

BELLEVILLE SPRING WASHERS

Guide to using tables

Outside Diameter

maximum size of outside diameter. If the spring is to be enclosed hole sizes must be greater than this dimension.

Thickness

of the Spring Section

Overall Height Unloaded

of a single spring washer

Lee Stock Number

ordering reference.

Price Group

reference to the price list

Calculated Load at Flat

load when the spring washer is fully compressed

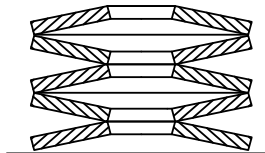
Inside Diameter

minimum size of hole at centre. Mandrel sizes must be less than this dimension.

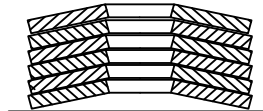
LEE STOCK NUMBER	INSIDE DIAMETER MINIMUM		OUTSIDE DIAMETER MAXIMUM		THICKNESS		OVERALL HEIGHT UNLOADED		CALCULATED LOAD AT FLAT	PRICE GROUP
	MM	IN	MM	IN	MM	IN	MM	IN		
093-005-188	0.063	0.003	4.78	0.188	0.13	0.005	0.36	0.014	25	5.7
093-006-188					0.15	0.006	0.38	0.015	44	9.8
093-007-188					0.18	0.007	0.36	0.014	54	12.1
093-009-188					0.23	0.009	0.36	0.014	82	18.4
093-010-188					0.25	0.010	0.38	0.015	113	25.3
125-002-236	3.18	0.125	5.99	0.236	0.30	0.012	0.46	0.018	154	34.7
125-008-250			6.35	0.250	0.20	0.008	0.41	0.016	52	11.8
125-013-250					0.33	0.013	0.51	0.020	197	44.3
125-012-394			10.01	0.394	0.30	0.012	0.66	0.026	111	24.9
125-016-394					0.41	0.016	0.71	0.028	225	50.6
125-020-394					0.51	0.020	0.76	0.030	396	82.3
138-010-281	3.51	0.138	7.14	0.281	0.25	0.010	0.51	0.020	100	22.6
138-012-281					0.30	0.012	0.48	0.019	121	27.3
138-013-281					0.33	0.013	0.53	0.021	176	39.7
138-015-281					0.38	0.015	0.58	0.023	271	60.9
138-022-437			11.10	0.437	0.56	0.022	0.81	0.032	396	89.1
148-009-281	3.76	0.148	7.14	0.281	0.23	0.009	0.43	0.017	61	13.7
148-011-281					0.28	0.011	0.43	0.017	84	18.8
148-013-281					0.33	0.013	0.48	0.019	138	31
148-015-281					0.38	0.015	0.61	0.024	318	71.4
156-009-312	3.96	0.156	7.92	0.312	0.23	0.009	0.51	0.020	66	14.8
156-010-312					0.25	0.010	0.51	0.020	82	18.5
156-011-312					0.28	0.011	0.56	0.022	121	27.1
156-013-312					0.33	0.013	0.53	0.021	144	32.5
156-015-312					0.38	0.015	0.58	0.023	222	49.9
156-013-281					0.43	0.017	0.64	0.025	316	71
165-013-343	4.19	0.165	8.71	0.343	0.33	0.013	0.61	0.024	161	36.2
165-016-343					0.41	0.016	0.66	0.026	273	61.4
165-018-343					0.46	0.018	0.71	0.028	389	87.4
165-016-394			10.01	0.394	0.41	0.016	0.71	0.028	235	52.9
165-020-394					0.51	0.020	0.76	0.030	383	86.1
165-016-472			11.99	0.472	0.41	0.016	0.79	0.031	198	44.5
165-020-472					0.51	0.020	0.84	0.033	335	75.2
165-024-472					0.61	0.024	0.99	0.039	667	150
187-012-375	4.75	0.187	9.53	0.375	0.30	0.012	0.61	0.024	118	26.5
187-015-375					0.38	0.015	0.64	0.025	192	43.1
187-017-375					0.43	0.017	0.66	0.026	251	56.5
187-020-375					0.51	0.020	0.74	0.029	409	92
187-022-375					0.56	0.022	0.76	0.030	484	108.8
187-025-375					0.64	0.025	0.79	0.031	533	119.7
187-028-375					0.71	0.028	0.84	0.033	624	140.2
187-030-375					0.76	0.030	0.91	0.036	920	206.9
187-020-562			14.27	0.562	0.51	0.020	0.94	0.037	307	69
187-028-562					0.71	0.028	1.07	0.042	694	156
205-010-304			10.01	0.394	0.25	0.010	0.56	0.022	111	24.9
					0.51	0.020	0.76	0.030	396	89.1
					0.51	0.020	0.76	0.030	396	89.1

