

# stored energy solutions for a demanding world

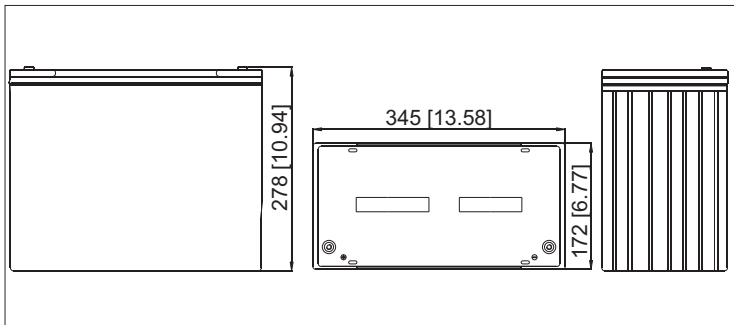


## Model: HR12V515

## HR Series

The HR range of VRLA batteries is perfectly suited to any application which requires a high rate current over a short period. In particular they are ideal for UPS systems thanks to their optimized performance and a patented post seal design. The rugged ABS container and flexible handles ensure that installation is also easily performed and trouble-free. A design life of 10 years completes the package.

### Dimensions-mm [inch]



### Specifications

Battery Model	HR12V515
Nominal Voltage	12V
Rated Capacity	515 Watts per cell at the 15 minute rate to 1.67 volts per cell @25°C(77°F)
Typical Weight	51kg
Internal Resistance	Approx 4.14mΩ
Temperature Ranges	Operation (maximum): -40°C to 55°C(-40°F to 131°F)
	Operation (recommended): 15°C to 25°C(59°F to 77°F)
	Storage: -20°C to 40°C(-4°F to 104°F)
Float Voltage	2.27V/cell@25°C(77°F)
Recommended Maximum Charging Current Limit	45A
Equalize and Cycle Service	2.35V~2.40V@25°C(77°F)
Self Discharge	The residual capacity is above 87% after 90 days storage(25°C/77°F)
Terminal	M8 Female
Terminal Hardware Torque	10 ± 1.0Nm
Container Material	ABS (V0 optional)

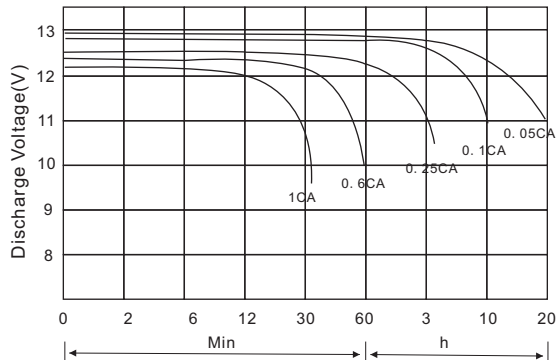
### Constant Current Discharge Characteristics Units: Amperes (25°C, 77°F)

End voltage per cell	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	1HR	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	581	413	292	276	192	145	119	99.8	57.9	39.0	31.7	26.6	22.9	17.4	14.4
1.67V	549	391	277	268	187	142	115	98.8	57.4	38.6	31.3	26.5	22.6	17.1	14.3
1.70V	534	378	269	262	184	140	113	97.8	56.8	38.2	31.1	26.0	22.5	17.0	14.2
1.75V	442	322	250	254	174	137	110	96.9	56.3	37.9	30.9	25.8	22.1	16.7	14.0
1.80V	380	294	232	236	165	134	109	93.0	55.1	37.1	29.8	24.9	21.7	16.5	13.6
1.85V	320	258	210	218	153	131	107	90.8	52.4	36.4	29.1	23.7	20.5	15.8	13.0
1.90V	256	197	178	174	135	109	93.0	82.3	49.6	33.7	26.2	21.9	18.5	14.7	12.1

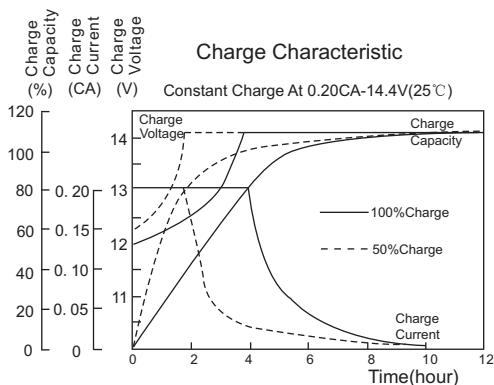
### Discharge Data with Constant Power Units: Watts per cell (25°C, 77°F)

