

EVH12240 x2												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	30MIN	45MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.60V	29.9	22.0	17.7	13.0	10.3	7.50	5.84	4.84	3.83	3.16	2.57	1.31
1.67V	29.6	21.7	17.5	12.9	10.2	7.44	5.83	4.78	3.80	3.15	2.56	1.30
1.70V	29.4	21.6	17.4	12.8	10.1	7.41	5.82	4.77	3.79	3.14	2.55	1.29
1.75V	29.0	21.3	17.2	12.7	10.0	7.32	5.74	4.73	3.74	3.09	2.52	1.28
1.80V	28.4	21.1	17.0	12.5	9.98	7.16	5.65	4.64	3.69	3.06	2.49	1.27
1.83V	27.0	20.2	16.2	11.9	9.56	6.85	5.44	4.47	3.53	2.91	2.34	1.17
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	30MIN	45MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.60V	346	257	208	154	123	88.9	69.9	58.6	46.4	38.3	31.4	16.2
1.67V	343	257	207	153	122	88.7	69.8	57.6	45.9	38.1	31.2	16.1
1.70V	340	256	206	152	121	87.9	69.1	57.4	45.7	38.0	31.0	16.0
1.75V	338	255	205	151	120	87.3	68.4	56.9	45.4	37.8	30.7	15.9
1.80V	331	247	199	147	118	85.1	67.1	55.9	44.7	37.2	30.3	15.7
1.83V	313	240	193	142	115	82.9	65.3	54.4	43.4	36.1	29.6	15.4

EVH12390												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	30MIN	45MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.60V	39.6	28.2	23.3	17.8	14.4	10.4	8.25	6.93	5.58	4.68	3.89	2.13
1.67V	38.5	27.7	22.9	17.5	14.2	10.3	8.19	6.87	5.51	4.60	3.81	2.06
1.70V	37.4	27.0	22.4	17.2	14.0	10.2	8.13	6.79	5.43	4.53	3.73	2.01
1.75V	36.4	26.6	22.0	16.8	13.7	10.1	8.04	6.71	5.36	4.46	3.67	1.96
1.80V	35.4	26.0	21.6	16.6	13.5	9.93	7.94	6.62	5.29	4.40	3.60	1.91
1.83V	34.3	25.5	21.1	16.2	13.3	9.78	7.80	6.52	5.20	4.33	3.54	1.87
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	30MIN	45MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.60V	475	340	280	213	172	124	99.0	83.2	67.0	56.2	46.6	25.5
1.67V	463	335	276	210	170	123	98.1	82.4	66.2	55.3	45.6	24.8
1.70V	451	328	271	207	168	122	97.2	81.5	65.2	54.4	44.8	24.1
1.75V	438	319	265	204	166	120	96.2	80.5	64.4	53.6	44.0	23.5
1.80V	425	312	260	201	163	119	95.0	79.4	63.4	52.8	43.3	22.9
1.83V	412	302	253	197	160	117	93.7	78.2	62.5	52.0	42.6	22.4

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

SALES OFFICE:

Hitachi Chemical Energy Technology Co., Ltd.
GLOBAL HQ

11F, No.150, Sec.4, Chengde Rd.,
Shilin Dist., Taipei City 11167, Taiwan (R.O.C.)
Tel : +886-2-2880-5600
Fax : +886-2-2888-3300
Mail : service@hitachi-chem-en.com.tw

Hitachi Chemical Energy Technology (Americas) Co., Ltd.
AMERICA HQ

4008 Clay Avenue, Suite 210,
Haltom City, TX 76117, U.S.A.
Tel : +1-817-244-7777 / 1-(800)3-CSB-USA(272872)
Fax : +1-817-244-4445
Mail : service@hitachi-chem-en.us

Hitachi Chemical Energy Technology (Shanghai) Co., Ltd.
SHANGHAI OFFICE

Room 2105, Qiang Sheng Tower, Pu Jian Rd.,
Shanghai, China PC : 200127
Tel : +86-21-5046-1622 / +86-21-5046-0833
+86-21-5046-0094
Fax : +86-21-5046-1046
Mail : service@hitachi-chem.en.sh.cn

