



**Lead Rubber Bearings
LRB
Catalogue**

Circular bearings

28 March 2019
[A]

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 160mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN-P ₀) at $\gamma m D_{max}$ [200% Shear Strain]	Compressive vertical stiffness k_{vc} (kN/mm)	Tensile vertical stiffness k_{vt} (kN/mm)	Post-yield stiffness K_r [kN/mm]	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping ξ_{eq} [%]
620LRB70	620	250	1585	2378	3450	908	45	0.946	32	1.148	10.9
620LRB80			1585	2378	3400	908	45	0.942	42	1.206	13.5
620LRB90			1585	2378	3400	908	45	0.937	53	1.271	16.0
620LRB100			1585	2378	3400	908	45	0.931	66	1.344	18.6
620LRB110			1585	2378	3400	908	45	0.925	80	1.424	21.1
620LRB120			1585	2378	3350	908	45	0.918	95	1.512	23.4
620LRB130			1585	2378	3350	908	45	0.911	112	1.608	25.7
670LRB80	670	250	1870	2805	5400	1205	60	1.132	42	1.396	11.7
670LRB90			1870	2805	5400	1205	60	1.127	53	1.461	14.1
670LRB100			1870	2805	5400	1205	60	1.121	66	1.534	16.4
670LRB110			1870	2805	5350	1205	60	1.115	80	1.614	18.7
670LRB120			1870	2805	5340	1205	60	1.108	95	1.702	21.0
670LRB130			1870	2805	5300	1205	60	1.101	112	1.798	23.2
720LRB80	720	250	2179	3269	8100	1555	78	1.337	42	1.601	10.2
720LRB90			2179	3269	8100	1555	78	1.332	53	1.666	12.3
720LRB100			2179	3269	8000	1555	78	1.326	66	1.739	14.5
720LRB110			2179	3269	8000	1555	78	1.320	80	1.819	16.7
720LRB120			2179	3269	8000	1555	78	1.313	95	1.907	18.8
720LRB130			2179	3269	7900	1555	78	1.306	112	2.003	21.0
770LRB80	770	250	2511	3767	11600	1963	39	1.556	42	1.820	9.0
770LRB90			2511	3767	11500	1963	39	1.551	53	1.885	11.0
770LRB100			2511	3767	11500	1963	39	1.545	66	1.958	13.0
770LRB110			2511	3767	11500	1963	39	1.539	80	2.038	14.9
770LRB120			2511	3767	11400	1963	39	1.532	95	2.126	17.0
770LRB130			2511	3767	11400	1963	39	1.525	112	2.222	19.0
820LRB80	820	250	2867	4301	16000	2429	49	1.790	42	2.054	8.0
820LRB90			2867	4301	16000	2429	49	1.785	53	2.119	9.8
820LRB100			2867	4301	16000	2429	49	1.780	66	2.193	11.6
820LRB110			2867	4301	16000	2429	49	1.773	80	2.272	13.5
820LRB120			2867	4301	15900	2429	49	1.767	95	2.361	15.4
820LRB130			2867	4301	15900	2429	49	1.759	112	2.456	17.2
870LRB80	870	250	3246	4869	21800	2955	59	2.039	42	2.303	7.2
870LRB90			3246	4869	21700	2955	59	2.034	53	2.368	8.8
870LRB100			3246	4869	21700	2955	59	2.028	66	2.441	10.5
870LRB110			3246	4869	21500	2955	59	2.022	80	2.521	12.2
870LRB120			3246	4869	21500	2955	59	2.015	95	2.609	13.9
870LRB130			3246	4869	21500	2955	59	2.008	112	2.705	15.7
920LRB80	920	250	3649	5473.5	28800	3542	71	2.303	42	2.567	6.4
920LRB90			3649	5473.5	28800	3542	71	2.298	53	2.632	7.9
920LRB100			3649	5473.5	28700	3542	71	2.292	66	2.705	9.5
920LRB110			3649	5473.5	28700	3542	71	2.286	80	2.785	11.1
920LRB120			3649	5473.5	28600	3542	71	2.279	95	2.873	12.7
920LRB130			3649	5473.5	28500	3542	71	2.272	112	2.969	14.3
970LRB80	970	250	4076	6114	37300	4189	84	2.581	42	2.845	5.8
970LRB90			4076	6114	37000	4189	84	2.576	53	2.910	7.2
970LRB100			4076	6114	37000	4189	84	2.570	66	2.983	8.6
970LRB110			4076	6114	37000	4189	84	2.564	80	3.063	10.1
970LRB120			4076	6114	37000	4189	84	2.557	95	3.151	11.6
970LRB130			4076	6114	36800	4189	84	2.550	112	3.247	13.2

*Design information provided within this table is preliminary only and needs to be checked by Robinson seismic based upon actual design parameters.

