



Maintenance-free
Valve regulated lead-acid batteries



Designed To Perform
in Tropical Conditions
For Float/Cyclic Applications



Specifications at a glance

Design and Construction:

- ▶ Positive Plate: Flat pasted type with Lead-calcium High Tin alloy grid to resist corrosion & longer life.
- ▶ Negative Plate: Flat pasted type with Lead-calcium alloy grid for maintenance-free characteristics
- ▶ Container: High impact Polypropylene co-polymer, ribbed jar design for better heat dissipation and strength. Flame-retardant polypropylene UL 94 V 0/28% LOI is optional
- ▶ Separator: Low resistance, high porosity and highly absorbent type glass mat separator (AGM)
- ▶ Electrolyte: High purity Sulphuric acid to maximize shelf life
- ▶ Terminals: Lead plated Copper inserts for high conductivity
- ▶ Safety Valve: Self resealing, pressure regulated and explosion proof
- ▶ Container and cover sealing: Heat Sealing Method for better joint strength

Operation:

- ▶ Type of charging: Constant potential, current limited to 20% of the rated capacity (0.2 C₁₀ Amp)
- ▶ Float Voltage: 2.25 +/- 0.01 VPC at 27°C
- ▶ Boost Voltage: 2.30 +/- 0.01 VPC at 27°C
- ▶ AC Ripple: Ripple content shall not exceed 3% RMS

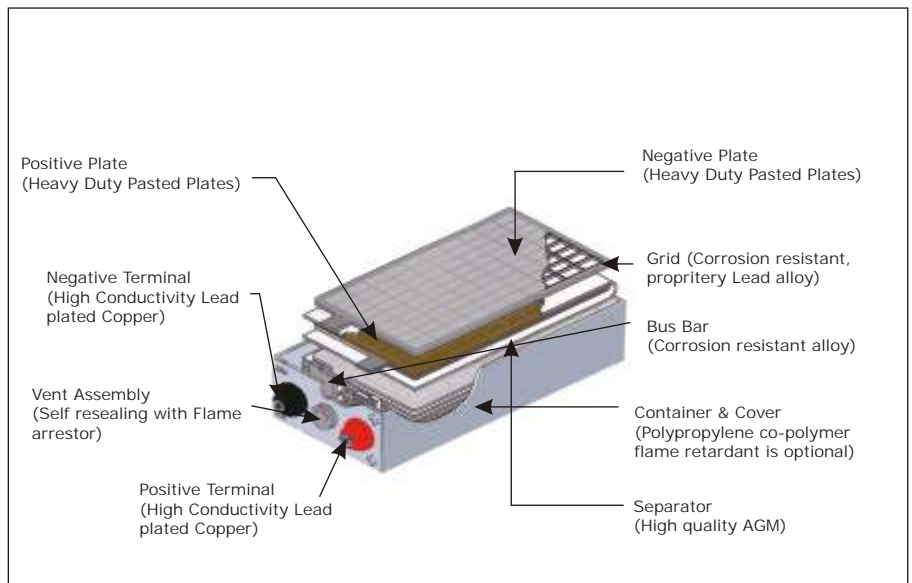
Performance:

- ▶ Conforms to: IEC 60896-2:1995, TEC Spec.# G/BAT-01/02, March 2000, BS 6290 Part-IV & IEEE 1188 Standards
- ▶ Float life: 20 years designed life at 27° C on full float with recommended charging methods
- ▶ Cyclic life at 27° C:
1200 cycles at 80% Depth of Discharge
2000 cycles at 50% Depth of Discharge
4000 cycles at 20% Depth of Discharge
- ▶ Wide range of operating temperature: - 20° C to +55° C

The Widest range of specialised DC Power Systems

HBL is the largest manufacturer of specialised batteries in India, for Industrial, Telecom, Railways and Defence applications. HBL offers its customers the most appropriate technology based on the requirement, from the wide range of batteries - Nickel-cadmium, Silver-zinc, Lead-acid and Lithium batteries. Chargers for rechargeable batteries are also manufactured in both TR and SMR versions from 24V to 220V. The company has sales of about US \$ 50 million and very substantial design and development capabilities, in-house.

Over 25 years of experience in the domestic market and over 10 years in exporting to many countries including USA, South Korea, West Asia and South East Asia, has given HBL an understanding of the customers' special varied requirements. Several major customers have found the company's products to be reliable over the years and have placed repeat orders. The company has adequate marketing and service personnel who can support the customers at short notice.



The Triumph-HP series is a premium design valve regulated lead acid battery based on features offered by world class companies. The battery works on the gas recombination principle and has been designed to meet the requirements of a wide range of applications. This product has been manufactured under the controls established by a quality / environmental management system that meets the requirements of ISO 9001:2000: ISO 14001:1996, which has been independently certified by BVQI.

