



HRL series HRL 634W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General Design for Standby Power Applications

【Design Life】

Up to 8 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】

6.75 ~ 6.90 VDC/Unit at 25°C (77°F)

【Equalization Charging Voltage】

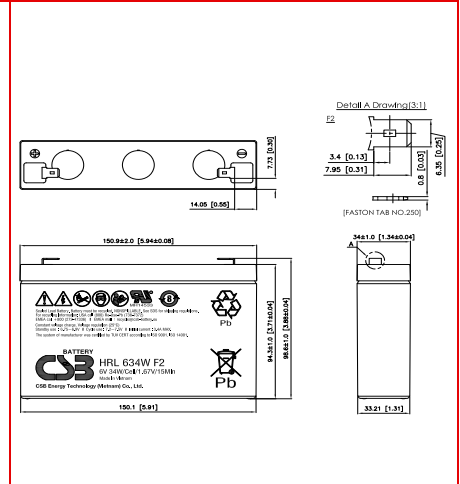
7.2 ~ 7.5 VDC/Unit at 25°C (77°F)

【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	6V (3 cells per unit)		
Nominal Capacity	34W @15min-rate to 1.67V per cell @25°C (77°F)		
Weight	Approx. 1.32 Kg (2.91 lbs)		
Maximum Discharge Current	130A (5sec)		
Internal Resistance	Approx. 8.30 mΩ		
Short Circuit Current	380A		
Maximum Charge Current	3.4A		
Terminal types	F2 terminal -Faston Tab 250		
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)	34.0±1.0 mm	1.34±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	60.4	47.4	41.7	37.6	30.9	26.6	18.7	14.4	10.3	7.39	5.84	4.66
1.67V	56.5	44.4	39.2	35.4	29.3	25.2	18.6	14.3	10.2	7.33	5.80	4.63
1.70V	54.9	43.1	37.9	34.2	28.6	24.6	18.5	14.2	10.1	7.29	5.78	4.62
1.75V	51.9	40.7	35.8	32.3	27.0	23.8	18.3	14.1	10.0	7.23	5.74	4.57
1.80V	48.9	37.9	33.7	30.6	25.8	23.0	18.1	13.9	9.94	7.17	5.69	4.52
1.85V	45.4	35.1	31.4	28.6	24.6	22.0	17.9	13.8	9.84	7.11	5.65	4.47

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	327	260	231	209	175	150	110	84.0	60.7	43.7	34.6	27.7
1.67V	312	246	218	197	167	143	109	82.6	60.3	43.5	34.5	27.6
1.70V	305	240	212	192	163	140	108	82.0	59.7	43.2	34.4	27.5
1.75V	292	228	202	183	155	135	104	81.0	59.3	43.0	34.2	27.3
1.80V	278	215	191	173	147	129	100	80.0	58.9	42.6	33.9	27.1
1.85V	265	203	181	164	139	123	96.0	79.0	58.1	42.2	33.7	26.9

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

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HRL series HRL 1210W



Valve Regulated Lead Acid Battery

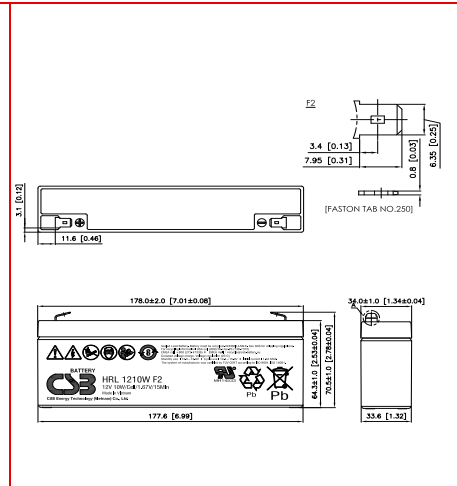
Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General Design for Standby Power Applications

