EverExceed®
power your applications

HIGH RATE RANGE | AGM VRLA

SEALED VRLA MONOBLOC AGM BATTERIES

26Ah ~ 250Ah to 1.80VPC @ C10

The extremely powerful, compact AGM batteries of EverExceed High Rate Range are an ideal power solution for Uninterruptible Power Supply (UPS), emergency lighting, switchgear, telecom and other high rate emergency battery backup required applications. The EverExceed High Rate Range VRLA batteries provides high performance and reliability in fast discharge applications. Our development team combines the market's demand with design optimization, precision component selection and state-of-the-art manufacturing process to produce the most cost effective battery solution for today's applications.

Applicable operating temperature range:
-40°C (-40°F) to +70°C (+158°F)

Ideal operating temperature range:
+20°C (+68°F) to +28°C (+82.4°F)

Storage time from a fully charged condition:
12 months at 20°C ~25°C/ 68°F~77°F. For each 9°C / 15°F rise, reduce the storage time by half.

Applications

High Rate range batteries Incorporate EverExceed's advanced VRLA technology designed for long life and high performance in:

- Uninterruptible Power Supply (UPS)
- Network Operations Centers
- Banks & Financial Markets
- Emergency 911 Response Centers
- Data Center
- Alarm and security
- Hospitals
- Power Generation Plants

Standards and Compliances

- IEC 60896-21/22 : 2004
- UL 1989
- NEBS Compliant
- BS 6290 PART 4
- EUROBAT" Long Life"

Innovative Features

- 12 years design life @ 25˚C(77˚F).
- High energy density designed, specially for high current and high power discharge UPS system.
- Valve regulated lead acid battery (VRLA).
- The active material is manufactured from best purity lead (99.994%) to minimize the negative effects of impurities.
- High-Compression Absorbed Glass Mat technology (AGM) for greater than 99% recombination efficiency.
- Proprietary Fixed Orifice Plate Pasting technology applying active materials on both sides of the grid for consistent cell-to-cell performance, higher capacity and uniform grid protection.
- Heavy duty threaded copper alloy terminals for ease of assembly, reduced maintenance and increased safety.
- Advanced high tin low calcium lead alloy, minimizing plate grid corrosion and promotes long battery life.
- Over-sized, through the partition inter-cell welds provide low resistance connections, with minimal power loss.
- Flame arresting, low pressure safety release venting system for individual cells, recognized per UL 924.
- Multi cell design for ease of installation and maintenance.
- Horizontal or vertical operation.
- One-way fire proof relief valve, Explosion Resistant.
- Patented long life alloy having the lowest calcium levels industry-minimizing grid growth, reducing gassing, and extending battery life.
- Standard: Reinforced ABS (UL 94HB) container and cover Optional: Flame-retardant reinforced ABS case and cover compliant with UL94V-0 with an Oxygen Limiting Index of greater than 28%.

Designed in Quality Manufacturing

Quality manufacturing processes for the High Rate Range batteries incorporate the industry's most advanced technologies including: an automated sealing detection system, a computer controlled "fill by weight" acid filler, and a temperature controlled water bath formation process. Each and every unit is capacity tested.

No Transport Restrictions

Surface transport: Classified as non-hazardous material as related to DOT-CFR Title 49 parts 171-189.

Marine transport: Classified as non-hazardous material as per IMDG amendment 27.

Air transport: Complies with IATA/ICAO, Special provision A67.

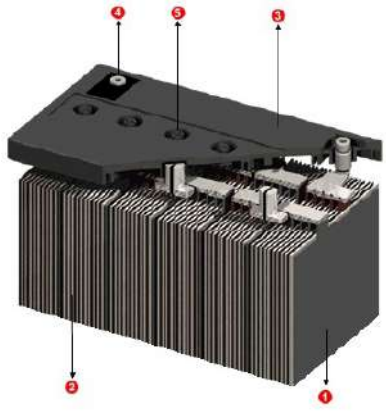
Intertek UL 1989

ISO 9001 14001

CONSTRUCTION - AGM battery construction is as shown in the diagram below. The positive and negative grids are cast from a calcium / tin lead alloy to reduce grid growth and corrosion. The active material is manufactured from best high purity lead (99.994%) to minimize the negative effects of impurities.