ADDITIONAL INFORMATION

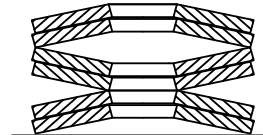
- Our Belleville Spring Washers are manufactured from 300 series stainless steel with passivation finish in accordance with ASTM A967.
- A Belleville Spring Washer is a washer in the form of a cone, having constant material thickness, and used as a compression spring.
- Unlike compression springs Belleville Spring Washers provide exceptionally high loads in restricted spaces.
- Load flexibility can be varied by stacking the washers in various configurations (see below).
- To minimise friction and optimise load ensure stacks of springs are guided over a shaft or in a cylinder.



FIVE IN SERIES



SIX IN PARALLEL



COMBINATION OF PARALLEL AND SERIES

Series

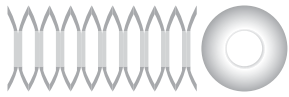
Force is equal to that of a single spring washer.
Deflection amounts to that of a single spring washer multiplied by the number used.

Parallel

Force amounts to that of a single spring washer multiplied by the number of stacked.
Deflection is equal to that of a single spring washer.

Combination

Force is equal to that of a single spring multiplied by the number in each parallel series.
Deflection is equal to a single spring washer multiplied by the number of series.

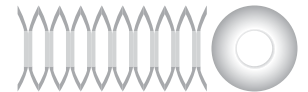


BELLEVILLE SPRING WASHERS

● Manufactured from 300 series stainless steel and passivated to ASTM A967

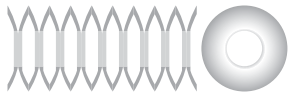
LEE STOCK NUMBER	INSIDE DIAMETER MINIMUM		OUTSIDE DIAMETER MAXIMUM		THICKNESS		OVERALL HEIGHT UNLOADED		CALCULATED LOAD AT FLAT		PRICE GROUP		
	MM	IN	MM	IN	MM	IN	MM	IN	N	LB			
093-005-188	2.36	0.093	4.78	0.188	0.13	0.005	0.36	0.014	25	5.7	W2		
093-006-188					0.15	0.006	0.38	0.015	44	9.8	W2		
093-007-188					0.18	0.007	0.36	0.014	54	12.1	W2		
093-009-188					0.23	0.009	0.36	0.014	82	18.4	W2		
093-010-188					0.25	0.010	0.38	0.015	113	25.3	W2		
125-012-236	3.18	0.125	5.99	0.236	0.30	0.012	0.46	0.018	154	34.7	W1		
125-008-250			6.35	0.250	0.20	0.008	0.41	0.016	52	11.8	W1		
125-013-250					0.33	0.013	0.51	0.020	197	44.3	W2		
125-012-394			10.01	0.394	0.30	0.012	0.66	0.026	111	24.9	W1		
125-016-394					0.41	0.016	0.71	0.028	225	50.6	W2		
125-020-394			0.51	0.020	0.76	0.030	366	82.3	W2				
138-010-281	3.51	0.138	7.14	0.281	0.25	0.010	0.51	0.020	100	22.6	W1		
138-012-281					0.30	0.012	0.48	0.019	121	27.3	W1		
138-013-281					0.33	0.013	0.53	0.021	176	39.7	W1		
138-015-281					0.38	0.015	0.58	0.023	271	60.9	W1		
138-022-437					11.10	0.437	0.56	0.022	0.81	0.032	396	89.1	W3
148-009-281	3.76	0.148	7.14	0.281	0.23	0.009	0.43	0.017	61	13.7	W2		