【Design Life】 Up to 8 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).
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Specification Design according with IEC 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	10W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 1.10 Kg (2.42 lbs)	
Maximum Discharge Current	40A (5sec)	
Internal Resistance	Approx. 32.10 mΩ	
Short Circuit Current	120A	
Maximum Charge Current	1.0A	
Terminal types	F2 terminal -Faston Tab 250	
Terminal tightening torque	--	
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	178.0±2.0 mm 7.01±0.08 inch
	Width (W)	34.0±1.0 mm 1.34±0.04 inch
	Container Height (h)	64.3±1.0 mm 2.53±0.04 inch
	Overall Height (H)	70.5±1.0 mm 2.78±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	19.2	13.7	11.8	10.5	8.84	7.47	5.51	4.24	3.06	2.14	1.66	1.29
1.67V	18.3	13.3	11.5	10.2	8.70	7.37	5.43	4.20	3.03	2.12	1.64	1.28
1.70V	17.9	13.0	11.3	10.1	8.64	7.32	5.39	4.18	3.02	2.11	1.63	1.27
1.75V	17.1	12.5	11.0	9.85	8.37	7.15	5.27	4.10	2.98	2.09	1.62	1.26
1.80V	16.3	11.8	10.5	9.50	8.10	6.98	5.14	4.02	2.93	2.06	1.60	1.25
1.85V	15.6	11.1	10.0	9.15	7.83	6.81	5.02	3.94	2.89	2.04	1.59	1.24

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	200	147	127	113	95.6	81.5	60.9	47.0	34.1	24.0	18.7	14.7
1.67V	193	143	124	110	94.0	80.5	60.0	46.5	34.0	23.9	18.6	14.6
1.70V	189	140	121	108	92.9	79.8	59.3	46.3	33.9	23.8	18.5	14.5
1.75V	182	134	118	106	91.0	78.9	58.5	46.0	33.5	23.6	18.4	14.4
1.80V	175	128	114	103	89.1	77.3	57.2	45.2	33.0	23.3	18.2	14.3
1.85V	169	121	109	100	86.6	75.8	55.8	44.5	32.6	23.1	18.1	14.2

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HRL series HRL 1225W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General Design for Standby Power Applications

【Design Life】

Up to 8 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】

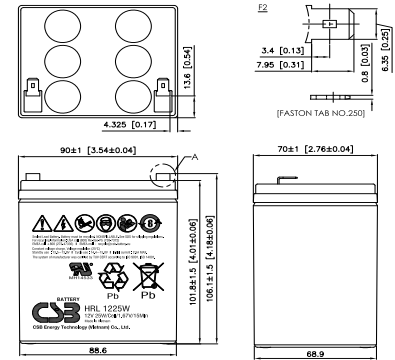
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【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 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	25W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 1.95 Kg (4.30 lbs)	
Maximum Discharge Current	130A (5sec)	
Internal Resistance	Approx. 19.60 mΩ	
Short Circuit Current	328A	
Maximum Charge Current	2.5A	
Terminal types	F2 terminal -Faston Tab 250	
Terminal tightening torque	--	
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	90.0±1.0 mm 3.54±0.04 inch
	Width (W)	70.0±1.0 mm 2.76±0.04 inch
	Container Height (h)	101.8±1.5 mm 4.01±0.06 inch
	Overall Height (H)	106.1±1.5 mm 4.18±0.06 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	57.1	38.1	32.6	28.1	22.2	19.2	13.9	11.0	7.96	5.70	4.50	3.22
1.67V	51.9	36.0	31.7	26.9	21.7	18.8	13.7	10.9	7.85	5.63	4.45	3.19
1.70V	49.4	34.7	30.5	26.1	21.4	18.6	13.6	10.8	7.78	5.59	4.42	3.18
1.75V	44.8	33.5	28.1	24.3	20.5	17.9	13.2	10.5	7.60	5.48	4.35	3.13
1.80V	39.1	29.2	24.9	22.5	19.3	16.7	12.5	10.0	7.32	5.30	4.21	3.05
1.85V	33.1	24.1	21.9	20.1	18.3	15.5	11.9	9.44	6.84	4.96	3.95	2.87