End voltage per cell	5MIN	10MIN	15MIN	20MIN	30MIN	40MIN	50MIN	1HR	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1027	739	538	508	356	265	218	185	109	74.1	60.8	51.3	44.4	33.9	28.3
1.67V	980	710	515	501	352	262	214	185	109	73.7	60.4	51.3	44.1	33.5	28.1
1.70V	961	692	503	493	348	259	211	184	108	73.3	60.1	50.8	44.0	33.4	28.1
1.75V	809	599	468	480	332	256	209	185	109	73.9	60.2	50.6	43.5	33.0	27.9
1.80V	708	556	443	446	314	256	211	180	108	72.4	58.1	49.0	43.0	32.6	27.0
1.85V	608	492	403	421	294	253	207	177	102	71.4	57.4	47.0	40.7	31.4	26.0
1.90V	490	378	343	337	261	211	181	161	97.3	66.3	51.5	43.4	36.9	29.4	24.4

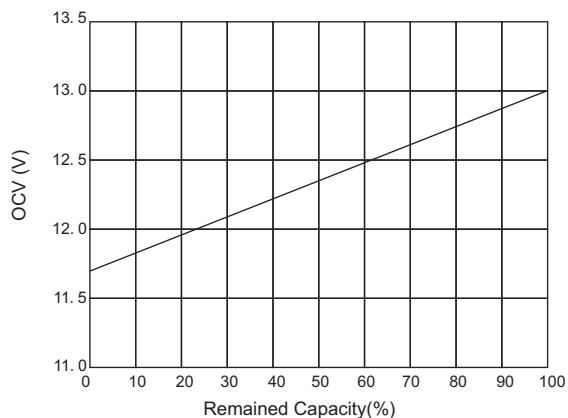
Terminal Voltage(V) Vs. Discharge Time (25°C, 77°F)



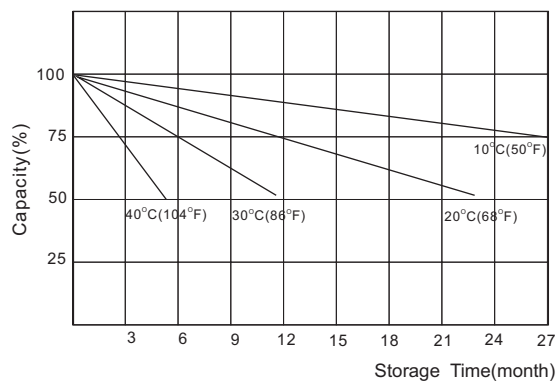
Battery Voltage Vs. Charge Time



Relationship of OCV Vs. State of Charge



Capacity Retention Characteristic



**Charging Procedures**

Application	Charge Voltage (V/Cell)			Max. Charge Current
	Temperature	Set Point	Allowable Range	
Cycle	25°C	2.40	2.35~2.45	37.5A
Standby	25°C	2.27	2.25~2.29	

**Discharge Current VS. Discharge Voltage**

Final Discharge Voltage V/Cell	1.80	1.70	1.55	1.30
Discharge Current (A)	30A ≥ I	30A < I < 75A	75A < I < 150A	I > 150A

NARADA POWER SOURCE CO.,LTD.  
 No.459 Wensan Road, Hangzhou, Zhejiang, P.R.China  
 Tel:+86-571-28827013 Fax:+86-571-85126942  
 Website:www.naradabattery.com E-mail:intl@narada.biz

NARADA EUROPE LTD.  
 PO Box 1137, Hemel Hempstead, HP1 9BQ, UK  
 Tel:+44 (0) 1442 249791 Fax:+44 (0) 1442 229380  
 E-mail: Sales@naradaeurope.com

NARADA ASIA PACIFIC PTE. LTD.  
 65 Ubi Crescent HOLA centre #08-02 Singapore  
 Tel:+65-68481191/+65-67421208 Fax:+65-67493498  
 E-mail: Sales@narada.com.sg

