

# TUBULAR GEL VRLA BATTERIES

## Solar Applications



**SBS Storage Battery Systems, Inc.** a leader in the field of specialized batteries and DC power systems

A strong R & D focus and a broad product range enable SBS to offer its customers the appropriate

## Requirements of photovoltaic applications

Charge input from solar arrays is insufficient to keep the batteries fully charged. During sun-less days, batteries are discharged but not charged. These conditions result in battery operating in Partial State of Charge (PSOC), Cycling and Deep cycling. Also, solar systems are installed in open atmosphere exposing the batteries to extreme Temperatures. Other lead acid batteries fail in such conditions due to sulphation, stratification, corrosion and plate shedding. Moreover, remote solar installations make water top-up difficult and costs money.

To meet such rigors of usage, SBS introduces a maintenance free (no water top-up) "Tubular Gel VRLA battery" with the technology that is a perfect fit for solar applications.

## Design & Construction

### ▶ Positive Plate

Tubular Plate, which is pressure die cast under a 200-ton press with lead-calcium-tin alloy spine grid and woven polyester gauntlet.

### ▶ Negative Plate

Flat pasted plate with lead-calcium alloy grid and long life expander material.

### ▶ Separator

Micro porous synthetic separator.

### ▶ Electrolyte

Sulfuric acid, immobilized as Gel.

### ▶ Container & Cover

Polypropylene, flame retardant is optional.

### ▶ Valve

Self-resealing, Pressure-regulating and Explosion- proof with flame arrestor.

### ▶ Terminals

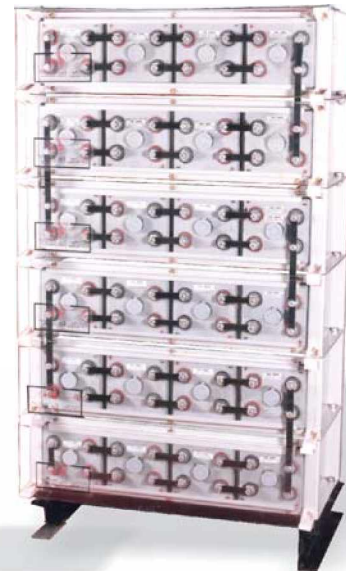
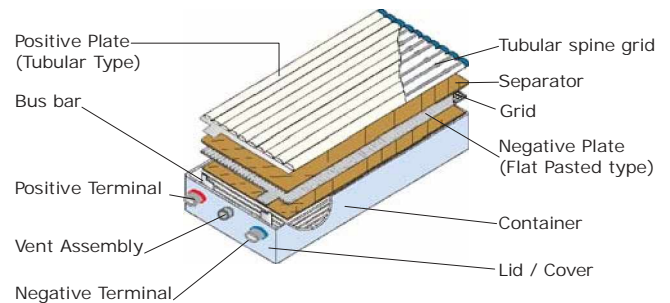
Epoxy sealed terminals with threaded lead-plated inserts.

### ▶ Steel trays

Acid resistant, epoxy coated, stackable boxes for easy installation.( Horizontal or vertical) racking available.

### Connectors

Lead plated solid copper connectors.



VRLA battery with high-pressure die-cast spine grids

## Features & Benefits

- ▶ **Tubular positive plates**  
Proven cycling and deep cycling capabilities
- ▶ **Gelled electrolyte**  
No Stratification and no failure due to PSOC
- ▶ **Pre-filled and charged**  
Ready to use, easier to install
- ▶ **Valve regulated**  
No water additions during service life
- ▶ **Antimony - free alloy**  
Long shelf life with very low self-discharge
- ▶ **High pressure die-cast spine grids**  
Takes longer time for grid to corrode
- ▶ **No free acid**  
Safe and economical transportation
- ▶ **No risk of thermal runaway**  
Good heat dissipation as gelled electrolyte is in contact with plates and container
- ▶ **Ready to install**  
100% capacity on first discharge
- ▶ **Tubular and Gel combination**  
Very good deep discharge recovery
- ▶ **Versatile in mounting arrangement**  
Can be mounted both in horizontal and Vertical orientation



## Performance

- ▶ **Float Life:** 20+ years design life at 27°C
- ▶ **Cycle life:** 1800 cycles at 80% DOD at 27°C  
5200 cycles at 20% DOD at 27°C
- ▶ **Self discharge:** <2% per month at 27°C AH
- ▶ **efficiency:** >95% WH efficiency: >85%
- ▶ **Operating Temperature:** -20° C to +55° C
- ▶



## Certifications

- ▶ ISO 9000 certified quality management system ISO 14000
- ▶ certified environment management system IEC 60896-2
- ▶ certified by CSA (Canadian Standards Association)
- ▶ UL recognized components.