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	572	381	336	300	247	212	156	124	90.0	64.6	51.1	36.6
1.67V	539	369	325	292	242	208	154	123	89.2	64.1	50.7	36.4
1.70V	520	361	318	286	239	206	153	122	88.7	63.8	50.5	36.3
1.75V	453	340	302	273	231	199	149	119	87.1	62.8	49.8	35.9
1.80V	403	312	280	254	218	188	143	115	84.3	61.0	48.5	35.1
1.85V	360	281	252	231	197	172	131	106	79.3	57.6	45.9	33.4

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HRL series HRL 1234W



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Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General Design for Standby Power Applications

【Design Life】

Up to 8 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】

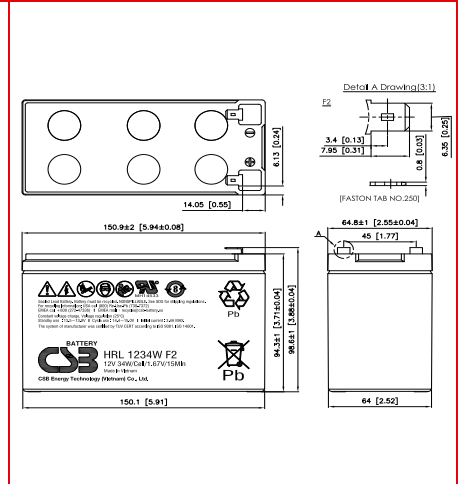
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【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 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. 2.70 Kg (5.95 lbs)		
Maximum Discharge Current	130A (5sec)		
Internal Resistance	Approx. 17.0 mΩ		
Short Circuit Current	367A		
Maximum Charge Current	3.4A		
Terminal types	F2 terminal -Faston Tab 250		
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	77.1	50.2	43.1	37.9	30.7	25.9	18.8	14.8	10.7	7.59	5.97	4.26
1.67V	69.6	48.0	41.7	36.9	30.2	25.6	18.6	14.7	10.6	7.56	5.95	4.25
1.70V	66.0	46.6	40.8	36.2	29.7	25.4	18.5	14.6	10.5	7.55	5.94	4.24
1.75V	60.0	43.6	38.5	34.6	28.7	24.6	18.2	14.4	10.4	7.48	5.90	4.22
1.80V	53.2	39.8	35.5	32.3	27.0	23.4	17.5	14.0	10.2	7.32	5.79	4.16
1.85V	45.8	35.3	31.9	29.0	24.8	21.4	16.4	13.2	9.69	6.99	5.55	4.00

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	754	530	464	412	339	290	215	171	125	89.4	70.9	51.1
1.67V	699	514	452	404	334	287	213	170	124	89.2	70.7	51.0
1.70V	689	503	443	398	330	284	212	169	123	89.0	70.6	50.9
1.75V	639	477	424	383	321	278	209	167	122	88.3	70.2	50.7
1.80V	582	441	397	359	306	266	203	163	120	86.8	69.1	50.1
1.85V	515	400	359	329	283	247	191	155	115	83.4	66.6	48.5

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HRL series HRL 1250W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General Design for Standby Power Applications