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 200mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN- $P_{0.2}$) at γ_{mDmax} [200% Shear Strain]	Compressive vertical stiffness k_{vc} (kN/mm)	Tensile vertical stiffness k_{vt} (kN/mm)	Post-yield stiffness K_r (kN/mm)	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping ξ_{eq} [%]
620LRB70	620	298	1585	2378	1635	727	15	0.723	32	0.885	11.3
620LRB80			1585	2378	1600	727	15	0.719	42	0.930	14.0
620LRB90			1585	2378	1600	727	15	0.715	53	0.982	16.6
620LRB100			1585	2378	1600	727	15	0.711	66	1.041	19.2
620LRB110			1585	2378	1600	727	15	0.706	80	1.105	21.7
620LRB120			1585	2378	1585	727	15	0.700	95	1.175	24.2
620LRB130			1585	2378	1585	727	15	0.695	112	1.253	26.4
670LRB80	670	298	1870	2805	2840	964	19	0.871	42	1.082	12.0
670LRB90			1870	2805	2830	964	19	0.867	53	1.134	14.5
670LRB100			1870	2805	2820	937	19	0.863	66	1.193	16.8
670LRB110			1870	2805	2800	937	19	0.858	80	1.257	19.2
670LRB120			1870	2805	2750	937	19	0.852	95	1.327	21.5
670LRB130			1870	2805	2750	937	19	0.847	112	1.404	23.7
670LRB140			1870	2805	2700	937	19	0.840	129	1.487	25.8
670LRB150			1870	2805	2700	937	19	0.833	148	1.575	27.8
670LRB155			1870	2805	2700	937	19	0.829	159	1.622	28.7
720LRB80	720	298	2179	3269	4550	1244	25	1.035	42	1.246	10.5
720LRB90			2179	3269	4500	1244	25	1.031	53	1.298	12.7
720LRB100			2179	3269	4500	1244	25	1.027	66	1.357	14.9
720LRB110			2179	3269	4470	1244	25	1.021	80	1.420	17.1
720LRB120			2179	3269	4400	1244	25	1.016	95	1.491	19.3
720LRB130			2179	3269	4400	1244	25	1.010	112	1.568	21.4
720LRB140			2179	3269	4400	1244	25	1.004	129	1.651	23.4
720LRB150			2179	3269	4370	1244	25	0.997	148	1.739	25.3
720LRB155			2179	3269	4350	1244	25	0.993	159	1.786	26.3
770LRB80	770	298	2511	3767	6800	1570	31	1.211	42	1.422	9.2
770LRB90			2511	3767	6800	1570	31	1.207	53	1.474	11.2
770LRB100			2511	3767	6800	1570	31	1.202	66	1.532	13.3
770LRB110			2511	3767	6750	1570	31	1.197	80	1.596	15.3
770LRB120			2511	3767	6750	1570	31	1.192	95	1.667	17.3
770LRB130			2511	3767	6700	1570	31	1.186	112	1.743	19.3
770LRB140			2511	3767	6650	1570	31	1.179	129	1.826	21.3
770LRB150			2511	3767	6600	1570	31	1.173	148	1.915	23.2
770LRB155			2511	3767	6600	1570	31	1.169	159	1.962	24.1
820LRB80	820	298	2867	4301	9850	1943	39	1.398	42	1.609	8.2
820LRB90			2867	4301	9850	1943	39	1.394	53	1.661	10.0
820LRB100			2867	4301	9800	1943	39	1.389	66	1.719	11.8
820LRB110			2867	4301	9750	1943	39	1.384	80	1.783	13.7
820LRB120			2867	4301	9700	1943	39	1.379	95	1.854	15.6
820LRB130			2867	4301	9700	1943	39	1.373	112	1.931	17.5
820LRB140			2867	4301	9650	1943	39	1.366	129	2.013	19.4
820LRB150			2867	4301	9600	1943	39	1.359	148	2.101	21.2
820LRB155			2867	4301	9600	1943	39	1.356	159	2.149	22.1
870LRB80	870	298	3246	4869	13700	2364	47	1.597	42	1.808	7.3
870LRB90			3246	4869	13700	2364	47	1.593	53	1.860	8.9
870LRB100			3246	4869	13500	2364	47	1.588	66	1.918	10.7
870LRB110			3246	4869	13500	2364	47	1.584	80	1.983	12.4
870LRB120			3246	4869	13500	2364	47	1.578	95	2.053	14.2
870LRB130			3246	4869	13300	2364	47	1.572	112	2.130	16.0
870LRB140			3246	4869	13200	2364	47	1.565	129	2.212	17.7
870LRB150			3246	4869	13200	2364	47	1.559	148	2.301	19.5
870LRB155			3246	4869	13200	2364	47	1.555	159	2.348	20.3
920LRB80	920	298	3649	5474	18500	2833	57	1.807	42	2.018	6.5
920LRB90			3649	5474	18500	2833	57	1.803	53	2.070	8.0
920LRB100			3649	5474	18300	2833	57	1.799	66	2.129	9.6
920LRB110			3649	5474	18300	2833	57	1.794	80	2.193	11.2
920LRB120			3649	5474	18300	2833	57	1.789	95	2.264	12.9
920LRB130			3649	5474	18200	2833	57	1.783	112	2.341	14.6
920LRB140			3649	5474	18100	2833	57	1.776	129	2.423	16.2
920LRB150			3649	5474	18100	2833	57	1.769	148	2.511	17.9
920LRB155			3649	5474	18000	2833	57	1.766	159	2.559	18.7
970LRB80	970	298	4076	6114	24500	3352	67	2.031	42	2.242	5.9
970LRB90			4076	6114	24400	3352	67	2.026	53	2.293	7.3
970LRB100			4076	6114	24400	3352	67	2.022	66	2.352	8.7
970LRB110			4076	6114	24200	3352	67	2.017	80	2.416	10.2
970LRB120			4076	6114	24200	3352	67	2.011	95	2.486	11.8
970LRB130			4076	6114	24100	3352	67	2.006	112	2.563	13.4
970LRB140			4076	6114	24100	3352	67	1.999	129	2.646	14.9
970LRB150			4076	6114	24000	3352	67	1.992	148	2.734	16.5
970LRB155			4076	6114	24000	3352	67	1.989	159	2.782	17.3
1020LRB90	1020	298	4526	6789	31600	3919	78	2.261	53	2.528	6.6
1020LRB100			4526	6789	31500	3919	78	2.257	66	2.587	8.0
1020LRB110			4526	6789	31500	3919	78	2.252	80	2.651	9.3
1020LRB120			4526	6789	31500	3919	78	2.246	95	2.721	10.8
1020LRB130			4526	6789	31300	3919	78	2.240	112	2.798	12.3
1020LRB140			4526	6789	31300	3919	78	2.234	129	2.880	13.8
1020LRB150			4526	6789	31200	3919	78	2.227	148	2.969	15.3
1020LRB155			4526	6789	31200	3919	78	2.223	159	3.016	16.0

*Design information provided within this table is preliminary only and needs to be checked by Robinson seismic based upon actual design parameters.