148-011-281					0.28	0.011	0.43	0.017	84	18.8	W2		
148-013-281					0.33	0.013	0.48	0.019	138	31	W2		
148-015-281					0.38	0.015	0.61	0.024	318	71.4	W1		
156-009-312	3.96	0.156	7.92	0.312	0.23	0.009	0.51	0.020	66	14.8	W1		
156-010-312					0.25	0.010	0.51	0.020	82	18.5	W1		
156-011-312					0.28	0.011	0.56	0.022	121	27.1	W1		
156-013-312					0.33	0.013	0.53	0.021	144	32.5	W2		
156-015-312					0.38	0.015	0.58	0.023	222	49.9	W1		
156-017-312					0.43	0.017	0.64	0.025	316	71	W1		
165-013-343	4.19	0.165	8.71	0.343	0.33	0.013	0.61	0.024	161	36.2	W2		
165-016-343					0.41	0.016	0.66	0.026	273	61.4	W2		
165-018-343					0.46	0.018	0.71	0.028	389	87.4	W3		
165-016-394					10.01	0.394	0.41	0.016	0.71	0.028	235	52.9	W3
165-020-394					0.51	0.020	0.76	0.030	383	86.1	W2		
165-016-472			11.99	0.472	0.41	0.016	0.79	0.031	198	44.5	W2		
165-020-472					0.51	0.020	0.84	0.033	335	75.2	W3		
165-024-472					0.61	0.024	0.99	0.039	667	150	W3		
187-012-375	4.75	0.187	9.53	0.375	0.30	0.012	0.61	0.024	118	26.5	W1		
187-015-375					0.38	0.015	0.64	0.025	192	43.1	W1		
187-017-375					0.43	0.017	0.66	0.026	251	56.5	W1		
187-020-375					0.51	0.020	0.74	0.029	409	92	W1		
187-022-375					0.56	0.022	0.76	0.030	484	108.8	W2		
187-025-375					0.64	0.025	0.79	0.031	533	119.7	W3		
187-028-375					0.71	0.028	0.84	0.033	624	140.2	W2		
187-030-375					0.76	0.030	0.91	0.036	920	206.9	W3		
187-020-562					14.27	0.562	0.51	0.020	0.94	0.037	307	69	W1
187-028-562							0.71	0.028	1.07	0.042	694	156	W3
205-010-394	5.21	0.205	10.01	0.394	0.25	0.010	0.56	0.022	63	14.2	W2		
205-016-394					0.41	0.016	0.71	0.028	259	58.3	W2		
205-020-394					0.51	0.020	0.76	0.030	422	94.9	W3		
205-020-472					11.99	0.472	0.51	0.020	0.89	0.035	405	91.1	W3
205-024-472					0.61	0.024	0.94	0.037	607	136.4	W3		
205-024-591			15.01	0.591	0.61	0.024	1.04	0.041	482	108.3	W3		
218-016-437			5.54	0.218	11.10	0.437	0.41	0.016	0.79	0.031	257	57.8	W2
218-020-437							0.51	0.020	0.81	0.032	402	90.3	W2
218-023-437	0.58	0.023					0.86	0.034	560	125.9	W3		
218-035-687	17.45	0.687					0.89	0.035	1.27	0.050	969	217.7	W3
250-024-472	6.35	0.250	11.99	0.472	0.61	0.024	0.94	0.037	669	150.4	W3		
250-015-500					12.70	0.500	0.38	0.015	0.71	0.028	140	31.6	W2
250-017-500					0.43	0.017	0.74	0.029	189	42.4	W1		
250-018-500					0.46	0.018	0.76	0.030	224	50.4	W1		
250-020-500					0.51	0.020	0.81	0.032	307	69.1	W1		
250-023-500					0.58	0.023	0.91	0.036	506	113.8	W1		
250-024-500					0.61	0.024	0.97	0.038	619	139.3	W2		
250-025-500					0.64	0.025	0.99	0.039	700	157.4	W2		

