

Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.

Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

Design for Standby Power Applications

【Design Life】

Up to 10 Years in Standby Service at 25°C

Eurobat (20°C) : 10-12 years, Long Life

【Operating Temperature Range】

Nominal Operating Temperature : 25°C (77°F)

Discharge : -15°C ~ 50°C (5°F~122°F)

Charge: -15°C ~ 40°C (5°F~104°F)

Storage: -15°C ~ 40°C (5°F~104°F)

【Float Charging Voltage】

13.5 ~ 13.8 VDC/Unit at 25°C (77°F)

【Equalization Charging Voltage】

14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

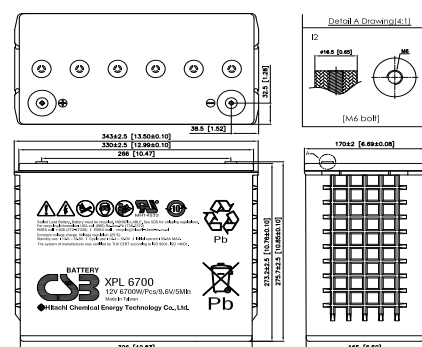
Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F);

Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

Specification

Design according with IEC 60896-21/22:2004

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	6700W @5min-rate to 1.60V per PCS @25°C (77°F)	
Weight	Approx. 47.20 Kg (104.03 lbs)	
Maximum Discharge Current	800A (5sec)	
Internal Resistance	Approx. 2.40 mΩ	
Short Circuit Current	3722A	
Maximum Charge Current	62A	
Terminal types	I2 thread lead alloy terminal to accept M6 bolt	
Terminal hardware Torque	138.6 Kgf-cm / 120.3 Lbf-in / 13.58 N-m	
Container Material	Flame Retardant Polypropylene (UL 94-V0)	
Dimensions	Length (L)	343.0±2.5 mm 13.50±0.10 inch
	Width (W)	170.0±2.0 mm 6.69±0.08 inch
	Container Height (h)	273.2±2.5 mm 10.76±0.10 inch
	Overall Height (H)	275.7±2.5 mm 10.85±0.10 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V												
1.67V												
1.70V												
1.75V												
1.80V												
1.85V												

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	8440	7255	6774	6349	5650	5092	4039	3261	2422	1762	1392	1003
1.67V	7840	6754	6329	5959	5361	4882	3911	3179	2383	1740	1379	997
1.70V	7552	6512	6094	5774	5196	4783	3829	3124	2353	1724	1369	993
1.75V	6857	6011	5718	5408	4894	4459	3623	2984	2278	1681	1342	981
1.80V	6077	5461	5155	4917	4482	4083	3322	2776	2163	1612	1295	956
1.85V	5221	4792	4604	4343	3961	3639	2942	2505	2006	1507	1219	907

Please refer **Preliminary spec sheet

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Charge: -15°C ~ 40°C (5°F~104°F)

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【Float Charging Voltage】

13.5 ~ 13.8 VDC/Unit at 25°C (77°F)

【Equalization Charging Voltage】

14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

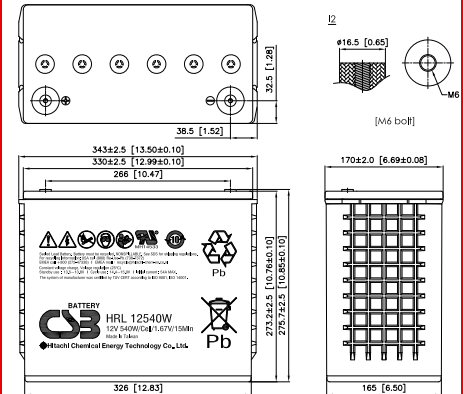
Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F);

Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

Specification

Design according with IEC 60896-21/22:2004

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	540W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 43.90 Kg (96.76 lbs)	
Maximum Discharge Current	800A (5sec)	
Internal Resistance	Approx. 2.60 mΩ	
Short Circuit Current	3523A	
Maximum Charge Current	54A	
Terminal types	I2 thread lead alloy terminal to accept M6 bolt	
Terminal breaking Torque	138.6 Kgf-cm / 120.3 Lbf-in / 13.58 N-m	
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	343.0±2.5 mm 13.50±0.10 inch
	Width (W)	170.0±2.0 mm 6.69±0.08 inch
	Container Height (h)	273.2±2.5 mm 10.76±0.10 inch
	Overall Height (H)	275.7±2.5 mm 10.85±0.10 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	720	572	530	498	436	394	308	256	187	134	106	75.5
1.67V	608	517	480	452	406	370	294	245	181	132	105	74.3
1.70V	564	493	457	430	392	354	286	240	178	129	103	73.8
1.75V	501	440	416	398	365	327	270	228	172	126	101	72.0
1.80V	430	391	375	362	323	296	252	209	161	120	97.9	70.3
1.85V	379	340	320	304	282	265	222	187	147	111	90.3	66.2