【Design Life】

Up to 8 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】

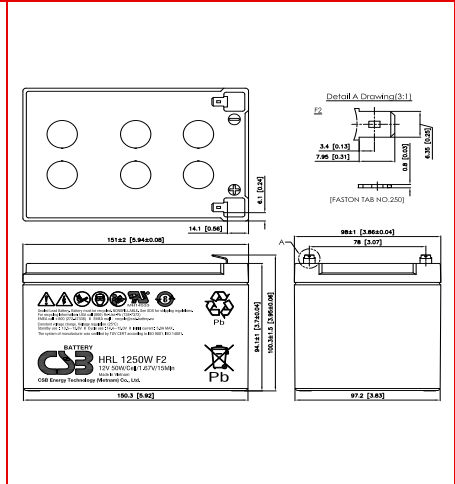
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【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 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)	
Nominal Capacity	50W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 3.90 Kg (8.60 lbs)	
Maximum Discharge Current	130A (5sec)	
Internal Resistance	Approx. 15.0 mΩ	
Short Circuit Current	--	
Maximum Charge Current	5.0 A	
Terminal types	F2 terminal -Faston Tab 250	
Terminal tightening torque	--	
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request	
Dimensions	Length (L)	151.0±2.0 mm 5.94±0.08 inch
	Width (W)	98.0±1.0 mm 3.00±0.08 inch
	Container Height (h)	94.1±1.0 mm 3.70±0.04 inch
	Overall Height (H)	100.3±1.5 mm 3.95±0.06 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	99.4	69.2	60.6	53.8	44.1	37.5	27.6	22.0	15.9	11.4	9.04	6.49
1.67V	89.5	65.0	57.6	51.7	42.8	36.7	27.2	21.7	15.8	11.3	8.96	6.43
1.70V	85.1	62.8	55.8	50.4	41.9	36.1	26.9	21.5	15.7	11.2	8.92	6.41
1.75V	75.3	58.1	52.1	47.4	39.9	34.6	26.2	21.0	15.4	11.1	8.80	6.34
1.80V	65.9	52.2	47.5	43.1	37.1	32.2	24.9	20.1	14.9	10.8	8.59	6.22
1.85V	55.7	45.4	41.3	38.2	32.9	29.0	22.7	18.6	14.0	10.2	8.15	5.94

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	979	727	636	569	475	410	309	247	181	132	105	76.0
1.67V	911	691	612	552	465	403	306	246	180	131	104	75.7
1.70V	879	669	597	540	458	397	303	244	179	130	103	75.5
1.75V	805	626	564	513	441	384	297	239	177	129	102	75.0
1.80V	731	574	518	477	412	362	284	230	172	126	101	73.8
1.85V	617	503	464	432	372	331	261	214	162	119	96.3	71.0

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

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HRL series HRL 1280W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General Design for Standby Power Applications

【Design Life】

Up to 8 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】

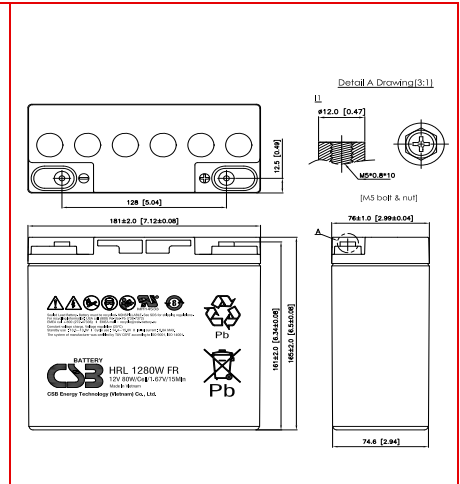
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【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 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)		
Nominal Capacity	80W @15min-rate to 1.67V per cell @25°C (77°F)		
Weight	Approx. 6.60 Kg (14.55 lbs)		
Maximum Discharge Current	300A (5sec)		
Internal Resistance	Approx. 9.00 mΩ		
Short Circuit Current	723A		
Maximum Charge Current	8.0A		
Terminal types	I1 thread lead alloy terminal to accept M5 bolt		
Terminal tightening torque	30.4±6.1 Kgf·cm / 26.4±5.3 Lbf·in / 3.0±0.6 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)	76.0±1.0 mm	2.99±0.04 inch
	Container Height (h)	165.0±2.0 mm	6.50±0.08 inch
	Overall Height (H)	165.0±2.0 mm	6.50±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	165	113	98.4	87.9	72.3	62.4	44.4	35.0	24.9	18.2	14.6	10.6
1.67V	142	103	90.7	81.7	69.5	58.7	43.5	34.0	24.6	18.0	14.4	10.4
1.70V	133	98.6	88.3	80.7	67.8	58.1	42.4	33.7	24.3	17.7	14.2	10.2
1.75V	119	92.3	82.6	75.5	64.3	54.3	41.6	32.9	23.7	17.4	14.0	10.1
1.80V	105	83.2	75.7	70.0	60.8	51.8	39.8	32.1	23.0	16.9	13.6	10.0
1.85V	92.3	76.6	70.1	65.2	56.8	49.2	37.6	30.1	22.1	16.6	13.5	9.84