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 240mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN- P_{cl}) at $\gamma m D_{max}$ [200% Shear Strain]	Compressive vertical stiffness k_{vc} (kN/mm)	Tensile vertical stiffness k_{vt} (kN/mm)	Post-yield stiffness K_p (kN/mm)	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping ξ_{eq} [%]
720LRB100	720	346	2179	3269	2300	1037	21	0.827	66	1.102	15.3
720LRB110			2179	3269	2300	1037	21	0.823	80	1.155	17.5
720LRB120			2179	3269	2250	1037	21	0.818	95	1.214	19.7
720LRB130			2179	3269	2250	1037	21	0.813	112	1.278	21.8
720LRB140			2179	3269	2250	1037	21	0.808	129	1.347	23.9
720LRB150			2179	3269	2250	1037	21	0.802	148	1.421	25.8
720LRB160			2179	3269	2200	1037	21	0.796	169	1.500	27.7
720LRB170			2179	3269	2200	1037	21	0.789	191	1.584	29.4
720LRB180			2179	3269	2200	1037	21	0.783	214	1.674	31.1
720LRB190			2179	3269	2100	1037	21	0.776	238	1.768	32.6
770LRB100	770	346	2511	3767	3800	1309	26	0.973	66	1.248	13.5
770LRB110			2511	3767	3800	1309	26	0.969	80	1.302	15.6
770LRB120			2511	3767	3750	1309	26	0.965	95	1.360	17.7
770LRB130			2511	3767	3750	1309	26	0.960	112	1.424	19.7
770LRB140			2511	3767	3750	1309	26	0.954	129	1.493	21.7
770LRB150			2511	3767	3700	1309	26	0.949	148	1.567	23.6
770LRB160			2511	3767	3700	1309	26	0.943	169	1.646	25.4
770LRB170			2511	3767	3650	1309	26	0.936	191	1.731	27.1
770LRB180			2511	3767	3600	1309	26	0.929	214	1.820	28.8
770LRB190			2511	3767	3600	1309	26	0.922	238	1.914	30.3
820LRB100	820	346	2867	4301	5800	1619	32	1.129	66	1.404	12.1
820LRB110			2867	4301	5800	1619	32	1.125	80	1.458	14.0
820LRB120			2867	4301	5750	1619	32	1.121	95	1.516	15.9
820LRB130			2867	4301	5750	1619	32	1.116	112	1.580	17.8
820LRB140			2867	4301	5750	1619	32	1.110	129	1.649	19.7
820LRB150			2867	4301	5700	1619	32	1.105	148	1.723	21.5
820LRB160			2867	4301	5650	1619	32	1.099	169	1.802	23.3
820LRB170			2867	4301	5650	1619	32	1.092	191	1.887	25.0
820LRB180			2867	4301	5600	1619	32	1.085	214	1.976	26.6
820LRB190			2867	4301	5600	1619	32	1.078	238	2.071	28.2
870LRB100	870	346	3246	4869	8500	1970	39	1.295	66	1.570	10.8
870LRB110			3246	4869	8250	1970	39	1.291	80	1.624	12.6
870LRB120			3246	4869	8250	1970	39	1.287	95	1.682	14.4
870LRB130			3246	4869	8250	1970	39	1.282	112	1.746	16.2
870LRB140			3246	4869	8250	1970	39	1.276	129	1.815	18.0
870LRB150			3246	4869	8250	1970	39	1.271	148	1.889	19.8
870LRB160			3246	4869	8250	1970	39	1.265	169	1.968	21.4
870LRB170			3246	4869	8250	1970	39	1.258	191	2.053	23.1
870LRB180			3246	4869	8200	1970	39	1.251	214	2.142	24.7
870LRB190			3246	4869	8000	1970	39	1.244	238	2.236	26.3
920LRB100	920	346	3649	5474	11800	2361	47	1.471	66	1.746	9.8
920LRB110			3649	5474	11800	2361	47	1.467	80	1.799	11.4
920LRB120			3649	5474	11800	2361	47	1.462	95	1.858	13.1
920LRB130			3649	5474	11700	2361	47	1.457	112	1.922	14.8
920LRB140			3649	5474	11700	2361	47	1.452	129	1.991	16.5
920LRB150			3649	5474	11600	2361	47	1.446	148	2.065	18.1
920LRB160			3649	5474	11600	2361	47	1.440	169	2.144	19.8
920LRB170			3649	5474	11600	2361	47	1.434	191	2.228	21.4
920LRB180			3649	5474	11500	2361	47	1.427	214	2.318	22.9
920LRB190			3649	5474	11300	2361	47	1.420	238	2.412	24.4
970LRB100	970	346	4076	6114	16100	2793	56	1.657	66	1.932	8.8
970LRB110			4076	6114	16000	2793	56	1.652	80	1.985	10.4
970LRB120			4076	6114	16000	2793	56	1.648	95	2.044	12.0
970LRB130			4076	6114	16000	2793	56	1.643	112	2.107	13.5
970LRB140			4076	6114	16000	2793	56	1.638	129	2.176	15.1
970LRB150			4076	6114	15900	2793	56	1.632	148	2.250	16.7
970LRB160			4076	6114	15800	2793	56	1.626	169	2.330	18.3
970LRB170			4076	6114	15800	2793	56	1.619	191	2.414	19.8
970LRB180			4076	6114	15700	2793	56	1.613	214	2.503	21.3
970LRB190			4076	6114	15600	2793	56	1.605	238	2.598	22.8
1020LRB100	1020	379	4526	6789	17100	3266	65	1.852	66	2.127	8.0
1020LRB110			4526	6789	21300	3266	65	1.848	80	2.180	9.5
1020LRB120			4526	6789	21300	3266	65	1.843	95	2.239	10.9
1020LRB130			4526	6789	21100	3266	65	1.838	112	2.303	12.4
1020LRB140			4526	6789	21100	3266	65	1.833	129	2.372	13.9
1020LRB150			4526	6789	21100	3266	65	1.827	148	2.446	15.4
1020LRB160			4526	6789	21000	3266	65	1.821	169	2.525	16.9
1020LRB170			4526	6789	21000	3266	65	1.815	191	2.609	18.4
1020LRB180			4526	6789	20900	3266	65	1.808	214	2.699	19.8
1020LRB190			4526	6789	20800	3266	65	1.801	238	2.793	21.3
1070LRB100	1070	379	4999	7499	27700	3779	76	2.057	66	2.332	7.4
1070LRB110			4999	7499	27700	3779	76	2.053	80	2.385	8.7
1070LRB120			4999	7499	27500	3779	76	2.048	95	2.444	10.0
1070LRB130			4999	7499	27500	3779	76	2.044	112	2.508	11.4
1070LRB140			4999	7499	27500	3779	76	2.038	129	2.577	12.8
1070LRB150			4999	7499	27400	3779	76	2.033	148	2.651	14.3
1070LRB160			4999	7499	27400	3779	76	2.026	169	2.730	15.7
1070LRB170			4999	7499	27300	3779	76	2.020	191	2.814	17.1
1070LRB180			4999	7499	27100	3779	76	2.013	214	2.904	18.5
1070LRB190			4999	7499	27100	3779	76	2.006	238	2.998	19.9
1120LRB100	1120	379	5497	8246	35300	4334	87	2.272	66	2.547	6.8
1120LRB110			5497	8246	35300	4334	87	2.268	80	2.600	8.0
1120LRB120			5497	8246	35300	4334	87	2.263	95	2.659	9.2
1120LRB130			5497	8246	35100	4334	87	2.259	112	2.723	10.5
1120LRB140			5497	8246	35100	4334	87	2.253	129	2.792	11.9
1120LRB150			5497	8246	35100	4334	87	2.248	148	2.866	13.3