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	6874	5883	5483	5176	4688	4186	3421	2716	2057	1518	1224	885
1.67V	6207	5325	5026	4794	4282	3885	3250	2630	2006	1492	1210	865
1.70V	5768	4937	4717	4544	4016	3661	3097	2564	1988	1480	1201	863
1.75V	5225	4639	4390	4196	3766	3472	2951	2454	1925	1441	1174	849
1.80V	4561	4310	4032	3818	3442	3233	2723	2306	1846	1385	1129	824
1.85V	4227	3643	3482	3356	3146	3010	2443	2104	1715	1295	1061	784

Please refer to the official site for the latest rating confirmation. URL: www.csb-battery.com

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Up to 10 Years in Standby Service at 25°C

Eurobat (20°C) : 10-12 years, Long Life

【Operating Temperature Range】

Nominal Operating Temperature : 25°C (77°F)

Discharge : -15°C ~ 50°C (5°F~122°F)

Charge: -15°C ~ 40°C (5°F~104°F)

Storage: -15°C ~ 40°C (5°F~104°F)

【Float Charging Voltage】

13.5 ~ 13.8 VDC/Unit at 25°C (77°F)

【Equalization Charging Voltage】

14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

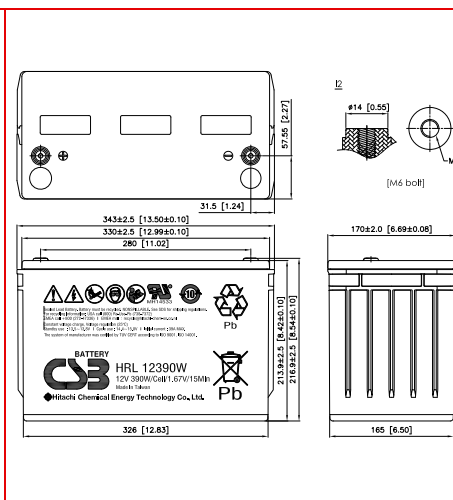
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Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

Specification

Design according with IEC 60896-21/22:2004

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	390W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 33.00 Kg (72.73 lbs)	
Maximum Discharge Current	800A (5sec)	
Internal Resistance	Approx. 3.00 mΩ	
Short Circuit Current	2779A	
Maximum Charge Current	39.0A	
Terminal types	I2 thread lead alloy terminal to accept M6 bolt	
Terminal tightening torque	51.7±10.3 Kgf-cm / 44.9±9.0 Lbf-in / 5.10±1.0 N-m	
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	343.0±2.5 mm 13.50±0.10 inch
	Width (W)	170.0±2.0 mm 6.69±0.08 inch
	Container Height (h)	213.9±2.5 mm 8.42±0.10 inch
	Overall Height (H)	216.9±2.5 mm 8.54±0.10 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	589	499	465	423	362	315	239	192	140	101	79.6	57.1
1.67V	532	456	416	386	334	298	230	186	138	99.6	78.9	56.8
1.70V	504	428	395	367	320	288	224	183	137	98.6	78.2	56.4
1.75V	463	384	354	330	296	266	212	174	132	96.1	76.7	55.7
1.80V	382	330	310	296	266	239	197	163	125	91.8	73.8	54.2
1.85V	296	285	270	253	228	210	175	147	114	84.9	68.8	51.2

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	5767	4830	4543	4188	3683	3299	2550	2083	1566	1142	913	666
1.67V	5312	4557	4197	3919	3518	3141	2483	2039	1545	1130	906	663
1.70V	5049	4348	4030	3787	3434	3048	2440	2010	1529	1122	900	660
1.75V	4583	3970	3736	3555	3190	2861	2348	1943	1488	1098	885	653
1.80V	4044	3587	3451	3253	2893	2641	2215	1843	1423	1059	858	639
1.85V	3486	3160	2959	2804	2576	2412	2006	1690	1328	996	812	609

