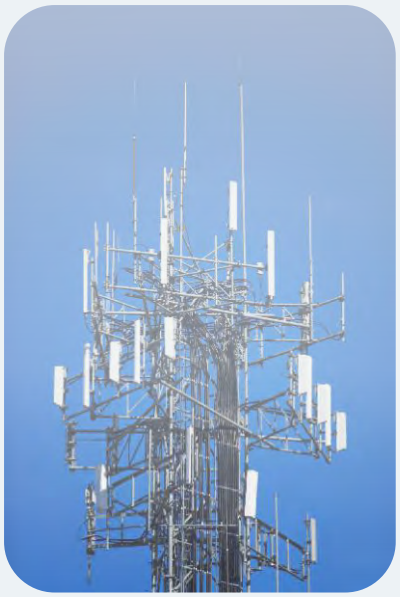
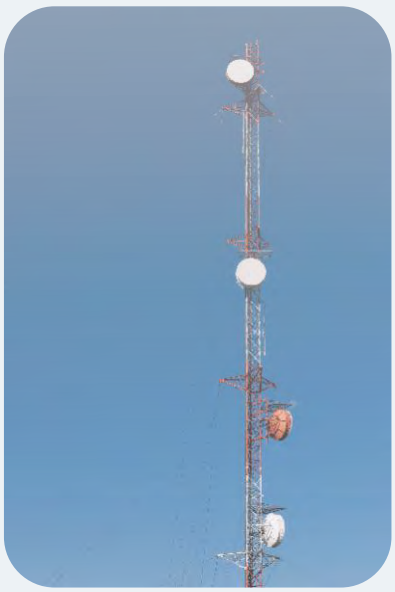
Triumph™ FT

# Front Terminal AGM GEL VRLA Battery





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HBL Engineering Limited (Formerly known as HBL Power SYstems Limited) 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 & field requirement.

**Products designed & developed by HBL are:**

- VRLA AGM
- Triumph Plus VRLA
- Tubular Gel VRLA
- Pure lead Tin specialized batteries
- Tubular LMLA
- Nickel-Cadmium

Telecom sites requires standby power i.e, batteries to maintain the site uptime during the power failures. The operating condition includes high ambient temperatures, installations in cabinets and requires good cycle life.

HBL's Triumph FT AGM Gel Valve regulated lead acid batteries are an improved version of regular AGM VRLA batteries. The Gel electrolyte used in these batteries offers a better rigidity of AGM separator thus by resulting in better cycle life compared to regular AGM batteries. It also benefits with efficient heat management that makes the battery to withstand high temperature environment.

Triumph FT batteries are compact in design with front terminal configuration and made to fit in the standard ETSI cabinets of 19" and 23".

## Features & Benefits :

- Corrosion resistant alloy for long float life exceeding 12+ years at 25°C
- Gelled electrolyte for improved cycle life and better thermal management
- Wide operating temperature range (-20°C to +50°C)
- Excellent deep discharge recovery and ability to operate in PSOC conditions without loss in performance
- Front Access high conductivity copper alloy terminals provided for easy installation and maintenance
- Microporous absorbent glass mat separator (AGM) for improved gas recombination
- Case and Lid in ABS material, thermally welded to ensure leak proof seal
- Self-releasing, pressure regulated and explosion proof safety valve.

## Applications:

Wireless Telecommunications, Broadband Connectivity, Microwave, In-building Solutions, Wi-Max, Micro BTS, DLC & 4G - etc..

## Product Range:

| Sl. No. | Model | Capacity* (Ah) | Dimensions (mm) | | | Approx. Wt. ± 5% (Kg) |
|---|---|---|---|---|---|---|
| | | | Length | Width | Height | |
| 1 | DT 12-100FT | 100 | 510 | 110 | 240 | 32.0 |
| 2 | DT 12-150FT | 150 | 555 | 125 | 315 | 50.0 |
| 3 | DT 12-170FT | 170 | 555 | 125 | 315 | 56.0 |

* Nominal capacity at 10h rate to end 1.8 ECV @ 25°C.