MANUFACTURING SITE:

Hitachi Chemical Energy Technology Co., Ltd.
TAIWAN GUANTIAN FACTORY

No.16, Gongye W. Rd., Erzhen Village,
Guantian District, Tainan City 72048, Taiwan (R.O.C.)
Tel : +886-6-698-7600
Fax : +886-6-698-5734

Hitachi Chemical Energy Technology Co., Ltd (Philippines Branch)
PHILIPPINES FACTORY

Panorama Compound NO.7, South Avenue,
Phase3, PEZA, Rosario, Cavite, Philippines 4106
Tel : 63-46-437-0688 / 63-46-437-0838
Fax : 63-46-437-0980

CSB BATTERY TECHNOLOGIES (BEIJING) CO., LTD. (CHINA)
BEIJING OFFICE

Room 1009, 10th Building, Wanda Plaza,
Jianguo Rd., Chaoyang Dis., Beijing, China PC : 100022
Tel : +86-10-5820-5336 / +86-10-5820-5338
Fax : +86-10-5820-3053
Mail : chinass@csb-battery.com

Hitachi Chemical Energy Technology (EMEA) B.V.
EUROPE HQ

Keurmeesterstraat 28-30,
2984 BA Ridderkerk, The Netherlands
Tel : +31-(0)-180-418-140
Fax : +31-(0)-180-418-327
Mail : service@hitachi-chem-en.canl

Hitachi Chemical Energy Technology (Shanghai) Co., Ltd.
SHENZHEN OFFICE

Room 2103-2105, Block East,
City Professional Hub, Shennan Avenue,
Futian, Shenzhen, China PC : 518040
Tel : +86-755-8831-6488 / +86-755-8831-6775
+86-755-8831-6075
Fax : +86-755-8831-6548
Mail : service@hitachi-chem.en.sh.cn

Hitachi Chemical Energy Technology (Vietnam) Co., Ltd
VIETNAM FACTORY

Duong so 4, Khu Cong Nghiep Nhon Trach 3 - Giai Doan 2,
Xa Long Tho, Huyen Nhon Trach, Tinh Dong Nai, Viet Nam
Tel : +84-61-356-9120
Fax : +84-61-356-9165

Hitachi Chemical
HITACHI



Superior Cycle Life Improved
Performance Dependable
ENERGY OF INFINITY ►

EVH series

BATTERY
CSB



Hitachi Chemical Energy Technology Co., Ltd.

EVH series

EVH-series batteries, superior cycle life and runtime are specially designed for wheeled riding devices such as electric cars, bicycles, wheelchairs, golf carts, shopping carts, etc.

With new VRLA technology, the EVH series batteries are small, lightweight and can be used up for more than 400 cycles at 100% discharge.

As with all our ISO/UL certified batteries, EVH series batteries are rechargeable, efficient, maintenance-free, leakproof and suitable in any orientation.



In accordance with BS6290-4

Performance and Benefits :

- Innovative PAM manufacturing technique increases cycle by 150% over standard sealed Pb-acid
- Reduced internal resistance for superior performance
- Uniformed plate formation for consistent capacity
- Hundreds to thousands of recharge cycles (cycle life is based on temperature and depth of discharge)
- 100 % capacity on first discharge
- More runtime service period
- No-spill design
- Maintenance-free

Feature Advantages :

- Strengthen adaptation of plates and separators, better discharging performance by high current
- Automatic welding manufacturing, higher quality control, improved consistency of battery pack
- Better anti-corrosion characteristics, excellent conductivity, less environmental pollution
- Long cycle life with outstanding low temperature application property
- Increase plate porosity, enhance reaction efficiency of active materials
- Enhanced lead recycle ability

Long Service Life :

- More than 400 cycles at 100% discharge cycle use

Reliability :

- Our batteries are 100% 2-cycle tested by computer charge and discharge System (CCDS).
- Our batteries are UL-recognized components under UL 1989. (File Number with MH 14533)
- ISO 9001/14001/18001 certified.