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	1584	1171	1047	955	790	691	496	391	282	209	169	122
1.67V	1431	1073	971	895	761	661	485	382	280	207	167	121
1.70V	1369	1045	953	884	743	660	475	381	275	204	165	118
1.75V	1270	983	897	832	708	626	468	370	270	200	161	117
1.80V	1173	909	836	781	679	593	453	364	266	197	159	116
1.85V	1091	855	786	734	641	561	426	346	257	192	156	115

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HRL series HRL 12110W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General 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】

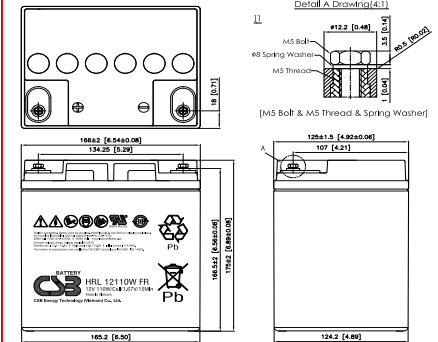
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【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 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)		
Nominal Capacity	110W @15min-rate to 1.67V per cell @25°C (77°F)		
Weight	Approx. 9.90 Kg (21.82 lbs)		
Maximum Discharge Current	225A (5sec)		
Internal Resistance	Approx. 8.10 mΩ		
Short Circuit Current	884A		
Maximum Charge Current	11.0A		
Terminal types	I1 thread lead alloy terminal to accept M5 bolt		
Terminal tightening torque	30.4±6.1 Kgf-cm / 26.4±5.3 Lbf-in / 3.0±0.6 N-m		
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request		
Dimensions	Length (L)	166.0±2.0 mm	6.54±0.08 inch
	Width (W)	125.0±1.5 mm	4.92±0.06 inch
	Container Height (h)	175.0±2.0 mm	6.89±0.08 inch
	Overall Height (H)	175.0±2.0 mm	6.89±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	170	145	129	118	97.5	81.6	61.4	48.0	33.6	25.7	21.3	14.9
1.67V	151	129	117	108	91.1	77.5	59.6	47.0	33.2	25.3	20.8	14.7
1.70V	141	121	111	103	88.3	75.7	58.6	46.3	32.7	24.8	20.4	14.5
1.75V	125	108	99.6	93.2	82.7	72.2	56.1	44.7	32.3	24.4	20.0	14.4
1.80V	109	94.0	88.2	83.7	76.4	68.7	53.7	42.5	31.9	24.0	19.6	14.2
1.85V	89.3	78.7	75.9	73.6	69.2	64.4	51.0	40.8	29.7	22.4	18.30	14.0

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	1806	1541	1385	1270	1053	888	682	554	385	297	247	174
1.67V	1624	1386	1263	1171	988	852	665	535	377	292	243	173
1.70V	1530	1316	1197	1107	956	827	655	526	372	287	239	171
1.75V	1358	1190	1093	1020	900	796	636	510	361	280	234	170
1.80V	1177	1054	990	941	851	764	610	495	352	274	229	168
1.85V	995	918	882	854	793	733	589	478	337	260	217	167

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

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HRL series HRL 12150W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

General 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】

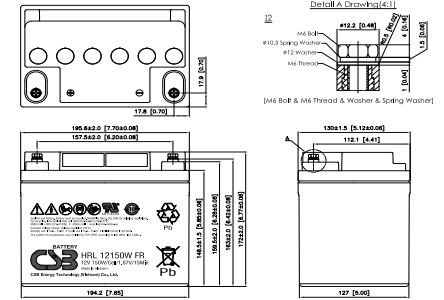
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【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 61056-1/2:2012

