



### APPLICATIONS

- UNINTERRUPTIBLE POWER SUPPLY (UPS) SYSTEMS
- COMMUNICATIONS
- DATA CENTERS
- ALTERNATIVE ENERGY



### The GREEN Battery™

The **HR (High Rate)** Valve Regulated Lead Acid batteries are designed to provide superior performance and feature the latest advancement in plate and battery technology offering exceptional service life, low self discharge, high cycling capabilities and low float charge current characteristics.

**HR (High Rate)** batteries with optimized recombination technology and superior performance are specifically designed and engineered for high rate short duration constant power discharges where mission critical performance is mandatory.

**HR (High Rate)** batteries are manufactured in compliance with NEBS, GR, IEC, UL, ISO, and CE quality and performance standards.

**HR (High Rate)** batteries are available with racks and cabinets meeting NEBS and UBC Seismic Zone 4 Requirements

### FEATURES

- 10-Year Design Life
- Initial capacity at 100%
- 6 month of storage at 77°F (25°C) capacity > 86%
- Low pressure one-way flame arresting valve(s) UL1989
- Absorbent Glass Mat (AGM) technology, Recombination efficiency of 99.9%
- Flame Retardant ABS Cover and Container, UL94 V-0, LOI>28%
- Copper alloy insert terminals for ease of installation and maximum current carrying capabilities
- High reliability case to cover seal
- UL Recognized Component
- Classified as Nonspillable UN 2800 (no air, ground, or sea transportation restrictions)
- Monoblock 6v & 12v construction
- Low-Calcium-Tin grid alloy



### INDUSTRY COMPLIANCE

- UL Recognized Component 924, for use in or width listed UL1778, UL1989 and UL924 systems
- UL Certified Vertical Flame Test Rating 94V-0
- NEBS Version 4, Level 3
- Telcordia GR-1089-CORE, Issue 4
- Telcordia GR-63-CORE, Issue 4
- IEC 60896-21/-22
- ISO9001:2000 , ISO14001

### SEISMIC

- NEBS Earthquake Risk Seismic Zone 4 Compliant
- Exceeds 1997 UBC Zone 4 seismic requirements for at or below grade installations
- Exceeds 2007 IBC requirements for 125% g level

### TRANSPORTATION

- Classified as Nonspillable UN 2800 and meet the Nonspillable criteria listed in DOT-CFR Title 49, 171-189 (d) (3) (i) and (ii) and exempt from CFR 49, Subchapter C requirements
- Meets transportation conditions of IMDG exemption 238, IATA/ICAO Special Provision A67 (Not Restricted)

### SPECIFICATIONS

Float Charging Voltage	Equalize /Cycle or Freshening at Installation Charging Voltage
2.25Vpc to 2.27Vpc @ 77°F (25°C)	2.35Vpc to 2.40Vpc @ 77°F (25°C)
See Operations and Maintenance Manual for specific guidelines and recharge times	

Charging Temperature Compensation	-2 mV/cell/°F > 77°F (-3.6 mV/cell /°C > 25°C)
	+2 mV/cell/°F < 77°F (+3.6 mV/cell/°C < 25°C)

Maximum AC Ripple (Charger)	Maximum Charge Current
0.5% RMS, 1.5% peak-to-peak for float charge voltage for best results	C <sub>5</sub> Rate Amps (5 hour rate @ 1.75vpc)

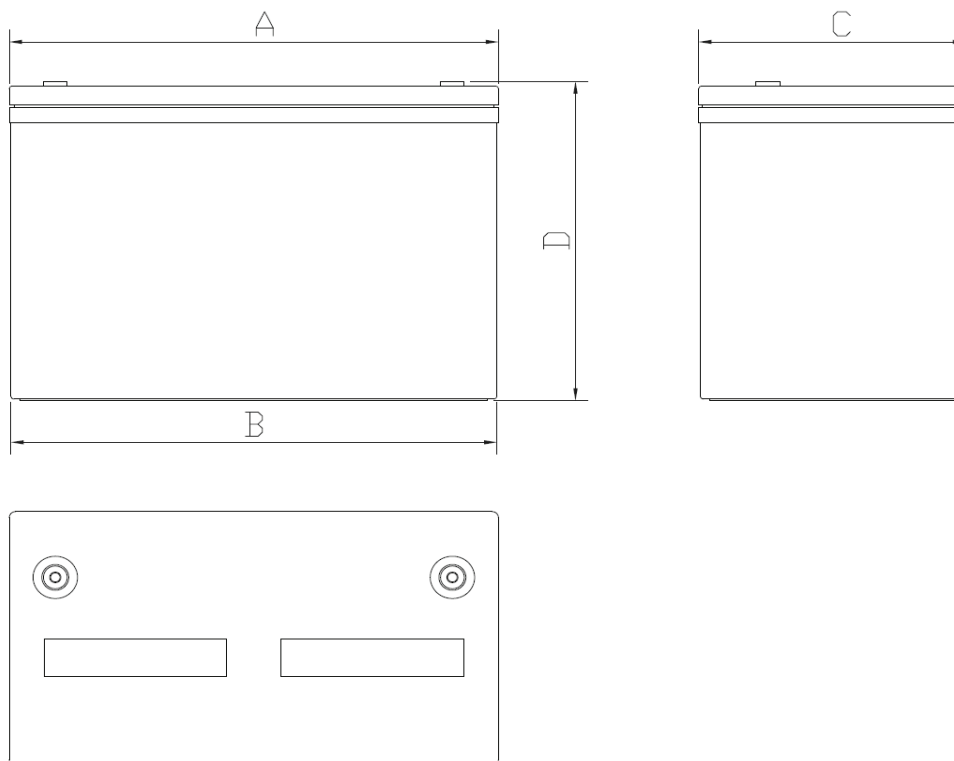
Electrolyte	Self Discharge Rate
Absorbed 1.300 s.g. H <sub>2</sub> SO <sub>4</sub>	<2% per month at 77°F (25°C)