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HRL series HRL 12330W



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General

Design for Standby Power Applications

【Design Life】

Up to 10 Years in Standby Service at 25°C

Eurobat (20°C) : >12 YEARS VERY LONG LIFE

【Operating Temperature Range】

Nominal Operating Temperature : 25°C (77°F)

Discharge : -15°C ~ 50°C (5°F~122°F)

Charge: -15°C ~ 40°C (5°F~104°F)

Storage: -15°C ~ 40°C (5°F~104°F)

【Float Charging Voltage】

13.5 ~ 13.8 VDC/Unit at 25°C (77°F)

【Equalization Charging Voltage】

14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

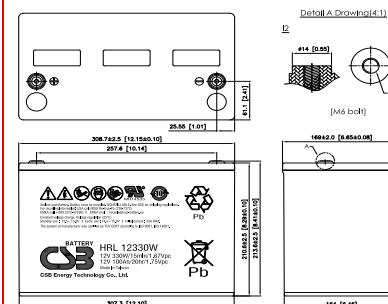
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Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

Specification

Design according with IEC 60896-21/22:2004

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	330W @ 15min-rate to 1.67V per cell @25°C (77°F) 100AH@ 20hour-rate to 1.75V per cell @ 25°C (77°F)	
Weight	Approx. 29.60 Kg (65.24 lbs)	
Maximum Discharge Current	800A (5sec)	
Internal Resistance	Approx. 3.50 mΩ	
Short Circuit Current	2386A	
Maximum Charge Current	33.0A	
Terminal types	I2 thread lead alloy terminal to accept M6 bolt	
Terminal tightening torque	51.7±10.3 Kg·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m	
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	308.7±2.5 mm 12.15±0.10 inch
	Width (W)	169.0±2.0 mm 6.65±0.08 inch
	Container Height (h)	210.6±2.5 mm 8.29±0.10 inch
	Overall Height (H)	213.6±2.5 mm 8.41±0.10 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	5MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN	5HR	10HR	20HR
1.60V	530	409	271	202	162	119	86.0	68.4	49.6	18.7	10.0	5.16
1.67V	482	369	256	196	158	117	85.1	67.9	49.4	18.6	9.91	5.12
1.70V	454	350	248	191	155	116	84.4	67.5	49.3	18.5	9.86	5.10
1.75V	405	317	230	181	149	112	82.6	66.4	48.9	18.2	9.74	5.06
1.80V	337	273	206	168	139	106	79.1	64.1	47.7	17.8	9.51	4.97
1.85V	252	234	180	150	125	97.1	73.2	59.9	45.1	17.0	9.09	4.77

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	5MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN	5HR	10HR	20HR
1.60V	4597	3930	2870	2187	1772	1318	972	784	578	217	117	61.4
1.67V	4397	3761	2737	2131	1738	1304	965	779	576	216	116	61.0
1.70V	4285	3597	2656	2093	1713	1292	958	775	575	216	116	60.9
1.75V	4043	3300	2485	2009	1656	1260	941	764	571	214	115	60.5
1.80V	3660	2993	2276	1883	1564	1204	907	742	559	210	113	59.6
1.85V	2976	2589	2042	1676	1416	1116	850	700	534	202	108	57.6

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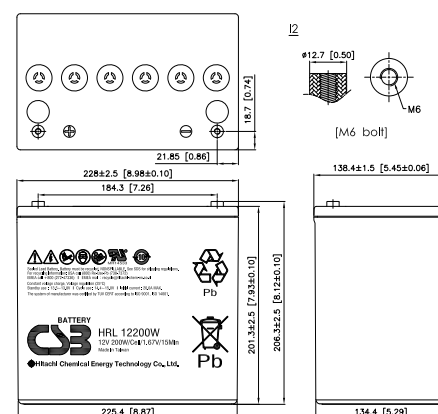
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Specification