Separator is mat of random woven acid resistant glass fibers, which acts as sponge - soaking up and immobilizing the electrolyte whilst maintaining good acid to plate contact and availability during discharge. “U wrapping” is employed to eliminate the risk of short circuits due to mossing and debris at the bottom of the cell.

The purpose of the separator is to maintain a constant distance between the positive and negative plates, thus removing the possibility of short circuits whilst allowing the active material to fully react with the electrolyte. The random weaving also results in an open structure, which offers minimal resistance to the flow of electrolyte during filling.

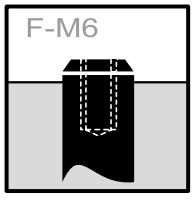


1. **Plates:** Low calcium / high tin lead alloy, optimized for high corrosion resistance.
2. **Separator:** Highly porous glass micro-fibre separator, optimized for low internal resistance, for maximum Absorption of the electrolyte and for electrical separation of the positive and negative plates.
3. **Standard Housing:** Reinforced ABS (UL 94HB) container and cover; **Optional Housing:** Flame-retardant reinforced ABS container and cover compliant with UL94V-0 with an Oxygen limiting Index of greater than 28%.
4. **Terminals:** Silver plated copper female insert for easy and safe assembly and maintenance free connection with Excellent conductivity.
5. **Valves:** Release gas in case of excess pressure and protects the cell against atmosphere.

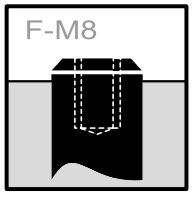
ELECTROLYTE FILLING - Special production and stringent QC systems are utilized to ensure the electrolyte saturation is optimized for each cell.

Measured high vacuum acid fill, reduces electrical variability between cells. The battery design and construction negates the need for electrolyte addition and the battery remains maintenance free throughout its design life.

Terminal and torque



5 Nm



11 Nm

SAFETY RELEASE VALVE - The battery will operate above atmospheric pressure under normal operating conditions, however the maximum pressure is governed by the safety one-way release valve. Open is activated by pressures in excess of approx.(24-28 Kpa), resealing at approx.(8-16Kpa).

GAS RECOMBINATION - The gasses generated during normal operation of the battery are internally recombined. In fact more than 99% of the gas achieves recombination.

TERMINAL CONSTRUCTION - The contact quality between the insert terminal and the lead post is of vital importance during short duration / high Amp discharges. Elevated terminal temperatures are the result of poor contact, eventually causing seal degradation and electrolyte leaks.

EverExceed’s design and assembly technique for terminal casting ensures trouble free operation for the design life of the battery.

