HBL

Triumph™ T-Gel

Tubular Gel VRLA Battery

An Ideal solution for Solar Photovoltaic Applications

Applications

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

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

Requirements of photovoltaic applications

Charge input from solar arrays some times 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, HBL introduces a maintenance free [NO WATER TOP-UP] **Tubular Gel VRLA battery** with a combination of Tubular plate and gelled electrolyte, which is perfect fit for solar applications.

Innovative Product Features

Grid

Fine Crys™ high pressure die-cast tubular spines, manufactured with state of art designed machines for best corrosion resistance

Tubular Plate

Microporous, high acid resistance tubular gauntlets along with improved slurry filled process improves the active material retention with in the positive plate for longer life

Alloy

Specially formulated **HBC™** alloy for best cyclic performance even at elevated temperatures

Gel

Electrolyte gel filled with high surface silica using specially designed **Thixo Gel®** formula for improved high temperature performance

Paste

Tetra Base® specially engineered paste formula to enhance the cycle life for deep discharge

Module

Improved modular enclosure design for better heat dissipation

Features & Benefits

- Tubular positive plates - proven cycling and deep cycling capabilities
- Gelled electrolyte - no stratification and no failure due to PSOC
- Valve regulated - no water top up during service life
- Antimony free alloy - longer shelf life because of very low self discharge
- High pressure die-cast spine grids - rate of grid corrosion is very low & higher float life
- **SUPPLIED IN FILLED AND CHARGED CONDITION** - 100% capacity on first discharge
- Versatile in mounting - can be mounted both in horizontal and vertical orientation

Technical Characteristics

Performance

Design Float life:

20 years life at 25°C on full float-2 Volt
16 years life at 25°C on full float-12 Volt

Design Cycle life:

2 Volt

1500 cycles at 80% Depth of Discharge at 25°C
5000 cycles at 20% Depth of Discharge at 25°C

12 Volt

1125 cycles at 80% Depth of Discharge at 25°C
3750 cycles at 20% Depth of Discharge at 25°C

Conforming Standards :

IEC 60896-21 & 22
TEC/GR/TX/BAT-003/02 March 2011
IEC 61427
DIN 43539 P5 (Deep discharge recovery)

Standards for maintenance:

IEEE Std1188™ - IEEE Recommended Practice for Maintenance, Testing and Replacement of Valve Regulated Lead-Acid (VRLA) Batteries for Stationary Applications

Operating temperature:

Range : -20°C to +55°C

Operation

Charger settings:

Chargers of constant potential type with temperature compensation and current limit feature are to be used

Standalone SPV System

Regulation Voltage: 2.400±0.005 V/cell at 25°C
Charge Current Limit : upto $0.40C_{10}$A Max

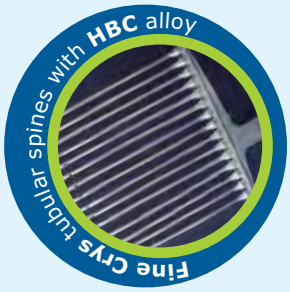
Hybrid SPV System

Float Charge : 2.250 ± 0.005 V/cell at 25°C
Boost Charge : 2.350 ± 0.005 V/cell at 25°C
Charge Current Limit : upto $0.40C_{10}$A Max

AC Ripple:

Ripple current shall not exceed 3% RMS w.r.t batteries nominal capacity

Ripple voltage shall not exceed 1% RMS w.r.t batteries nominal voltage rating



Certifications:

ISO 9001 | ISO 14001 | OHSAS 18001

Triumph™ T-Gel

2 volt is offered in Standard & Compact series.

- Standard series in PPCP container with powder coated MS modules
- Compact series in PPCP container with MS modules also offered

PRODUCT RANGE

Model	Nominal Capacity (Ah) at C10	No. of basic cells per module	Capacity at 1.85 ECV (Ah)				Basic Monobloc/Module Dimensions & Weights			
			120 Hr	100 Hr	48 Hr.	24 Hr.	Length (mm)	Width * (mm)	Height (mm)	Weight (Kg)
12 Volt Monoblocs										
12 TGI 80	80 Ah	---	120	112	101	95	529	172	230	35.5
12 TGI 100	100 Ah	---	150	140	126	119	526	221	230	44.5
12 TGI 120	120 Ah	---	180	168	151	142	526	221	270	48.5
12 TGI 160	160 Ah	---	240	224	202	190	522	280	273	64.5
2 Volt Standard Series										
2 TGI 700	700 Ah	4	1050	980	883	830	776	640	246	231
2 TGI 850	850 Ah	4	1275	1190	1072	1008	776	640	278	270
2 TGI 1000	1000 Ah	4	1500	1400	1261	1186	776	640	321	320
2 TGI 1175	1175 Ah	4	1763	1645	1482	1393	776	640	376	345
2 TGI 1250	1250 Ah	4	1875	1750	1576	1482	776	640	376	378
2 Volt Compact Series (for discharge currents equal to 3 hr. and above)										
2 TGI-CD 200	200 Ah	8	300	280	252	237	805	388	227	124
2 TGI-CD 300	300 Ah	8	450	420	378	356	805	388	302	171
2 TGI-CD 400	400 Ah	4	600	560	504	474	805	388	207	113
2 TGI-CD 500	500 Ah	4	750	700	631	593	805	388	244	141
2 TGI-CD 600	600 Ah	4	900	840	757	711	805	388	282	165

Note:
1. * Width up to cell terminal (2 Volt Models)
2. Dimensions Specified are without bottom mounting arrangements & front covers
3. Dimensions given in the General arrangement drawing will supersede the dimensions mentioned in the catalogue

- Nominal Capacity is at a discharge rate of 10 hours to an end cell voltage of 1.80 V at 25°C
- Other special designs & configurations of the battery system for specific application may be provided on request
- In accordance with its policy of continuous improvement the company reserves the right to change specifications 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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