Core Technology :

- Latest enveloping & stacking machine investment from abroad
- Cutting-edge automatic welding COS technology development
- Consolidated AGM-GEL design advantages
- Patent additives for paste improvement
- Cadmium free Pb-Ca alloy grid

Applications :

Cycle use

- Golf carts
- Electric vehicles
- Portable telephone sets
- Portable lighting equipment
- Portable measuring equipment
- Camera and photographic equipment
- Portable VTR/TV, tape recorders and radios
- Power tools, lawn mowers, vacuum cleaners
- Portable personal computers and processors

Solar Cell Power Generation :

- Street lighting
- Portable power supply
- Water pumping
- Rural power systems

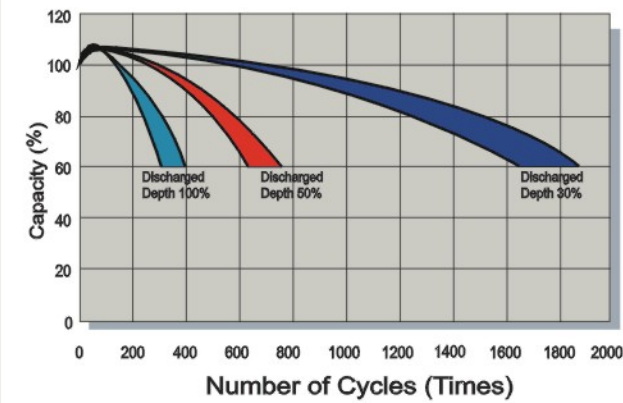
Specifications

Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah)*	Weight (Approx. Kg)	Internal Resistance Approx. (mΩ)	Short Circuit Current (A)	Max Discharge Current 5sec(A)	Dimensions (mm)				Terminal Type	Bolt	Max. Charge Current (A)	Max. Screw Torque Value	
							Overall Height (H)	Container Height (h)	Length(L)	Width (W)				Kgf·cm/ lbf·in	N·m
EVH12150 x3	12	15	4.60	10.5	..	180	1018±1.5	97.5±1.0	1510±2.0	980±1.0	F2	Faston Tab 250	4.90	..	..
EVH12240 x2	12	24	7.55	8.6	..	320	1700±2.0	170.0±2.0	1810±2.0	762±1.0	I1	M5	7.2	59.61	5.73
EVH12390	12	39	11.5	8.9	..	400	1783±2.0	154.8±2.0	196.6±2.0	130.0±1.5	B5	M6	11.7	138.6/120.3	13.58

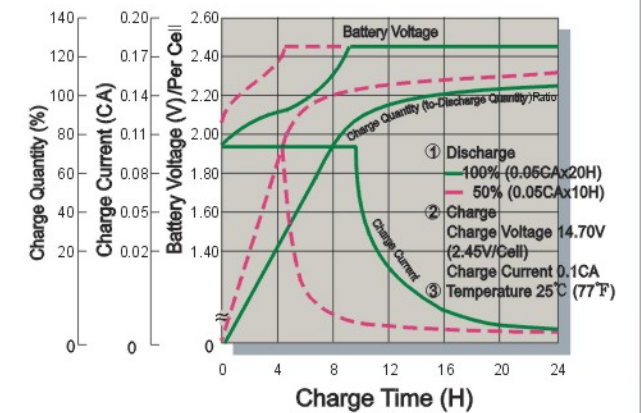
* Nominal Capacity 20hr-rate to 1.75V per cell@25℃ (77°F)

• Charging voltage for cycle Use : 2.45±0.05V/cell AT 25℃ (77°F) Temp. Coefficient:5.0mV/℃

