



# ES Performance Specifications

### Features and Benefits

- Durable 20 year design life @ 77°F (25°C) ambient temperature
- Low Calcium alloy grids designed for lower water loss, lower maintenance costs
- Individual single cell construction
- Standard cover made of flame retardant UL94 V0 Poly Carbonate (PC)
- Standard container made of non-flame retardant Styrene Acrylonitril (SAN)
- Container made of flame retardant UL94 V0 PC
- Capacity ranges:  
ES 1.215 SG: 0.378 to 3.092 kW per cell to 1.67 vpc @ 15 minute rate  
ES 1.250 SG: 0.417 to 3.463 kW per cell to 1.67 vpc @ 15 minute rate
- 100% initial battery capacity

### Construction

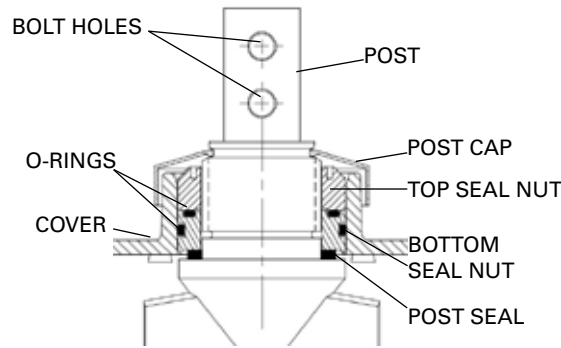
- Specific Gravity (SG): 1.215 SG Standard, 1.250 SG optional
- Plate thickness: Positive 0.19" (4.85mm), Negative 0.13" (3.55mm)
- Container: Standard SAN jar with LOI 18%, optional PC with LOI >28%
- PC cover
- Separator: microporous plastic
- Electrolyte over plates: 2.1" (53.3mm)
- Vent Type: Flame arrestor, fused alumina type
- Post Type: ES-5 to ES-21 One Positive and negative post per cell; ES-23 to ES-37 Two positive and negative posts per cell
- Post Seal: Slide-Lock™

### Installation and Operation

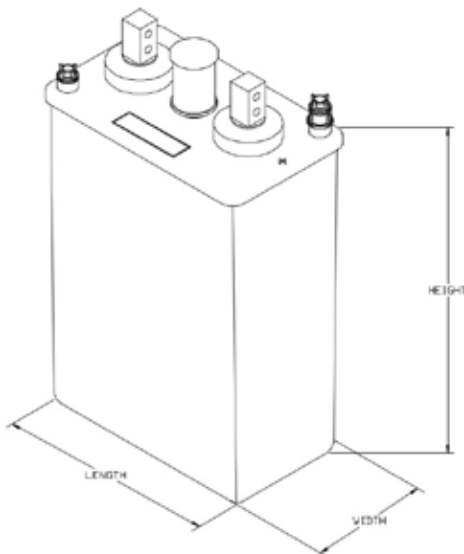
- Normal operating temperature range: 68°F (20°C) to 86°F (30°C); Allowable operating temperature range: 32°F (0°C) to 104°F (40°C)
- Float charging voltage:  
1.215 SG Range- 2.17 to 2.26 vpc, recommended 2.21vpc @ 77°F (25°C);  
1.250 (B) SG- 2.25 to 2.30 vpc, recommended 2.26vpc @ 77°F (25°C)
- Bolt Connections: stainless steel standard 1/4-20 with 7/16 hex head wrench required
- Torque specifications:  
70 to 75 in-lbs (8.0 to 8.5 Nm) ± 5%;  
Retorque: 60 to 65 in-lbs (7.0 to 7.5 Nm) ± 5%
- Withdrawal tube: one per cell

### Standards

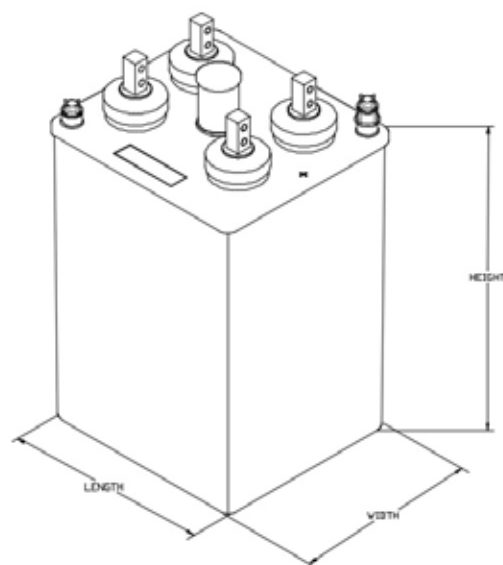
- Manufactured to EnerSys® standards in ISO 9001:2008 registered production facilities worldwide



### Exclusive Slide-Lock Post Seal™



**ES-5 to ES-21**



**ES-23 to ES-37**

### General Specifications 1.250 Specific Gravity

Battery Type	Nominal Capacity <sup>1</sup>	Nominal Dimensions						Weights - Volumes								Internal Resistance	Short Circuit Current
		Length**		Width		Height		Unpacked		Packed		Electrolyte Only /1.250SG					
		in	mm	in	mm	in	mm	lbs	kg	lbs	kg	lbs	kg	gal	L		
ES-5B	155	5.10	130	11.06	274	18.7	475	58.4	26.5	57.7	26.2	25.0	11.4	2.40	9.08	650	3133
ES-7B	220	5.10	130	11.06	274	18.7	475	64.4	29.2	63.7	28.9	23.5	10.6	2.25	8.52	469	4335
ES-9B	285	5.10	130	11.06	274	18.7	475	71.2	32.3	70.6	32.1	21.9	9.93	2.10	7.95	368	5525
ES-11B	350	5.10	130	11.06	274	18.7	475	77.2	35.0	76.6	34.8	20.3	9.22	1.95	7.38	303	6705
ES-13B	410	5.10	130	11.06	274	18.7	475	84.1	38.2	83.6	37.9	19.3	8.75	1.85	7.00	258	7878
ES-15B	515	6.60	168	11.06	274	18.7	475	103	46.6	101.9	46.2	27.1	12.3	2.60	9.8	225	9045
ES-17B	580	6.60	168	11.06	274	18.7	475	110	49.7	108.8	49.4	26.1	11.8	2.50	9.5	199	10206
ES-19B	640	6.60	168	11.06	274	18.7	475	117	52.8	115.8	52.6	25.0	11.4	2.40	9.1	179	11362
ES-21B	715	6.60	168	11.06	274	18.7	475	124	56.4	123.8	56.2	24.0	10.9	2.30	8.7	163	12514
ES-23B	770	8.10	206	11.06	274	18.7	475	149	67.5	148.0	67.2	32.3	14.7	3.10	11.7	149	13662
ES-25B	815	8.10	206	11.06	274	18.7	475	155	70.2	154.0	70.0	31.3	14.2	3.00	11.4	137	14807
ES-27B	870	8.10	206	11.06	274	18.7	475	162	73.4	161.0	73.0	30.2	13.7	2.90	11.0	128	15949
ES-29B	965	10.10	257	11.06	274	18.7	475	183	83.2	182.3	82.8	40.7	18.4	3.90	14.8	119	17087
ES-31B	1005	10.10	257	11.06	274	18.7	475	190	86.4	189.3	86.0	39.6	18.0	3.80	14.4	112	18223
ES-33B	1045	10.10	257	11.06	274	18.7	475	198	90.0	197.3	89.6	38.6	17.5	3.70	14.0	105	19357
ES-35B	1085	10.10	257	11.06	274	18.7	475	204	92.7	203.3	92.3	37.5	17.0	3.60	13.6	99	20487
ES-37B	1135	10.10	257	11.06	274	18.7	475	211	95.8	210.2	95.5	36.5	16.6	3.50	13.2	94	21616