High Rate Range Electrical Specifications & Dimensions

Battery Model	Nom. Voltage (V)	Capacity C10 to 1.80VPC (Ah)	Capacity C20 to 1.75VPC (Ah)	15 min. WPC to 1.67VPC	CCA at –18°C (0°F) (Amps)	Short Circuit Amps	Internal Re-sistance (mΩ)	Termi-nal Type	Battery Weight (kg/lbs)		Outline Dimensions (mm/inch)					
											Length		Width		Height	
HR-1226	12	26	28	95.8	215	1315	11.5	F-M5	8.5	18.7	165	6.50	126	4.96	173	6.81
HR-1235	12	35	36	140	240	2140	10.0	F-M6	10.8	23.8	195	7.68	130	5.12	172	6.77
HR-1255	12	55	59	203	280	2410	7.2	F-M6	16.5	36.3	228	8.98	137	5.39	213	8.39
HR-1270	12	70	76	280	410	2880	6.3	F-M6	22.5	49.5	259	10.2	168	6.62	215	8.5
HR-1280	12	80	86.8	295	460	3200	5.8	F-M6	23.0	50.6	259	10.2	168	6.62	215	8.5
HR-1290	12	90	99.2	325	510	3350	5.0	F-M6	26.5	58.3	305	12	168	6.62	215	8.5
HR-12100	12	100	114	350	580	3500	4.5	F-M6	29.5	64.9	305	12	168	6.62	215	8.5
HR-12120	12	120	136	430	760	4500	4.0	F-M8	35.5	78.1	408	16.1	175	6.9	235	9.25
HR-12135	12	135	153	485	880	4600	3.5	F-M8	39.5	86.9	340	13.4	173	6.81	285	11.2
HR-12150	12	150	162	506	970	5000	3.3	F-M8	43.5	95.7	480	18.9	170	6.7	240	9.45
HR-12160	12	160	173	540	1080	5200	3.2	F-M8	45.0	99.0	480	18.9	170	6.7	240	9.45
HR-12180	12	180	195	615	1170	5500	3.0	F-M8	56.0	123	520	20.5	238	9.37	220	8.67
HR-12200	12	200	228	700	1240	6000	2.8	F-M8	61.0	134	520	20.5	238	9.37	220	8.67
HR-12230	12	230	262	800	1400	6300	2.6	F-M8	63.5	140	520	20.5	238	9.37	220	8.67
HR-12250	12	250	284	860	1560	6600	2.5	F-M8	70.0	163	520	20.5	269	10.6	225	8.86