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Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	200W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 17.30 Kg (38.13 lbs)	
Maximum Discharge Current	400A (5sec)	
Internal Resistance	Approx. 5.50 mΩ	
Short Circuit Current	1509A	
Maximum Charge Current	20.0A	
Terminal types	I2 thread lead alloy terminal to accept M6 bolt	
Terminal tightening torque	51.7±10.3 Kgf-cm / 44.9±9.0 Lbf-in / 5.10±1.0 N-m	
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	228.0±2.5 mm 8.98±0.10 inch
	Width (W)	138.4±1.5 mm 5.45±0.06 inch
	Container Height (h)	201.3±2.5 mm 7.93±0.10 inch
	Overall Height (H)	206.3±2.5 mm 8.12±0.10 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	304	256	243	221	190	164	123	98.9	71.9	52.6	41.8	29.9
1.67V	279	232	218	205	177	157	118	97.0	71.2	52.0	41.2	29.5
1.70V	260	218	209	196	170	151	116	95.7	70.3	51.8	41.1	29.4
1.75V	233	197	192	176	156	141	111	92.0	68.2	50.7	40.3	29.1
1.80V	198	172	165	156	140	126	102	85.2	64.6	48.7	38.9	28.2
1.85V	162	146	145	136	120	110	91.3	76.1	59.0	45.3	36.2	26.6

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	3094	2572	2448	2279	1962	1745	1333	1098	816	602	476	343
1.67V	2861	2395	2306	2127	1874	1666	1308	1083	809	600	475	342
1.70V	2732	2308	2207	2045	1815	1625	1282	1066	796	596	474	339
1.75V	2458	2120	2022	1904	1717	1523	1232	1027	772	585	464	335
1.80V	2231	1889	1840	1765	1562	1409	1158	959	738	564	452	326
1.85V	1764	1691	1659	1544	1376	1255	1035	873	687	529	423	310

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Recognized under UL 1989,
and certified by ISO 9001, 14001.





Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.

Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

Design for Standby Power Applications

【Design Life】

Up to 5 Years in Standby Service at 25°C

Eurobat (20°C) : 3-5 years, Standard Commercial

【Operating Temperature Range】

Nominal Operating Temperature : 25°C (77°F)

Discharge : -15°C ~ 50°C (5°F~122°F)

Charge: -15°C ~ 40°C (5°F~104°F)

Storage: -15°C ~ 40°C (5°F~104°F)

【Float Charging Voltage】

13.5 ~ 13.8 VDC/Unit at 25°C (77°F)

【Equalization Charging Voltage】

14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

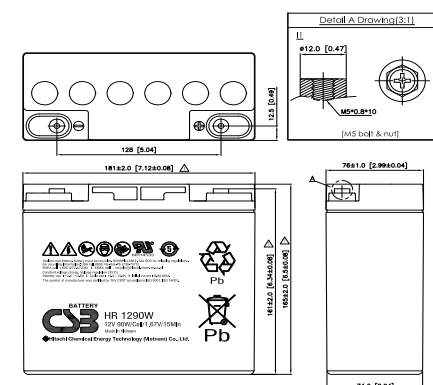
Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F);

Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

Specification

Design according with IEC 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)		
Nominal Capacity	90W @15min-rate to 1.67V per cell @25°C (77°F)		
Weight	Approx. 6.80 Kg (14.99 lbs)		
Maximum Discharge Current	300A (5sec)		
Internal Resistance	Approx. 9.9 mΩ		
Short Circuit Current	836A		
Maximum Charge Current	9.0A		
Terminal types	I1 terminal to accept M5 bolt		
Terminal breaking Torque	59 Kgf-cm / 51 lbf-in / 5.73 N-m		
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request		
Dimensions	Length (L)	181.0±2.0 mm	7.13±0.08 inch
	Width (W)	76.2±2.0 mm	3.00±0.08 inch
	Container Height (h)	167.0±2.0 mm	6.57±0.08 inch
	Overall Height (H)	167.0±2.0 mm	6.57±0.08 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	177	124	108	95.8	79.4	68.0	48.7	38.4	27.3	19.8	15.8	11.5
1.67V	156	114	100	90.2	77.6	65.2	48.4	38.1	27.0	19.7	15.7	11.4
1.70V	147	109	96.8	87.8	76.4	63.9	47.6	37.7	26.9	19.6	15.6	11.3
1.75V	131	102	91.0	82.9	72.8	61.1	46.2	37.0	26.3	19.3	15.5	11.2
1.80V	115	92.5	83.7	77.2	67.7	58.0	44.0	35.5	25.5	18.8	15.2	11.1
1.85V	98.6	82.9	76.0	70.8	60.8	53.3	40.7	32.6	23.8	17.8	14.5	10.6