### General Specifications 1.215 Specific Gravity

Battery Type	Nominal Capacity <sup>1</sup>	Nominal Dimensions						Weights - Volumes								Internal Resistance	Short Circuit Current
		Length**		Width		Height		Unpacked		Packed		Electrolyte Only /1.215SG					
		in	mm	in	mm	in	mm	lbs	kg	lbs	kg	lbs	kg	gal	L		
ES-5	140	5.10	130	11.06	274	18.7	475	55	24.9	57	25.9	24.4	11.1	2.40	9.08	650	3079
ES-7	200	5.10	130	11.06	274	18.7	475	61	27.7	63	28.6	22.9	10.4	2.25	8.52	469	4260
ES-9	260	5.10	130	11.06	274	18.7	475	68	30.8	70	31.8	21.3	9.68	2.10	7.95	368	5430
ES-11	315	5.10	130	11.06	274	18.7	475	75	34.0	76	34.5	19.8	8.99	1.95	7.38	303	6590
ES-13	375	5.10	130	11.06	274	18.7	475	82	37.2	83	37.6	18.8	8.53	1.85	7.00	258	7743
ES-15	470	6.60	168	11.06	274	18.7	475	98	44.4	101	45.8	26.4	12.0	2.60	9.84	225	8889
ES-17	525	6.60	168	11.06	274	18.7	475	105	47.6	108	49.0	25.4	11.5	2.50	9.46	199	10030
ES-19	580	6.60	168	11.06	274	18.7	475	112	50.8	115	52.2	24.4	11.1	2.40	9.08	179	11167
ES-21	650	6.60	168	11.06	274	18.7	475	119	54.0	123	55.8	23.4	10.6	2.30	8.71	163	12299
ES-23	700	8.10	206	11.06	274	18.7	475	143	64.9	147	66.7	31.5	14.3	3.10	11.7	149	13428
ES-25	740	8.10	206	11.06	274	18.7	475	149	67.6	153	69.5	30.5	13.8	3.00	11.4	137	14553
ES-27	790	8.10	206	11.06	274	18.7	475	155	70.3	160	72.6	29.5	13.4	2.90	11.0	128	15675
ES-29	880	10.10	257	11.06	274	18.7	475	176	79.8	181	82.3	39.6	18.0	3.90	14.8	119	16794
ES-31	915	10.10	257	11.06	274	18.7	475	183	83.0	188	85.4	38.6	17.5	3.80	14.4	112	17910
ES-33	950	10.10	257	11.06	274	18.7	475	190	86.2	196	89.0	37.6	17.1	3.70	14.0	105	19024
ES-35	985	10.10	257	11.06	274	18.7	475	196	88.9	202	91.7	36.6	16.6	3.60	13.6	99	20135
ES-37	1030	10.10	257	11.06	274	18.7	475	203	92.1	209	94.9	35.6	16.1	3.50	13.2	94	21244

\*Nominal Amp hour capacity at the 8 hr rate for 1.215 SG to 1.75 Vpc

\*\* 0.25" must be added between cells for spacing purposes when calculating total battery length

<sup>1</sup> Nominal Amp hour capacity at the 8 hr rate for 1.250 SG

## Constant Power Discharge Performance Data

### 1.250 Specific Gravity Discharge Rates (kW per cell\*) to 1.75Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5B	0.552	0.527	0.506	0.486	0.468	0.452	0.437	0.423	0.410	0.398	0.387	0.340	0.304	0.275	0.218	0.183	0.142	0.118	0.089
ES-7B	0.810	0.774	0.743	0.715	0.690	0.666	0.644	0.623	0.604	0.587	0.570	0.501	0.448	0.405	0.320	0.269	0.208	0.172	0.130
ES-9B	1.044	1.001	0.962	0.927	0.894	0.865	0.836	0.810	0.785	0.762	0.740	0.650	0.581	0.526	0.414	0.347	0.266	0.220	0.166
ES-11B	1.270	1.220	1.174	1.132	1.093	1.056	1.022	0.989	0.959	0.931	0.904	0.794	0.709	0.641	0.504	0.421	0.322	0.265	0.198
ES-13B	1.484	1.428	1.376	1.328	1.284	1.239	1.198	1.160	1.124	1.091	1.059	0.931	0.830	0.751	0.589	0.490	0.372	0.307	0.228
ES-15B	1.709	1.649	1.593	1.542	1.491	1.447	1.404	1.364	1.327	1.292	1.258	1.117	1.004	0.915	0.726	0.610	0.468	0.386	0.287
ES-17B	1.944	1.877	1.814	1.755	1.698	1.647	1.598	1.552	1.509	1.468	1.430	1.269	1.142	1.040	0.825	0.690	0.527	0.432	0.319
ES-19B	2.179	2.105	2.037	1.969	1.905	1.846	1.792	1.740	1.691	1.645	1.603	1.422	1.279	1.166	0.924	0.771	0.586	0.479	0.352
ES-21B	2.415	2.334	2.259	2.183	2.112	2.045	1.986	1.927	1.873	1.822	1.775	1.576	1.417	1.291	1.023	0.852	0.645	0.525	0.384
ES-23B	2.766	2.662	2.563	2.478	2.396	2.319	2.246	2.180	2.117	2.059	2.002	1.768	1.585	1.439	1.134	0.948	0.723	0.591	0.434
ES-25B	2.988	2.879	2.779	2.688	2.598	2.512	2.432	2.357	2.287	2.222	2.162	1.909	1.710	1.554	1.225	1.021	0.775	0.633	0.464
ES-27B	3.216	3.102	2.998	2.900	2.802	2.707	2.620	2.537	2.460	2.390	2.325	2.052	1.838	1.671	1.318	1.095	0.829	0.676	0.495
ES-29B	3.436	3.305	3.186	3.081	2.975	2.879	2.790	2.707	2.627	2.553	2.484	2.190	1.960	1.778	1.395	1.164	0.887	0.725	0.533
ES-31B	3.636	3.501	3.377	3.268	3.156	3.054	2.960	2.871	2.788	2.708	2.635	2.326	2.082	1.890	1.485	1.236	0.938	0.765	0.561
ES-33B	3.834	3.697	3.569	3.450	3.333	3.225	3.126	3.032	2.944	2.861	2.784	2.460	2.203	2.001	1.573	1.307	0.988	0.804	0.587
ES-35B	4.043	3.901	3.770	3.641	3.517	3.404	3.299	3.201	3.107	3.021	2.940	2.599	2.328	2.115	1.664	1.381	1.041	0.845	0.615
ES-37B	4.246	4.099	3.965	3.823	3.695	3.575	3.466	3.363	3.263	3.174	3.091	2.733	2.450	2.226	1.752	1.452	1.091	0.884	0.642