High Rate Range Discharge Amperes Minutes / Hours Data @ 25°C

Battery Model	End VPC	Discharge Data Amperes														
		Discharge Time In Minutes					Discharge Time In Hours									
		5	15	30	45	60	2	3	5	8	10	12	20	24	72	100
HR-1226	1.90	55	35.5	24.2	19.6	15.1	8.95	6.19	4.25	2.82	2.31	1.96	1.23	1.04	0.37	0.25
	1.85	67.6	41.4	27.2	22.1	16.9	9.81	6.75	4.62	3.07	2.51	2.13	1.34	1.13	0.4	0.28
	1.80	77.9	45.4	29.3	23.5	17.7	10.3	7.02	4.79	3.18	2.6	2.21	1.38	1.17	0.41	0.29
	1.75	86.2	47.7	30.3	24.3	18.2	10.5	7.17	4.89	3.23	2.64	2.24	1.4	1.19	0.42	0.3
HR-1235	1.90	95.1	50.3	32.8	26.2	19.8	12	8.33	5.68	3.7	2.98	2.6	1.55	1.3	0.46	0.33
	1.85	110	60.3	37.2	29.7	22.4	12.9	8.72	5.99	3.91	3.17	2.74	1.68	1.41	0.49	0.36
	1.80	123	66.9	40.6	32.5	24.4	13.5	9.14	6.16	4.05	3.5	2.83	1.76	1.48	0.5	0.37
	1.75	132	73.4	43.7	34.6	25.7	14.2	9.41	6.34	4.16	3.35	2.86	1.8	1.51	0.51	0.37
HR-1255	1.90	142	85	55.7	42.2	34	19.7	13.4	9.1	6.02	4.87	4.13	2.57	2.16	0.76	0.55
	1.85	166	98	62.7	47	37.4	21.5	14.5	9.8	6.5	5.29	4.48	2.79	2.36	0.82	0.61
	1.80	187	108	67.2	50.1	39.7	22.6	15.2	10.3	6.71	5.5	4.66	2.9	2.44	0.85	0.63
	1.75	206	113	69.9	51.8	40.8	23.1	15.6	10.5	6.93	5.61	4.73	2.95	2.48	0.86	0.64
HR-1280	1.90	145	104	70.6	57.8	45.1	28	19.1	13.4	9.04	7.4	6.27	3.8	3.18	1.08	0.8
	1.85	186	127	81	65.6	50.3	29.5	20.0	14	9.32	7.63	6.46	4.04	3.4	1.18	0.86
	1.80	220	140	89	71.7	54.3	31.2	21.2	14.5	9.73	8	6.78	4.24	3.57	1.22	0.89
	1.75	245	152	93.7	75.1	56.7	32.4	21.9	14.9	10	8.21	6.95	4.34	3.64	1.25	0.9
HR-1290	1.90	163	114	76.7	61.7	46.7	28.7	19.8	13.9	9.54	7.84	6.68	4.32	3.65	1.26	0.92
	1.85	207	136	86.9	70.3	53.8	31.8	22.0	15.2	10.3	8.57	7.33	4.63	3.89	1.36	0.98
	1.80	250	149	95.8	76.7	57.6	34.2	23.6	16.2	10.8	9	7.61	4.85	4.07	1.41	1.01
	1.75	285	162	101	81.3	61.2	35	24.1	16.7	11.1	9.19	7.86	4.96	4.15	1.42	1.04
HR-12100	1.90	177	125	85.2	69.3	53.4	32.8	22.7	15.9	10.8	8.98	7.65	4.93	4.15	1.43	1.03
	1.85	231	155	105	83.5	62.5	35.7	24.6	17	11.5	9.59	8.22	5.31	4.45	1.56	1.13
	1.80	273	172	113	90.3	68.3	38.6	26.1	18	12.2	10	8.61	5.56	4.66	1.61	1.17
	1.75	311	184	119	94.5	69.9	39.5	27.0	18.4	12.5	10.3	8.85	5.68	4.76	1.63	1.18
HR-12120	1.90	212	149	102	82.9	63.8	39.3	27.1	19	12.9	10.7	9.15	5.9	4.96	1.71	1.23
	1.85	276	185	125	99.8	74.7	42.7	29.5	20.4	13.7	11.4	9.83	6.34	5.32	1.86	1.35
	1.80	326	205	135	108	81.6	46.2	31.2	21.5	14.5	12.0	10.3	6.65	5.57	1.92	1.4
	1.75	372	220	143	113	83.5	47.3	32.3	22	14.9	12.3	10.6	6.79	5.69	1.95	1.42
HR-12135	1.90	238	169	115	93.5	72	44.2	30.6	21.4	14.5	12.1	10.3	6.65	5.59	1.93	1.4
	1.85	312	208	141	113	84.3	48.1	33.2	23	15.4	12.9	11.1	7.15	6	2.1	1.52
	1.80	368	231	152	121	92	52.1	35.2	24.3	16.3	13.5	11.6	7.49	6.28	2.17	1.59
	1.75	420	247	161	127	94.2	53.3	36.4	24.7	16.9	14	11.9	7.66	6.42	2.2	1.6

Actual Battery Discharge Data may be +/-5% of figures shown above.

