	178	128	8	89.6	2160	1280	1.48	0.0074	338
BPEN-3029	600x700	199	144	9	100.8	2149	1280	1.65	0.0083	338
BPEN-3034	700x700	94	64	4	44.8	2553	1315	0.66	0.0029	394
BPEN-3035	700x700	115	80	5	56	2516	1315	0.81	0.0035	394
BPEN-3036	700x700	136	96	6	67.2	2491	1315	0.97	0.0042	394
BPEN-3037	700x700	157	112	7	78.4	2472	1315	1.12	0.0048	394
BPEN-3038	700x700	178	128	8	89.6	2458	1315	1.27	0.0055	394
BPEN-3039	700x700	199	144	9	100.8	2446	1315	1.43	0.0062	394
BPEN-3031	700x700	220	160	10	112	2437	1315	1.58	0.0068	394
BPEN-3044	700x800	94	64	4	44.8	3208	1505	0.66	0.0029	450
BPEN-3045	700x800	115	80	5	56	3162	1505	0.81	0.0035	450
BPEN-3046	700x800	136	96	6	67.2	3130	1505	0.96	0.0042	450
BPEN-3047	700x800	157	112	7	78.4	3106	1505	1.12	0.0048	450

BPEN-3048	700x800	178	128	8	89.6	3088	1505	1.27	0.0055	450
BPEN-3049	700x800	199	144	9	100.8	3074	1505	1.42	0.0061	450
BPEN-3041	700x800	220	160	10	112	3062	1505	1.58	0.0068	450
BPEN-4014	800x800	110	80	4	56	2545	1720	0.72	0.0027	515
BPEN-4015	800x800	135	100	5	70	2515	1720	0.89	0.0034	515
BPEN-4016	800x800	160	120	6	84	2494	1720	1.06	0.0040	515
BPEN-4017	800x800	185	140	7	98	2479	1720	1.23	0.0046	515
BPEN-4018	800x800	210	160	8	112	2467	1720	1.40	0.0053	515
BPEN-4019	800x800	235	180	9	126	2458	1720	1.57	0.0059	515
BPEN-4011	800x800	260	200	10	140	2450	1720	1.74	0.0066	515
BPEN-4024	900x900	110	80	4	56	3435	2175	0.64	0.0022	652
BPEN-4025	900x900	135	100	5	70	3394	2175	0.79	0.0027	652
BPEN-4026	900x900	160	120	6	84	3367	2175	0.94	0.0032	652
BPEN-4027	900x900	185	140	7	98	3347	2175	1.09	0.0037	652
BPEN-4028	900x900	210	160	8	112	3331	2175	1.25	0.0042	652
BPEN-4029	900x900	235	180	9	126	3319	2175	1.40	0.0047	652

BPEN-4021	900x900	260	200	10	140	3309	2175	1.55	0.0052	652

Please Note That:

- Total Vertical Deflection of a bearing may vary minus or plus 15% of the Estimation which is given above and where this parameter is critical to design of the structure, the stiffness of the bearing should be ascertained by tests.
- The Friction Coefficient in calculations is considered to be 0.3. This value can be varied where the sitting material of the bearings are some material other than steel or concrete.
- Maximum allowable rotation in the above table is calculated to avoid the uplift even in the minimum permitted vertical load.
- AssaFlex Engineering Department will be pleased to tailor Bearings to meet your needs and requirements in a more cost effective manner, if we have knowledge and specifications of your project.