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 240mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter D_r [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN-1998) at γ_{max} [200% Shear Strain]	Compressive vertical stiffness k_{vc} (kN/mm)	Tensile vertical stiffness k_{vt} (kN/mm)	Post-yield stiffness k_r (kN/mm)	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping ξ_{eq} [%]
1120LRB160			5497	8246	35000	4334	87	2.241	169	2.945	14.6
1120LRB170			5497	8246	34800	4334	87	2.235	191	3.029	16.0
1120LRB180			5497	8246	34700	4334	87	2.228	214	3.119	17.3
1120LRB190			5497	8246	34600	4334	87	2.221	238	3.213	18.7
1170LRB100	1170	379	6017	9026	44500	4929	99	2.497	66	2.772	6.2
1170LRB110			6017	9026	44400	4929	99	2.493	80	2.825	7.4
1170LRB120			6017	9026	44300	4929	99	2.488	95	2.884	8.5
1170LRB130			6017	9026	44100	4929	99	2.483	112	2.948	9.8
1170LRB140			6017	9026	44000	4929	99	2.478	129	3.017	11.0
1170LRB150			6017	9026	44000	4929	99	2.472	148	3.091	12.3
1170LRB160			6017	9026	43900	4929	99	2.466	169	3.170	13.6
1170LRB170			6017	9026	43800	4929	99	2.460	191	3.254	14.9
1170LRB180			6017	9026	43700	4929	99	2.453	214	3.344	16.2
1170LRB190			6017	9026	43700	4929	99	2.446	238	3.438	17.5
1220LRB100	1220	379	6562	9843	55100	5564	111	2.732	66	3.007	5.7
1220LRB110			6562	9843	55000	5564	111	2.727	80	3.060	6.8
1220LRB120			6562	9843	55000	5564	111	2.723	95	3.119	7.9
1220LRB130			6562	9843	54850	5564	111	2.718	112	3.182	9.1
1220LRB140			6562	9843	54750	5564	111	2.713	129	3.251	10.3
1220LRB150			6562	9843	54700	5564	111	2.707	148	3.325	11.5
1220LRB160			6562	9843	54500	5564	111	2.701	169	3.405	12.7
1220LRB170			6562	9843	54400	5564	111	2.694	191	3.489	13.9
1220LRB180			6562	9843	54300	5564	111	2.688	214	3.578	15.2
1220LRB190			6562	9843	54100	5564	111	2.680	238	3.673	16.4
1270LRB100	1270	379	7129	10694	67500	6238	125	2.976	66	3.251	5.3
1270LRB110			7129	10694	67400	6238	125	2.972	80	3.304	6.3
1270LRB120			7129	10694	67200	6238	125	2.967	95	3.363	7.3
1270LRB130			7129	10694	67200	6238	125	2.962	112	3.427	8.4
1270LRB140			7129	10694	67100	6238	125	2.957	129	3.496	9.6
1270LRB150			7129	10694	67000	6238	125	2.951	148	3.570	10.7
1270LRB160			7129	10694	66800	6238	125	2.945	169	3.649	11.9
1270LRB170			7129	10694	66700	6238	125	2.939	191	3.733	13.0
1270LRB180			7129	10694	66500	6238	125	2.932	214	3.823	14.2
1270LRB190			7129	10694	66400	6238	125	2.925	238	3.917	15.4
1320LRB100	1320	379	7721	11582	81700	6953	139	3.230	66	3.505	4.9
1320LRB110			7721	11582	81600	6953	139	3.226	80	3.559	5.8
1320LRB120			7721	11582	81500	6953	139	3.222	95	3.617	6.8
1320LRB130			7721	11582	81400	6953	139	3.217	112	3.681	7.9
1320LRB140			7721	11582	81300	6953	139	3.211	129	3.750	8.9
1320LRB150			7721	11582	81100	6953	139	3.206	148	3.824	10.0
1320LRB160			7721	11582	81000	6953	139	3.200	169	3.903	11.1
1320LRB170			7721	11582	80800	6953	139	3.193	191	3.988	12.2
1320LRB180			7721	11582	80650	6953	139	3.186	214	4.077	13.4
1320LRB190			7721	11582	80500	6953	139	3.179	238	4.172	14.5

*Design information provided within this table is preliminary only and needs to be checked by Robinson seismic based upon actual design parameters.