**Front terminal batteries conforms to IEC 60896 - 21 & 22 : 2004 & BS 6290 Part IV.**

## Technical Information

## Constant Current Discharge

### Discharge in amps upto 1.67 ECV

| Sl. No. | Model | Capacity @ C10 rate | Constant Current Discharge Performance at 25° C | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15 Min | 30 Min | 1 Hr | 3 Hr | 5 Hr | 8 Hr | 10 Hr | 20 Hr |
| 1 | DT12-100FT | 100 | 167 | 103 | 63 | 27.3 | 17.8 | 12.4 | 10.5 | 5.6 |
| 2 | DT 12-150FT | 150 | 262 | 161 | 99 | 42.9 | 28.1 | 19.5 | 15.7 | 8.4 |
| 3 | DT 12-170FT | 170 | 297 | 183 | 112 | 48.6 | 31.8 | 22.1 | 17.8 | 9.5 |

### Discharge in amps upto 1.75 ECV

| Sl. No. | Model | Capacity @ C10 rate | Constant Current Discharge Performance at 25° C | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15 Min | 30 Min | 1 Hr | 3 Hr | 5 Hr | 8 Hr | 10 Hr | 20 Hr |
| 1 | DT12-100FT | 100 | 150 | 96 | 60 | 26.0 | 17.1 | 11.9 | 10.2 | 5.4 |
| 2 | DT 12-150FT | 150 | 235 | 152 | 95 | 41.0 | 27.0 | 18.8 | 15.2 | 8.1 |
| 3 | DT 12-170FT | 170 | 267 | 172 | 108 | 46.5 | 30.6 | 21.3 | 17.3 | 9.2 |

### Discharge in amps upto 1.80 ECV

| Sl. No. | Model | Capacity @ C10 rate | Constant Current Discharge Performance at 25° C | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15 Min | 30 Min | 1 Hr | 3 Hr | 5 Hr | 8 Hr | 10 Hr | 20 Hr |
| 1 | DT12-100FT | 100 | 143 | 91 | 57 | 25.5 | 16.9 | 11.8 | 10.0 | 5.3 |
| 2 | DT 12-150FT | 150 | 225 | 143 | 90 | 40.2 | 26.6 | 18.6 | 15.0 | 8.0 |
| 3 | DT 12-170FT | 170 | 255 | 162 | 102 | 45.6 | 30.1 | 21.1 | 17.0 | 9.1 |

## Constant Power Discharge

### Discharge in Watts upto 1.67 ECV

| Sl. No. | Model | Capacity @ C10 rate | Constant Current Discharge Performance at 25° C | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15 Min | 30 Min | 1 Hr | 3 Hr | 5 Hr | 8 Hr | 10 Hr | 20 Hr |
| 1 | DT12-100FT | 100 | 313 | 196 | 122 | 53.6 | 35.3 | 24.6 | 20.9 | 11.3 |
| 2 | DT 12-150FT | 150 | 492 | 309 | 192 | 84.5 | 55.5 | 38.8 | 31.4 | 16.9 |
| 3 | DT 12-170FT | 170 | 558 | 350 | 218 | 95.7 | 63.0 | 43.9 | 35.6 | 19.1 |

### Discharge in Watts upto 1.75 ECV

| Sl. No. | Model | Capacity @ C10 rate | Constant Current Discharge Performance at 25° C | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15 Min | 30 Min | 1 Hr | 3 Hr | 5 Hr | 8 Hr | 10 Hr | 20 Hr |
| 1 | DT12-100FT | 100 | 281 | 184 | 118 | 51.3 | 33.9 | 23.7 | 20.3 | 10.9 |
| 2 | DT 12-150FT | 150 | 442 | 290 | 185 | 80.7 | 53.4 | 37.4 | 30.5 | 16.4 |
| 3 | DT 12-175FT | 175 | 501 | 329 | 210 | 91.5 | 60.6 | 42.4 | 34.5 | 18.6 |