## Applicable Standards

- ▶ IEC 61427 (Batteries for solar photovoltaic systems)
- ▶ IEC 60896-2 (Stationary Lead Acid batteries)
- ▶ DIN 43539, T5 (Proof against deep discharge)



Solar Energy

Hybrid Power  
Plants

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maintenance free  
battery today !

## Charge controller settings.

On/Off Type

- ▶ Over Voltage disconnect:  $2.37 \pm 0.02$  V/ Cell at  $27^\circ\text{C}$
- ▶ Array Re-connection Voltage:  $2.25 \pm 0.02$  V/ Cell at  $27^\circ\text{C}$
- ▶ Low Voltage disconnect:  $1.85 \pm 0.02$  V/ Cell at  $27^\circ\text{C}$
- ▶ Load Reconnect Pulse width modulation (CV Controller) Type

- ▶ Regulation Voltage:  $2.35 \pm 0.02$  V/ Cell at  $27^\circ\text{C}$
- ▶ Low Voltage disconnect:  $1.85 \pm 0.02$  V/ Cell at  $27^\circ\text{C}$
- ▶ Load Re-connection Voltage:  $2.08 \pm 0.02$

## Product Specifications

Model	Monobloc/Module Voltage	Nominal Capacity (Ah) at C10	Discharge current in Amps				Monobloc/Module Dimensions & Weights			
			120Hr	72Hr	48Hr	24Hr	Length ( $\pm 0.4$ inch.)	Width ( $\pm 0.4$ inch.)	Height ( $\pm 0.4$ inch.)	Weight $\pm 5\%$ (Pounds)

### 12 Volt Monoblocs

12 TGI 40	12	40	0.5	0.8	1.1	2.1	16.02	6.81	9.45	48.50
12 TGI 60	12	60	0.8	1.2	1.7	3.1	16.02	6.81	9.45	74.96
12 TGI 80	12	80	1.1	1.6	2.2	4.1	20.71	8.70	8.90	108.03
12 TGI 100	12	100	1.4	1.9	2.8	5.2	20.71	8.70	8.90	127.87

### 2 Volt Cells

2 TGI 120	16	120	1.6	2.3	3.4	6.2	30.51	16.73	8.46	319.67
2 TGI 160	16	160	2.2	3.1	4.5	8.3	34.76	16.73	8.46	352.74
2 TGI 200	12	200	2.7	3.9	5.6	10.3	34.49	16.73	8.50	308.65
2 TGI 240	12	240	3.3	4.7	6.7	12.4	34.49	16.73	8.50	339.51
2 TGI 280	8	280	3.8	5.4	7.8	14.5	26.57	16.73	8.46	246.92
2 TGI 300	8	300	4.1	5.8	8.4	15.5	29.25	16.73	8.46	273.37
2 TGI 320	8	320	4.4	6.2	8.9	16.5	29.25	16.73	8.46	286.60
2 TGI 360	8	360	4.9	7.0	10.1	18.6	35.24	16.73	8.39	304.24
2 TGI 400	8	400	5.5	7.8	11.2	20.7	35.24	16.73	8.39	326.28
2 TGI 440	6	440	6.0	8.6	12.3	22.7	30.83	16.73	8.46	275.58
2 TGI 500	6	500	6.8	9.7	14.0	25.8	33.19	16.73	8.39	286.60
2 TGI 1000	6	1000	13.7	19.4	27.9	51.7	40.04	23.03	8.54	559.97

\* Nominal Capacity is at a discharge rate of 10 Hrs to an end cell voltage of 1.80 V at  $27^\circ\text{C}$

\* Other special designs & configuration of the battery system for specific application shall be provided on request

\* In accordance with its policy of continuous improvement the company reserves the right to change specification and designs without notice. Illustrations, data, dimensions and weights given in this brochure are for guidance only and cannot be held binding on the company



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