



# *Solar Inverter Automotive Batteries*



TRUSTED & DEPENDABLE



STABLE & CONSISTENT



HIGH PERFORMANCE



## DIFFERENT CONCEPT-LATEST TECHNOLOGY

IEC 61427-1:2013 | IEC 60896-21:2004 | ISO 45001:2018

ISO 14001:2015 | ISO 9001:2015 | CE

# HUSKY TUBULAR BATTERY DATASHEET



- Batteries manufactured under the aegis of Industry Experts, renowned scientists and researchers
- Longer battery life owing to balanced construction of battery plates.
- The end user gets a robust product since the grids are casted on PDC unlike gravity casting .
- Our batteries are more corrosion resistant and ultra low maintenance batteries.
- Proprietary additives maximise battery life, improve heat dissipation, and reduce charging resistance.
- High standards of Carbon; reduce sulphation and increase life of the battery by at
- Internationally researched curing process; required porosity, mechanical strength, electrical performance.
- Battery capable of recovering from deep discharge because of high capacity and charge acceptance.
- Battery assembled in high quality PPCP containers and PE separators.
- No pre-mature failure of the battery due to cold welds, short circuits, and shedding of plates.
- Additives prevent acid stratification. Acid Filling done using specialised chillers.
- Use of the most advanced German pulse charging technique.
- Strict quality control protocol followed & in house laboratory testing.



