



# VR SOLAR® SERIES

For Renewable Energy Storage  
Capacities from 33 to 100 Ampere-hours



The VR Solar®, with its proprietary grid alloy and paste formulation, provides superior performance in both high cycling and float applications. This VRLA/AGM battery is designed to be easy to install and maintain, and offers long life and exceptional performance.

## FEATURES AND BENEFITS

- Robust plate for extended cycle life.
- Computer generated grid design optimized for high power density.
- Low calcium grid alloy for reduced gas emissions and ease of recycling.
- Flame-arresting one-way pressure-relief vent for safety and long life.
- UL-recognized component.
- Multicell design for economy of installation and maintenance.
- Case and cover available in standard polypropylene.
- Thermally welded case-to-cover bond to eliminate leakage.
- Removable carrying handles (HIT Versions)
- Can be used in any orientation. Upright, side, or end mounting recommended.
- Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance.
- Not restricted for air transport Complies with IATA/ICAO Special Provision A67.
- Not restricted for surface transport – classified as non-hazardous material as related to DOT-CFR Title 49 parts 171-189.
- Low profile terminals with threaded copper alloy inserts for reduced height, reduced maintenance and increased safety.
- Non-Hazardous, not restricted for any transportation mode (air, water or land)

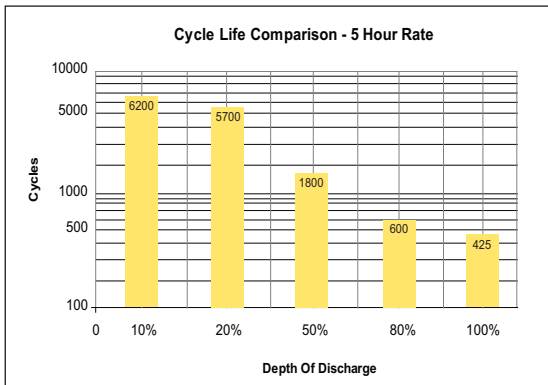
## SPECIFICATIONS

<b>Cells Per Unit</b>	6
<b>Nominal Voltage Per Unit</b>	12
<b>Electrolyte</b>	Absorbed H <sub>2</sub> SO <sub>4</sub> , SG = 1.300
<b>Operating Temperature Range (with temperature compensation)</b>	Discharge: -40°F (-40°C) to +160°F (71°C) Charge: -10°F (-23°C) to +140°F (60°C)
<b>Normal Operating Temperature Range</b>	+68°F (20°C) to +80°F (27°C)
<b>Recommended Maximum Charging Current Limit</b>	C/5 amperes @ 20hr rate
<b>Float Charging Voltage</b>	13.5 to 13.8 VDC/unit Average at 77°F (25°C)
<b>Equalization and Cycle Service Charging Voltage</b>	14.4 to 14.8 VDC/unit Average at 77°F (25°C)
<b>Maximum AC Ripple (Charger)</b>	0.5% RMS or 1.5% P-P of float charge voltage recommended for best results
<b>Self Discharge</b>	Battery can be stored up to 6 months at 77°F (25°C) before a freshening charge is required. Batteries stored at temperatures greater than 77°F (25°C) will require recharge sooner than batteries stored at lower temperatures. See C&D bulletin 41-7272, Self-Discharge and Inventory Control for details.
<b>Accessories</b>	Inter units connectors, racks and cabinet systems are available
<b>Terminal</b>	Inserted Terminal (Copper Alloy) 10-32 UNF bolt (VRS12-33, VRS12-50) ¼-20 UNC bolt (VRS12-75, VRS12-88, VRS12-100)
<b>Terminal Hardware Initial Torque</b>	30 in.-lbs (3.4 N-m) (VRS12-33, VRS12-50) 110 in.-lbs (12.4 N-m) (VRS12-75, VRS12-88, VRS12-100)

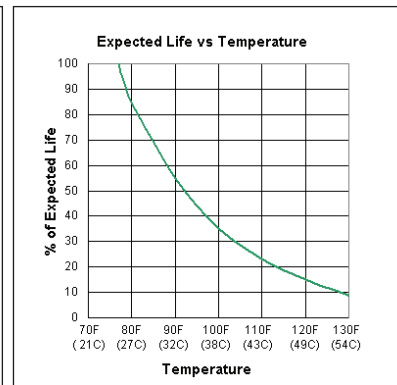
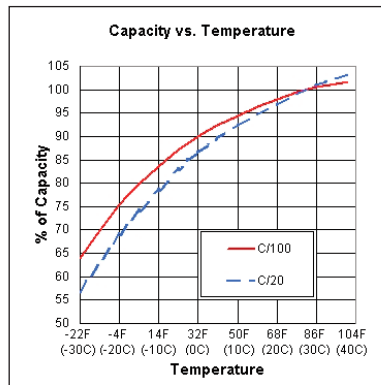
**PERFORMANCE RATINGS**