### 1.250 Specific Gravity Discharge Rates (kW per cell\*) to 1.70Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5B	0.608	0.578	0.550	0.527	0.505	0.486	0.468	0.452	0.436	0.422	0.409	0.354	0.315	0.283	0.221	0.184	0.142	0.118	0.089
ES-7B	0.891	0.848	0.810	0.776	0.746	0.718	0.692	0.668	0.645	0.624	0.605	0.524	0.465	0.418	0.326	0.271	0.208	0.172	0.130
ES-9B	1.150	1.097	1.051	1.009	0.970	0.935	0.902	0.871	0.842	0.815	0.790	0.683	0.606	0.544	0.423	0.350	0.267	0.220	0.166
ES-11B	1.399	1.339	1.284	1.234	1.187	1.145	1.106	1.068	1.033	1.000	0.969	0.838	0.742	0.666	0.516	0.426	0.323	0.265	0.198
ES-13B	1.640	1.570	1.507	1.450	1.396	1.347	1.301	1.258	1.216	1.177	1.140	0.986	0.872	0.782	0.605	0.498	0.374	0.307	0.228
ES-15B	1.891	1.815	1.746	1.683	1.625	1.572	1.522	1.475	1.431	1.390	1.350	1.185	1.058	0.955	0.749	0.623	0.475	0.388	0.287
ES-17B	2.144	2.061	1.984	1.914	1.850	1.790	1.734	1.681	1.631	1.583	1.538	1.349	1.205	1.088	0.852	0.707	0.535	0.435	0.319
ES-19B	2.401	2.308	2.223	2.147	2.075	2.010	1.948	1.887	1.830	1.776	1.725	1.514	1.352	1.221	0.956	0.791	0.595	0.482	0.352
ES-21B	2.658	2.554	2.462	2.380	2.301	2.229	2.162	2.092	2.029	1.969	1.912	1.678	1.498	1.353	1.059	0.875	0.655	0.529	0.384
ES-23B	3.028	2.902	2.787	2.683	2.590	2.502	2.422	2.347	2.274	2.206	2.141	1.872	1.666	1.501	1.170	0.969	0.729	0.592	0.434
ES-25B	3.272	3.137	3.018	2.909	2.811	2.720	2.633	2.551	2.469	2.393	2.322	2.026	1.802	1.623	1.265	1.045	0.783	0.635	0.464
ES-27B	3.521	3.378	3.254	3.139	3.034	2.938	2.846	2.754	2.666	2.581	2.503	2.181	1.940	1.746	1.362	1.123	0.839	0.679	0.495
ES-29B	3.790	3.630	3.484	3.354	3.234	3.125	3.022	2.926	2.834	2.748	2.668	2.327	2.065	1.857	1.441	1.191	0.895	0.727	0.533
ES-31B	4.014	3.844	3.695	3.560	3.436	3.322	3.215	3.113	3.014	2.923	2.837	2.476	2.199	1.978	1.536	1.267	0.948	0.768	0.561
ES-33B	4.228	4.058	3.905	3.764	3.636	3.517	3.407	3.296	3.192	3.094	3.003	2.623	2.332	2.098	1.629	1.342	1.000	0.807	0.587
ES-35B	4.457	4.283	4.123	3.976	3.843	3.719	3.602	3.484	3.375	3.271	3.175	2.775	2.468	2.221	1.725	1.419	1.054	0.849	0.615
ES-37B	4.681	4.501	4.335	4.183	4.047	3.917	3.791	3.667	3.552	3.443	3.341	2.922	2.600	2.341	1.819	1.494	1.107	0.888	0.642

\*kW values listed represent 100% of the initial capacity.

\*\* At 77°F (25°C) includes intercell connector drop.

## Constant Power Discharge Performance Data Continued

### 1.250 Specific Gravity Discharge Rates (kW per cell\*) to 1.67Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5B	0.636	0.602	0.572	0.545	0.521	0.500	0.481	0.464	0.447	0.432	0.417	0.360	0.318	0.285	0.221	0.184	0.142	0.118	0.089
ES-7B	0.933	0.885	0.843	0.805	0.771	0.741	0.713	0.687	0.663	0.640	0.619	0.533	0.470	0.421	0.326	0.271	0.208	0.172	0.130
ES-9B	1.203	1.146	1.095	1.049	1.006	0.967	0.931	0.898	0.867	0.838	0.810	0.696	0.614	0.549	0.423	0.350	0.267	0.220	0.166
ES-11B	1.466	1.400	1.340	1.284	1.234	1.187	1.144	1.104	1.066	1.031	0.997	0.856	0.754	0.674	0.518	0.426	0.323	0.265	0.198
ES-13B	1.718	1.643	1.574	1.511	1.453	1.399	1.349	1.302	1.258	1.216	1.176	1.008	0.888	0.793	0.608	0.498	0.374	0.307	0.228
ES-15B	1.979	1.895	1.821	1.751	1.687	1.628	1.575	1.525	1.478	1.432	1.390	1.212	1.078	0.970	0.756	0.626	0.475	0.388	0.287
ES-17B	2.242	2.151	2.067	1.990	1.920	1.855	1.795	1.739	1.686	1.634	1.586	1.382	1.229	1.106	0.861	0.710	0.535	0.435	0.319
ES-19B	2.508	2.409	2.315	2.231	2.154	2.082	2.016	1.953	1.894	1.835	1.781	1.551	1.380	1.242	0.966	0.795	0.595	0.482	0.352
ES-21B	2.774	2.667	2.564	2.472	2.388	2.310	2.237	2.168	2.102	2.036	1.976	1.721	1.531	1.378	1.071	0.879	0.655	0.529	0.384
ES-23B	3.153	3.017	2.893	2.783	2.680	2.586	2.500	2.419	2.345	2.272	2.203	1.914	1.698	1.525	1.181	0.970	0.729	0.592	0.434
ES-25B	3.402	3.264	3.136	3.017	2.909	2.810	2.718	2.632	2.551	2.471	2.393	2.074	1.837	1.650	1.277	1.047	0.783	0.635	0.464
ES-27B	3.660	3.516	3.380	3.255	3.140	3.036	2.938	2.845	2.759	2.670	2.585	2.236	1.980	1.777	1.375	1.125	0.839	0.679	0.495
ES-29B	3.958	3.786	3.632	3.488	3.357	3.238	3.129	3.025	2.929	2.838	2.750	2.380	2.104	1.886	1.454	1.192	0.895	0.727	0.533
ES-31B	4.190	4.014	3.854	3.705	3.569	3.444	3.329	3.222	3.121	3.023	2.929	2.537	2.244	2.012	1.551	1.269	0.948	0.768	0.561
ES-33B	4.422	4.242	4.073	3.920	3.778	3.649	3.528	3.416	3.309	3.204	3.106	2.692	2.383	2.136	1.647	1.345	1.000	0.807	0.587
ES-35B	4.667	4.478	4.301	4.142	3.994	3.860	3.733	3.615	3.501	3.391	3.286	2.851	2.524	2.263	1.744	1.423	1.054	0.849	0.615
ES-37B	4.906	4.707	4.524	4.359	4.205	4.066	3.934	3.811	3.689	3.573	3.463	3.005	2.662	2.388	1.841	1.499	1.107	0.888	0.642