## Discharge in Watts upto 1.80 ECV

| Sl. No. | Model | Capacity @ C10 rate | Constant Current Discharge Performance at 25° C | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 15 Min | 30 Min | 1 Hr | 3 Hr | 5 Hr | 8 Hr | 10 Hr | 20 Hr |
| 1 | DT12-100FT | 100 | 268 | 174 | 111 | 50.3 | 33.4 | 23.5 | 20.0 | 10.8 |
| 2 | DT 12-150FT | 150 | 423 | 274 | 174 | 79.1 | 52.6 | 37.0 | 30.0 | 16.1 |
| 3 | DT 12-170FT | 170 | 479 | 310 | 198 | 89.7 | 59.7 | 41.9 | 34.0 | 18.3 |

## Charging Parameters:

Triumph FT batteries are to be charged in constant voltage mode with the following voltage settings in float application at 25°C, with current limit of minimum 10% of rated capacity.

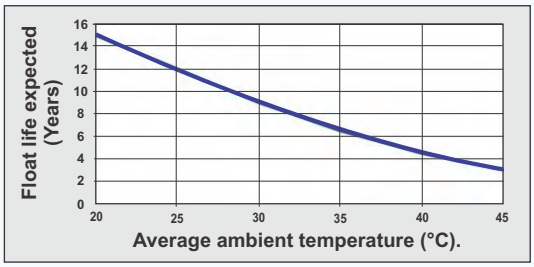
- Boost Voltage: 14.0 V for 12V Battery, Float Voltage: 13.7 V for 12V Battery
- A temperature compensated charger should be used for automatically adjusting the charge voltage based on the temperature of the battery. The charge should be adjusted as below.

For every degree rise in temperature : Reduce voltage by 12 mV per 12V battery
For every degree fall in temperature : Increase voltage by 18 mV per 12V battery

## Float Life:

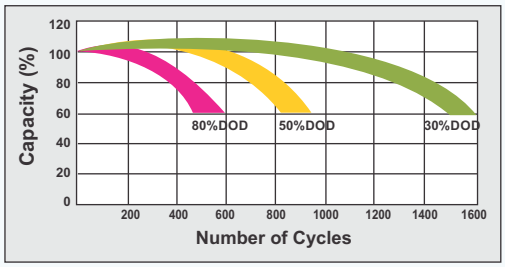
In a float arrangement, the battery is kept across the charger which continually replenishes the drain in the battery caused by self-discharge.

The expected life of battery is influenced by ambient temperature. The expected life of battery at various ambient temperatures, when floated at a voltage of 2.25 volts per cell is shown in Graph.



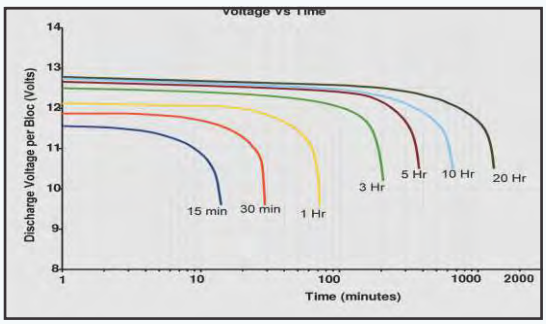

## Cyclic Life :

The cycle life of battery will largely depend on depth of discharge (DOD) that battery has cycled. Higher depth of discharge reduces the cycle life of the battery. Battery cycle life at different depth of discharge has been given in below graph



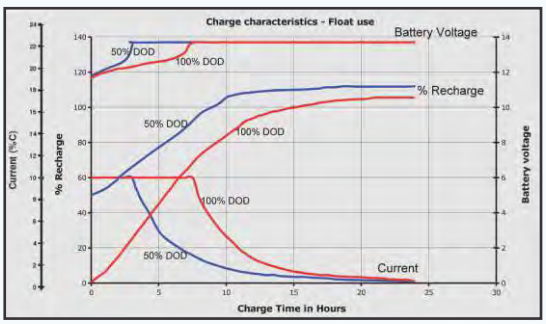

## DISCHARGE CHARACTERISTICS:

The curves in the figure illustrate the typical discharge charactristics at an ambient temperature of 25°C. The C10 expresses the nominal capacity of the battery at 10 hr discharge rate.




## Charge characteristics:

The graph shows the charge characteristics at a constant voltage 13.6V with a current limit of 10% of rated capacity of the battery at a temperature of 25°C.





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