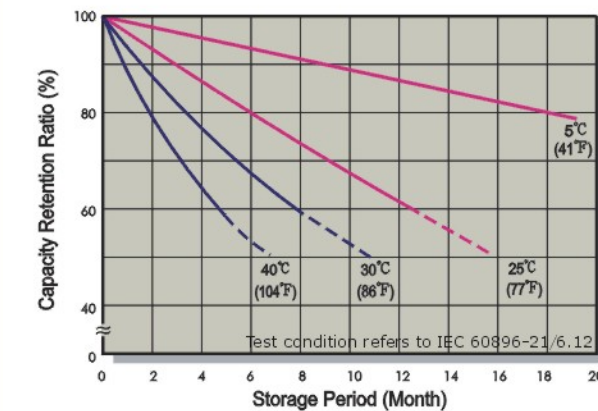
Cycle Service Life



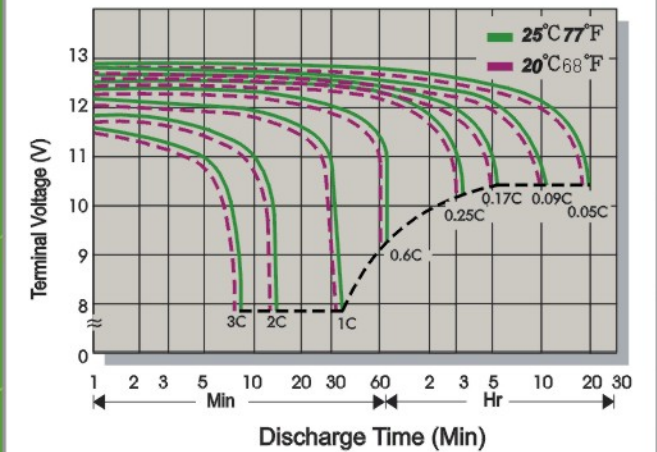
Battery Voltage and Charge Time for Cycle Use



Capacity Retention Characteristics

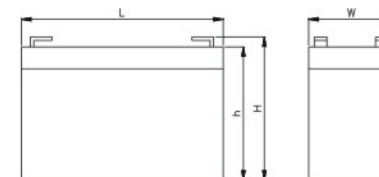


Discharge Characteristics

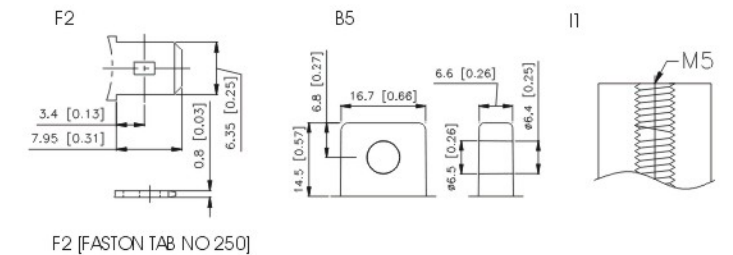


• The above diagrams are typical. For more detailed information please see the specific product sheets.
• C is the capacity of 20 hour-rate while the final voltage is 1.75V per cell
For example, 1C discharge current of EVH 12150 is: 1 × 15 = 15 (A)

Battery Profile



Terminal Type



EVH12150 x3

Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	30MIN	45MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.60V	20.0	14.4	11.2	7.85	6.18	4.33	3.35	2.74	2.17	1.79	1.43	0.79
1.67V	19.9	14.1	11.0	7.79	6.11	4.25	3.31	2.73	2.16	1.78	1.42	0.78
1.70V	19.8	13.9	10.9	7.73	6.03	4.23	3.30	2.72	2.15	1.77	1.41	0.77
1.75V	19.5	13.8	10.8	7.66	6.00	4.17	3.27	2.71	2.14	1.76	1.39	0.76
1.80V	19.0	13.8	10.7	7.50	5.83	4.08	3.19	2.64	2.10	1.74	1.38	0.75
1.83V	18.2	13.3	10.4	7.38	5.72	3.94	3.09	2.56	2.03	1.68	1.33	0.72
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	30MIN	45MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.60V	221	165	129	91.4	71.0	49.6	38.9	31.9	25.3	21.0	17.1	8.98
1.67V	220	163	128	90.8	70.5	49.2	38.6	31.7	25.2	20.9	17.0	8.96
1.70V	218	162	127	89.9	70.0	49.0	38.4	31.5	25.1	20.8	16.9	8.92
1.75V	215	159	125	88.7	69.4	48.8	38.1	31.1	24.9	20.7	16.8	8.82
1.80V	211	157	123	87.3	68.6	47.9	37.5	30.7	24.6	20.5	16.7	8.74
1.83V	206	155	121	85.3	66.6	46.7	36.3	29.6	23.8	19.9	16.4	8.52