### 1.250 Specific Gravity Discharge Rates (kW per cell\*) to 1.65Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5B	0.652	0.616	0.584	0.556	0.530	0.508	0.488	0.470	0.452	0.436	0.422	0.362	0.318	0.285	0.221	0.184	0.142	0.118	0.089
ES-7B	0.957	0.907	0.862	0.822	0.785	0.753	0.724	0.697	0.671	0.648	0.626	0.537	0.472	0.422	0.326	0.271	0.208	0.172	0.130
ES-9B	1.237	1.176	1.121	1.071	1.026	0.985	0.947	0.912	0.880	0.850	0.821	0.703	0.617	0.551	0.423	0.350	0.267	0.220	0.166
ES-11B	1.507	1.436	1.372	1.314	1.260	1.211	1.166	1.123	1.084	1.047	1.012	0.865	0.759	0.677	0.518	0.426	0.323	0.265	0.198
ES-13B	1.765	1.686	1.615	1.547	1.486	1.428	1.376	1.326	1.280	1.237	1.196	1.020	0.895	0.798	0.608	0.498	0.374	0.307	0.228
ES-15B	2.031	1.942	1.862	1.788	1.722	1.661	1.604	1.551	1.501	1.454	1.411	1.226	1.087	0.976	0.758	0.626	0.475	0.388	0.287
ES-17B	2.298	2.202	2.115	2.034	1.960	1.892	1.828	1.769	1.714	1.661	1.611	1.398	1.240	1.114	0.863	0.710	0.535	0.435	0.319
ES-19B	2.569	2.465	2.370	2.280	2.198	2.124	2.054	1.988	1.927	1.868	1.811	1.571	1.393	1.252	0.969	0.795	0.595	0.482	0.352
ES-21B	2.841	2.730	2.625	2.527	2.437	2.356	2.279	2.207	2.139	2.075	2.011	1.743	1.546	1.389	1.074	0.879	0.655	0.529	0.384
ES-23B	3.225	3.082	2.954	2.837	2.730	2.633	2.542	2.458	2.380	2.306	2.235	1.936	1.712	1.535	1.181	0.970	0.729	0.592	0.434
ES-25B	3.481	3.333	3.201	3.079	2.965	2.861	2.765	2.675	2.591	2.511	2.432	2.099	1.854	1.662	1.278	1.047	0.783	0.635	0.464
ES-27B	3.743	3.590	3.452	3.323	3.201	3.091	2.989	2.893	2.802	2.717	2.629	2.264	1.999	1.791	1.377	1.125	0.839	0.679	0.495
ES-29B	4.060	3.876	3.714	3.564	3.426	3.302	3.187	3.079	2.978	2.883	2.792	2.407	2.123	1.899	1.454	1.192	0.895	0.727	0.533
ES-31B	4.300	4.111	3.944	3.788	3.644	3.513	3.393	3.281	3.175	3.075	2.977	2.569	2.266	2.028	1.552	1.269	0.948	0.768	0.561
ES-33B	4.536	4.344	4.170	4.009	3.860	3.723	3.598	3.480	3.370	3.264	3.161	2.728	2.408	2.155	1.649	1.345	1.000	0.807	0.587
ES-35B	4.786	4.587	4.406	4.238	4.082	3.939	3.808	3.685	3.569	3.456	3.347	2.891	2.551	2.284	1.747	1.423	1.054	0.849	0.615
ES-37B	5.029	4.826	4.634	4.461	4.300	4.151	4.014	3.886	3.764	3.644	3.529	3.051	2.693	2.411	1.845	1.499	1.107	0.888	0.642

\*kW values listed represent 100% of the initial capacity.

\*\* At 77°F (25°C) includes intercell connector drop.

## Constant Power Discharge Performance Data Continued

### 1.250 Specific Gravity Discharge Rates (kW per cell\*) to 1.60Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5B	0.684	0.644	0.608	0.576	0.547	0.521	0.499	0.478	0.460	0.443	0.427	0.363	0.318	0.285	0.221	0.184	0.142	0.118	0.089
ES-7B	1.009	0.951	0.900	0.854	0.813	0.775	0.742	0.712	0.685	0.659	0.636	0.540	0.472	0.422	0.326	0.271	0.208	0.172	0.130
ES-9B	1.308	1.237	1.174	1.117	1.066	1.018	0.976	0.938	0.902	0.868	0.838	0.710	0.619	0.551	0.423	0.350	0.267	0.220	0.166
ES-11B	1.596	1.515	1.441	1.374	1.312	1.257	1.205	1.158	1.114	1.073	1.035	0.878	0.762	0.677	0.518	0.426	0.323	0.265	0.198
ES-13B	1.872	1.780	1.698	1.622	1.552	1.487	1.428	1.372	1.321	1.272	1.228	1.039	0.902	0.799	0.608	0.498	0.374	0.307	0.228
ES-15B	2.138	2.036	1.945	1.863	1.787	1.718	1.655	1.597	1.543	1.493	1.445	1.246	1.098	0.983	0.758	0.626	0.475	0.388	0.287
ES-17B	2.417	2.307	2.209	2.119	2.036	1.960	1.890	1.825	1.764	1.707	1.654	1.425	1.255	1.123	0.863	0.710	0.535	0.435	0.319
ES-19B	2.700	2.581	2.474	2.376	2.287	2.202	2.124	2.052	1.985	1.921	1.861	1.603	1.412	1.263	0.969	0.795	0.595	0.482	0.352
ES-21B	2.983	2.855	2.740	2.634	2.536	2.444	2.359	2.280	2.205	2.135	2.069	1.782	1.569	1.402	1.074	0.879	0.655	0.529	0.384
ES-23B	3.377	3.215	3.073	2.943	2.825	2.718	2.619	2.529	2.443	2.364	2.290	1.970	1.731	1.543	1.181	0.970	0.729	0.592	0.434
ES-25B	3.645	3.478	3.329	3.195	3.070	2.956	2.851	2.753	2.661	2.576	2.495	2.141	1.878	1.673	1.278	1.047	0.783	0.635	0.464
ES-27B	3.920	3.746	3.590	3.449	3.318	3.196	3.084	2.979	2.880	2.788	2.701	2.312	2.026	1.804	1.377	1.125	0.839	0.679	0.495
ES-29B	4.273	4.065	3.879	3.714	3.562	3.421	3.292	3.172	3.061	2.958	2.861	2.451	2.145	1.908	1.454	1.192	0.895	0.727	0.533
ES-31B	4.526	4.314	4.123	3.952	3.796	3.649	3.514	3.388	3.272	3.162	3.060	2.621	2.295	2.040	1.552	1.269	0.948	0.768	0.561
ES-33B	4.777	4.560	4.364	4.188	4.025	3.873	3.732	3.602	3.479	3.366	3.258	2.790	2.443	2.172	1.649	1.345	1.000	0.807	0.587
ES-35B	5.042	4.817	4.615	4.432	4.260	4.101	3.953	3.817	3.690	3.569	3.456	2.960	2.592	2.305	1.747	1.423	1.054	0.849	0.615
ES-37B	5.297	5.066	4.861	4.670	4.491	4.324	4.171	4.030	3.897	3.771	3.653	3.128	2.740	2.437	1.845	1.499	1.107	0.888	0.642