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	1701	1282	1143	1041	868	753	544	429	309	227	183	133
1.67V	1570	1193	1076	989	850	734	540	428	307	226	182	132
1.70V	1509	1155	1044	962	838	726	534	426	305	225	181	131
1.75V	1398	1087	987	913	802	704	520	416	300	222	179	130
1.80V	1282	1011	926	862	756	665	501	402	295	219	177	129
1.85V	1166	926	853	797	687	608	461	375	277	207	168	124

Please refer to the official site for the latest rating confirmation. URL: www.csb-battery.com

Issued: 180323

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【Self Discharge】

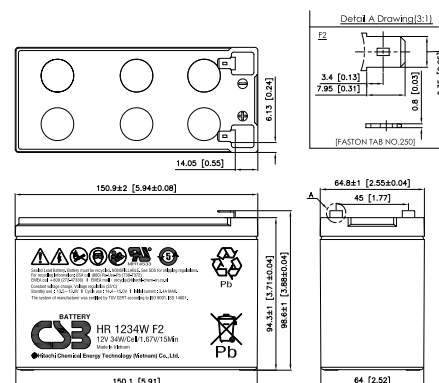
Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F);

Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).

Specification

Design according with IEC 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	34W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 2.50 Kg (5.51 lbs)	
Maximum Discharge Current	130A (5sec)	
Internal Resistance	Approx. 19.0 mΩ	
Short Circuit Current	349A	
Maximum Charge Current	3.4A	
Terminal types	F2 -Faston Tab250	
Terminal tightening torque	--	
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	150.9±2.0 mm 5.94±0.08 inch
	Width (W)	64.8±1.0 mm 2.55±0.04 inch
	Container Height (h)	94.3±1.0 mm 3.71±0.04 inch
	Overall Height (H)	98.6±1.0 mm 3.88±0.04 inch



Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	74.0	50.0	42.2	36.8	29.6	24.9	18.0	14.2	10.3	7.36	5.84	4.21
1.67V	67.3	47.5	40.7	35.8	29.0	24.5	17.8	14.1	10.2	7.34	5.82	4.20
1.70V	64.1	45.9	39.7	35.2	28.6	24.2	17.7	14.0	10.1	7.33	5.81	4.19
1.75V	58.3	42.8	37.5	33.6	27.6	23.5	17.4	13.9	10.0	7.27	5.77	4.17
1.80V	52.6	39.1	34.7	31.2	26.0	22.4	16.8	13.5	9.83	7.12	5.67	4.11
1.85V	46.2	35.4	31.2	28.2	23.8	20.6	15.7	12.7	9.38	6.83	5.45	3.96

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	737	518	450	399	328	280	207	165	120	86.7	69.0	50.1
1.67V	688	502	438	391	324	277	206	164	119	86.5	68.9	50.0
1.70V	677	492	431	386	320	275	205	163	118	86.3	68.8	49.9
1.75V	633	466	413	372	312	268	202	161	117	85.7	68.4	49.8
1.80V	584	434	388	351	298	257	196	157	116	84.3	67.4	49.2
1.85V	519	397	355	324	276	240	185	150	111	81.3	65.2	47.8

Please refer to the official site for the latest rating confirmation. URL: www.csb-battery.com

Issued: 200212

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Battery Range Summary

The DataSafe[®] HX top terminal battery range of Valve Regulated Lead Acid (VRLA) batteries has been designed to offer superior solutions for the Information Technology (IT) and Uninterruptible Power Supply (UPS) markets. DataSafe HX top terminal batteries are the ideal source of power to protect vital systems.

DataSafe HX top terminal batteries incorporate select design features that maximize reliability while ensuring superior performance and an excellent service life.

Gas recombination technology for VRLA batteries has completely changed the concept of standby power. The minimal level of gas evolution allows battery installation in cabinets or on stands, in offices or near main equipment, maximizing space utilization and reducing storage and maintenance costs. DataSafe HX top terminal batteries deliver superior performance.