High Rate Range Discharge Amperes Minutes / Hours Data @ 25°C

Battery Model	End VPC	Discharge Data Amperes														
		Discharge Time In Minutes					Discharge Time In Hours									
		5	15	30	45	60	2	3	5	8	10	12	20	24	72	100
HR-12150	1.90	250	183	132	109	85	50.9	35.3	24.4	16.2	13.3	11.3	7.1	5.99	2.13	1.54
	1.85	313	188	152	123	95.8	55.4	38.9	26.7	17.6	14.4	12.3	7.72	6.52	2.32	1.69
	1.80	374	223	172	136	103	59.6	40.5	27.7	18.3	15	12.8	8.01	6.77	2.41	1.75
	1.75	423	260	181	144	107	61	41.6	28.3	19.2	15.3	12.9	8.12	6.86	2.43	1.78
HR-12160	1.90	267	196	141	117	90.9	54.4	37.8	26.1	17.3	14.2	12.1	7.59	6.4	2.27	1.65
	1.85	334	201	162	132	102	59.1	41.5	28.4	18.8	15.4	13.2	8.25	6.96	2.48	1.81
	1.80	400	239	184	145	109	63.7	43.2	29.6	19.6	16	13.7	8.55	7.23	2.57	1.87
	1.75	452	278	194	154	114	65.2	44.5	30.2	20.5	16.3	13.8	8.67	7.33	2.59	1.9
HR-12180	1.90	300	220	157	131	102	61.1	42.5	29.3	19.4	16	13.6	8.53	7.19	2.55	1.85
	1.85	375	226	182	148	115	66.4	46.6	31.9	21.1	17.2	14.8	9.27	7.83	2.78	2.03
	1.80	449	268	207	163	123	71.6	48.5	33.3	22	18	15.4	9.6	8.13	2.89	2.1
	1.75	508	313	218	172	127	73.2	50.0	33.8	23.1	18.3	15.5	9.74	8.23	2.91	2.13
HR-12200	1.90	284	235	169	139	107	65.6	45.3	31.7	21.6	18	15.3	9.89	8.31	2.85	2.07
	1.85	377	282	198	161	125	71.3	49.1	34.1	23.1	19.2	16.5	10.6	8.91	3.1	2.25
	1.80	475	327	223	180	136	77.3	52.2	35.9	24.2	20	17.3	11.1	9.33	3.22	2.33
	1.75	516	355	236	189	140	79	54.0	36.8	25	20.7	17.7	11.4	9.52	3.26	2.36
HR-12230	1.90	328	271	195	159	123	75.6	52.3	36.5	24.9	20.7	17.6	11.4	9.58	3.29	2.38
	1.85	435	325	228	186	145	82.1	56.5	39.3	26.5	22.1	19	12.2	10.3	3.58	2.6
	1.80	548	377	256	207	157	89	60.0	41.3	27.9	23	19.9	12.9	10.7	3.7	2.69
	1.75	594	409	272	217	161	91	62.2	42.5	28.8	23.8	20.4	13.1	11	3.76	2.72
HR-12250	1.90	357	295	212	173	134	82.2	56.8	39.7	27.1	22.5	19.1	12.4	10.4	3.58	2.59
	1.85	473	353	248	202	158	89.2	61.5	42.7	28.8	24	20.7	13.3	11.2	3.89	2.83
	1.80	596	410	278	225	171	96.7	65.3	44.9	30.3	25	21.6	14	11.6	4.02	2.92
	1.75	646	445	296	236	175	98.9	67.6	46.2	31.3	25.9	22.2	14.2	12	4.09	2.96

Actual Battery Discharge Data may be +/-5% of figures shown above.