Nominal Voltage	12V (6 cells per unit)		
Nominal Capacity	150W @15min-rate to 1.67V per cell @25°C (77°F)		
Weight	Approx. 11.95 Kg (26.34 lbs)		
Maximum Discharge Current	225A (5sec)		
Internal Resistance	Approx. 7.30 mΩ		
Short Circuit Current	1116A		
Maximum Charge Current	15.0A		
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	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request		
Dimensions	Length (L)	195.6±2.0 mm	7.70±0.08 inch
	Width (W)	130.0±1.5 mm	5.12±0.06 inch
	Container Height (h)	172.0±2.0 mm	6.77±0.08 inch
	Overall Height (H)	172.0±2.0 mm	6.77±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	--	--	169	153	127	116	86.7	69.6	50.4	36.4	28.9	20.8
1.67V	--	--	152	139	116	107	82.2	66.3	48.4	35.3	28.6	20.5
1.70V	--	--	144	132	112	103	80.0	64.7	47.5	34.8	28.4	20.4
1.75V	--	--	132	122	104	96.8	76.0	62.0	45.7	33.6	27.8	20.0
1.80V	--	--	119	111	96.2	90.0	71.1	58.4	43.8	32.2	26.8	19.5
1.85V	--	--	107	100	88.0	82.8	67.0	55.1	41.7	30.9	25.0	18.6

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	--	--	1794	1636	1373	1263	968	788	577	421	335	244
1.67V	--	--	1624	1494	1275	1182	935	753	559	415	334	239
1.70V	--	--	1549	1430	1228	1143	916	737	548	409	332	236
1.75V	--	--	1422	1321	1149	1075	877	704	530	399	325	231
1.80V	--	--	1302	1217	1069	1006	825	675	507	383	314	226
1.85V	--	--	1188	1118	996	943	773	639	486	364	296	222

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HRL series HRL 12200W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

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】

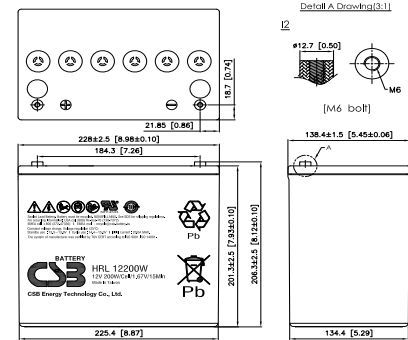
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

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	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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HRL series HRL 12280W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

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】

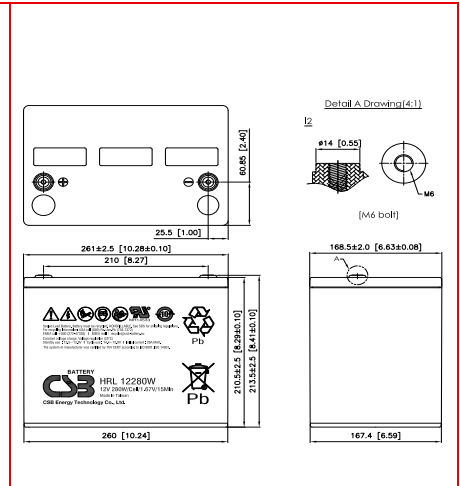
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

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	280W @15min-rate to 1.67V per cell @25°C (77°F)	
Weight	Approx. 25.80 Kg (56.86 lbs)	
Maximum Discharge Current	800A (5sec)	
Internal Resistance	Approx. 3.50 mΩ	
Short Circuit Current	2576A	
Maximum Charge Current	28.0A	
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)	261.0±2.5 mm 10.28±0.10 inch
	Width (W)	168.5±2.0 mm 6.63±0.08 inch
	Container Height (h)	210.5±2.5 mm 8.29±0.10 inch
	Overall Height (H)	213.5±2.5 mm 8.41±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	--	--	318	287	237	216	167	137	103	76.0	59.9	44.6
1.67V	--	--	283	258	217	200	155	128	98.3	72.9	57.7	42.1
1.70V	--	--	266	244	207	192	149	124	96.3	71.2	55.6	40.6
1.75V	--	--	236	218	188	175	141	117	91.3	68.5	53.8	38.5
1.80V	--	--	207	194	171	161	131	111	85.4	63.7	50.1	36.3
1.85V	--	--	178	169	152	145	122	105	81.3	59.7	47.3	34.7