Relief Valve	Self Resealing; Operates at 2 to 3 psi and is complete with integral flame arrestor

Terminal Type	
M6-M (<70Ah)	M6-M / M6-F (>70Ah)
Torque / Retorque	
90 in-lbs (10 Nm) / 78 in-lbs (8 Nm)	60 in-lbs (7 Nm) / 48 in-lbs (5.6 Nm)

Operating Temperature Range	
Nominal	Discharge
+74°F (24°C) to 80°F (27°C)	-40°F (-40°C) to +140°F (60°C)
Charge	Storage Temperature Range
-20°F (-28°C) to +122°F (50°C)	-4°F (-20°C) to +104°F (40°C)

### PHYSICAL PROPERTIES - DIMENSIONS



Model	V	wpc @ 15min 1.67vpc @ °77F	Ah @ 20hr 1.75 vpc @ °77F	Length		Length Base		Width		Total Height		Weight		Term.
				in	mm	in	mm	in	mm	in	mm	lbs.	kg	
HR12-100	12	99	28	6.50	165	-	-	4.93	125	6.89	175	22.0	10.0	M6-F
HR12-140	12	137	33	7.68	195	-	-	5.12	130	6.5	165	22.7	10.2	M6-F
HR12-210	12	211	55	9.02	229	-	-	5.44	138	8.5	215	40	18	M6-F
HR12-300	12	299	77	10.2	259	-	-	6.65	169	8.46	215	54.8	24.5	M6-F
HR12-350	12	351	93	12.08	307	-	-	6.65	169	8.51	216	70.53	32	M6-F
HR12-400	12	402	102	12.91	328	-	-	6.77	172	8.78	222	71	32	M6-F
HR12-490	12	491	139	13.43	341	12.90	328	6.77	172	11.34	288	98	44	M6-F
HR12-540	12	546	150	13.43	341	12.90	328	6.77	172	11.34	288	107	48	M6-F
HR12-600	12	598	153	13.43	341	12.90	328	6.77	172	11.34	288	117	53	M6-F
HR6-620	6	624	206	12.7	323	-	-	7.01	178	9.05	230	66.12	30	M6-F

Constant Power Discharge in Watts per Cell at 77°F (25°C)

Model	Discharge Time in Minutes												
	VPC	5	10	15	20	25	30	45	60	90	120	150	180
HR12-100	1.67	147	125	99	81	70	60	45.0	35.0	24.0			
	1.70	144	122	97	79	68	58	44.0	34.0	23.0			
	1.75	140	119	94	77	66	57	42.8	33.3	22.8	17.9	14.7	12.7
HR12-140	1.67	227	169	137	113	97	84	62.0	49.0	34.0			
	1.70	222	165	134	110	95	82	60.0	48.0	33.0			
	1.75	216	160	130	107	92	80	58.9	46.6	32.3	25.3	20.9	17.8
HR12-210	1.67	346	273	211	162	134	119	94.5	64.8	54.0			
	1.70	339	267	207	158	131	116	92.0	63.0	52.0			
	1.75	328	259	200	154	127	113	89.8	61.6	51.3	40.2	33.2	28.3
HR12-300	1.67	480	380	299	233	198	176	129.0	104.0	76.0			
	1.70	471	372	293	228	194	172	126.0	102.0	74.0			
	1.75	456	361	284	221	188	167	122.6	98.8	72.2	56.6	46.7	39.9
HR12-350	1.67	576	455	351	270	222	198	158.0	118.0	87.0			
	1.70	565	446	344	264	217	194	155.0	115.0	85.0			
	1.75	547	432	333	257	211	188	150.1	112.1	82.7	64.8	53.4	45.6
HR12-400	1.67	659	521	402	309	256	227	180.0	124.0	88.6			
	1.70	646	511	394	303	251	222	176.0	121.0	92.0			
	1.75	626	495	382	294	243	216	171.0	117.8	97.9	76.7	63.2	54.0
HR12-490	1.67	806	637	491	393	331	294	228.0	182.0	129.0			
	1.70	791	625	481	385	324	288	223.0	178.0	126.0			
	1.75	766	605	466	373	314	279	216.6	172.9	122.6	96.1	79.2	67.7
HR12-540	1.67	896	708	546	445	374	335	252.0	198.0	139.0			
	1.70	879	694	535	436	367	328	247.0	194.0	136.0			
	1.75	851	672	519	423	356	318	239.4	188.1	132.1	103.6	85.4	72.9
HR12-600	1.67	985	778	598	495	432	379	277.0	218.0	153.0			
	1.70	966	763	587	485	423	371	271.0	213.0	150.0			
	1.75	936	740	570	470	410	360	263.2	207.1	145.4	114.0	93.9	80.3
HR6-620	1.67	1024	809	624	516	457	413	306.0	246.0	174.0			
	1.70	1004	793	612	506	448	405	300.0	241.0	170.0			
	1.75	973	769	593	490	434	392	290.7	233.7	165.3	129.6	106.8	91.3