High Rate Range Discharge Watts Per Cell (WPC) Data @ 25°C

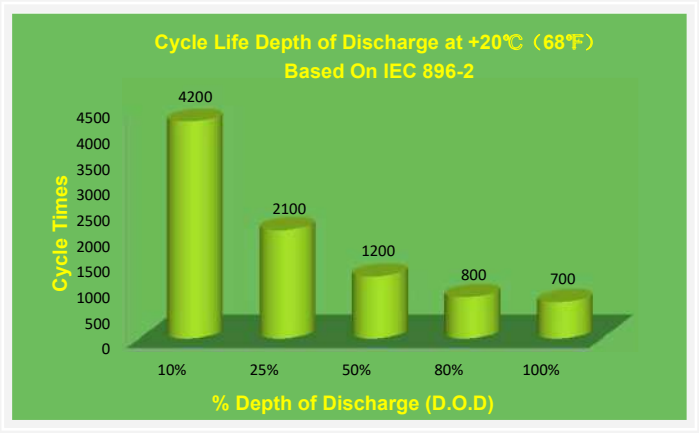
Battery Model	End VPC	Discharge Data Watts Per Cell @ 25°C									
		Discharge Time In Minutes									
		5	10	15	20	30	40	45	50	60	90
HR-1226	1.75	156	111	85.3	73.3	56.8	45.8	42.6	39.0	34.5	25.4
	1.70	166	114	89.1	75.0	57.7	46.5	43.5	40.1	34.9	25.6
	1.67	171	115	92.9	75.6	58.2	47.2	44.3	40.8	35.5	25.8
	1.65	172	116	94.3	76.3	59.0	47.7	45.0	41.2	35.9	26.1
	1.60	175	118	96.4	78.2	61.3	48.0	45.4	41.4	36.8	26.4
HR-1235	1.75	268	158	115	114	85.2	68.2	62.5	57.0	48.6	35.5
	1.70	280	160	120	115	86.4	69.3	63.2	57.4	49.2	35.8
	1.67	285	162	130	116	88.1	71.0	63.6	58.0	49.6	36.2
	1.65	288	164	132	118	89.5	71.6	64.5	58.7	50.2	36.7
	1.60	293	165	135	120	90.7	72.5	65.4	59.5	50.8	36.9
HR-1255	1.75	310	248	180	156	118	96.5	90.0	83.5	72.0	52.1
	1.70	323	251	189	161	121	98.6	90.7	84.1	73.0	53.2
	1.67	335	254	204	166	123	99.5	92.0	85.0	73.5	53.7
	1.65	342	258	207	168	124	1001	93.7	86.2	74.5	54.3
	1.60	350	259	212	170	126	103	94.8	88.0	76.3	55.1
HR-1270	1.75	380	315	230	220	168	132	119	111	92.8	72.3
	1.70	410	320	240	223	170	134	121	113	95.2	75.0
	1.67	445	323	260	227	172	135	123	114	98.0	76.2
	1.65	465	328	264	230	174	138	125	116	101	77.1
	1.60	480	330	270	232	175	139	126	118	103	79.5
HR-1280	1.75	436	360	262	230	172	134	123	115	99.7	74.2
	1.70	461	366	288	236	175	136	125	116	101	76.3
	1.67	475	369	295	239	178	138	126	118	102	77.5
	1.65	480	375	298	242	180	140	128	119	103	78.7
	1.60	490	377	303	274	182	142	130	120	104	81.2
HR-1290	1.75	529	390	312	260	195	154	142	131	115	83.3
	1.70	560	398	320	265	196	158	146	134	118	87.2
	1.67	588	415	325	270	199	161	148	136	120	89.5
	1.65	593	420	330	272	202	163	150	139	123	91.6
	1.60	620	430	335	276	205	165	155	141	124	92.5
HR-12100	1.75	558	398	328	278	220	182	165	151	131	93.7
	1.70	595	408	340	286	229	186	169	155	133	94.6
	1.67	605	423	350	295	236	192	173	157	135	95.8
	1.65	620	430	362	301	240	195	176	161	138	97.0
	1.60	635	439	375	305	245	199	180	163	140	98.1
HR-12120	1.75	635	482	390	342	255	228	211	188	163	119
	1.70	675	508	405	349	259	231	214	190	165	121
	1.67	680	523	430	358	264	235	216	194	166	123
	1.65	719	531	434	362	266	237	218	196	168	124
	1.60	738	544	439	368	268	240	221	197	170	126
HR-12135	1.75	685	516	440	383	300	246	225	212	191	141
	1.70	725	543	470	400	308	251	233	218	195	143
	1.67	750	578	485	410	316	256	238	223	198	144
	1.65	771	590	496	416	320	260	240	226	200	146
	1.60	785	608	510	425	326	265	243	228	201	148

Actual Battery Discharge Data may be +/-5% of figures shown above.