BELLEVILLE SPRING WASHERS



● Manufactured from 300 series stainless steel and passivated to ASTM A967

LEE STOCK NUMBER	INSIDE DIAMETER MINIMUM		OUTSIDE DIAMETER MAXIMUM		THICKNESS		OVERALL HEIGHT UNLOADED		CALCULATED LOAD AT FLAT		PRICE GROUP		
	MM	IN	MM	IN	MM	IN	MM	IN	N	LB			
250-038-500	6.35	0.250	12.70	0.500	0.97	0.038	1.19	0.047	1581	355.3	W3		
250-042-562			14.27	0.562	1.07	0.042	1.40	0.055	2313	520	W3		
250-020-591			15.01	0.591	0.51	0.020	0.99	0.039	325	73	W3		
250-024-591			0.61	0.024	1.04	0.041	502	112.8	W3				
250-028-591			0.71	0.028	1.09	0.043	703	158.1	W3				
250-032-637			16.18	0.637	0.81	0.032	1.22	0.048	945	212.4	W3		
250-052-687			17.45	0.687	1.32	0.052	1.75	0.069	3652	820.9	W7		
250-025-750			19.05	0.750	0.64	0.025	1.24	0.049	476	106.9	W2		
250-036-750			0.91	0.036	1.37	0.054	1065	239.4	W3				
250-052-750			1.32	0.052	1.65	0.065	2318	521.1	W9				
250-061-812			20.62	0.812	1.55	0.061	2.13	0.084	5619	1263.3	W11		
250-050-875			22.23	0.875	1.27	0.050	1.68	0.066	1851	416.1	W9		
250-075-875			1.91	0.075	2.18	0.086	4295	965.6	W11				
250-070-937			23.80	0.937	1.78	0.070	2.54	0.100	8313	1868.8	W11		
283-014-551			7.19	0.283	14.00	0.551	0.36	0.014	0.79	0.031	125	28.1	W2
283-020-551	0.51	0.020			0.89	0.035	321	72.2	W3				
283-031-551	0.79	0.031			1.09	0.043	957	215.2	W3				
283-050-875	22.23	0.875			1.27	0.050	1.68	0.066	1859	417.9	W9		
283-075-875	1.91	0.075			2.18	0.086	4313	969.7	W11				
312-023-625	7.92	0.312	15.88	0.625	0.58	0.023	0.94	0.037	349	78.4	W4		
312-024-625			0.61	0.024	1.02	0.040	453	101.8	W3				
312-025-625			0.64	0.025	1.07	0.042	544	122.2	W4				
312-028-625			0.71	0.028	1.07	0.042	629	141.4	W4				
312-030-625			0.76	0.030	1.12	0.044	774	173.9	W3				
312-031-625			0.79	0.031	1.22	0.048	1036	233	W3				
312-047-625			1.19	0.047	1.50	0.059	2550	573.2	W6				
312-052-687			17.45	0.687	1.32	0.052	1.73	0.068	3644	819.3	W9		
312-040-875			22.23	0.875	1.02	0.040	1.45	0.057	1022	229.6	W5		
312-030-937			23.80	0.937	0.76	0.030	1.52	0.060	658	147.9	W6		
