



# FT12-90G (12V90Ah)

DG (Deep Cycle GEL , 12 Volts ) series is pure GEL battery with 12 years floating design life , it is ideal for standby or frequent cyclic discharge applications under extreme environments. By using strong grids, high purity lead and patented Gel electrolyte, the DG series offers excellent recovery after deep discharge under frequent cyclic discharge use, and can deliver 400 cycles at 100% DOD. Suitable for solar, CATV, marine , RV and deep discharge UPS, communication , and telecommunication , etc.



## Specification

|                                      |   |
|--------------------------------------|---|
| Cells Per Unit                       | 6   |
| Voltage Per Unit                     | 12  |
| Capacity                             | 90Ah@20hr-rate to 1.75V per cell @25°C  |
| Weight                               | Approx. 26.5 Kg(Tolerance ± 2%)   |
| Max. Discharge Current               | 900 A (5 sec)   |
| Internal Resistance                  | Approx.8.7 mΩ   |
| Operating Temperature Range          | Discharge: -40°C~60°C<br>Charge:-20°C~50°C<br>Storage: -40°C~60°C   |
| Normal Operating Temperature Range   | 25°C ± 5°C  |
| Float charging Voltage               | 13.6 to 13.8 VDC/unit Average at 25°C   |
| Recommended Maximum Charging Current | 18A   |
| Equalization and Cycle Service       | 14.2 to 14.4VDC/unit Average at 25°C  |
| Self Discharge                       | RITAR Valve Regulated Lead Acid (VRLA) batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using. |
| Terminal                             | Terminal F6   |
| Container Material                   | A.B.S. UL94-HB, UL94-V0 Optional.   |



MH28539



G4M20206-0910-E-16



CERTIFICATE

Postcode: 421001  
is in conformity with  
ISO 14001:2004 Standard

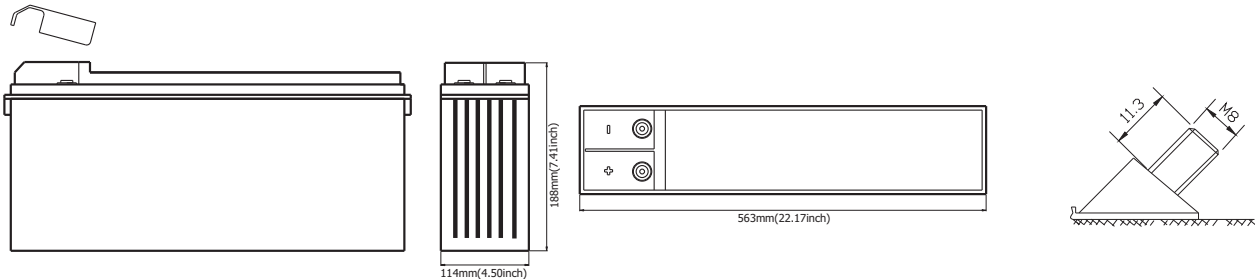


CERTIFICATE

Postcode: 421001  
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## Dimensions

Unit: mm Dimension: 563(L)×114(W)×188(H)



### Constant Current Discharge Characteristics: A (25°C)(The capacity reaches the peak value after 5-20 cycles.)

| F.V/Time | 5MIN  | 10MIN | 15MIN | 30MIN | 1HR   | 2HR   | 3HR   | 4HR   | 5HR   | 8HR   | 10HR  | 20HR  |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 9.60V    | 224.0 | 166.8 | 130.5 | 85.84 | 52.47 | 31.59 | 22.85 | 18.24 | 15.49 | 10.49 | 8.710 | 4.775 |
| 10.0V    | 217.5 | 158.7 | 127.9 | 84.42 | 52.23 | 31.35 | 22.77 | 18.16 | 15.40 | 10.41 | 8.626 | 4.688 |
| 10.2V    | 211.1 | 153.1 | 125.9 | 84.15 | 51.75 | 31.12 | 22.59 | 18.07 | 15.31 | 10.32 | 8.543 | 4.601 |
| 10.5V    | 191.8 | 143.0 | 121.2 | 83.70 | 51.26 | 30.88 | 22.50 | 17.90 | 15.12 | 10.24 | 8.459 | 4.500 |
| 10.8V    | 175.1 | 131.9 | 113.1 | 83.25 | 49.52 | 30.32 | 21.89 | 17.48 | 14.75 | 9.827 | 8.190 | 4.273 |
| 11.1V    | 151.2 | 119.3 | 102.6 | 78.65 | 47.05 | 28.98 | 20.93 | 16.64 | 14.12 | 9.411 | 7.948 | 4.022 |