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 280mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN- $P_{0.2}$) at γ_{mDmax} [200% Shear Strain]	Compressive vertical stiffness K_{vc} [kN/mm]	Tensile vertical stiffness K_{vt} [kN/mm]	Post-yield stiffness K_r [kN/mm]	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping β_{eq} [%]
820LRB100	820	394	2867	4301	3200	1388	28	0.944	66	1.179	12.3
820LRB110			2867	4301	3150	1388	28	0.940	80	1.225	15.1
820LRB120			2867	4301	3150	1388	28	0.936	95	1.275	17.1
820LRB130			2867	4301	3150	1388	28	0.932	112	1.330	18.2
820LRB140			2867	4301	3120	1388	28	0.927	129	1.389	21.0
820LRB150			2867	4301	3100	1388	28	0.922	148	1.452	21.9
820LRB160	870	394	2867	4301	3100	1388	28	0.917	169	1.520	23.7
820LRB170			2867	4301	3050	1388	28	0.912	191	1.593	25.4
820LRB180			2867	4301	3050	1388	28	0.906	214	1.669	27.0
820LRB190			2867	4301	3050	1388	28	0.899	238	1.750	28.6
870LRB100			3246	4869	5000	1689	34	1.086	66	1.321	11.0
870LRB110			3246	4869	5000	1689	34	1.082	80	1.367	13.6
870LRB120	920	394	3246	4869	4950	1689	34	1.078	95	1.418	15.5
870LRB130			3246	4869	4950	1689	34	1.074	112	1.472	16.5
870LRB140			3246	4869	4950	1689	34	1.069	129	1.531	18.3
870LRB150			3246	4869	4900	1689	34	1.065	148	1.595	21.0
870LRB160			3246	4869	4900	1689	34	1.059	169	1.662	22.7
870LRB170			3246	4869	4850	1689	34	1.053	191	1.734	23.4
870LRB180	970	394	3246	4869	4850	1689	34	1.048	214	1.812	25.0
870LRB190			3246	4869	4850	1689	34	1.417	238	2.268	26.6
920LRB100			3649	5474	7400	2024	40	1.236	66	1.472	9.9
920LRB110			3649	5474	7400	2024	40	1.232	80	1.517	12.3
920LRB120			3649	5474	7350	2024	40	1.228	95	1.567	14.1
920LRB130			3649	5474	7350	2024	40	1.225	112	1.623	15.8
920LRB140	1020	431	3649	5474	7300	2024	40	1.220	129	1.682	17.5
920LRB150			3649	5474	7300	2024	40	1.215	148	1.745	19.3
920LRB160			3649	5474	7270	2024	40	1.210	169	1.813	20.9
920LRB170			3649	5474	7250	2024	40	1.204	191	1.885	22.6
920LRB180			3649	5474	7200	2024	40	1.198	214	1.962	24.1
920LRB190			3649	5474	7150	2024	40	1.192	238	2.043	24.7
970LRB120	1070	431	4076	6114	10350	2394	48	1.387	95	1.726	12.8
970LRB130			4076	6114	10350	2394	48	1.383	112	1.781	14.5
970LRB140			4076	6114	10350	2394	48	1.379	129	1.841	16.1
970LRB150			4076	6114	10300	2394	48	1.374	148	1.904	16.9
970LRB155			4076	6114	10300	2394	48	1.371	159	1.937	18.6
970LRB160			4076	6114	10300	2394	48	1.369	169	1.972	18.5
970LRB170	1120	431	4076	6114	10300	2394	48	1.363	191	2.044	20.0
970LRB180			4076	6114	10200	2394	48	1.357	214	2.121	21.6
970LRB190			4076	6114	10150	2394	48	1.351	238	2.202	24.0
970LRB200			4076	6114	10100	2394	48	1.344	264	2.287	25.4
970LRB210			4076	6114	10100	2394	48	1.338	291	2.377	25.9
1020LRB120			4526	6789	14200	2799	56	1.555	95	1.894	11.1
1020LRB130	1170	431	4526	6789	14200	2799	56	1.551	112	1.949	12.6
1020LRB140			4526	6789	14150	2799	56	1.546	129	2.008	14.1
1020LRB150			4526	6789	14150	2799	56	1.541	148	2.071	16.4
1020LRB160			4526	6789	14100	2799	56	1.536	169	2.139	18.0
1020LRB170			4526	6789	14000	2799	56	1.531	191	2.212	18.6
1020LRB180			4526	6789	14000	2799	56	1.525	214	2.289	20.1
1020LRB190	1220	431	4526	6789	14000	2799	56	1.518	238	2.369	21.5
1020LRB200			4526	6789	13900	2799	56	1.512	264	2.455	22.9
1020LRB210			4526	6789	13800	2799	56	1.505	291	2.544	24.2
1020LRB220			4526	6789	13800	2799	56	1.498	319	2.638	25.5
1070LRB120			4999	7499	19000	3239	65	1.731	95	2.071	10.1
1070LRB130			4999	7499	18950	3239	65	1.727	112	2.125	12.2
1070LRB140	1270	431	4999	7499	18950	3239	65	1.722	129	2.184	13.7
1070LRB150			4999	7499	18900	3239	65	1.717	148	2.247	15.2
1070LRB160			4999	7499	18750	3239	65	1.712	169	2.315	16.7
1070LRB170			4999	7499	18750	3239	65	1.707	191	2.388	18.1
1070LRB180			4999	7499	18700	3239	65	1.701	214	2.465	19.6
1070LRB190			4999	7499	18650	3239	65	1.694	238	2.545	20.1
1070LRB200	1320	431	4999	7499	18600	3239	65	1.688	264	2.631	21.5
1070LRB210			4999	7499	18500	3239	65	1.681	291	2.720	22.8
1070LRB220			4999	7499	18450	3239	65	1.674	319	2.814	25.0
1120LRB120			5497	8246	24750	3715	74	1.915	95	2.254	9.9
1120LRB130			5497	8246	24650	3715	74	1.911	112	2.309	11.3
1120LRB140			5497	8246	24650	3715	74	1.906	129	2.368	12.7
1120LRB150	1370	431	5497	8246	24600	3715	74	1.901	148	2.431	14.1
1120LRB160			5497	8246	24500	3715	74	1.896	169	2.499	15.5
1120LRB170			5497	8246	24450	3715	74	1.891	191	2.572	16.9
1120LRB180			5497	8246	24400	3715	74	1.885	214	2.649	17.5
1120LRB190			5497	8246	24300	3715	74	1.879	238	2.730	18.8
1120LRB200			5497	8246	24250	3715	74	1.872	264	2.815	20.1
1120LRB210	1420	431	5497	8246	24150	3715	74	1.865	291	2.904	21.4
1120LRB220			5497	8246	24050	3715	74	1.858	319	2.998	22.7
1170LRB120			6017	9026	31500	4224	84	2.108	95	2.447	8.6
1170LRB130			6017	9026	31500	4225	84	2.104	112	2.502	9.9
1170LRB140			6017	9026	31400	4225	84	2.099	129	2.561	11.1
1170LRB150			6017	9026	31400	4225	84	2.094	148	2.624	12.4
1170LRB160	1470	431	6017	9026	31350	4225	84	2.089	169	2.692	13.7
1170LRB170			6017	9026	31250	4225	84	2.083	191	2.764	15.8
1170LRB180			6017	9026	31150	4225	84	2.078	214	2.842	16.3
1170LRB190			6017	9026	31100	4225	84	2.071	238	2.922	17.6
1170LRB200			6017	9026	31000	4225	84	2.065	264	3.008	19.8
1170LRB210			6017	9026	30900	4225	84	2.058	291	3.097	20.1
1170LRB220	1520	431	6017	9026	30850	4225	84	2.051	319	3.191	21.4