Unique Features of Triumph-HP batteries

Horizontal plate stacking	<ul style="list-style-type: none">● Consistent performance and longer life● Better heat dissipation● Eliminates acid stratification
Ventilated module design	<ul style="list-style-type: none">● Excellent thermal management of battery● Resistant to thermal runaway
Tank formation of plates	<ul style="list-style-type: none">● Uniform cell voltages● 100% capacity on shipment● No additional cycling required
20 years designed life	<ul style="list-style-type: none">● A practically tested and proven VRLA Battery suitable for 20 years life certified by independent testing agency
Grid growth provision	<ul style="list-style-type: none">● Enhancement of battery life by prevention of failure due to grid growth

Benefits to our customers

- ▶ No water top-up required throughout its life - Maintenance-free
- ▶ No special battery rooms, as no corrosive fumes
- ▶ Better foot print due to stack able design
- ▶ Customized solutions to address variety of applications
- ▶ Designed for high integrity and long life
- ▶ Safe to use - leak and explosion proof
- ▶ Enhanced performance
- ▶ Ease of installation and ready to use-supplied in factory charged condition
- ▶ Eco-friendly, cadmium-free alloy for ease in recycling
- ▶ Simple cell replacement capability

Applications

* Telecommunications * Power * Oil and Gas * Solar Photovoltaic Systems
* Process control systems * UPS * Emergency Lighting * Railways



Product Specifications

Module	Nominal Capacity (Ah) at C 10	No. of basic cells per module	Discharge current in Amps			Module Dimensions & Weight			
			5 Hr	3 Hr	1 Hr	Length (+/-10mm)	Depth (+/-10mm)	Height (+/-10mm)	Weight (kg+/- 5%)
T-80 HP	80	12	13.8	21.3	45.7	759	280	265	82
T-100 HP	100	12	17.2	26.6	57.1	759	280	351	101
T-120 HP	120	12	20.7	31.9	68.6	759	280	351	113
T-160 HP	160	12	28	43	91	748	425	257	137
T-200 HP	200	12	34	53	114	755	425	303	173
T-240 HP	240	8	41	64	137	755	425	247	144
T-280 HP	280	8	48	74	160	755	425	288	161
T-300 HP	300	8	52	80	171	755	425	288	165
T-320 HP	320	8	55	85	183	755	425	310	182
T-360 HP	360	8	62	96	206	755	425	338	202
T-400 HP	400	4	69	106	229	755	425	211	113
T-440 HP	440	4	76	117	251	755	425	224	126
T-480 HP	480	4	83	128	274	748	425	250	132
T-500 HP	500	4	86	133	286	748	425	250	144
T-520 HP	520	4	90	138	297	748	425	250	150
T-560 HP	560	4	96	149	320	755	425	281	153
T-600 HP	600	4	103	160	343	755	425	281	157
T-650 HP	650	4	112	173	371	755	425	296	167
T-680 HP	680	8	117	181	389	755	425	338	202
T-760 HP	760	4	131	202	434	755	425	211	113
T-850 HP	850	3	146	226	486	580	685	241	189
T-925 HP	925	3	159	246	529	580	685	273	198
T-1000 HP	1000	3	172	266	571	580	685	273	207
T-1100 HP	1100	3	189	293	629	584	685	324	220
T-1200 HP	1200	3	207	319	686	584	685	324	245
T-1250 HP	1250	3	215	332	714	584	685	324	251
T-1360 HP	1360	3	234	362	777	590	685	371	267
T-1440 HP	1440	3	248	383	823	590	685	371	290
T-1500 HP	1500	3	258	399	857	590	685	371	303
T-1600 HP	1600	4	275	426	914	755	425	281	153
T-1700 HP	1700	3	293	452	971	580	685	241	189
T-1850 HP	1850	3	318	492	1057	580	685	273	198
T-2000 HP	2000	3	344	532	1143	580	685	273	207
T-2200 HP	2200	3	379	585	1257	584	685	324	220
T-2350 HP	2350	3	404	625	1343	584	685	324	245
T-2500 HP	2500	3	430	665	1429	584	685	324	251
T-2650 HP	2650	3	456	705	1514	590	685	371	267
T-2800 HP	2800	3	482	745	1600	590	685	371	290
T-3000 HP	3000	3	516	798	1714	590	685	371	303
T-3225 HP	3225	3	555	858	1843	584	685	324	220
T-3500 HP	3500	3	602	931	2000	584	685	324	245
T-3900 HP	3900	3	671	1037	2229	590	685	371	267
T-4000 HP	4000	3	688	1064	2286	590	685	371	267
T-4200 HP	4200	3	723	1117	2400	590	685	371	290
T-4300 HP	4300	3	740	1144	2457	590	685	371	290
T-4500 HP	4500	3	775	1197	2571	590	685	371	303
T-5000 HP	5000	3	861	1330	2857	584	685	324	251
T-5500 HP	5500	3	947	1463	3143	590	685	371	290
T-5800 HP	5800	3	998	1543	3314	590	685	371	303

- Nominal capacity is at a discharge rate of 10 hours to an end cell voltage of 1.75 V at 27 deg C.
- Dimensions given are as per horizontal stacking arrangement. The battery modules can be stacked to different combinations of height and length depending on space availability, specific configuration and floor loading requirement.
- Other special design and configurations of battery systems for specific application shall be provided on request. The above table is not exhaustive. Cells of intermediate capacities are also available.
- 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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