## BATTERY DIMENSIONS:

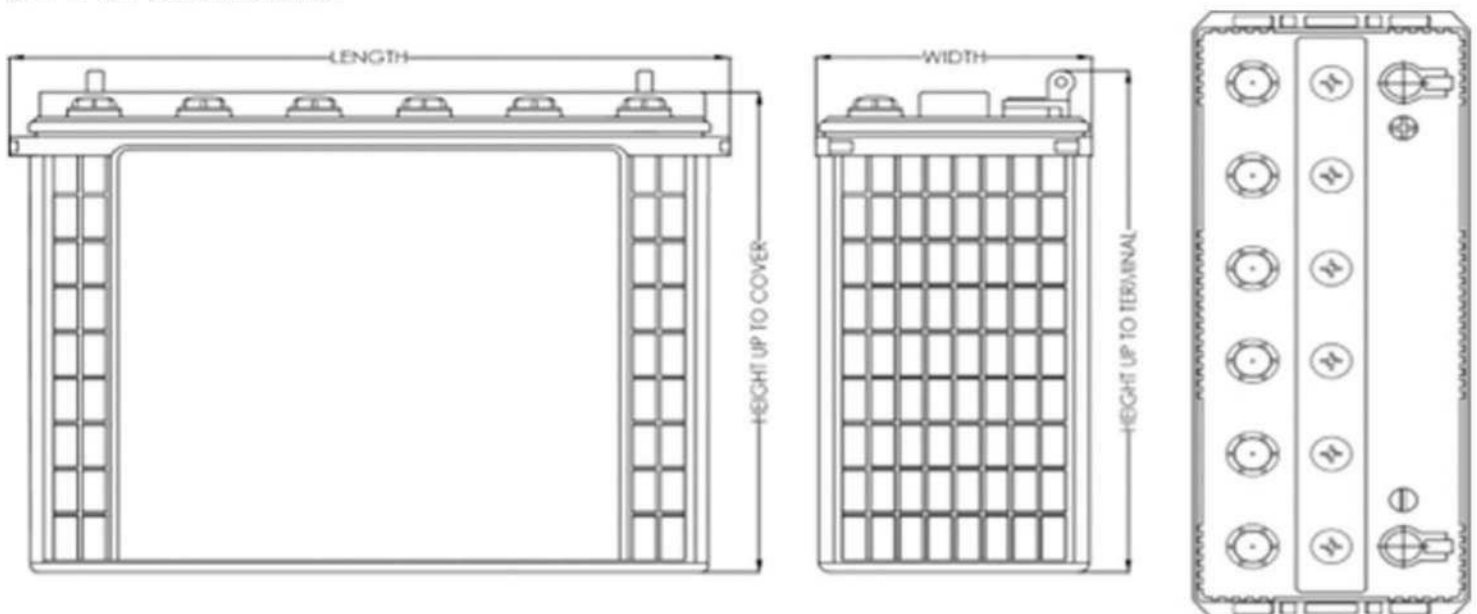


TABLE 1 TECHNICAL SPECIFICATION C/10 BATTERY

| Model<br>Nomenclature | Voltage | Capacity | Battery Overall Dimensions (± 3 mm) |       |                         |                                    | Battery weight<br>(±5%) |
|-----------------------|---------|----------|-------------------------------------|-------|-------------------------|------------------------------------|-------------------------|
|                       |         |          | Length                              | Width | Height<br>(Up to Cover) | Overall Height<br>(Up to Terminal) |                         |
| HTT 1000              | 12V     | 100Ah    | 500                                 | 190   | 400                     | 415                                | 55.0 Kg                 |
| HTT 1500              | 12V     | 150Ah    | 500                                 | 190   | 400                     | 415                                | 58.0 Kg                 |
| HTT 2000              | 12V     | 200Ah    | 500                                 | 190   | 400                     | 415                                | 63.0 Kg                 |
| HTT 2250              | 12V     | 225Ah    | 500                                 | 190   | 400                     | 415                                | 65.0 Kg                 |
| HTT 2500              | 12V     | 250Ah    | 500                                 | 190   | 400                     | 415                                | 68.0 Kg                 |
| HTT 2700              | 12V     | 270Ah    | 500                                 | 190   | 400                     | 415                                | 70.0 Kg                 |
| HTT 3000              | 12V     | 300Ah    | 500                                 | 190   | 400                     | 415                                | 75.0 Kg                 |

TABLE 2 ELECTRICAL SPECIFICATIONS

| CAPACITY AMP-HOURS (AH) |           |           |         |         |                     |
|-------------------------|-----------|-----------|---------|---------|---------------------|
| Modal                   | C20/20 Hr | C10/10 Hr | C5/5 Hr | C3/3 Hr | INTERNAL RESISTANCE |
| HTT 1000                | 120       | 100       | 80      | 68      | 6.90 (mΩ)           |
| HTT 1500                | 180       | 150       | 120     | 102     | 7.05 (mΩ)           |
| HTT 2000                | 225       | 200       | 160     | 135     | 7.10(mΩ)            |
| HTT 2250                | 250       | 225       | 185     | 155     | 7.15 (mΩ)           |
| HTT 2500                | 270       | 250       | 200     | 170     | 7.20 (mΩ)           |
| HTT 2700                | 300       | 270       | 225     | 200     | 7.50 (mΩ)           |
| HTT 3000                | 340       | 300       | 250     | 215     | 7.71 (mΩ)           |

\*\* All data based on stabilized battery capacity on new battery, under controlled laboratory test conditions

TABLE 3 CHARGING INSTRUCTIONS

|                | 12V SYSTEM | 24V SYSTEM | 36V SYSTEM | 48V SYSTEM |
|----------------|------------|------------|------------|------------|
| BULK CHARGING  | 14.4-14.7  | 28.8-29.4  | 43.2-44.1  | 57.6-58.8  |
| FLOAT CHARGING | 13.5-13.7  | 27.0-27.4  | 40.5-41.1  | 54.0-54.8  |

## TABLE 4 CONSTANT POWER DISCHARGE PERFORMANCE

| Model    | MAXIMUM BACKUP DURATION (HH:MM) |       |       |       |
|----------|---------------------------------|-------|-------|-------|
|          | 400W                            | 300W  | 200W  | 100W  |
| HTT-1000 | 2:12                            | 03:15 | 4:40  | 09:30 |
| HTT-1500 | 3:20                            | 04:45 | 06:45 | 14:30 |
| HTT-2000 | 4:25                            | 06:30 | 09:15 | 19:20 |
| HTT-2250 | 4:40                            | 07:30 | 10:30 | 21:40 |
| HTT-2500 | 5:20                            | 08:15 | 11:30 | 24:00 |
| HTT-2700 | 6:00                            | 08:25 | 12:15 | 14:45 |
| HTT-3000 | 6:40                            | 09:20 | 13:30 | 16:20 |

## TABLE 5 CHARGE CHARACTERISTICS (27°C)

| Cycle Use                                     | Standby Use               |
|-----------------------------------------------|---------------------------|
| 14.40 – 15.0V (-40mV/°C), Maximum Current 30A | 13.60 - 13.80V (-20mV/°C) |

\*Battery to be recharged in CV mode only

## TABLE 6 CHARGING TEMPERATURE COMPENSATION

| ADD                                                                                           | SUBTRACT                                                                                      |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 0.005 Volt per cell for every 1°C below 25°C<br>0.0028 Volt per cell for every 1°F below 77°F | 0.005 Volt per cell for every 1°C above 25°C<br>0.0028 Volt per cell for every 1°F above 77°F |