Model	Ampere Hour & Power per Unit to 1.75 Volts per cell @ 77°F (25°C)											
	2 Hr Capacity		6 Hr Capacity		12 Hr Capacity		20 Hr Capacity		72 Hr Capacity		100 Hr Capacity	
	Ah	KWh	Ah	KWh	Ah	KWh	Ah	KWh	Ah	KWh	Ah	KWh
VRS12-33IT/HIT	23.6	0.276	29.5	0.351	31.7	0.379	33.0	0.394	33.8	0.406	34.0	0.408
VRS12-50IT	35.1	0.414	44.4	0.539	47.8	0.570	50.0	0.599	51.8	0.622	52.0	0.624
VRS12-75HIT	53.2	0.636	66.3	0.787	72.0	0.861	75.0	0.898	77.6	0.930	78.0	0.936
VRS12-88HIT	58.0	0.747	76.2	0.893	83.6	0.991	88.0	1.053	92.5	1.088	95.0	1.104
VRS12-100HIT	62.0	0.768	83.7	0.997	93.5	1.117	100.0	1.200	103.5	1.240	106.0	1.250

**INDUSTRY LEADING CYCLE LIFE**

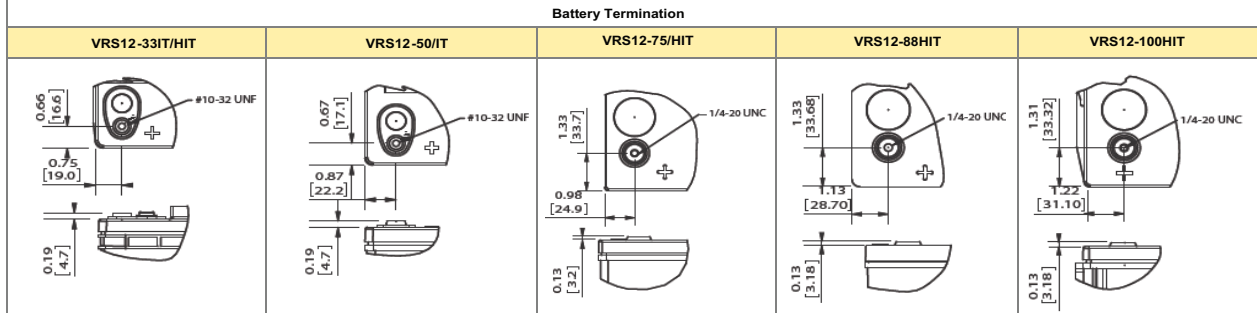


**BATTERY CHARACTERISTICS**



**DIMENSIONS & WEIGHTS**

	A	B	C	D	E	F	Weight
VRS12-33IT/ VRS12-33HIT	7.76 (197.1) 8.16 (207.2)	7.54 (191.4)	5.19 (131.9)	5.02 (127.6)	6.52 (165.7)	6.80 (172.7)	27 lbs. (12 kg)
VRS12-50IT	9.0 (228.6)	8.86 (225.1)	5.48 (139.2)	5.31 (134.8)	7.89 (200.3)	8.07 (205.1)	40 lbs. (18 kg)
VRS12-75IT/ VRS12-75HIT	10.27 (260.9) 10.76 (273.2)	10.17 (258.4)	6.83 (168.9)	6.65 (168.9)	7.89 (200.3)	8.01 (203.5)	54 lbs. (25 kg)
VRS12-88HIT	12.51 (317.8)	11.95 (303.5)	6.83 (173.4)	6.65 (168.9)	7.94 (201.6)	8.06 (204.8)	64 lbs. (30 kg)
VRS12-100HIT	13.42 (340.9)	12.75 (323.7)	6.80 (172.7)	6.54 (166.0)	8.40 (213.2)	8.52 (216.4)	69 lbs. (31 kg)



Notes: 1.) HIT versions include a handle, 2.) (xxx.x) represents dimensions in millimeters.

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