Features and Benefits

- Flame retardant case and cover (UL94) to meet UL1778
- Self-resealing, flame-arresting vents
- Battery containers and covers are hermetically sealed to provide leak resistance over the life of the product
- Absorbed Glass Mat (AGM) separators – the electrolyte is completely absorbed into the separator
- High performance brass threaded receptacle, bolt terminal or faston terminals
- Increased energy density
- Computer optimized electrochemistry for increased power up to the 15 minute rate to 1.67 Volts Per Cell (VPC)
- 100% initial battery capacity
- Classified as non-spillable

Construction

- Brass insert with threaded receptacle (12HX80 - 12HX540), bolt terminal (12HX80-FR - HX150-FR) or faston tabs (HX25-FR - HX150-FR) for maximum conductivity and ease of installation.
- Compression grommet (12HX205-FR - 12HX540-FR) or dual welded/epoxy seal (12HX25-FR - 12HX150-FR) designed for long life.
- Self-sealing, flame-arresting vents and low pressure non-return valve prevents ingress of atmospheric oxygen.
- Rugged high performance positive plates designed to resist corrosion and prolong active life.
- Balanced negative plates ensure optimum recombination efficiency.
- Thick-wall plastic containers, highly resistant to shock and vibration. Flame retardant material is the standard offering.
- Low resistance microporous Absorbed Glass Mat (AGM) separator. The electrolyte is absorbed within this material.

Installation and Operation

- Normal operating temperature range
12HX25-FR - 12HX150-FR: -4°F (-20°C) to 122°F (50°C)
12HX205-FR - 12HX540-FR: -22°F (-30°C) to 122°F (50°C)
- Float charging voltage 2.25-2.28 Volts per cell at 77°F (25°C)
- DataSafe® HX top terminal batteries can be safely recharged at high current rates.
- DataSafe HX top terminal batteries can be stored for up to six months at 77°F (25°C) before a freshening charge is required. At higher temperatures this time interval will be reduced.
- Torque specifications
(Fig. C) M5 Receptacle - 31 in-lbs (3.5 Nm) ± 5%
(Fig. D) M6 Receptacle - (12HX150-FR)
44 in-lbs (5 Nm) ± 5%
(Fig. D) M6 Receptacle - (12HX205-FR - 12HX540-FR)
60 in-lbs (6.8 Nm) ± 5%
(Fig. E) M5 Bolt - 40 in-lbs (4.5 Nm) ± 5%
(Fig. F) M6 Bolt - 58 in-lbs (6.5 Nm) ± 5%

Standards

- UL listing – File No MH16464 (12HX25-FR - 12HX150-FR) or MH12544 (12HX205 - 12HX540)
- The management systems governing the manufacture of this product are ISO 9001:2008 and ISO 14001:2004 certified.
- Approved for shipping as non-hazardous, non-spillable – per IATA Special Provision A67 and 49 CFR.

General Specifications

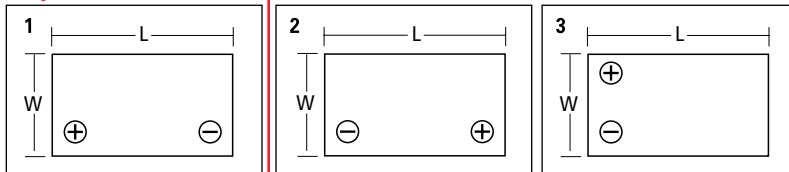
Battery Model	Nominal Voltage (V)	Nominal Ah	Watts/Cell	Nominal Dimensions												Electrolyte (1.300 SG)			
		8 hr rate to 1.75 volts/cell end voltage at 77°F (25°C)	@ 15 min rate to 1.67 volts/cell end voltage at 77°F (25°C)	Length		Width		Overall* Height		Typical Weight						Short Circuit Current (A)	Internal Resistance (mΩ)**	Layout	Terminals
				in	mm	in	mm	in	mm	lbs	kg	gals	liters	lbs	kg				
12HX25-FR	12	4.8	23	3.5	90	2.8	70	4.2	107	4.4	2.0	300	16.5	1	A/B	0.066	0.250	0.715	0.324
12HX35-FR	12	7.9	36	5.9	151	2.6	65	3.9	100	6.1	2.8	500	13.2	3	A/B	0.102	0.386	1.10	0.501
6HX50-FR	6	12	54	5.9	151	2.0	50	3.9	99	4.7	2.1	720	6.1	1	A/B	0.070	0.265	0.76	0.344
12HX50-FR	12	12	54	6.0	152	3.9	99	3.9	99	9.1	4.1	720	12.2	3	A/B	0.133	0.503	1.44	0.653
12HX80-FR	12	18	80	7.1	181	3.0	76	6.6	167	14.0	6.4	1000	8.5	2	C/E	0.250	0.946	2.71	1.23
12HX100-FR	12	26	104	6.5	166	4.9	125	6.9	175	22.0	10.0	1500	7.1	2	C/E	0.375	1.42	4.06	1.84
12HX135B-FR	12	31	136	7.8	198	5.1	130	7.1	180	26.0	11.8	1800	5.6	1	F	0.438	1.66	4.74	2.15
12HX135R-FR	12	31	136	7.7	196	5.1	130	6.7	169	26.0	11.8	1800	5.6	1	C	0.438	1.66	4.74	2.15
12HX150-FR	12	38	160	7.8	197	6.5	165	6.7	170	32.0	14.5	2400	5.0	2	D/F	0.570	2.16	6.17	2.80
12HX205-FR	12	43	206	8.9	226	5.5	140	8.1	206	43.0	19.5	2775	4.5	1	D	0.700	2.65	7.58	3.44
12HX300-FR	12	71	284	10.2	259	6.9	175	8.2	208	60.0	27.2	3175	3.9	1	D	1.11	4.20	12.02	5.45
12HX330-FR	12	83	336	11.8	300	6.8	173	8.4	213	71.0	32.2	3700	3.4	1	D	1.25	4.73	13.54	6.14
12HX400-FR	12	94	381	13.3	338	6.8	173	8.3	211	80.0	36.3	4225	3.0	1	D	1.33	5.03	14.40	6.53
12HX505-FR	12	119	506	13.3	338	6.8	173	10.7	272	103.0	46.7	4510	2.8	1	D	1.66	6.28	17.98	8.15
12HX540-FR	12	123	540	13.3	338	6.8	173	10.7	272	106.0	48.1	4775	2.6	1	D	1.70	6.44	18.41	8.35