312-045-937			1.14	0.045	1.70	0.067	1629	366.2	W7				
312-070-937			1.78	0.070	2.39	0.094	6688	1503.5	W13				
312-080-1000			25.40	1.000	2.03	0.080	2.82	0.111	11271	2533.9	W14		
323-020-709			8.20	0.323	18.01	0.709	0.51	0.020	1.09	0.043	280	63	W3
323-028-709					0.71	0.028	1.24	0.049	702	157.8	W3		
323-031-709	0.79	0.031			1.30	0.051	907	204	W4				
323-039-709	0.99	0.039			1.40	0.055	1445	324.9	W6				
323-028-787	19.99	0.787			0.71	0.028	1.35	0.053	655	147.3	W3		
323-035-787	0.89	0.035			1.45	0.057	1126	253.1	W4				
323-028-906	23.01	0.906			0.71	0.028	1.50	0.059	596	134	W4		
323-035-906	0.89	0.035			1.60	0.063	1051	236.3	W4				
344-090-1000	8.74	0.344			25.40	1.000	2.29	0.090	2.59	0.102	6260	1407.4	W19
344-062-1125	28.58	1.125			1.57	0.062	2.11	0.083	2806	630.8	W12		
375-025-750	9.53	0.375	19.05	0.750	0.64	0.025	1.02	0.040	333	75	W4		
375-028-750			0.71	0.028	1.07	0.042	437	98.3	W3				
375-030-750			0.76	0.030	1.12	0.044	538	120.9	W3				
375-032-750			0.81	0.032	1.17	0.046	653	146.7	W4				
375-035-750			0.89	0.035	1.40	0.055	1220	274.2	W3				
375-038-750			0.97	0.038	1.22	0.048	781	175.5	W4				
375-040-750			1.02	0.040	1.50	0.059	1730	388.9	W4				
375-042-750			1.07	0.042	1.32	0.052	1054	236.9	W5				
375-044-750			1.12	0.044	1.37	0.054	1212	272.4	W5				
375-057-750			1.45	0.057	1.78	0.070	3425	769.9	W8				
375-062-750			1.57	0.062	1.98	0.078	5424	1219.4	W8				
375-076-750			1.93	0.076	2.74	0.108	19982	4492.1	W13				
375-047-950			24.13	0.950	1.19	0.047	1.73	0.068	1769	397.7	W8		
375-042-970			24.64	0.970	1.07	0.042	1.45	0.057	861	193.6	W6		
375-080-1000			25.40	1.000	2.03	0.080	2.77	0.109	10759	2418.8	W14		
375-053-1125			28.58	1.125	1.35	0.053	2.03	0.080	2265	509.3	W11		
375-078-1125			1.98	0.078	2.46	0.097	5082	1142.5	W14				
375-089-1188			30.18	1.188	2.26	0.089	3.07	0.121	11358	2553.3	W18		
406-062-875			10.31	0.406	22.23	0.875	1.57	0.062	1.88	0.074	2881	647.7	W11
406-089-875					2.26	0.089	2.54	0.100	7812	1756.3	W18		