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 280mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN- $P_{0.2}$) at γ_{mDmax} [200% Shear Strain]	Compressive vertical stiffness K_{vc} (kN/mm)	Tensile vertical stiffness K_{vt} (kN/mm)	Post-yield stiffness K_r (kN/mm)	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping β_{eq} [%]
1220LRB120	1220	431	6562	9843	39750	4769	95	2.309	95	2.648	8.0
1220LRB130			6562	9843	39700	4769	95	2.305	112	2.703	9.2
1220LRB140			6562	9843	39600	4769	95	2.300	129	2.762	10.3
1220LRB150			6562	9843	39500	4769	95	2.295	148	2.825	11.6
1220LRB160			6562	9843	39400	4769	95	2.290	169	2.893	12.8
1220LRB170			6562	9843	39300	4769	95	2.285	191	2.966	14.1
1220LRB180			6562	9843	39250	4769	95	2.279	214	3.043	15.3
1220LRB190			6562	9843	39150	4769	95	2.272	238	3.123	16.5
1220LRB200			6562	9843	39050	4769	95	2.266	264	3.209	17.8
1220LRB210			6562	9843	39000	4769	95	2.259	291	3.298	19.0
1220LRB220			6562	9843	38850	4769	95	2.252	319	3.392	20.2
1270LRB120	1270	431	7129	10694	49300	5347	107	2.519	95	2.858	7.4
1270LRB130			7129	10694	49200	5347	107	2.514	112	2.912	8.5
1270LRB140			7129	10694	49150	5347	107	2.510	129	2.972	9.6
1270LRB150			7129	10694	49100	5347	107	2.505	148	3.035	10.8
1270LRB160			7129	10694	49000	5347	107	2.500	169	3.103	12.0
1270LRB170			7129	10694	48850	5347	107	2.494	191	3.175	13.2
1270LRB180			7129	10694	48750	5347	107	2.488	214	3.252	14.4
1270LRB190			7129	10694	48650	5347	107	2.482	238	3.333	15.6
1270LRB200			7129	10694	48500	5347	107	2.476	264	3.418	16.7
1270LRB210			7129	10694	48350	5347	107	2.468	291	3.507	17.9
1270LRB220			7129	10694	48250	5347	107	2.461	319	3.601	19.1
1320LRB120	1320	431	7721	11582	60350	5960	119	2.737	95	3.076	6.9
1320LRB130			7721	11582	60250	5960	119	2.732	112	3.130	7.9
1320LRB140			7721	11582	60150	5960	119	2.728	129	3.190	9.0
1320LRB150			7721	11582	60050	5960	119	2.723	148	3.253	10.1
1320LRB160			7721	11582	60000	5960	119	2.718	169	3.321	11.2
1320LRB170			7721	11582	59850	5960	119	2.712	191	3.393	12.3
1320LRB180			7721	11582	59750	5960	119	2.706	214	3.470	13.5
1320LRB190			7721	11582	59650	5960	119	2.700	238	3.551	14.6
1320LRB200			7721	11582	59500	5960	119	2.693	264	3.636	15.8
1320LRB210			7721	11582	59300	5960	119	2.687	291	3.726	16.9
1320LRB220			7721	11582	59200	5960	119	2.679	319	3.819	18.0
1370LRB120	1370	431	8336	12504	73200	6606	132	2.963	95	3.302	6.4
1370LRB130			8336	12504	73000	6606	132	2.959	112	3.357	7.4
1370LRB140			8336	12504	72900	6606	132	2.954	129	3.416	8.4
1370LRB150			8336	12504	72850	6606	132	2.949	148	3.479	9.4
1370LRB160			8336	12504	72750	6606	132	2.944	169	3.547	10.5
1370LRB170			8336	12504	72600	6606	132	2.938	191	3.619	11.6
1370LRB180			8336	12504	72450	6606	132	2.933	214	3.696	12.7
1370LRB190			8336	12504	72350	6606	132	2.926	238	3.777	13.8
1370LRB200			8336	12504	72150	6606	132	2.920	264	3.863	14.9
1370LRB210			8336	12504	72000	6606	132	2.913	291	3.952	16.0
1370LRB220			8336	12504	71800	6606	132	2.906	319	4.046	17.1
1420LRB120	1420	431	8974	13461	87700	7285	146	3.198	95	3.537	6.0
1420LRB130			8974	13461	87700	7285	146	3.193	112	3.591	6.9
1420LRB140			8974	13461	87600	7285	146	3.189	129	3.651	7.9
1420LRB150			8974	13461	87450	7285	146	3.184	148	3.714	8.9
1420LRB160			8974	13461	87350	7285	146	3.179	169	3.782	9.9
1420LRB170			8974	13461	87200	7285	146	3.173	191	3.854	10.9
1420LRB180			8974	13461	87100	7285	146	3.167	214	3.931	11.9
1420LRB190			8974	13461	86800	7285	146	3.161	238	4.012	13.0
1420LRB200			8974	13461	86600	7285	146	3.155	264	4.097	14.1
1420LRB210			8974	13461	86500	7285	146	3.148	291	4.187	15.1
1420LRB220			8974	13461	86400	7285	146	3.140	319	4.280	16.2

*Design information provided within this table is preliminary only and needs to be checked by Robinson seismic based upon actual design parameters.