* Including terminal

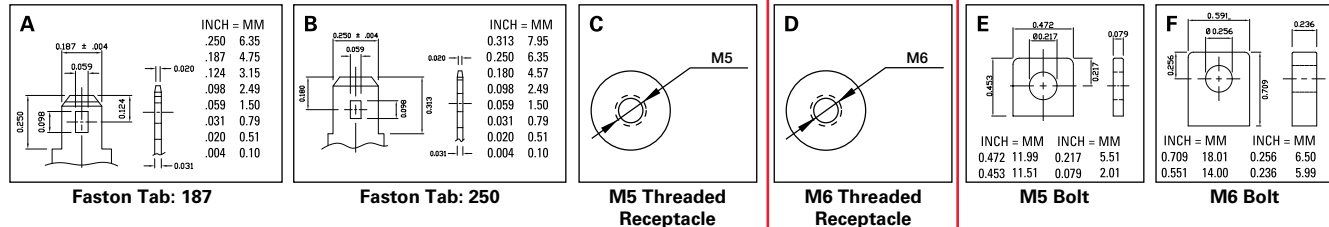
** Resistance values are for reference only and not intended to represent an Ohmic Value or Baseline measurement.

All dimensions given are +/-0.08 in (2mm)

Layout



Terminal



Battery Range Summary

Constant Power Discharge (Watts per Cell) to 1.75Vpc at 77°F (25°C)

Battery Model	Standby Time (Minutes)						
	5	10	15	20	30	45	60
12HX25-FR	47	30	23	18	13	10	8
12HX35-FR	70	47	36	29	21	15	12
6HX50-FR	105	70	53	43	32	23	18
12HX50-FR	105	70	53	43	32	23	18
12HX80-FR	144	101	79	64	47	34	27
12HX100-FR	180	128	100	82	62	46	37
12HX135-FR	244	171	134	110	82	60	47
12HX150-FR	270	195	152	127	96	71	57
12HX205-FR	373	258	197	160	118	85	67
12HX300-FR	513	357	277	227	173	128	102
12HX330-FR	590	418	328	272	204	150	120
12HX400-FR	671	479	371	308	230	170	136
12HX505-FR	783	600	479	398	298	218	173
12HX540-FR	835	638	511	425	318	233	186

Constant Power Discharge (Watts per Cell) to 1.70Vpc at 77°F (25°C)