High Rate Range Discharge Watts Per Cell (WPC) Data @ 25°C

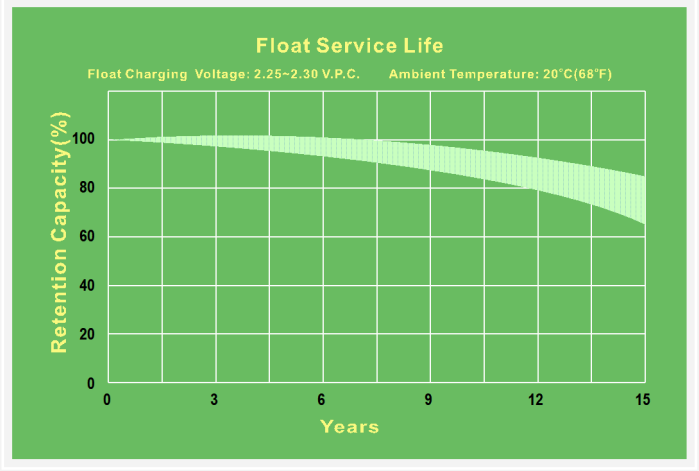
Battery Model	End VPC	Discharge Data Watts Per Cell @ 25°C									
		Discharge Time In Minutes									
		5	10	15	20	30	40	45	50	60	90
HR-12150	1.75	766	580	462	426	327	268	248	230	205	155
	1.70	805	608	490	445	331	274	254	236	211	158
	1.67	836	625	506	455	340	280	258	237	215	161
	1.65	860	638	510	462	346	286	261	239	216	163
	1.60	878	650	520	473	352	290	263	240	218	165
HR-12160	1.75	854	638	488	446	345	282	260	240	212	163
	1.70	905	664	519	467	348	289	266	243	218	166
	1.67	928	680	540	478	356	295	271	245	224	170
	1.65	950	693	550	486	360	301	274	248	226	173
	1.60	968	704	563	491	365	305	276	249	228	175
HR-12180	1.75	970	708	565	500	388	316	293	269	251	188
	1.70	1008	743	594	520	402	325	302	277	259	193
	1.67	1025	771	615	536	413	332	306	282	264	196
	1.65	1055	785	640	546	420	339	310	286	268	199
	1.60	1086	809	669	559	428	345	313	290	271	201
HR-12200	1.75	1088	801	645	556	430	348	325	296	276	206
	1.70	1153	825	675	580	452	369	340	310	289	217
	1.67	1169	836	700	598	465	380	346	318	296	225
	1.65	1190	869	723	609	472	388	353	326	303	230
	1.60	1215	908	742	618	486	398	360	335	312	233
HR-12230	1.75	1283	945	750	626	494	405	373	341	318	237
	1.70	1347	993	778	665	520	429	391	356	332	250
	1.67	1370	1030	800	686	535	440	398	366	341	259
	1.65	1396	1062	822	704	543	450	406	375	349	265
	1.60	1438	1090	845	718	559	461	414	385	359	268
HR-12250	1.75	1386	1021	814	680	536	440	406	371	346	258
	1.70	1455	1074	845	722	565	466	425	387	361	272
	1.67	1480	1115	860	745	582	478	433	398	371	280
	1.65	1510	1150	892	765	591	489	441	409	380	286
	1.60	1555	1180	918	780	608	502	450	418	390	291

Actual Battery Discharge Data may be +/-5% of figures shown above.

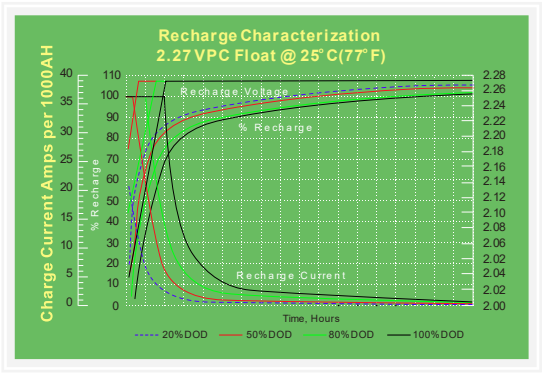


TYPICAL CYCLIC PERFORMANCE

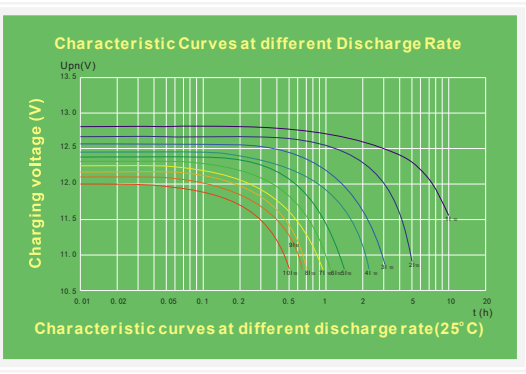
CAPACITY WITHDRAWN	CYCLES
100%	700
80%	800
50%	1200
25%	2100
10%	4200