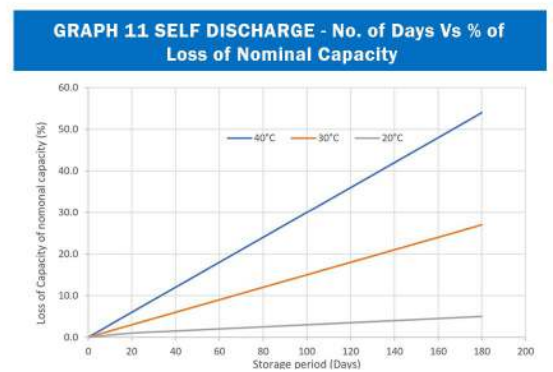
## TABLE 7 OPERATIONAL DATA

| OPERATING TEMPERATURE                                                                                         |                                                          | SELF DISCHARGE                                         |                          |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|--------------------------|
| -4°F to 113°F (-20°C to +45°C). At temperatures below 32°F (0°C) maintain a state of charge greater than 60%. |                                                          | Less than 3% per month at 20°C temperature conditions. |                          |
| Rated Capacity at ambient temperature                                                                         | As per formula:<br>$C_t = C_{27} \{1 + 0.0043(t - 27)\}$ | Self-Discharge                                         | Conforms to IS13369-1992 |

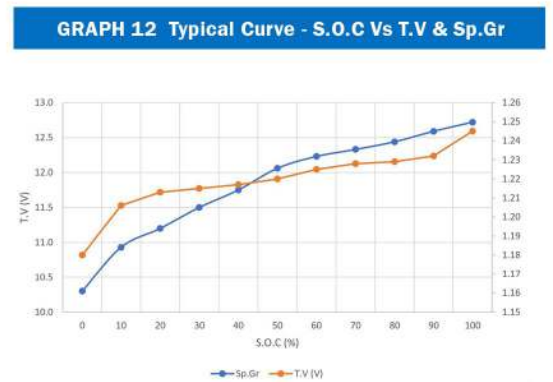
## TERMINAL & VENT PLUG TYPES



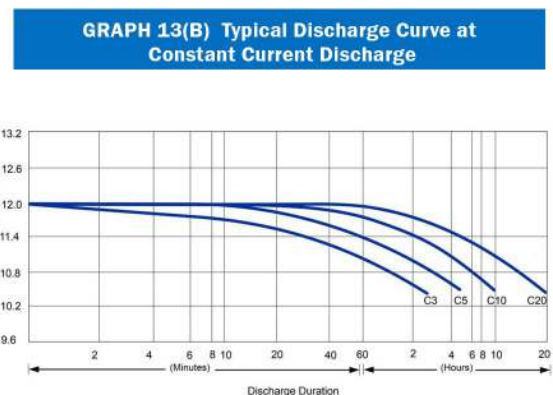
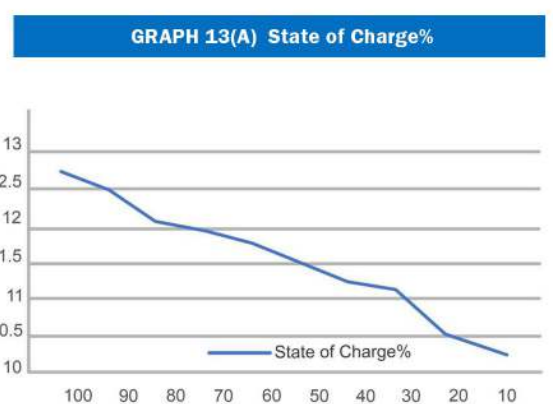
| TABLE 11 SELF DISCHARGE - No. of Days Vs % of Loss of Nominal Capacity |      |      |      |
|------------------------------------------------------------------------|------|------|------|
| Storage period (Days)                                                  | 40°C | 30°C | 20°C |
| 0                                                                      | 0    | 0    | 0    |
| 20                                                                     | 6    | 3    | 1    |
| 40                                                                     | 12   | 6    | 1.5  |
| 60                                                                     | 18   | 9    | 2    |
| 80                                                                     | 24   | 12   | 2.5  |
| 100                                                                    | 30   | 15   | 3    |
| 120                                                                    | 36   | 18   | 3.5  |
| 140                                                                    | 42   | 21   | 4    |
| 160                                                                    | 48   | 24   | 4.5  |
| 180                                                                    | 54   | 27   | 5    |



| TABLE 12 Typical Curve - S.O.C Vs T.V & Sp.Gr |       |         |
|-----------------------------------------------|-------|---------|
| S.O.C (%)                                     | Sp.Gr | T.V (V) |
| 0                                             | 10.3  | 1.18    |
| 10                                            | 10.93 | 1.206   |
| 20                                            | 11.2  | 1.213   |
| 30                                            | 11.5  | 1.215   |
| 40                                            | 11.75 | 1.217   |
| 50                                            | 12.06 | 1.22    |
| 60                                            | 12.23 | 1.225   |
| 70                                            | 12.33 | 1.228   |
| 80                                            | 12.44 | 1.229   |
| 90                                            | 12.59 | 1.232   |
| 100                                           | 12.72 | 1.245   |



| TABLE 13 State of Charge Characteristics |                   |
|------------------------------------------|-------------------|
| Voltage                                  | State of Charge % |
| 12.60                                    | 100               |
| 12.40                                    | 90                |
| 12.0                                     | 80                |
| 11.90                                    | 70                |
| 11.75                                    | 60                |
| 11.5                                     | 50                |
| 11.3                                     | 40                |
| 11.2                                     | 30                |
| 10.7                                     | 20                |
| 10.5                                     | 10                |