Battery Model	Standby Time (Minutes)						
	5	10	15	20	30	45	60
12HX25-FR	49	31	23	19	13	10	8
12HX35-FR	73	48	36	29	21	15	12
6HX50-FR	111	72	54	44	32	23	18
12HX50-FR	111	72	54	44	32	23	18
12HX80-FR	152	104	80	65	47	34	27
12HX100-FR	192	133	103	84	63	46	37
12HX135-FR	256	176	136	111	82	60	47
12HX150-FR	289	205	158	130	97	71	57
12HX205-FR	400	269	204	164	119	85	67
12HX300-FR	545	369	283	231	174	128	102
12HX330-FR	624	431	336	276	206	150	120
12HX400-FR	708	493	380	313	232	170	136
12HX505-FR	845	637	499	410	301	218	173
12HX540-FR	898	675	532	439	326	236	186

Constant Power Discharge (Watts per Cell) to 1.67Vpc at 77°F (25°C)

Battery Model	Standby Time (Minutes)						
	5	10	15	20	30	45	60
12HX25-FR	50	32	23	19	13	10	8
12HX35-FR	74	48	36	29	21	15	12
6HX50-FR	113	73	54	44	32	23	18
12HX50-FR	113	73	54	44	32	23	18
12HX80-FR	156	105	80	65	47	34	27
12HX100-FR	197	135	104	84	63	46	37
12HX135-FR	260	177	136	111	82	60	47
12HX150-FR	299	209	161	131	97	71	57
12HX205-FR	412	274	206	164	119	85	67
12HX300-FR	558	373	284	231	174	128	102
12HX330-FR	637	435	336	276	206	150	120
12HX400-FR	722	498	381	313	232	170	136
12HX505-FR	877	653	506	412	301	218	173
12HX540-FR	931	691	540	444	326	236	186

Constant Power Discharge (Watts per Cell) to 1.65Vpc at 77°F (25°C)

Battery Model	Standby Time (Minutes)						
	5	10	15	20	30	45	60
12HX25-FR	50	32	23	19	13	10	8
12HX35-FR	74	48	36	29	21	15	12
6HX50-FR	114	73	54	44	32	23	18
12HX50-FR	114	73	54	44	32	23	18
12HX80-FR	157	106	80	65	47	34	27
12HX100-FR	200	136	104	84	63	46	37
12HX135-FR	262	177	136	111	82	60	47
12HX150-FR	304	211	161	131	97	71	57
12HX205-FR	420	276	206	164	119	85	67
12HX300-FR	563	375	284	231	174	128	102
12HX330-FR	643	437	336	276	206	150	120
12HX400-FR	729	500	381	313	232	170	136
12HX505-FR	897	661	510	412	301	218	173
12HX540-FR	951	699	545	446	326	236	186

Constant Power Discharge (Watts per Cell) to 1.63Vpc at 77°F (25°C)

Battery Model	Standby Time (Minutes)						
	5	10	15	20	30	45	60
12HX25-FR	51	32	23	19	13	10	8
12HX35-FR	74	48	36	29	21	15	12
6HX50-FR	115	73	54	44	32	23	18
12HX50-FR	115	73	54	44	32	23	18
12HX80-FR	158	106	80	65	47	34	27
12HX100-FR	202	137	104	84	63	46	37
12HX135-FR	263	177	136	111	82	60	47
12HX150-FR	309	212	160	131	97	71	57
12HX205-FR	426	278	206	164	119	85	67
12HX300-FR	567	375	284	231	174	128	102
12HX330-FR	648	437	336	276	206	150	120
12HX400-FR	734	500	381	313	232	170	136
12HX505-FR	916	667	511	412	301	218	173
12HX540-FR	970	706	549	446	326	236	186

Constant Power Discharge (Watts per Cell) to 1.60Vpc at 77°F (25°C)

Battery Model	Standby Time (Minutes)						
	5	10	15	20	30	45	60
12HX25-FR	51	32	23	19	13	10	8
12HX35-FR	75	48	36	29	21	15	12
6HX50-FR	116	73	54	44	32	23	18
12HX50-FR	116	73	54	44	32	23	18
12HX80-FR	160	106	80	65	47	34	27
12HX100-FR	204	137	104	84	63	46	37
12HX135-FR	264	177	136	111	82	60	47
12HX150-FR	315	214	161	131	97	71	57
12HX205-FR	433	279	206	164	119	85	67
12HX300-FR	571	375	284	231	174	128	102
12HX330-FR	652	437	336	276	206	150	120
12HX400-FR	739	500	381	313	232	170	136
12HX505-FR	941	675	511	412	301	218	173
12HX540-FR	995	715	550	446	326	236	186