

TUBULAR GEL BATTERIES FOR SOLAR APPLICATION



HBL is an acknowledged leader in the field of specialized batteries and DC power systems. A strong R & D focus and a broad product range enable HBL to offer its customers the appropriate technology suited for their applications.

Solar Photovoltaic Applications:

The need for renewable energy resources is increasing for past two decades to conserve the fossil fuels and to meet the growing power demand. Solar power is one of the renewable power resources. The challenges with the Solar Photo Voltaic (SPV) systems are the storage of energy during sunny days and the availability of solar energy is intermittent.

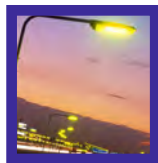
The solar battery requirements are critical as the charge input from solar photovoltaic systems is insufficient some times to keep the batteries fully charged. During this sun-less days, batteries are discharged but not charged. This condition result in battery operating in partial stage of charge (PSOC), cycling and sometimes resulting in to Deep discharges. Also, solar systems are installed in open atmosphere most of the times exposing the batteries to extreme temperatures.

Lead acid batteries in general may fail due to Sulphation, Stratification, Active material shedding and corrosion. These are the important factors considered while designing solar batteries from HBL.

HBL has specifically developed Tubular Gel VRLA Batteries (2V and 12V) to meet SPV & BESS requirements.

Applications:

- Rural Electrification
- Street Lighting / Home Lighting
- Telecommunication
- Offshore Platforms
- Hybrid Power Systems
- Navigational Aids
- Battery Energy Storage Systems



Tubular Gel VRLA Batteries

Features and Benefits:

Positive Grid

Fine Crys high pressure die-cast (PDC) tubular spines, lower rate of grid corrosion.



Specially formulated alloy

For better cyclic performance even at elevated temperatures.

Antimony free Alloy

Long shelf life due to low self-discharge.



Tetra Base paste

Specially engineered formula to enhance the cycle life in deep discharge application.



Thixo Gel

Specially formulated gelled electrolyte for improved high temperature performance.



Valve regulated

No water top-up during entire service life.



Faster charging

Can charge up to 40% of the capacity (Charge current limit).



Construction

- Tubular positive plate – Microporous, high acid resistance tubular gauntlets along with slurry filling process improves the active material retention with in the positive plate for long life.
- Negative plate – Lead alloy grid with long life expanders as to support positive plate.
- Separators – Specially designed microporous separators for lower internal resistance and improved charge acceptance.
- Gelled electrolyte- Made of high surface silica and sulphuric acid, No stratification and no failure due to Partial state of charge (PSOC) operation
- Poly set – Made of polypropylene, Low permeability of PP ensures lower water loss. Flame retardant is optional.
- Module – Designed to meet the heat dissipation
- Filled and charged- Ready to use, easier to install, 100% capacity on first discharge.
- Shock and vibration resistant design

Operation

- Operating temperature -20 to +55°C.
- Recommended operating temperature 20 to 35°C.
- Storage life up to 6 months at 25°C. without freshening charge.
- Charge settings:
 - Standby Application:
 - Float voltage: 2.30vpc
 - Boost/Bulk voltage: 2.37vpc
 - Equalizing frequency: 3months
 - Equalizing voltage: 2.40vpc
 - Load re-connect voltage: 2.20vpc
 - Low voltage disconnect: 1.85vpc
- Charging current limit: 10 to 40% of the capacity.
- Ripple current shall not exceed 3% RMS w.r.t battery nominal capacity.
- Ripple voltage shall not exceed 1% RMS w.r.t battery nominal voltage rating.

Standards and Quality

- Complies with the requirements of Indian standard IS 15549, IS 16270, TEC/GR/BAT-003/02 March 2011.
- Complies with the requirements of International standard IEC 60896-21&22, IEC 61427, DIN 43539 P5 (Deep discharge recovery).
- Recommended practice for Maintenance, Testing and Replacement of Valve Regulated Lead-Acid (VRLA) batteries for stationary application shall be followed as per standard IEEE 1188.
- Battery sizing shall be as per IEEE485 methodology.
- Classified as non-spillable and non-hazardous cargo for ground, sea and air transportation in accordance with the requirements of IMDG (International Maritime code for Dangerous Goods) and ICAO (International Civil Aviation Organization)
- The management systems of HBL governing the manufacture of products are ISO 9001:2015, ISO 14001:2015 certified by Bureau Veritas.



Dimensional and Electrical Data (Triumph series)

Model	Nominal capacity (Ah) at C10	No. of basic cells per module	Battery Dimensions				Capacity at 1.75 ECV (Ah)			
			Length \pm 5mm	Width / Depth* \pm 5mm	Height \pm 5mm	Weight (Kg) \pm 5%	1hr	3hr	5hr	8hr
12 Volt Monoblocs:										
12 TGI 40	40	-	290	170	216	18.5	23	32	35	39
12 TGI 75	75	-	410	175	240	30.5	43	60	65	72
12 TGI 100	100	-	525	172	228	39.0	57	80	86	97
12 TGI 125	125	-	535	225	242	50.0	71	100	108	121
12 TGI 150	150	-	525	280	275	59.0	86	120	129	145
12 TGI 175	175	-	525	280	275	64.5	100	140	151	169
12 TGI 200	200	-	525	280	275	70.0	114	160	172	194

2 Volt Cells:										
2 TGI 200	200	8	755	381	248	114	114	160	172	193
2 TGI 300	300	8	755	381	338	164	171	239	258	290
2 TGI 400	400	4	755	381	223	105	229	319	344	386
2 TGI 500	500	4	755	381	251	126	286	399	430	483
2 TGI 600	600	4	755	381	295	153	343	479	516	580
2 TGI 700	700	4	776	630	246	208	400	559	602	676
2 TGI 800	800	4	776	630	246	220	457	638	690	773
2 TGI 900	900	4	776	630	278	245	514	718	776	870
2 TGI 1000	1000	4	776	630	321	287	571	798	861	966
2 TGI 1250	1250	4	776	630	376	349	714	997	1076	1208

*Indicates Width / Depth up to terminal in 12 Volt Monobloc / 2 Volt cells

HBL[®]

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