## Constant Power Discharge Performance Data

### 1.215 Specific Gravity Discharge Rates (kW per cell\*) to 1.75Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5	0.496	0.474	0.456	0.438	0.423	0.408	0.394	0.381	0.369	0.358	0.348	0.305	0.273	0.247	0.196	0.165	0.128	0.106	0.080
ES-7	0.721	0.690	0.663	0.638	0.615	0.594	0.574	0.556	0.538	0.522	0.507	0.444	0.397	0.360	0.286	0.240	0.185	0.154	0.116
ES-9	0.926	0.887	0.852	0.820	0.792	0.765	0.739	0.715	0.693	0.672	0.652	0.572	0.511	0.463	0.367	0.307	0.237	0.197	0.148
ES-11	1.133	1.088	1.046	1.008	0.973	0.940	0.908	0.879	0.851	0.826	0.801	0.702	0.626	0.567	0.446	0.373	0.286	0.237	0.177
ES-13	1.328	1.276	1.229	1.184	1.144	1.104	1.068	1.033	1.001	0.970	0.942	0.825	0.734	0.663	0.518	0.431	0.328	0.270	0.201
ES-15	1.519	1.468	1.419	1.375	1.330	1.290	1.251	1.215	1.181	1.150	1.121	0.995	0.896	0.818	0.652	0.546	0.419	0.345	0.256
ES-17	1.727	1.668	1.613	1.561	1.510	1.464	1.420	1.378	1.339	1.304	1.270	1.126	1.013	0.924	0.734	0.613	0.467	0.383	0.283
ES-19	1.936	1.869	1.806	1.748	1.690	1.638	1.589	1.542	1.498	1.458	1.420	1.258	1.130	1.030	0.816	0.680	0.517	0.422	0.310
ES-21	2.144	2.069	2.000	1.935	1.870	1.812	1.758	1.705	1.656	1.611	1.569	1.389	1.247	1.135	0.898	0.748	0.566	0.461	0.337
ES-23	2.464	2.373	2.290	2.217	2.142	2.072	2.006	1.945	1.887	1.834	1.785	1.578	1.415	1.288	1.019	0.850	0.647	0.529	0.389
ES-25	2.668	2.570	2.479	2.399	2.317	2.240	2.168	2.100	2.037	1.978	1.924	1.697	1.519	1.382	1.090	0.908	0.689	0.562	0.413
ES-27	2.870	2.763	2.665	2.577	2.490	2.405	2.326	2.250	2.182	2.119	2.059	1.813	1.620	1.471	1.158	0.962	0.728	0.593	0.435
ES-29	3.058	2.947	2.845	2.753	2.659	2.571	2.490	2.416	2.343	2.275	2.214	1.954	1.749	1.591	1.254	1.044	0.793	0.649	0.478
ES-31	3.233	3.117	3.009	2.911	2.811	2.719	2.634	2.554	2.479	2.407	2.342	2.068	1.851	1.682	1.325	1.101	0.834	0.680	0.499
ES-33	3.403	3.282	3.170	3.064	2.959	2.863	2.774	2.690	2.611	2.536	2.468	2.179	1.950	1.771	1.394	1.157	0.873	0.711	0.519
ES-35	3.585	3.457	3.342	3.227	3.117	3.017	2.923	2.834	2.750	2.673	2.602	2.297	2.054	1.866	1.467	1.217	0.917	0.744	0.543
ES-37	3.758	3.625	3.506	3.381	3.267	3.162	3.065	2.972	2.883	2.804	2.729	2.409	2.155	1.956	1.536	1.274	0.957	0.775	0.563

## Constant Power Discharge Performance Data Continued

### 1.215 Specific Gravity Discharge Rates (kW per cell\*) to 1.70Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5	0.552	0.525	0.500	0.478	0.459	0.441	0.425	0.410	0.396	0.382	0.370	0.319	0.283	0.255	0.199	0.166	0.128	0.106	0.080
ES-7	0.804	0.765	0.729	0.699	0.671	0.645	0.621	0.599	0.578	0.559	0.541	0.466	0.414	0.372	0.291	0.242	0.185	0.154	0.116
ES-9	1.035	0.985	0.942	0.902	0.867	0.834	0.803	0.775	0.748	0.723	0.700	0.603	0.535	0.480	0.375	0.311	0.238	0.197	0.148
ES-11	1.268	1.209	1.158	1.111	1.068	1.028	0.990	0.955	0.923	0.892	0.863	0.744	0.657	0.589	0.458	0.378	0.287	0.237	0.177
ES-13	1.487	1.422	1.363	1.308	1.258	1.212	1.169	1.128	1.090	1.054	1.019	0.877	0.773	0.692	0.534	0.440	0.331	0.271	0.201
ES-15	1.702	1.635	1.574	1.519	1.467	1.419	1.375	1.332	1.291	1.252	1.215	1.064	0.950	0.858	0.675	0.561	0.427	0.349	0.258
ES-17	1.932	1.856	1.787	1.723	1.664	1.610	1.559	1.511	1.464	1.420	1.378	1.206	1.076	0.971	0.761	0.631	0.477	0.388	0.285
ES-19	2.163	2.078	2.001	1.929	1.863	1.802	1.745	1.690	1.638	1.588	1.542	1.348	1.202	1.084	0.848	0.701	0.528	0.428	0.312
ES-21	2.394	2.299	2.214	2.134	2.061	1.993	1.930	1.870	1.811	1.756	1.705	1.490	1.327	1.196	0.934	0.772	0.578	0.467	0.339
ES-23	2.724	2.614	2.513	2.421	2.337	2.260	2.188	2.120	2.052	1.988	1.928	1.681	1.497	1.349	1.055	0.872	0.656	0.532	0.389
ES-25	2.953	2.832	2.723	2.622	2.531	2.447	2.368	2.294	2.219	2.149	2.083	1.812	1.610	1.449	1.130	0.933	0.700	0.567	0.414
ES-27	3.178	3.047	2.930	2.820	2.723	2.630	2.545	2.465	2.383	2.306	2.234	1.938	1.719	1.544	1.201	0.990	0.741	0.599	0.436
ES-29	3.409	3.268	3.142	3.027	2.921	2.823	2.731	2.644	2.558	2.479	2.403	2.090	1.855	1.668	1.299	1.072	0.805	0.654	0.479
ES-31	3.611	3.461	3.327	3.207	3.095	2.992	2.895	2.802	2.711	2.627	2.547	2.217	1.967	1.768	1.375	1.134	0.848	0.686	0.501
ES-33	3.808	3.651	3.510	3.383	3.266	3.158	3.056	2.957	2.861	2.772	2.688	2.341	2.078	1.867	1.450	1.193	0.890	0.718	0.521
ES-35	4.015	3.850	3.703	3.569	3.446	3.332	3.224	3.119	3.018	2.924	2.836	2.470	2.193	1.971	1.528	1.257	0.935	0.753	0.545
ES-37	4.214	4.042	3.889	3.747	3.619	3.500	3.386	3.275	3.169	3.070	2.978	2.595	2.303	2.070	1.603	1.317	0.978	0.784	0.566