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 320mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN- $P_{0.2}$) at γ_{mDmax} [200% Shear Strain]	Compressive vertical stiffness K_{vc} [kN/mm]	Tensile vertical stiffness K_{vt} [kN/mm]	Post-yield stiffness K_r [kN/mm]	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping β_{eq} [%]
920LRB100	920	442	3649	5474	4250	1771	35	1.060	66	1.267	10.1
920LRB110			3649	5474	4250	1771	35	1.057	80	1.306	11.8
920LRB120			3649	5474	4200	1771	35	1.054	95	1.351	13.5
920LRB130			3649	5474	4200	1771	35	1.050	112	1.398	15.2
920LRB140			3649	5474	4200	1771	35	1.046	129	1.450	16.9
920LRB150			3649	5474	4200	1771	35	1.042	148	1.506	18.7
920LRB160			3649	5474	4200	1771	35	1.037	169	1.565	20.3
920LRB170			3649	5474	4150	1771	35	1.033	191	1.628	21.9
920LRB180			3649	5474	4125	1771	35	1.027	214	1.696	23.5
920LRB190			3649	5474	4125	1771	35	1.022	238	1.766	25.0
970LRB120	970	442	4076	6114	6450	2095	42	1.193	95	1.490	12.3
970LRB130			4076	6114	6400	2095	42	1.189	112	1.538	13.9
970LRB140			4076	6114	6400	2095	42	1.185	129	1.589	15.5
970LRB150			4076	6114	6350	2095	42	1.181	148	1.645	17.1
970LRB155			4076	6114	6300	2095	42	1.179	159	1.674	17.9
970LRB160			4076	6114	6300	2095	42	1.176	169	1.704	18.7
970LRB170			4076	6114	6300	2095	42	1.171	191	1.767	20.3
970LRB180			4076	6114	6300	2095	42	1.166	214	1.834	21.8
970LRB190			4076	6114	6250	2095	42	1.161	238	1.905	23.3
970LRB200			4076	6114	6250	2095	42	1.155	264	1.980	24.8
970LRB210			4076	6114	6200	2095	42	1.149	291	2.058	26.1
1020LRB120	1020	483	4526	6789	9250	2449	49	1.339	95	1.636	11.2
1020LRB130			4526	6789	9200	2449	49	1.336	112	1.684	12.7
1020LRB140			4526	6789	9200	2449	49	1.332	129	1.736	14.3
1020LRB150			4526	6789	9100	2449	49	1.327	148	1.791	15.8
1020LRB160			4526	6789	9100	2449	49	1.323	169	1.851	17.3
1020LRB170			4526	6789	9050	2449	49	1.318	191	1.914	18.8
1020LRB180			4526	6789	9050	2449	49	1.313	214	1.981	20.3
1020LRB190			4526	6789	9000	2449	49	1.307	238	2.051	21.7
1020LRB200			4526	6789	8950	2449	49	1.302	264	2.127	23.1
1020LRB210			4526	6789	8950	2449	49	1.295	291	2.204	24.5
1020LRB220			4526	6789	8900	2449	49	1.289	319	2.287	25.8
1070LRB120	1070	483	4999	7499	12700	2835	57	1.493	95	1.790	10.3
1070LRB130			4999	7499	12600	2835	57	1.489	112	1.837	11.7
1070LRB140			4999	7499	12600	2835	57	1.485	129	1.889	13.1
1070LRB150			4999	7499	12600	2835	57	1.481	148	1.945	14.6
1070LRB160			4999	7499	12500	2835	57	1.477	169	2.005	16.1
1070LRB170			4999	7499	12500	2835	57	1.472	191	2.068	17.5
1070LRB180			4999	7499	12450	2835	57	1.467	214	2.135	18.9
1070LRB190			4999	7499	12450	2835	57	1.461	238	2.205	20.3
1070LRB200			4999	7499	12450	2835	57	1.455	264	2.280	21.7
1070LRB210			4999	7499	12400	2835	57	1.449	291	2.358	23.0
1070LRB220			4999	7499	12300	2835	57	1.443	319	2.441	24.3
1120LRB120	1120	483	5497	8246	16800	3250	65	1.633	191	2.229	16.3
1120LRB130			5497	8246	16800	3250	65	1.628	214	2.296	17.6
1120LRB140			5497	8246	16750	3250	65	1.622	238	2.366	19.0
1120LRB150			5497	8246	16650	3250	65	1.617	264	2.442	20.3
1120LRB160			5497	8246	16600	3250	65	1.611	291	2.520	21.6
1120LRB170			5497	8246	16500	3250	65	1.604	319	2.602	22.9
1120LRB180			5497	8246	16500	3250	65	1.598	349	2.689	24.1
1120LRB190			5497	8246	16400	3250	65	1.591	380	2.779	25.3
1120LRB200			5497	8246	16300	3250	65	1.584	412	2.872	26.4
1120LRB210			5497	8246	16250	3250	65	1.576	446	2.970	27.5
1120LRB220			5497	8246	16250	3250	65	1.568	481	3.071	28.6
1170LRB120	1170	483	6017	9026	22100	3696	74	1.802	191	2.398	15.1
1170LRB130			6017	9026	22000	3696	74	1.797	214	2.465	16.5
1170LRB140			6017	9026	21900	3696	74	1.791	238	2.535	17.8
1170LRB150			6017	9026	21850	3696	74	1.785	264	2.610	19.0
1170LRB160			6017	9026	21800	3696	74	1.779	291	2.688	20.3
1170LRB170			6017	9026	21700	3696	74	1.773	319	2.771	21.5
1170LRB180			6017	9026	21600	3696	74	1.766	349	2.857	22.7
1170LRB190			6017	9026	21500	3696	74	1.759	380	2.947	23.9
1170LRB200			6017	9026	21500	3696	74	1.752	412	3.040	25.1
1170LRB210			6017	9026	21400	3696	74	1.745	446	3.139	26.2
1170LRB220			6017	9026	21350	3696	74	1.737	481	3.240	27.2
1220LRB120	1220	483	6562	9843	28300	4173	83	1.977	191	2.573	14.2
1220LRB130			6562	9843	28200	4173	83	1.972	214	2.640	15.4
1220LRB140			6562	9843	28100	4173	83	1.967	238	2.711	16.7
1220LRB150			6562	9843	28050	4173	83	1.961	264	2.786	17.9
1220LRB160			6562	9843	28000	4173	83	1.955	291	2.864	19.1
1220LRB170			6562	9843	27900	4173	83	1.949	319	2.947	20.3
1220LRB180			6562	9843	27800	4173	83	1.942	349	3.033	21.5
1220LRB190			6562	9843	27700	4173	83	1.935	380	3.123	22.7
1220LRB200			6562	9843	27600	4173	83	1.928	412	3.216	23.8
1220LRB210			6562	9843	27500	4173	83	1.921	446	3.315	24.9
1220LRB220			6562	9843	27450	4173	83	1.913	481	3.416	26.0
1270LRB120	1270	483	7129	10694	35700	4679	94	2.161	191	2.757	13.3
1270LRB130			7129	10694	35600	4679	94	2.156	214	2.824	14.5
1270LRB140			7129	10694	35500	4679	94	2.150	238	2.894	15.6
1270LRB150			7129	10694	35500	4679	94	2.144	264	2.969	16.9
1270LRB160			7129	10694	35300	4679	94	2.139	291	3.048	18.1
1270LRB170			7129	10694	35200	4679	94	2.132	319	3.130	19.2
1270LRB180			7129	10694	35100	4679	94	2.126	349	3.217	20.3
1270LRB190			7129	10694	35000	4679	94	2.119	380	3.307	21.5
1270LRB200			7129	10694	34900	4679	94	2.111	412	3.399	22.6

