



# LPM SERIES-Marine Use

## LPM 12-180(12V180AH)

### Specification

|                                  |  |                               |
|----------------------------------|--|-------------------------------|
| Nominal Voltage                  | 12V  |                               |
| Nominal Capacity(20HR)           | 180.0AH  |                               |
| Dimension                        | Length   | 512± 2mm (20.16 inches)       |
|                                  | Width  | 222± 2mm (8.74 inches)        |
|                                  | Container Height   | 196± 2mm (7.72 inches)        |
|                                  | Total Height (with Terminal)   | 218 ± 2mm (8.58 inches)       |
|                                  | Approx Weight  | Approx 51.0 Kg (112.5 lbs)    |
| Terminal                         | \  |                               |
| Reserve Capacity                 | 360min   |                               |
| Rated Capacity                   | 180.0 AH/9.0A  | (20hr, 1.80V/cell, 25°C/77°F) |
|                                  | 167.0 AH/16.7A   | (10hr, 1.80V/cell, 25°C/77°F) |
|                                  | 151.5 AH/30.3A   | (5hr, 1.75V/cell, 25°C/77°F)  |
|                                  | 135.9 AH/45.3A   | (3hr, 1.75V/cell, 25°C/77°F)  |
|                                  | 118.1AH/118.1A   | (1hr, 1.60V/cell, 25°C/77°F)  |
| Cold Cranking Ampere             | 900A   |                               |
| Max. Discharge Current           | 1800A (5s)   |                               |
| Internal Resistance              | Approx 2.7mΩ   |                               |
| Operating Temp. Range            | Discharge : -15~50°C (5~122°F)   |                               |
|                                  | Charge : 0~40°C (32~104°F)   |                               |
|                                  | Storage : -15~40°C (5~104°F)   |                               |
| Nominal Operating Temp. Range    | 25±3°C (77±5°F)  |                               |
| Cycle Use                        | Initial Charging Current less than 54.0A. Voltage<br>14.4V~15.0V at 25°C(77°F)Temp. Coefficient -30mV/°C   |                               |
| Standby Use                      | No limit on Initial Charging Current Voltage<br>13.5V~13.8V at 25°C(77°F)Temp. Coefficient -20mV/°C  |                               |
| Capacity affected by Temperature | 40°C (104°F)   | 103%                          |
|                                  | 25°C (77°F)  | 100%                          |
|                                  | 0°C (32°F)   | 86%                           |
| Self Discharge                   | Leoch LPM series batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter. |                               |



### Applications

- ◆ Boat
- ◆ Yacht
- ◆ Mobile home
- ◆ Truck
- ◆ Lorry

### Constant Current Discharge (Amperes) at 25 °C (77°F)

| F.V/Time   | 10min | 15min | 20min | 30min | 45min | 1h    | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 274.4 | 235.4 | 208.1 | 165.6 | 126.2 | 102.2 | 59.3 | 43.0 | 34.4 | 28.9 | 24.9 | 19.8 | 16.3 | 8.82 |
| 1.80V/cell | 317.3 | 261.2 | 224.5 | 176.5 | 131.8 | 105.8 | 60.8 | 44.2 | 35.3 | 29.6 | 25.6 | 20.2 | 16.7 | 9.00 |
| 1.75V/cell | 345.6 | 280.2 | 237.2 | 183.0 | 136.8 | 109.3 | 62.2 | 45.3 | 36.2 | 30.3 | 26.1 | 20.6 | 17.0 | 9.14 |
| 1.70V/cell | 372.4 | 295.2 | 247.9 | 189.8 | 140.4 | 112.1 | 64.0 | 46.1 | 36.9 | 30.9 | 26.5 | 20.9 | 17.3 | 9.32 |
| 1.65V/cell | 392.8 | 311.5 | 260.7 | 196.6 | 144.5 | 115.0 | 65.4 | 47.1 | 37.5 | 31.4 | 27.0 | 21.2 | 17.6 | 9.40 |
| 1.60V/cell | 417.3 | 327.2 | 270.9 | 203.4 | 149.3 | 118.1 | 66.8 | 48.1 | 38.2 | 31.9 | 27.4 | 21.5 | 17.8 | 9.56 |

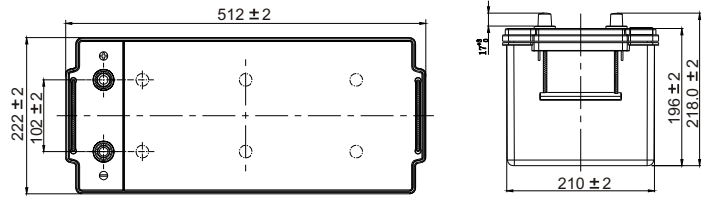
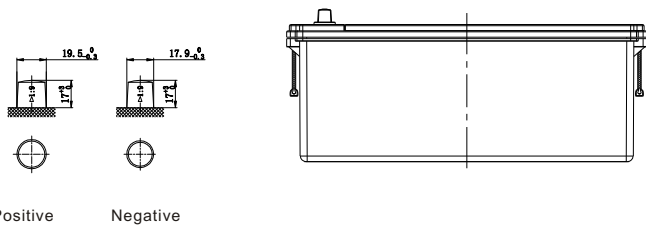
### Constant Power Discharge (Watts) at 25 °C (77°F)