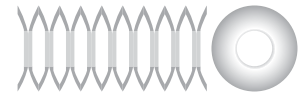


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	MM	IN	MM	IN	MM	IN	MM	IN	N	LB			
406-109-875	10.31	0.406	22.23	0.875	2.77	0.109	3.15	0.124	19570	4399.6	W22		
406-062-1000			25.40	1.000	1.57	0.062	2.34	0.092	5272	1185.1	W12		
406-105-1000			26.7	1.05	2.67	0.105	3.00	0.118	11095	2494.3	W22		
406-098-1188			30.18	1.188	2.49	0.098	3.02	0.119	10015	2251.4	W21		
406-105-1188			26.7	1.05	2.67	0.105	3.18	0.125	11731	2637.3	W22		
406-074-1250			31.75	1.250	1.88	0.074	2.49	0.098	4431	996.1	W14		
437-025-875	11.10	0.437	22.23	0.875	0.64	0.025	1.32	0.052	441	99.1	W5		
437-028-875			0.71	0.028	1.42	0.056	642	144.3	W4				
437-031-875			0.79	0.031	1.50	0.059	871	195.9	W4				
437-035-875			0.89	0.035	1.47	0.058	1030	231.5	W6				
437-038-875			0.97	0.038	1.50	0.059	1203	270.6	W5				
437-040-875			1.02	0.040	1.52	0.060	1337	300.5	W6				
437-042-875			1.07	0.042	1.57	0.062	1548	347.9	W5				
437-059-875			1.50	0.059	2.11	0.083	5148	1157.3	W10				
437-035-1000			25.40	1.000	0.89	0.035	1.70	0.067	1034	232.5	W4		
437-040-1000					1.02	0.040	1.80	0.071	1495	336.2	W5		
437-050-1000					1.27	0.050	2.16	0.085	3297	741.3	W9		
437-080-1000					2.03	0.080	2.69	0.106	10033	2255.6	W14		
480-049-906			12.19	0.480	23.01	0.906	1.24	0.049	1.85	0.073	2852	641.2	W8
480-028-984					24.99	0.984	0.71	0.028	1.60	0.063	627	140.9	W4
480-049-984	1.24	0.049			1.96	0.077	2687	604	W9				
480-059-1240	31.50	1.240			1.50	0.059	2.36	0.093	3311	744.4	W12		
500-042-830	12.70	0.500	21.08	0.830	1.07	0.042	1.70	0.067	2488	559.3	W5		
500-089-928			23.57	0.928	2.26	0.089	2.72	0.107	12363	2779.3	W18		
500-030-1000			25.40	1.000	0.76	0.030	1.24	0.049	410	92.3	W4		
500-033-1000					0.84	0.033	1.32	0.052	546	122.8	W3		
500-035-1000					0.89	0.035	1.45	0.057	755	169.7	W4		
500-038-1000					0.97	0.038	1.47	0.058	878	197.4	W9		
500-042-1000			1.07	0.042	1.52	0.060	1067	239.9	W9				
500-045-1000			1.14	0.045	1.55	0.061	1167	262.3	W8				
500-050-1000			1.27	0.050	1.91	0.075	2500	562.1	W9				
500-073-1000			1.85	0.073	2.31	0.091	5603	1259.6	W13				
500-080-1000			2.03	0.080	2.62	0.103	9422	2118.3	W14				
500-100-1063			27.00	1.063	2.54	0.100	2.95	0.116	10988	2470.1	W19		
500-039-1100			27.94	1.100	0.99	0.039	1.88	0.074	1312	295	W6		
500-049-1100					1.24	0.049	2.11	0.083	2528	568.4	W9		
500-059-1100					1.50	0.059	2.21	0.087	3635	817.1	W12		
500-062-1125					28.58	1.125	1.57	0.062	2.11	0.083	2999	674.1	W12
500-125-1125			3.18	0.125			3.68	0.145	23403	5261.1	W25		
500-060-1262			32.05	1.262	1.52	0.060	2.31	0.091	3081	692.7	W12		
500-098-1312			33.32	1.312	2.49	0.098	3.33	0.131	13115	2948.3	W22		
500-104-1312					2.64	0.104	3.66	0.144	18999	4271.1	W22		
500-112-1312					2.84	0.112	3.58	0.141	17203	3867.5	W22		
500-030-1375			34.93	1.375	0.76	0.030	1.68	0.066	371	83.3	W6		
500-032-1375					0.81	0.032	1.78	0.070	475	106.7	W6		
500-038-1375					0.97	0.038	2.08	0.082	921	207	W14		
500-045-1375					1.14	0.045	2.41	0.095	1737	390.6	W14		
500-087-1375			2.21	0.087	3.12	0.123	9039	2032.1	W16				
500-047-1500			38.10	1.500	1.19	0.047	2.36	0.093	1514	340.4	W13		
500-070-1500	1.78	0.070			2.64	0.104	3697	831.2	W13				
500-080-1500	2.03	0.080			2.49	0.098	2922	656.9	W18				
500-102-1500	2.59	0.102			3.25	0.128	8748	1966.6	W21				
500-140-1625	41.28	1.625	3.56	0.140	4.27	0.168	20650	4642.2	W32				
531-062-1000	13.49	0.531	25.40	1.000	1.57	0.062	2.16	0.085	4552	1023.4	W12		
531-090-1063			27.00	1.063	2.29	0.090	2.69	0.106	8255	1855.8	W19		
531-062-1125			28.58	1.125	1.57	0.062	2.11	0.083	3073	690.9	W12		
531-074-1218			30.94	1.218	1.88	0.074	2.64	0.104	6171	1387.3	W14		
531-062-1250			31.75	1.250	1.57	0.062	2.34	0.092	3417	768.2	W12		
531-078-1250					1.98	0.078	2.62	0.103	5670	1274.7	W14		
531-090-1250			2.29	0.090	2.90	0.114	8362	1879.8	W19				
531-125-1250			3.18	0.125	3.63	0.143	16802	3777.3	W25				
531-100-1375			34.93	1.375	2.54	0.100	3.05	0.120	7709	1733.1	W21		