Lead Rubber Bearing LRB

circular | G60 | rubber total thickness 320mm

Device Type	Dimensions		load limits*			Unit characteristic for modelling [$\gamma = 100\%$, 6MPa bearing pressure]*					
	Rubber Diameter Dr [mm]	Total height H [mm]	SLS Static Load average [kN]	ULS Static Load maximum [kN]	CLS Dynamic Load maximum (EN- $P_{0.2}$) at γ_{mDmax} [200% Shear Strain]	Compressive vertical stiffness K_{vc} (kN/mm)	Tensile vertical stiffness K_{vt} (kN/mm)	Post-yield stiffness K_r (kN/mm)	Yield strength of lead core Q_d [kN]	Effective stiffness K_{eff} [kN/mm]	Equivalent Damping β_{eq} [%]
1270LRB210			7129	10694	34800	4679	94	2.104	446	3.498	23.6
1270LRB220			7129	10694	34650	4679	94	2.096	481	3.599	24.7
1320LRB120	1320	483	7721	11582	44350	5215	104	2.352	191	2.948	12.4
1320LRB130			7721	11582	44250	5215	104	2.346	214	3.014	13.6
1320LRB140			7721	11582	44150	5215	104	2.341	238	3.085	14.7
1320LRB150			7721	11582	44000	5215	104	2.335	264	3.160	15.9
1320LRB160			7721	11582	44000	5215	104	2.329	291	3.238	17.0
1320LRB170			7721	11582	43800	5215	104	2.323	319	3.321	18.1
1320LRB180			7721	11582	43750	5215	104	2.317	349	3.407	19.3
1320LRB190			7721	11582	43650	5215	104	2.309	380	3.497	20.4
1320LRB200			7721	11582	43450	5215	104	2.302	412	3.590	21.5
1320LRB210			7721	11582	43350	5215	104	2.295	446	3.689	22.5
1320LRB220			7721	11582	43250	5215	104	2.287	481	3.790	23.6
1370LRB120	1370	483	8336	12504	54500	5780	116	2.550	191	3.146	11.7
1370LRB130			8336	12504	54300	5780	116	2.544	214	3.212	12.8
1370LRB140			8336	12504	54300	5780	116	2.539	238	3.283	13.9
1370LRB150			8336	12504	54100	5780	116	2.533	264	3.358	15.0
1370LRB160			8336	12504	54000	5780	116	2.527	291	3.436	16.1
1370LRB170			8336	12504	53850	5780	116	2.521	319	3.519	17.1
1370LRB180			8336	12504	53750	5780	116	2.514	349	3.605	18.2
1370LRB190			8336	12504	53600	5780	116	2.507	380	3.695	19.3
1370LRB200			8336	12504	53400	5780	116	2.500	412	3.788	20.4
1370LRB210			8336	12504	53300	5780	116	2.493	446	3.887	21.4
1370LRB220			8336	12504	53200	5780	116	2.485	481	3.988	22.5
1420LRB120	1420	483	8974	13461	66100	6374	127	2.755	191	3.351	11.0
1420LRB130			8974	13461	65900	6374	127	2.750	214	3.418	12.0
1420LRB140			8974	13461	65750	6374	127	2.745	238	3.489	13.1
1420LRB150			8974	13461	65650	6374	127	2.739	264	3.564	14.2
1420LRB160			8974	13461	65600	6374	127	2.733	291	3.642	15.2
1420LRB170			8974	13461	65400	6374	127	2.726	319	3.724	16.3
1420LRB180			8974	13461	65250	6374	127	2.720	349	3.811	17.3
1420LRB190			8974	13461	65100	6374	127	2.713	380	3.901	18.3
1420LRB200			8974	13461	64900	6374	127	2.706	412	3.994	19.4
1420LRB210			8974	13461	64750	6374	127	2.698	446	4.092	20.4
1420LRB220			8974	13461	64450	6374	127	2.600	481	4.103	21.4
1470LRB120	1470	483	9636	14454	79350	6997	140	2.968	191	3.564	10.3
1470LRB130			9636	14454	79200	6997	140	2.963	214	3.631	11.3
1470LRB140			9636	14454	79100	6997	140	2.957	238	3.701	12.3
1470LRB150			9636	14454	79000	6997	140	2.951	264	3.776	13.4
1470LRB160			9636	14454	78750	6997	140	2.946	291	3.855	14.4
1470LRB170			9636	14454	78600	6997	140	2.939	319	3.937	15.4
1470LRB180			9636	14454	78400	6997	140	2.933	349	4.024	16.4
1470LRB190			9636	14454	78300	6997	140	2.926	380	4.114	17.5
1470LRB200			9636	14454	78000	6997	140	2.918	412	4.206	18.5
1470LRB210			9636	14454	77800	6997	140	2.911	446	4.305	19.5
1470LRB220			9636	14454	77700	6997	140	2.903	481	4.406	20.5
1520LRB120	1520	483	10322	15483	94400	7649	153	3.188	191	3.784	9.8
1520LRB130			10322	15483	94300	7649	153	3.183	214	3.851	10.7
1520LRB140			10322	15483	94150	7649	153	3.177	238	3.921	11.7
1520LRB150			10322	15483	93900	7649	153	3.172	264	3.997	12.7
1520LRB160			10322	15483	93800	7649	153	3.166	291	4.075	13.7
1520LRB170			10322	15483	93600	7649	153	3.159	319	4.157	14.6
1520LRB180			10322	15483	93500	7649	153	3.153	349	4.244	15.7
1520LRB190			10322	15483	93200	7649	153	3.146	380	4.334	16.6
1520LRB200			10322	15483	93000	7649	153	3.138	412	4.426	17.6
1520LRB210			10322	15483	92800	7649	153	3.131	446	4.525	18.6
1520LRB220			10322	15483	92600	7649	153	3.123	481	4.626	19.5

*Design information provided within this table is preliminary only and needs to be checked by Robinson seismic based upon actual design parameters.