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	--	--	3354	3039	2519	2304	1788	1476	1110	822	648	485
1.67V	--	--	3036	2778	2347	2166	1700	1417	1079	804	636	466
1.70V	--	--	2880	2650	2263	2100	1643	1384	1060	792	618	454
1.75V	--	--	2615	2422	2095	1955	1575	1326	1023	780	600	436
1.80V	--	--	2329	2176	1913	1800	1493	1274	980	738	581	422
1.85V	--	--	2016	1914	1735	1656	1408	1212	938	694	550	404

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HRL series HRL 12330W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

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】

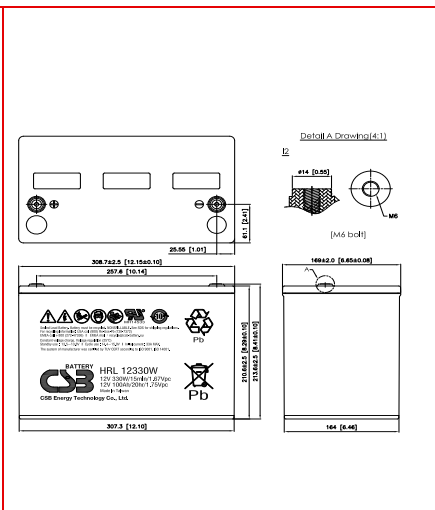
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

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	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 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)	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

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

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HRL series HRL 12330WG



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

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】

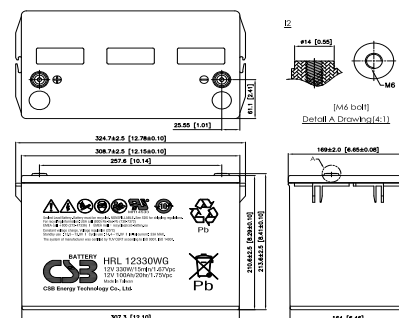
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

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	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 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)	324.7±2.5 mm 12.78±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

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

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HRL series HRL 12390W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

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】

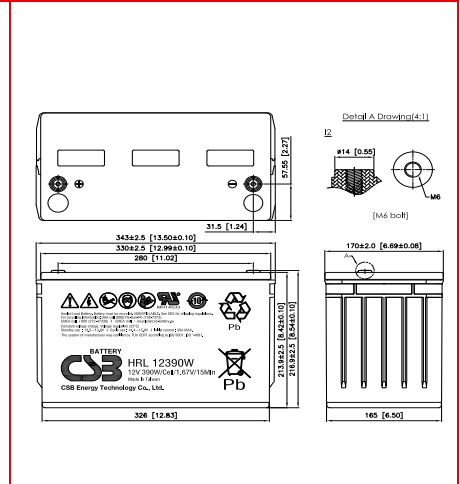
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

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	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 12540W



Valve Regulated Lead Acid Battery

Maintenance-Free Sealed Lead Acid Battery.
Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99%.

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】

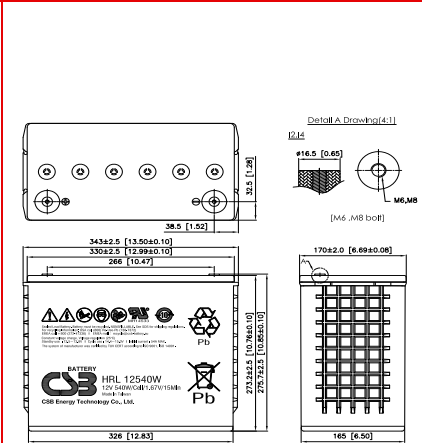
14.4 ~ 15.0 VDC/Unit at 25°C (77°F)

【Self Discharge】

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 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)	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

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