BELLEVILLE SPRING WASHERS



● Manufactured from 300 series stainless steel and passivated to ASTM A967

LEE STOCK NUMBER	INSIDE DIAMETER MINIMUM		OUTSIDE DIAMETER MAXIMUM		THICKNESS		OVERALL HEIGHT UNLOADED		CALCULATED LOAD AT FLAT		PRICE GROUP		
	MM	IN	MM	IN	MM	IN	MM	IN	N	LB			
531-095-1500	13.49	0.531	38.10	1.500	2.41	0.095	3.18	0.125	8210	1845.6	W20		
562-038-1125	14.27	0.562	28.58	1.125	0.97	0.038	1.85	0.073	1214	272.8	W5		
562-057-1125						1.45	0.057	2.13	0.084	3160	710.3	W11	
562-105-1625					41.28	1.625	2.67	0.105	3.43	0.135	9417	2117.1	W23
593-089-1188	15.06	0.593	30.18	1.188	2.26	0.089	2.92	0.115	10382	2333.9	W18		
625-050-1125	15.88	0.625	28.58	1.125	1.27	0.050	1.73	0.068	1527	343.2	W10		
625-040-1250			31.75	1.250	1.02	0.040	2.08	0.082	1377	309.5	W6		
625-062-1250						1.57	0.062	2.34	0.092	3661	823.1	W12	
625-089-1250						2.26	0.089	2.82	0.111	7942	1785.5	W19	
625-050-1375					34.93	1.375	1.27	0.050	2.41	0.095	2275	511.5	W11
625-062-1375							1.57	0.062	2.79	0.110	4628	1040.3	W12
625-078-1375							1.98	0.078	2.54	0.100	4223	949.4	W14
625-112-1500					38.10	1.500	2.84	0.112	3.76	0.148	16690	3752.1	W25
625-062-1625					41.28	1.625	1.57	0.062	2.13	0.084	1446	325	W13
625-140-1625							3.56	0.140	4.27	0.168	21186	4762.9	W32
625-057-1875					47.63	1.875	1.45	0.057	2.92	0.115	2180	490	W13
625-086-1875							2.18	0.086	3.28	0.129	5550	1247.6	W20
625-127-1875							3.23	0.127	4.01	0.158	12885	2896.6	W29
656-098-1312			16.66	0.656	33.32	1.312	2.49	0.098	3.20	0.126	12250	2753.9	W22
656-085-1625					41.28	1.625	2.16	0.085	2.67	0.105	3424	769.8	W19
656-140-1750	44.45	1.750			3.56	0.140	4.65	0.183	27917	6275.9	W32		
656-150-2000	50.80	2.000			3.81	0.150	5.23	0.206	33661	7567.2	W33		
692-156-1250	17.58	0.692			31.75	1.250	3.96	0.156	4.39	0.173	35371	7951.8	W33
692-044-1375			34.93	1.375	1.12	0.044	2.24	0.088	1592	357.9	W11		
692-067-1375						1.70	0.067	2.57	0.101	4344	976.5	W13	
692-140-1375						3.56	0.140	4.83	0.190	58279	13101.7	W32	
692-125-2000					50.80	2.000	3.18	0.125	4.09	0.161	12588	2829.8	W28
692-187-2375					60.33	2.375	4.75	0.187	5.77	0.227	32864	7388.1	W39