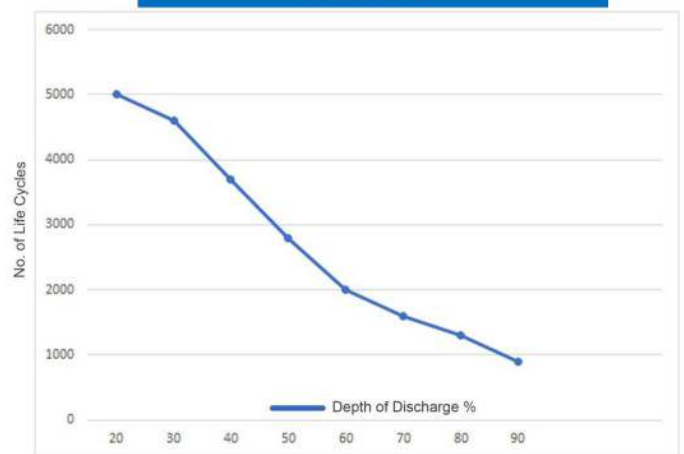


\*\* All test data based on stabilized battery capacity under controlled laboratory test conditions

**TABLE 8 TYPICAL DOD Vs LIFE CYCLE**

| Number of Life Cycles | Depth of Discharge % |
|-----------------------|----------------------|
| 5000                  | 20                   |
| 4600                  | 30                   |
| 3700                  | 40                   |
| 2800                  | 50                   |
| 2000                  | 60                   |
| 1600                  | 70                   |
| 1300                  | 80                   |
| 900                   | 90                   |

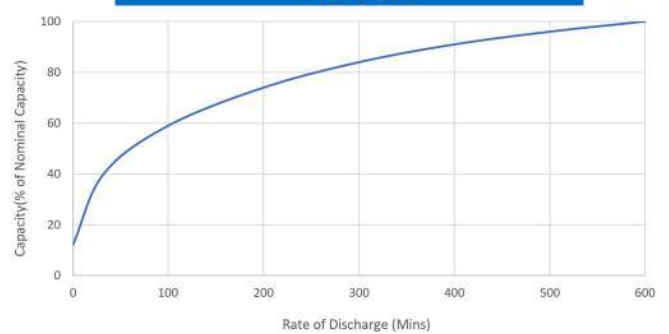
**GRAPH 8**



**TABLE 9 RATE OF DISCHARGE Vs CAPACITY**

| Rate of Discharge (Mins) | Capacity(% of Nominal Capacity) |
|--------------------------|---------------------------------|
| 0                        | 12                              |
| 32                       | 40                              |
| 100                      | 59                              |
| 200                      | 74                              |
| 300                      | 84                              |
| 400                      | 91                              |
| 500                      | 96                              |
| 600                      | 100                             |

**GRAPH 9**



\* Graph Explains the Capacity of the battery from C1 to C10

**TABLE 10 (Typical Curve - No. of Cycles Vs DOD at Different Temperature - Tubular LABs)**

| No of Cycles | 50°C | 40°C | 25°C |
|--------------|------|------|------|
| 70           | 100  |      |      |
| 100          | 88   |      |      |
| 130          | 78   |      |      |
| 150          | 73   | 100  |      |
| 200          | 60   | 90   |      |
| 300          | 46   | 78   |      |
| 400          | 36   | 67   |      |
| 460          | 30   | 60   |      |
| 500          | 27   | 56   |      |
| 540          | 25   | 52   |      |
| 650          |      | 44   | 100  |
| 900          |      | 32   | 90   |
| 1100         |      | 25   | 82   |
| 1500         |      |      | 70   |
| 2000         |      |      | 57   |
| 2500         |      |      | 47   |
| 3000         |      |      | 39   |
| 3500         |      |      | 32   |
| 4000         |      |      | 27   |
| 4250         |      |      | 25   |

**GRAPH 10 (Typical Curve - No. of Cycles Vs DOD at Different Temperature - Tubular LABs)**