### 1.215 Specific Gravity Discharge Rates (kW per cell\*) to 1.67Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5	0.580	0.549	0.521	0.496	0.474	0.454	0.437	0.420	0.405	0.391	0.378	0.324	0.286	0.256	0.199	0.166	0.128	0.106	0.080
ES-7	0.846	0.801	0.762	0.726	0.694	0.666	0.640	0.616	0.594	0.573	0.554	0.474	0.418	0.375	0.291	0.242	0.185	0.154	0.116
ES-9	1.090	1.035	0.985	0.941	0.900	0.864	0.830	0.799	0.770	0.743	0.718	0.615	0.542	0.485	0.375	0.311	0.238	0.197	0.148
ES-11	1.335	1.271	1.212	1.160	1.111	1.067	1.026	0.988	0.952	0.919	0.888	0.759	0.668	0.596	0.459	0.378	0.287	0.237	0.177
ES-13	1.567	1.495	1.429	1.369	1.313	1.261	1.214	1.169	1.127	1.088	1.052	0.896	0.787	0.701	0.536	0.440	0.331	0.271	0.201
ES-15	1.790	1.715	1.646	1.584	1.527	1.475	1.426	1.380	1.337	1.295	1.256	1.090	0.969	0.872	0.682	0.565	0.427	0.349	0.258
ES-17	2.031	1.946	1.868	1.798	1.733	1.674	1.618	1.566	1.517	1.470	1.425	1.237	1.098	0.988	0.769	0.635	0.477	0.388	0.285
ES-19	2.273	2.178	2.091	2.013	1.940	1.873	1.811	1.753	1.698	1.645	1.594	1.383	1.227	1.103	0.858	0.706	0.528	0.428	0.312
ES-21	2.515	2.410	2.314	2.227	2.147	2.073	2.004	1.939	1.878	1.820	1.764	1.529	1.356	1.219	0.946	0.776	0.578	0.467	0.339
ES-23	2.850	2.728	2.616	2.518	2.425	2.341	2.262	2.189	2.122	2.054	1.989	1.722	1.527	1.372	1.065	0.875	0.656	0.532	0.389
ES-25	3.090	2.956	2.836	2.727	2.626	2.535	2.449	2.369	2.295	2.221	2.151	1.856	1.642	1.474	1.141	0.936	0.700	0.567	0.414
ES-27	3.326	3.182	3.052	2.933	2.825	2.725	2.632	2.547	2.465	2.386	2.309	1.986	1.754	1.572	1.214	0.994	0.741	0.599	0.436
ES-29	3.578	3.425	3.285	3.156	3.039	2.932	2.833	2.740	2.652	2.568	2.485	2.141	1.893	1.696	1.312	1.075	0.805	0.654	0.479
ES-31	3.792	3.630	3.483	3.347	3.224	3.110	3.006	2.907	2.815	2.724	2.637	2.274	2.009	1.800	1.390	1.137	0.848	0.686	0.501
ES-33	4.001	3.831	3.677	3.535	3.406	3.285	3.175	3.071	2.974	2.878	2.786	2.405	2.125	1.903	1.467	1.198	0.890	0.718	0.521
ES-35	4.221	4.042	3.881	3.731	3.595	3.468	3.351	3.242	3.140	3.038	2.942	2.540	2.244	2.010	1.547	1.262	0.935	0.753	0.545
ES-37	4.434	4.246	4.078	3.920	3.778	3.645	3.522	3.409	3.300	3.192	3.092	2.672	2.360	2.113	1.625	1.324	0.978	0.784	0.566

## Constant Power Discharge Performance Data Continued

### 1.215 Specific Gravity Discharge Rates (kW per cell\*) to 1.65Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5	0.596	0.562	0.533	0.506	0.482	0.461	0.443	0.425	0.410	0.395	0.381	0.326	0.286	0.256	0.199	0.166	0.128	0.106	0.080
ES-7	0.870	0.822	0.780	0.742	0.707	0.677	0.650	0.625	0.601	0.580	0.560	0.478	0.420	0.375	0.291	0.242	0.185	0.154	0.116
ES-9	1.123	1.064	1.011	0.962	0.918	0.880	0.844	0.812	0.781	0.753	0.727	0.620	0.545	0.486	0.375	0.311	0.238	0.197	0.148
ES-11	1.377	1.307	1.245	1.187	1.135	1.088	1.045	1.005	0.967	0.932	0.900	0.766	0.671	0.598	0.459	0.378	0.287	0.237	0.177
ES-13	1.616	1.538	1.468	1.403	1.343	1.288	1.237	1.191	1.147	1.106	1.067	0.906	0.792	0.705	0.536	0.440	0.331	0.271	0.201
ES-15	1.842	1.761	1.687	1.620	1.561	1.505	1.453	1.405	1.359	1.317	1.276	1.103	0.978	0.879	0.684	0.565	0.427	0.349	0.258
ES-17	2.089	1.998	1.915	1.839	1.771	1.708	1.649	1.595	1.543	1.495	1.448	1.251	1.108	0.995	0.772	0.635	0.477	0.388	0.285
ES-19	2.338	2.236	2.143	2.059	1.983	1.912	1.846	1.785	1.727	1.674	1.621	1.400	1.239	1.112	0.860	0.706	0.528	0.428	0.312
ES-21	2.586	2.473	2.371	2.278	2.194	2.115	2.043	1.975	1.912	1.852	1.794	1.549	1.370	1.229	0.948	0.776	0.578	0.467	0.339
ES-23	2.923	2.792	2.676	2.569	2.473	2.384	2.301	2.226	2.154	2.087	2.022	1.742	1.540	1.381	1.066	0.875	0.656	0.532	0.389
ES-25	3.170	3.027	2.900	2.784	2.679	2.582	2.492	2.408	2.331	2.258	2.186	1.878	1.658	1.484	1.142	0.936	0.700	0.567	0.414
ES-27	3.414	3.259	3.122	2.995	2.882	2.776	2.678	2.588	2.504	2.425	2.347	2.011	1.771	1.584	1.215	0.994	0.741	0.599	0.436
ES-29	3.680	3.515	3.365	3.229	3.106	2.993	2.888	2.790	2.697	2.609	2.525	2.167	1.910	1.709	1.312	1.075	0.805	0.654	0.479
ES-31	3.899	3.727	3.570	3.427	3.296	3.177	3.066	2.962	2.864	2.772	2.682	2.303	2.029	1.815	1.391	1.137	0.848	0.686	0.501
ES-33	4.116	3.935	3.772	3.621	3.483	3.357	3.240	3.131	3.029	2.932	2.837	2.437	2.147	1.920	1.469	1.198	0.890	0.718	0.521
ES-35	4.345	4.153	3.982	3.824	3.678	3.546	3.422	3.307	3.199	3.097	2.997	2.576	2.268	2.029	1.550	1.262	0.935	0.753	0.545
ES-37	4.565	4.364	4.186	4.020	3.867	3.728	3.599	3.477	3.364	3.257	3.151	2.710	2.387	2.134	1.629	1.324	0.978	0.784	0.566