750-040-1500			19.05	0.750	38.10	1.500	1.02	0.040	1.73	0.068	637	143.3	W13
750-045-1500						1.14	0.045	2.36	0.093	1555	349.7	W13	
750-060-1500						1.52	0.060	2.72	0.107	3610	811.6	W14	
750-072-1500						1.83	0.072	2.77	0.109	4911	1104.1	W18	
750-107-1500						2.72	0.107	3.40	0.134	11762	2644.3	W23	
750-125-1500						3.18	0.125	4.06	0.160	24310	5465.1	W27	
750-150-2000					50.80	2.000	3.81	0.150	5.16	0.203	32404	7284.8	W35
750-068-2250					57.15	2.250	1.73	0.068	3.48	0.137	3057	687.3	W18
750-150-2250							3.81	0.150	4.78	0.188	18072	4062.7	W35
875-057-1750	22.23	0.875			44.45	1.750	1.45	0.057	2.90	0.114	2758	620	W13
875-085-1750						2.16	0.085	3.25	0.128	6900	1551.1	W21	
875-131-1750						3.33	0.131	4.24	0.167	21145	4753.6	W30	
875-150-2000					50.80	2.000	3.81	0.150	5.03	0.198	30537	6865	W35
1000-049-1969			25.40	1.000	50.01	1.969	1.24	0.049	2.84	0.112	1544	347	W14
1000-059-1969						1.50	0.059	3.10	0.122	2694	605.7	W14	
1000-065-2000					50.80	2.000	1.65	0.065	3.30	0.130	3571	802.7	W14
1000-078-2000							1.98	0.078	3.51	0.138	5696	1280.4	W18
1000-097-2000							2.46	0.097	3.68	0.145	8763	1970.1	W25
1000-078-2375					60.33	2.375	1.98	0.078	3.99	0.157	4950	1112.8	W20
1016-118-2000	25.81	1.016			50.80	2.000	3.00	0.118	4.19	0.165	15588	3504.4	W30
1016-090-3000			76.20	3.000	2.29	0.090	4.57	0.180	5208	1170.9	W30		
1063-219-3500	27.00	1.063	88.90	3.500	5.56	0.219	7.14	0.281	37709	8477.4	W40		
1125-059-2250	28.58	1.125	57.15	2.250	1.50	0.059	3.45	0.136	2499	561.9	W19		
1125-073-2250						1.85	0.073	3.76	0.148	4611	1036.7	W20	
1130-206-2750	28.70	1.130	69.85	2.750	5.23	0.206	6.91	0.272	56427	12685.3	W39		
1250-219-2250	31.75	1.250	57.15	2.250	5.56	0.219	6.40	0.252	58796	13217.9	W39		
1250-080-2500			63.50	2.500	2.03	0.080	4.06	0.160	5244	1178.9	W35		
1255-187-2500	31.88	1.255	63.50	2.500	4.75	0.187	6.12	0.241	45309	10185.8	W39		
1255-168-3750			95.25	3.750	4.27	0.168	6.38	0.251	19972	4489.8	W39		
1406-132-2750	35.71	1.406	69.85	2.750	3.35	0.132	4.98	0.196	15777	3546.7	W37		
1755-133-3000	44.58	1.755	76.20	3.000	3.38	0.133	5.66	0.223	21136	4751.6	W38		
2063-125-3375	52.40	2.063	85.73	3.375	3.18	0.125	5.16	0.203	12572	2826.3	W38		