

# TNEH 12-40 [12V40Ah]

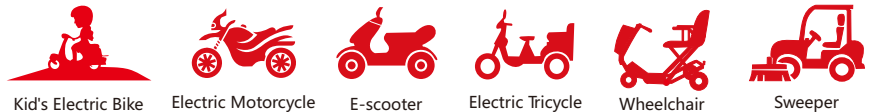


## Product Features

### Deep Cycle Black Gold Series 500~600 Cycle Times @100%DOD

|                                                       |                                                         |                                                                |                                                          |
|-------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------|
| <b>↑20%<br/>Cycle Life</b><br>Three advanced material | Carbon Fiber                                            | Graphene                                                       | Rare-earth alloy                                         |
|                                                       | <b>↑10%</b><br>Discharge Power<br>Positive Carbon Fiber | <b>↑15%</b><br>Low Temp. Capacity<br>Negative graphene formula | <b>↓50%</b><br>Grid Corrosion<br>Rare-earth patent alloy |

## Product Applications



## Physical Specification

| Model     | Dimensions (mm/inch) |         |          |              | Weight (kg/lbs) | Terminal | Container                                 |
|-----------|----------------------|---------|----------|--------------|-----------------|----------|-------------------------------------------|
| TNEH12-40 | Length               | Width   | Height   | Total Height | 10.0/22.05      | I10      | ABS UL94-HB<br>(Optional: FR ABS UL94-V0) |
|           | 267/10.51            | 77/3.03 | 170/6.69 | 175/6.89     |                 |          |                                           |

## Product Specifications

| Nominal Voltage | Rated Capacity 25°C/77°F                                                                                                     | Operating Temp. Range                                                                                                 | Capacity Effected Temp                                                         | Capacity vs Storage Time                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------|
| 12V             | 40Ah 20hr Rate (1.80V/cell)<br>38.5Ah 10hr Rate (1.75V/cell)<br>36.5Ah 5hr Rate (1.75V/cell)<br>35.5Ah 3hr Rate (1.75V/cell) | Discharge: -15~50°C (5~122°F)<br>Charge: 0~40°C (32~104°F)<br>Storage: -15~40°C (5~104°F)<br>Optimum: 25±3°C (77±5°F) | 40°C (104°F): 106%<br>25°C (77°F): 100%<br>0°C (32°F): 90%<br>-15°C (5°F): 76% | Three months : 90%<br>Six months : 80%<br>Nine months : 60% |

## Constant Current Discharge (A)@25°C (77°F)

| F.V/Time   | 30min | 45min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 42.9  | 30.6  | 24.5 | 14.0 | 11.0 | 8.55 | 6.87 | 5.83 | 4.49 | 3.68 | 1.93 |
| 1.80V/cell | 44.4  | 31.5  | 25.2 | 14.5 | 11.4 | 8.80 | 7.14 | 6.04 | 4.62 | 3.77 | 2.00 |
| 1.75V/cell | 45.6  | 32.6  | 26.2 | 15.4 | 11.8 | 9.11 | 7.30 | 6.17 | 4.75 | 3.85 | 2.04 |
| 1.70V/cell | 46.7  | 33.5  | 27.1 | 15.6 | 12.1 | 9.43 | 7.60 | 6.47 | 4.87 | 3.95 | 2.08 |
| 1.68V/cell | 47.7  | 34.6  | 28.0 | 15.8 | 12.2 | 9.52 | 7.77 | 6.50 | 4.97 | 4.02 | 2.10 |
| 1.60V/cell | 49.0  | 35.6  | 28.6 | 16.3 | 12.7 | 9.80 | 7.94 | 6.70 | 5.10 | 4.15 | 2.12 |

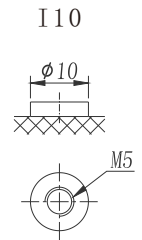
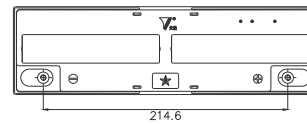
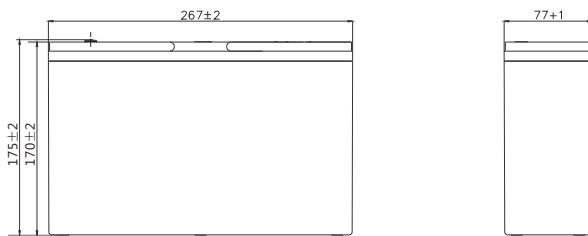
## Constant Power Discharge (W/cell)@25°C (77°F)

| F.V/Time   | 30min | 45min | 1h   | 2h   | 3h   | 4h   | 5h   | 6h   | 8h   | 10h  | 20h  |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|
| 1.85V/cell | 83.8  | 60.1  | 48.4 | 27.9 | 22.0 | 17.2 | 13.9 | 11.8 | 9.10 | 7.46 | 3.94 |
| 1.80V/cell | 86.4  | 61.7  | 49.7 | 28.8 | 22.8 | 17.6 | 14.3 | 12.2 | 9.33 | 7.63 | 4.05 |
| 1.75V/cell | 88.4  | 63.8  | 51.4 | 30.5 | 23.5 | 18.2 | 14.6 | 12.4 | 9.56 | 7.76 | 4.12 |
| 1.70V/cell | 90.1  | 65.0  | 52.9 | 30.8 | 23.9 | 18.7 | 15.1 | 12.9 | 9.73 | 7.91 | 4.19 |
| 1.68V/cell | 91.2  | 66.6  | 54.4 | 31.0 | 24.1 | 18.8 | 15.4 | 12.9 | 9.87 | 7.99 | 4.20 |
| 1.60V/cell | 92.9  | 68.0  | 55.0 | 31.7 | 24.7 | 19.2 | 15.6 | 13.2 | 10.0 | 8.19 | 4.21 |

