

## 12HRL400

## HRL SERIES

The Narada High Rate range of VRLA batteries provide reliable battery backup to any High Rate UPS application.

All Narada High Rate series batteries use optimized plate technology and a patented post design offering exceptional service life.



### Technical Features:

- ◆ Flame Retardant ABS Cover and Container, UL94 V-0, LOI>28%
- ◆ Patented copper alloy terminal design
- ◆ Epoxy TPS design for high reliability post seal
- ◆ 6 months of storage at 77°F (25°C) with a capacity > 80%
- ◆ Initial capacity at 100%
- ◆ Low pressure one-way flame arresting valve(s) UL1989
- ◆ Absorbent Glass Mat (AGM) Sealed Technology, Recombination efficiency of 99.9%

### Compliance and Safety:

- ◆ **ISO 9001:2000 and ISO 14001:2004 certified production facilities**
- ◆ UL Recognized Component 924, for use in or with listed UL1778, UL1989 and UL924 systems
- ◆ IEC60896-21/22
- ◆ BS6290 part 4 / Eurobatt guide
- ◆ **TL9001 / ISO9001(TUV) Quality System**
- ◆ Battery installation compliant with: EN 50272-2
- ◆ All batteries meet or exceed IEEE recommended practices

### 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)

WPC @ 15 min 1.67 VPC / 77°F (25°C)	400 watts
WPC @ 5 min 1.60 VPC / 77°F (25°C)	827 watts
Ah @ 8hr 1.75 VPC / 77°F (25°C)	96 Ah
Ah @ 20hr 1.75 VPC / 77°F (25°C)	100 Ah

Nominal voltage	12V
Float charge voltage @25°C (2.23 – 2.27VPC)	13.4 – 13.6
Max. charge current (A) (5 hour rate @ 1.75VPC)	25 Amps

Electrolyte Absorbed H <sub>2</sub> SO <sub>4</sub>	1.300
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Short circuit current (A)	3205 Amps
Internal resistance (mΩ)	3.80 mΩ

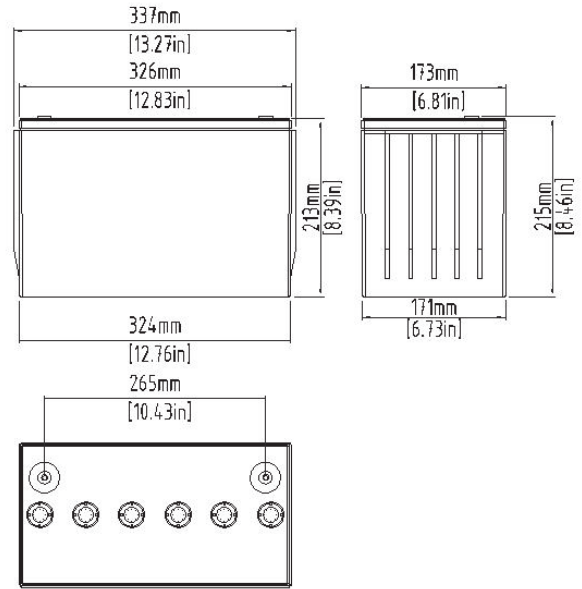
Terminal Type	Torque
M6-F	78 in-lbs (8 ±1 Nm)

Dimension	in	mm
Length	13.27	337
Length Base	12.76	324
Width	6.81	173
Overall Height	8.46	215

Weight	Lbs.	Kg
	75	34

### Operating Parameters

Float Charging Voltage	13.5V / 2.25VPC @ 77°F (25°C)
Equalize /Cycle	14.0V – 14.3V 2.33VPC to 2.38VPC @ 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)	0.5% RMS, 1.5% peak-to-peak for float charge voltage for best results
Operating Temperature Range	
Nominal	+74°F (24°C) to 80°F (27°C)
Charge	-20°F (-28°C) to +122°F (50°C)
Discharge	-40°F (-40°C) to +140°F (60°C)
Storage Temperature Range	-4°F (-20°C) to +104°F (40°C)



### Constant Power Discharge Watts per cell (25°C, 77°F)

End Cell Voltage	5min	10min	15min	20min	30min	40min	50min	1h	2h
1.60V	827	549	412	339					
1.63V	792	542	406	335	250				
1.67V	757	536	400	332	249	201	169	146	
1.70V	745	527	395	327	248	200	167	146	
1.75V	736	505	382	316	243	198	166	145	82.4
1.80V	675	468	359	302	237	192	165	145	81.3
1.83V	631	442	343	291	230	191	163	143	79.5
1.85V	608	431	334	283	225	183	160	140	77.7

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

End Cell Voltage	5min	15min	30min	1h	2h	4h	8h	10h	20h
1.60V	500	232							
1.67V	463	225	135	77.8					
1.70V	435	221	134	77.6					
1.75V	377	209	131	76.6	43.0	23.4	12.09	10.20	5.36
1.80V	320	194	124	74.3	42.0	22.9	11.85	10.00	5.25
1.83V	290	182	119	71.9	41.0	22.4	11.65	9.83	5.16
1.85V	272	173	114	69.6	39.9	22.0	11.42	9.64	5.06

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