| F.V/Time   | 10min | 15min | 20min | 30min | 45min | 1h    | 2h    | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| 1.85V/cell | 526.5 | 456.1 | 406.2 | 325.1 | 249.2 | 202.8 | 118.1 | 86.0 | 69.0 | 58.1 | 50.3 | 39.9 | 33.1 | 17.9 |
| 1.80V/cell | 603.3 | 502.2 | 435.3 | 344.4 | 258.6 | 208.9 | 120.5 | 88.0 | 70.5 | 59.3 | 51.3 | 40.7 | 33.8 | 18.2 |
| 1.75V/cell | 652.3 | 535.1 | 457.4 | 355.5 | 267.6 | 215.1 | 123.0 | 89.9 | 72.1 | 60.5 | 52.3 | 41.3 | 34.2 | 18.4 |
| 1.70V/cell | 696.6 | 560.0 | 475.5 | 367.4 | 273.9 | 220.1 | 126.2 | 91.3 | 73.2 | 61.4 | 52.9 | 41.9 | 34.7 | 18.7 |
| 1.65V/cell | 730.3 | 587.9 | 497.6 | 379.4 | 281.2 | 225.2 | 128.7 | 93.0 | 74.3 | 62.3 | 53.7 | 42.4 | 35.1 | 18.8 |
| 1.60V/cell | 769.2 | 613.1 | 514.6 | 390.9 | 289.3 | 230.4 | 131.0 | 94.7 | 75.5 | 63.2 | 54.4 | 42.8 | 35.5 | 19.1 |

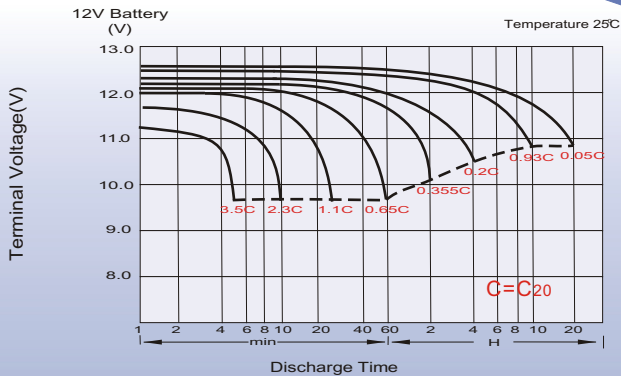
Values are subject to variation of +/- 5% in normal manufacturing processes. Technical specifications and the product line above could be changed without prior notice

# Dimensions

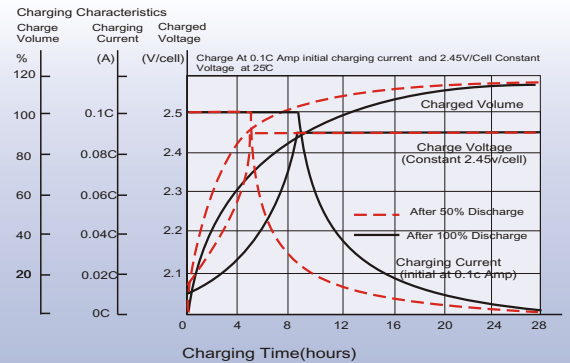
## Terminal



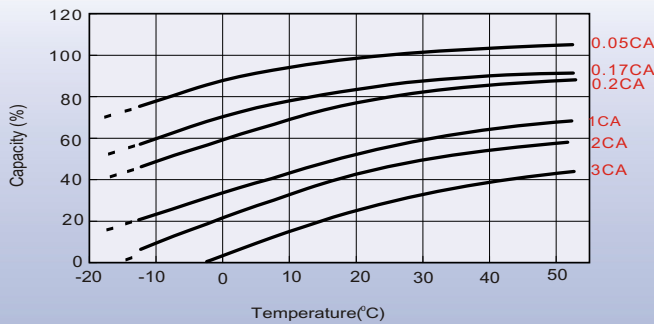
## Discharge Characteristics



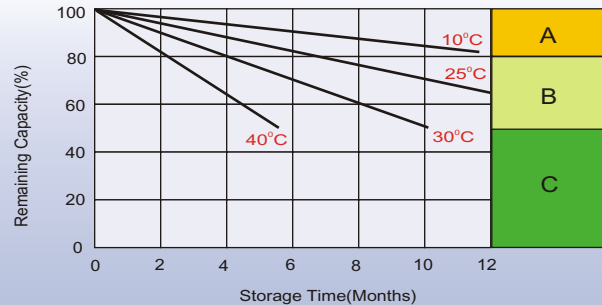
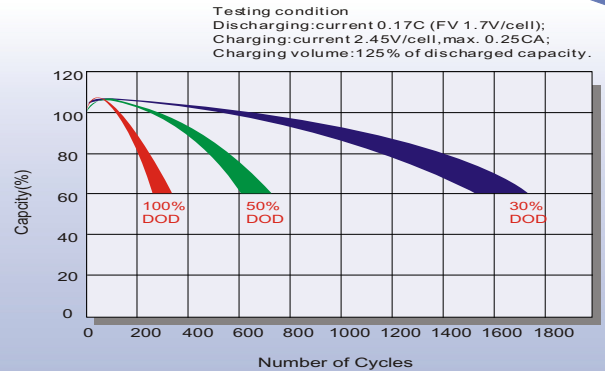
## Charging Characteristics (cycle use)



## Temperature Effects in Relation to Battery Capacity



## Cycle Life in Relation to Depth of Discharge



## Self Discharge Characteristics

- A** No supplementary charge required  
(Carry out supplementary charge before use if 100% capacity is required.)
- B** Supplementary charge required before use. Optional charging way as below:
  1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.
  2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.45V/cell.
  3. Charged for 8-10 hours at limited current 0.05CA.
- C** Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.