# TNEH 12-40 [12V40Ah]

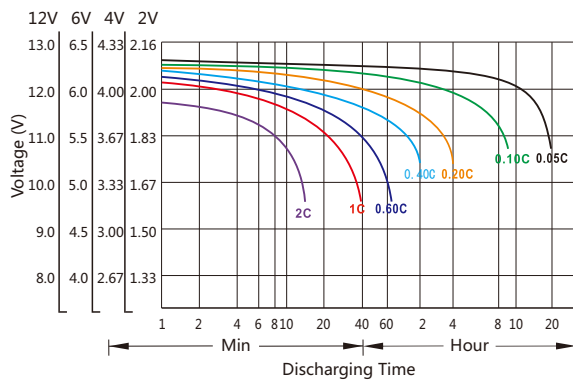


## Battery Dimensions(mm)

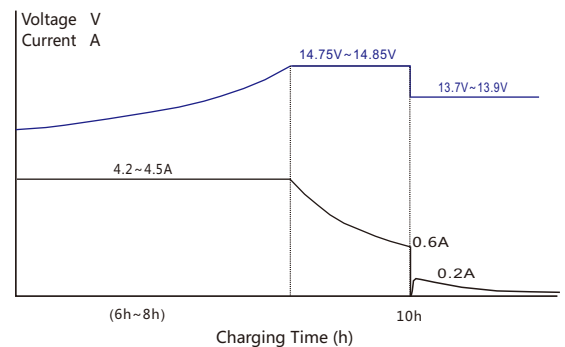


## Electrical Characteristics

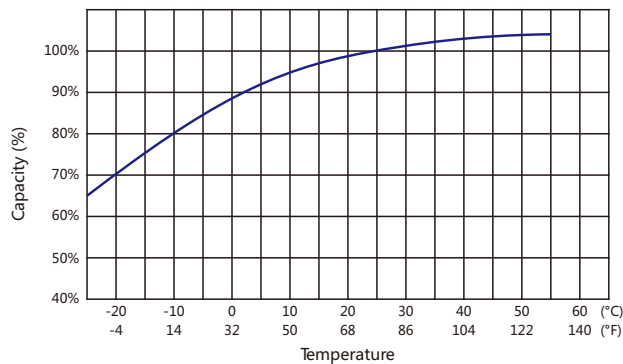
### Discharging Characteristics@25°C(77°F)



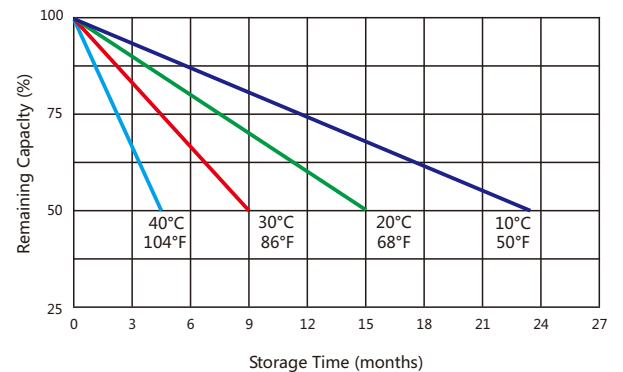
### Charging Characteristics@25°C(77°F)



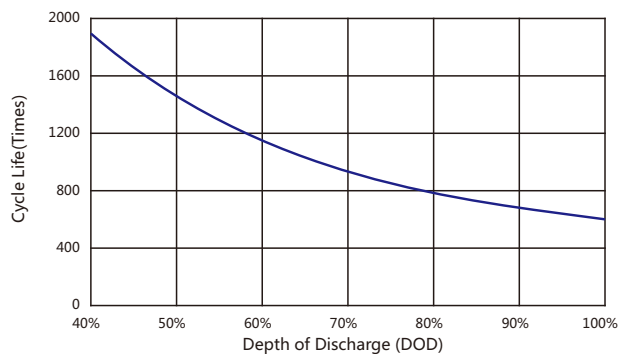
### Capacity vs Temperature



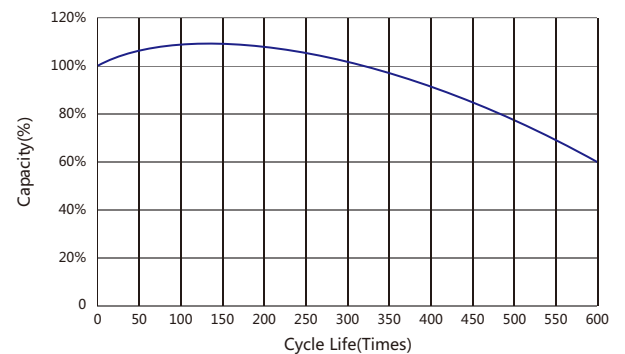
### Self-discharge vs Time



### Cycle Life vs Depth of Discharge@25°C(77°F)



### Cycle Life vs Remaining Capacity@25°C(77°F)



## Usage and Maintenance

| Limited Current                  | Limited Voltage                                       | Limited Voltage                                     |
|----------------------------------|-------------------------------------------------------|-----------------------------------------------------|
| Limited current : $\leq 0.2C_2A$ | 14.75~14.85V@25°C(77°F)<br>Temp.Coefficient: -24mV/°C | 13.7~13.9V@25°C(77°F)<br>Temp.Coefficient: -18mV/°C |