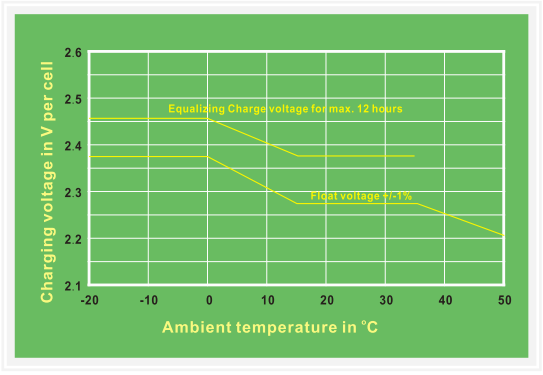
Float Voltage & charging



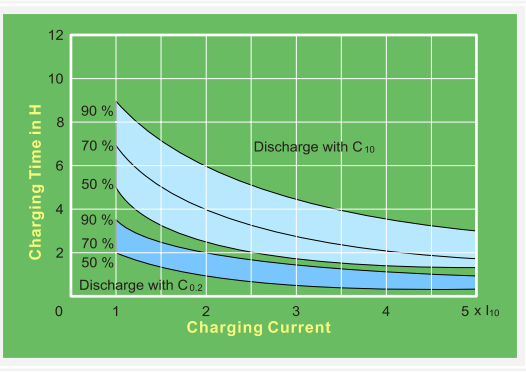
Constant Voltage charging is recommended
Recommended float voltage: 2.27VPC @ 25°C(77°F)
Float Voltage Range: 2.25VPC to 2.30 VPC @ 25°C(77°F)
Equalize voltage: 2.35VPC for 12 Hours



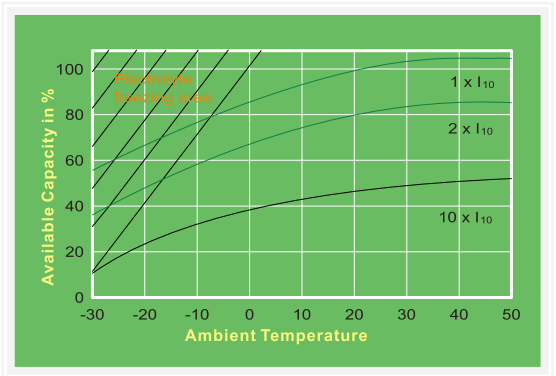
Temperature compensation:
Apply for temperature range of 0°C / 32°F to 40°C / 104°F. Sub tract 3 mV / °C / cell or 1.7 mV / °F / cell, above 25°C / 77°F. Add 3mV / °C / cell or 1.7 mV / °F / cell, below 25°C /



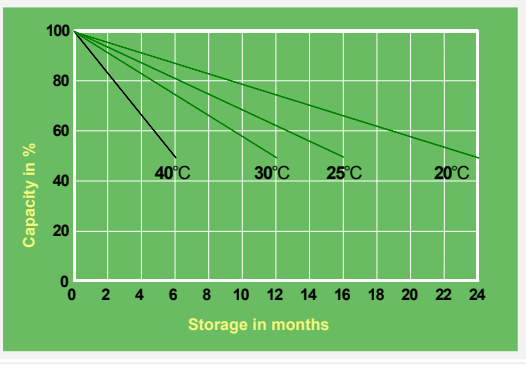
For charging 2.27 V/cell is recommended. The charging voltage must be compensated according to the curve for continuously different battery ambient temperature.



Recharging time in dependence of charging current (guide values) for up to 50, 70 and 90% of capacity at 25°C and with a charging voltage of 2.27 V/cell.



Extracted capacity in relation to the temperature.



Self-discharge in relation to the storage temperature.

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