HBL

Triumph™

T-Gel

Tubular Gel VRLA Battery

Introduction

HBL Power Systems Ltd., is the pioneer in the design, development & manufacture of specialized batteries in India for Telecom, Railways, Industry and Defence Applications. HBL offers its customers the most appropriate technology based on the applications & the batteries operational environment .

Triumph T-Gel

Tubular Gel VRLA Battery

The Tubular gel VRLA battery offered by HBL is a proven product, designed to meet the demanding needs of many diverse applications. These batteries are of a technologically advanced type and are ideal for regular cycling and deep discharge requirements in Telecom BTS sites. These batteries offer excellent cycle life (much higher than VRLA-AGM batteries) and good performance under partial state of charge operation. Tubular gel batteries are highly suitable for telecom BTS sites in power starved areas with unreliable utility sources or sites without grid power.

These batteries are maintenance free and do not require a temperature controlled environment. This allows the network operator to save significantly on Opex that will be incurred in cooling a network site. These batteries also offer a faster recharge capability to save on diesel generator running time after deep discharge cycles - further cutting down on Opex and lowering the payback period.

These batteries are also suitable for solar photovoltaic applications, Hybrid systems, Outdoor battery installations etc.

Innovative Product Features

Grid

Fine Crys™ high pressure die-cast tubular spines produced with HADI M/C for best corrosion resistance

Paste

Specially engineered **Tetra Base**® paste formula to enhance the cycle life at deep discharges

Tubular Plate

Microporous, high acid resistance tubular gauntlets along with improved slurry filled process improves the AM retention within the positive plate to ensure longer life

Alloy

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

Gel

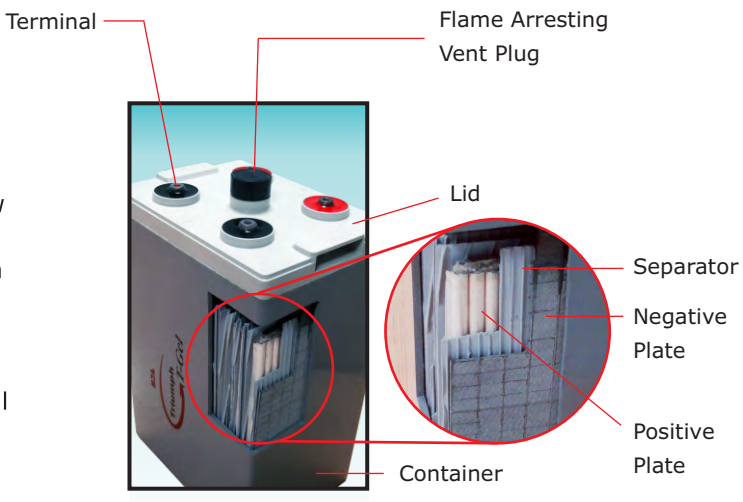
Electrolyte gel filled with high surface silica using specially designed **Thixo Gel**® formula for improved high temperature performance

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, better heat dissipation.
- 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 & hence 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:

-20°C to +55°C

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.

Operation

Charger settings:

Constant potential with current limit

Float Application:

Float Charge : 2.250 ± 0.005 V/cell at 25°C
Boost Charge : 2.300 ± 0.005 V/cell at 25°C
Charge Current Limit : $0.40C_{10}$ A Max*

Cyclic Application:

Float Charge : 2.270 ± 0.005 V/cell at 25°C
Boost Charge : 2.350 ± 0.005 V/cell at 25°C
Charge Current Limit : $0.40C_{10}$ A Max*

* Charging at higher rates can be offered on request.

Solar:

Regulation Voltage: 2.400±0.005 V/cell at 25°C

Charger:

Chargers with temperature compensation feature are to be used.

Certifications:

BUREAU VERITAS Certification ISO 14001 · UKAS QUALITY MANAGEMENT
BUREAU VERITAS Certification ISO 9001 · UKAS QUALITY MANAGEMENT
BUREAU VERITAS Certification OHSAS 18001:2007 · UKAS QUALITY MANAGEMENT

Applications

Telecommunications

- Base Transceiver Station (BTS)
- Base Switches (BSC)
- Data Centers

SPV

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

Others

- Railway Signaling
- SCADA Systems
- UPS (Backup > 1hour)
- Switchgear

* Suitable for any other applications which involve cycling, deep discharge and high temperature operations with rate of discharges between 1hr to 120hr rate.

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 C_{10}	No.of basic cells per module	Capacity at 1.75 ECV				Basic Monobloc / Module Dimensions & Weights			
			8 Hr	5 Hr	3 Hr	1 Hr	Length (mm)	Width * (mm)	Height (mm)	Weight (Kg)
12 Volt Monoblocs										
12 TGI 80	80 Ah	---	77	69	64	46	529	172	230	35.5
12 TGI 100	100 Ah	---	97	86	80	57	526	221	230	44.5
12 TGI 120	120 Ah	---	116	103	96	69	526	221	270	48.5
12 TGI 160	160 Ah	---	155	138	128	91	522	280	273	64.5
2 Volt Standard Series										
2 TGI 700	700 Ah	4	676	602	559	400	776	640	246	231
2 TGI 850	850 Ah	4	821	731	678	486	776	640	278	270
2 TGI 1000	1000 Ah	4	966	861	798	571	776	640	321	320
2 TGI 1175	1175 Ah	4	1135	1011	938	671	776	640	376	345
2 TGI 1250	1250 Ah	4	1208	1076	997	714	776	640	376	378
2 Volt Compact Series (for discharge currents equal to 3 hr. and above)										
2 TGI-CD 200	200 Ah	8	193	172	160	114	805	388	227	124
2 TGI-CD 300	300 Ah	8	290	258	239	171	805	388	302	171
2 TGI-CD 400	400 Ah	4	386	344	319	229	805	388	207	113
2 TGI-CD 500	500 Ah	4	483	430	399	286	805	388	244	141
2 TGI-CD 600	600 Ah	4	580	516	479	343	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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