### 1.215 Specific Gravity Discharge Rates (kW per cell\*) to 1.60Vpc at 77°F (25°C)\*\*

Battery Type	Minutes																		
	5	6	7	8	9	10	11	12	13	14	15	20	25	30	45	60	90	120	180
ES-5	0.626	0.588	0.554	0.524	0.497	0.472	0.450	0.432	0.415	0.400	0.385	0.327	0.286	0.256	0.199	0.166	0.128	0.106	0.080
ES-7	0.919	0.863	0.814	0.771	0.731	0.695	0.664	0.637	0.612	0.589	0.567	0.480	0.420	0.375	0.291	0.242	0.185	0.154	0.116
ES-9	1.192	1.122	1.060	1.003	0.953	0.906	0.867	0.831	0.798	0.768	0.739	0.625	0.545	0.486	0.375	0.311	0.238	0.197	0.148
ES-11	1.465	1.383	1.309	1.242	1.181	1.125	1.076	1.032	0.991	0.953	0.918	0.774	0.673	0.598	0.459	0.378	0.287	0.237	0.177
ES-13	1.724	1.632	1.548	1.471	1.401	1.337	1.280	1.227	1.179	1.134	1.092	0.919	0.796	0.705	0.536	0.440	0.331	0.271	0.201
ES-15	1.947	1.852	1.768	1.691	1.620	1.556	1.498	1.445	1.396	1.349	1.306	1.122	0.988	0.884	0.684	0.565	0.427	0.349	0.258
ES-17	2.207	2.100	2.005	1.919	1.840	1.768	1.702	1.642	1.586	1.533	1.483	1.274	1.121	1.002	0.772	0.635	0.477	0.388	0.285
ES-19	2.468	2.350	2.244	2.148	2.060	1.980	1.907	1.839	1.776	1.717	1.662	1.426	1.254	1.120	0.860	0.706	0.528	0.428	0.312
ES-21	2.729	2.599	2.482	2.377	2.280	2.192	2.111	2.036	1.966	1.901	1.839	1.579	1.387	1.238	0.948	0.776	0.578	0.467	0.339
ES-23	3.070	2.922	2.789	2.668	2.560	2.461	2.371	2.287	2.210	2.137	2.069	1.774	1.556	1.388	1.066	0.875	0.656	0.532	0.389
ES-25	3.330	3.167	3.022	2.891	2.772	2.664	2.566	2.474	2.390	2.311	2.237	1.913	1.675	1.492	1.142	0.936	0.700	0.567	0.414
ES-27	3.585	3.409	3.253	3.110	2.982	2.864	2.757	2.658	2.567	2.481	2.401	2.048	1.790	1.592	1.215	0.994	0.741	0.599	0.436
ES-29	3.889	3.697	3.526	3.372	3.229	3.099	2.980	2.871	2.770	2.675	2.587	2.207	1.928	1.716	1.312	1.075	0.805	0.654	0.479
ES-31	4.126	3.924	3.744	3.582	3.432	3.296	3.171	3.055	2.947	2.847	2.753	2.349	2.052	1.825	1.391	1.137	0.848	0.686	0.501
ES-33	4.359	4.148	3.960	3.789	3.633	3.490	3.358	3.236	3.123	3.017	2.918	2.489	2.174	1.932	1.469	1.198	0.890	0.718	0.521
ES-35	4.602	4.381	4.183	4.003	3.840	3.690	3.552	3.423	3.303	3.191	3.087	2.633	2.300	2.042	1.550	1.262	0.935	0.753	0.545
ES-37	4.838	4.608	4.400	4.212	4.042	3.883	3.739	3.604	3.479	3.361	3.251	2.774	2.423	2.150	1.629	1.324	0.978	0.784	0.566

## Constant Current Performance Data

### 1.250 Specific Gravity Ampere Rating for Minutes to Specified End Voltage to 1.75Vpc at 77°F (25°C)

Battery Type	Minutes												
	1	5	15	30	60	90	120	180	240	300	360	420	480
ES-5B	386.4	313.8	216.4	151.5	99.17	75.77	61.92	46.87	37.88	32.34	28.49	25.60	23.32
ES-7B	546.9	460.4	319.2	223.2	145.6	111.0	90.44	68.22	55.22	47.10	41.40	37.12	33.74
ES-9B	674.3	594.3	414.7	289.5	187.6	142.6	115.9	87.09	70.41	59.92	52.55	47.00	42.64
ES-11B	795.2	723.6	506.6	353.4	227.7	172.4	139.7	104.4	83.69	71.00	62.20	55.62	50.46
ES-13B	904.4	846.6	594.2	413.7	265.0	199.6	161.5	119.8	95.22	80.43	70.29	62.77	56.90
ES-15B	1050	974.8	708.2	505.9	332.0	252.0	204.6	151.9	120.6	101.2	87.83	77.93	70.22
ES-17B	1183	1109	804.9	575.3	375.4	283.4	229.2	168.9	133.3	111.2	96.07	84.85	76.15
ES-19B	1319	1244	901.9	644.8	419.1	315.0	254.2	185.9	146.3	121.7	104.7	92.07	82.34
ES-21B	1455	1378	998.7	714.3	462.6	346.5	279.0	202.6	158.9	131.6	112.9	99.05	88.38
ES-23B	1732	1577	1124	793.9	514.4	387.6	312.8	228.0	179.6	149.7	129.2	114.1	102.3
ES-25B	1841	1706	1214	857.6	553.8	415.8	335.3	244.2	192.0	159.9	137.7	121.4	108.8
ES-27B	1962	1837	1306	922.6	594.1	444.8	358.7	260.7	203.5	168.8	145.1	127.7	114.3
ES-29B	2194	1958	1395	980.0	632.0	475.9	384.2	281.1	221.5	185.1	160.1	141.7	127.4
ES-31B	2299	2073	1481	1043	671.0	503.4	405.4	295.5	232.4	193.7	167.1	147.5	132.3
ES-33B	2393	2187	1565	1105	709.3	530.2	426.1	309.3	242.6	201.6	173.5	152.8	136.7
ES-35B	2504	2307	1652	1169	749.1	558.5	448.2	324.0	253.4	210.0	180.2	158.2	141.3
ES-37B	2606	2422	1738	1231	787.5	585.4	469.1	337.9	263.8	218.0	186.5	163.4	145.7

