



## Tubular Low Maintenance Lead Acid Batteries



## SOLAR APPLICATIONS

Rural Electrification & Street Lighting

Telecommunication

Offshore Platforms

Railway Signaling

Hybrid Power Systems

Navigational Aids



## Introduction

HBL is the leading manufacturer of specialized batteries and DC power systems in INDIA catering to five core sectors : Telecom, Industry, Defense, Railways and Aviation.

A strong R & D focus and broad product range enable HBL to offer its customers the appropriate technology suited for their applications.

Some of the products designed and manufactured by HBL are Valve Regulated Lead Acid Batteries(VRLA), Tubular Low Maintenance Batteries, Nickel Cadmium Pocket & Fibre Plate Batteries, Pure Lead VRLA Batteries, Silver Zinc Aircraft / Torpedo Batteries, Lithium / Thermal Batteries, Battery chargers, Integrated Power Supplies, High Frequency Track Circuit Data loggers, Solid State Interlocking systems etc.

The wide ranging needs of solar energy applications are best met by our "TAURUS" batteries

## Superior Features

- ▶ Taurus Tubular Batteries are made of robust & aesthetically superior PPSFM (Polypropylene Structural Foam Moulded) container
- ▶ Positive spine grids produced on High Pressure Die Casting (HADI) machines give defect-free grid with fine grain structure. This results in excellent corrosion resistance and long life
- ▶ Taurus LMLA Batteries have high acid reservoir resulting in reduced need for water top-up even in extreme environmental conditions
- ▶ Low antimony alloy, minimizes water loss thereby reduces the topping up frequencies
- ▶ Heavy duty tubular plates for excellent cycle life (1500 cycles at 80% DOD and 5000 cycles at 20% DOD)
- ▶ Low rate of self discharge less than 3% per month at 27° C
- ▶ Capacity to withstand partial stage of charge operation (PSOC)
- ▶ Deep cycling capabilities
- ▶ Higher ampere-hour and watt-hour efficiencies
- ▶ Long Service Life

## Benefits

- ▶ Trouble free Performance - Higher reliability
- ▶ Low maintenance cost
- ▶ Long cycle life - Low life cycle cost
- ▶ High power at low rate of discharge
- ▶ Suitable for deep discharge application
- ▶ Tolerant to high temperature applications

## Compliance and Approvals

- ▶ "TAURUS" Tubular low maintenance battery performance characteristics conform to IEC-60896-1, IS 1651: 1991 for 2 V cells and IS 13369 : 1992 for 6 V and 12 V Monoblocs
- ▶ Type tests as per IS 1651 & IS 13369 (for 2V & Monoblocs) have been witnessed by Independent testing agencies like ETDC, CECRI and ERTL
- ▶ The quality and Environmental certifications from BVQI for ISO 9001 & ISO 14001 ensures the consistency in the product quality

## Product Specifications - Tubular SPV 2V Cells

Cell Type	Capacity at 10 hr rate to 1.85 ECV	Overall cell dimensions (mm)			Weight of Cell $\pm 5\%$ (KG)		Approx Qty of acid 1.23 Sp.gr	Initial Charging Current (Amps)		Total minimum input during initial Charging
	Ah	Length $\pm 10$	Width $\pm 10$	Height $\pm 10$	Without Acid	With Acid	Liters	Starting rate	Finishing rate	Ah
TS 100 P	100	131	166	430	7.0	12.7	4.6	10	5.0	550
TS 120 P	120	131	166	430	8.4	13.8	4.4	12	6.0	660
TS 150 P	150	131	166	430	8.4	13.8	4.4	15	7.5	825
TS 200 P	200	198	162	425	11.3	20	7.1	20	10.0	1100
TS 250 P	250	198	162	425	12.7	21.2	6.9	25	12.5	1375
TS 300 P	300	249	169	429	17.2	27.4	8.3	30	15.0	1650
TS 350 P	350	366	171	526	22.9	40.9	14.7	35	17.5	1925
TS 400 P	400	366	171	526	24.7	42.4	14.4	40	20.0	2200
TS 450 P	450	366	171	526	26.6	43.7	13.9	45	22.5	2475
TS 500 P	500	366	171	526	28.5	45.4	13.8	50	25.0	2750
TS 550 P	550	366	171	526	30.3	46.9	13.5	55	27.5	3025
TS 600 P	600	366	171	526	32.2	48.2	13.0	60	30.0	3300
TS 650 P	650	400	192	530	33.6	57.1	19.1	65	32.5	3575
TS 700 P	700	400	192	530	37.4	60.2	18.6	70	35.0	3850
TS 750 P	750	400	192	530	39.5	61.9	18.2	75	37.5	4125
TS 800 P	800	400	192	530	41.3	63.3	17.9	80	40.0	4400
TS 850 P	850	418	170	688	47.4	75.0	22.5	85	42.5	4675
TS 900 P	900	418	170	688	50.3	77.5	22.1	90	45.0	4950
TS 950 P	950	418	170	688	53.3	79.9	21.6	95	47.5	5225
TS 1000 P	1000	418	170	688	56.3	82.4	21.2	100	50.0	5500

## 6V & 12V Monoblocs

Cell Type	Capacity at 10 hr rate to 1.85 ECV	Overall cell dimensions (mm)			Weight of Cell $\pm 5\%$ (KG)		Approx Qty of acid 1.23 Sp.gr	Initial Charging Current (Amps)		Total minimum input during initial Charging
	Ah	Length $\pm 10$	Width $\pm 10$	Height $\pm 10$	Without Acid	With Acid	Liters	Starting rate	Finishing rate	Ah

### 6 Volt Monoblocs

6TS 60 P	60	450	180	380	12.8	31.7	15.4	6.0	3.0	72
6TS 90 P	90	450	180	380	16.1	34.2	14.7	9.0	4.5	108
6TS 120 P	120	450	180	380	20.1	37.4	14.1	12.0	6.0	144
6TS 150 P	150	450	180	380	23.4	39.8	13.4	15.0	7.5	180
6TS 180 P	180	450	180	380	26.9	42.6	12.8	18.0	9.0	216

### 12 Volt Monoblocs

12TS 20 P	20	258	171	245	8.5	15.0	5.2	2.0	1.0	24
12TS 40 P	40	403	173	245	14.0	23.5	7.6	4.0	2.0	48
12TS 60 P	60	512	213	252	19.5	35.0	12.5	6.0	3.0	72
12TS 80 P	80	512	213	252	37.7	53.5	12.5	8.0	4.0	96
12TS 100 P	100	519	275	265	29.3	46.5	13.8	10.0	5.0	120
12TS 120 P	120	519	275	265	34.0	56.0	12.9	12.0	6.0	144

\* Monobloc Batteries will be supplied in dry charged condition as a standard feature.

\* 2V cells in dry charged condition will be available as optional.

#### NOTE :

- ▶ The overall height includes height of float
- ▶ Above table is not exhaustive. Other models for specific application shall be provided on request.
- ▶ In accordance with its policy of continuous improvement the company reserves the right to change specifications and designs without notice

#### Ah Capacities for long discharge durations

Duration in Hrs	C <sub>20</sub>	C <sub>48</sub>	C <sub>72</sub>	C <sub>120</sub>
% Capacity in Ah	106	123	128	138
Cut off Voltage	1.90	1.90	1.90	1.90



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