### 1.250 Specific Gravity Ampere Rating for Minutes to Specified End Voltage to 1.67Vpc at 77°F (25°C)

Battery Type	Minutes												
	1	5	15	30	60	90	120	180	240	300	360	420	480
ES-5B	511.2	375.5	240.2	158.6	99.75	75.77	61.92	46.87	37.88	32.34	28.49	25.60	23.32
ES-7B	735.2	552.1	356.4	235.1	146.7	111.0	90.44	68.22	55.22	47.10	41.40	37.12	33.74
ES-9B	903.9	714.3	467.1	307.6	189.8	142.6	115.9	87.09	70.41	59.92	52.55	47.00	42.64
ES-11B	1061	872.1	575.1	377.5	231.1	172.7	139.7	104.4	83.69	71.00	62.20	55.62	50.46
ES-13B	1201	1023	679.1	444.3	270.1	200.5	161.5	119.8	95.22	80.43	70.29	62.77	56.90
ES-15B	1405	1177	807.0	548.2	344.3	256.7	206.8	152.3	120.6	101.2	87.83	77.93	70.22
ES-17B	1571	1334	920.7	625.0	389.7	288.4	231.2	168.9	133.3	111.2	96.07	84.85	76.15
ES-19B	1739	1493	1034	702.0	435.2	320.5	256.0	185.9	146.3	121.7	104.7	92.07	82.34
ES-21B	1908	1652	1148	778.9	480.7	352.4	280.7	202.6	158.9	131.6	112.9	99.05	88.38
ES-23B	2313	1874	1276	858.8	529.0	390.8	312.8	228.0	179.6	149.7	129.2	114.1	102.3
ES-25B	2424	2024	1386	929.5	571.0	420.3	335.9	244.2	192.0	159.9	137.7	121.4	108.8
ES-27B	2562	2178	1497	1001	613.9	450.6	359.8	260.7	203.5	168.8	145.1	127.7	114.3
ES-29B	2923	2353	1592	1062	650.6	480.5	384.7	281.1	221.5	185.1	160.1	141.7	127.4
ES-31B	3047	2493	1698	1134	692.5	508.9	406.3	295.5	232.4	193.7	167.1	147.5	132.3
ES-33B	3170	2632	1802	1205	733.8	536.8	427.4	309.3	242.6	201.6	173.5	152.8	136.7
ES-35B	3307	2778	1908	1277	776.4	566.2	449.7	324.0	253.4	210.0	180.2	158.2	141.3
ES-37B	3433	2920	2010	1348	817.9	594.3	471.0	337.9	263.8	218.0	186.5	163.4	145.7

## Constant Current Performance Data

### 1.215 Specific Gravity Ampere Rating for Minutes to Specified End Voltage to 1.75Vpc at 77°F (25°C)

Battery Type	Minutes												
	1	5	15	30	60	90	120	180	240	300	360	420	480
ES-5B	335.9	282.2	194.9	136.8	89.85	68.84	56.32	42.60	34.40	29.34	25.82	23.18	21.11
ES-7	470.0	410.3	284.1	199.1	130.7	100.0	81.70	61.68	49.71	42.37	37.27	33.45	30.44
ES-9	576.4	527.1	366.4	256.1	167.6	128.2	104.6	78.74	63.37	53.95	47.41	42.52	38.68
ES-11	690.3	646.0	450.1	313.3	203.1	154.4	125.9	94.17	75.41	63.98	56.09	50.20	45.58
ES-13	793.5	757.2	529.1	366.3	234.6	177.1	143.7	107.0	85.24	72.01	62.89	56.10	50.80
ES-15	903.9	866.7	631.9	454.8	299.3	227.0	184.6	137.0	109.5	92.09	80.00	70.92	63.84
ES-17	1025	985.5	715.8	513.1	335.5	253.3	205.1	151.1	120.3	100.7	86.88	76.66	68.73
ES-19	1146	1105	800.1	571.9	372.2	279.9	226.0	165.6	131.5	109.5	94.12	82.72	73.89
ES-21	1267	1224	884.1	630.4	408.6	306.4	246.7	179.9	142.2	117.8	101.0	88.53	78.91
ES-23	1494	1405	1004	714.3	463.9	349.5	282.3	207.3	163.6	136.5	117.7	103.8	93.04
ES-25	1609	1522	1082	765.7	495.3	372.4	300.3	220.3	174.0	144.9	124.8	109.8	98.27
ES-27	1721	1638	1158	814.9	524.8	393.5	317.1	232.0	183.2	152.3	131.0	115.2	103.0
ES-29	1895	1743	1246	881.8	569.8	428.8	346.6	255.4	201.9	168.7	145.9	128.9	115.8
ES-31	1994	1844	1319	932.8	601.3	451.0	363.6	266.6	210.6	175.6	151.4	133.5	119.6
ES-33	2081	1942	1390	982.8	631.7	472.2	379.7	277.2	218.8	182.0	156.5	137.7	123.1
ES-35	2180	2047	1465	1036	664.4	495.7	398.1	289.5	227.8	188.8	161.9	142.1	126.7
ES-37	2270	2146	1537	1086	695.2	517.3	414.6	300.5	236.1	195.1	166.9	146.1	130.0

### 1.215 Specific Gravity Ampere Rating for Minutes to Specified End Voltage to 1.67Vpc at 77°F (25°C)

Battery Type	Minutes												
	1	5	15	30	60	90	120	180	240	300	360	420	480
ES-5	465.4	342.5	217.6	143.6	90.68	68.88	56.32	42.60	34.40	29.34	25.82	23.18	21.11
ES-7	660.2	500.2	319.3	210.5	132.1	100.1	81.70	61.68	49.71	42.37	37.27	33.45	30.44
ES-9	814.1	646.0	414.2	273.0	170.1	128.4	104.6	78.74	63.37	53.95	47.41	42.52	38.68
ES-11	965.6	793.3	512.5	335.7	207.1	155.3	125.9	94.17	75.41	63.98	56.09	50.20	45.58
ES-13	1094.0	932.6	607.4	394.5	240.7	179.0	144.2	107.0	85.24	72.01	62.89	56.10	50.80
ES-15	1238.0	1065	730.0	495.6	313.0	233.3	188.0	138.5	109.9	92.25	80.01	70.92	63.84
ES-17	1407.0	1209	828.1	560.8	351.3	260.2	208.6	152.4	120.6	100.7	86.88	76.66	68.73
ES-19	1573.0	1353	926.6	626.3	390.0	287.5	229.7	166.8	131.6	109.5	94.12	82.72	73.89
ES-21	1740.0	1497	1025	691.6	428.4	314.6	250.6	180.9	142.2	117.8	101.0	88.53	78.91
ES-23	2042.0	1695	1154	776.6	480.9	355.3	284.4	207.3	163.6	136.5	117.7	103.8	93.04
ES-25	2200.0	1838	1247	834.0	514.9	379.5	303.3	220.5	174.0	144.9	124.8	109.8	98.27
ES-27	2353.0	1979	1339	889.2	547.2	402.3	321.0	232.7	183.2	152.3	131.0	115.2	103.0
ES-29	2580.0	2129	1441	959.9	591.5	436.8	349.7	255.5	201.9	168.7	145.9	128.9	115.8
ES-31	2720.0	2256	1530	1019	625.9	460.3	367.3	267.1	210.6	175.6	151.4	133.5	119.6
ES-33	2855.0	2382	1618	1078	659.5	483.0	384.2	278.0	218.8	182.0	156.5	137.7	123.1
ES-35	2993.0	2514	1709	1139	695.0	507.6	403.2	290.5	227.8	188.8	161.9	142.1	126.7
ES-37	3121.0	2641	1797	1197	729.0	530.6	420.5	301.7	236.1	195.1	166.9	146.1	130.0



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