### Constant Power Discharge Characteristics: W (25°C)(The capacity reaches the peak value after 5-20 cycles.)

| F.V/Time | 5MIN | 10MIN | 15MIN | 30MIN | 1HR   | 2HR   | 3HR   | 4HR   | 5HR   | 8HR   | 10HR  | 20HR  |
|----------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 9.60V    | 2363 | 1777  | 1423  | 963.2 | 606.3 | 372.3 | 272.6 | 217.5 | 184.8 | 125.3 | 104.1 | 57.25 |
| 10.0V    | 2317 | 1722  | 1400  | 962.4 | 604.9 | 370.4 | 272.1 | 217.2 | 184.3 | 124.7 | 103.4 | 56.25 |
| 10.2V    | 2290 | 1677  | 1384  | 960.1 | 600.2 | 368.1 | 270.9 | 216.7 | 183.7 | 123.8 | 102.5 | 55.21 |
| 10.5V    | 2109 | 1580  | 1336  | 955.6 | 594.8 | 365.5 | 269.8 | 214.7 | 181.5 | 122.8 | 101.5 | 54.00 |
| 10.8V    | 1944 | 1473  | 1249  | 951.5 | 577.7 | 360.8 | 262.5 | 209.8 | 177.1 | 117.9 | 98.28 | 51.28 |
| 11.1V    | 1727 | 1348  | 1138  | 904.3 | 553.0 | 347.4 | 251.1 | 199.7 | 169.4 | 112.9 | 95.37 | 48.26 |

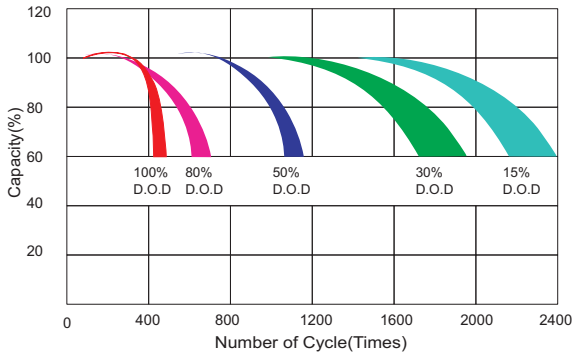
All mentioned values are average values (Tolerance ±2%).

# FT12-90G

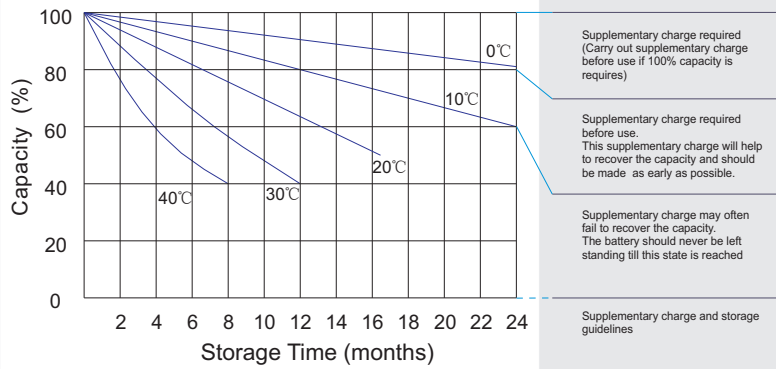
# 12V90Ah



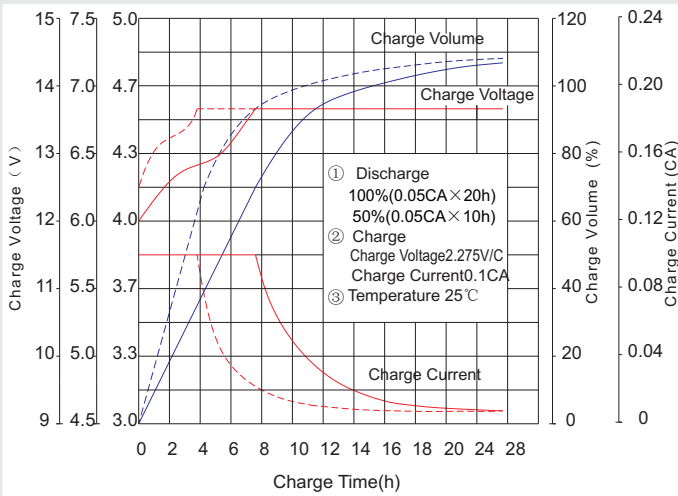
### Life characteristics of cyclic use



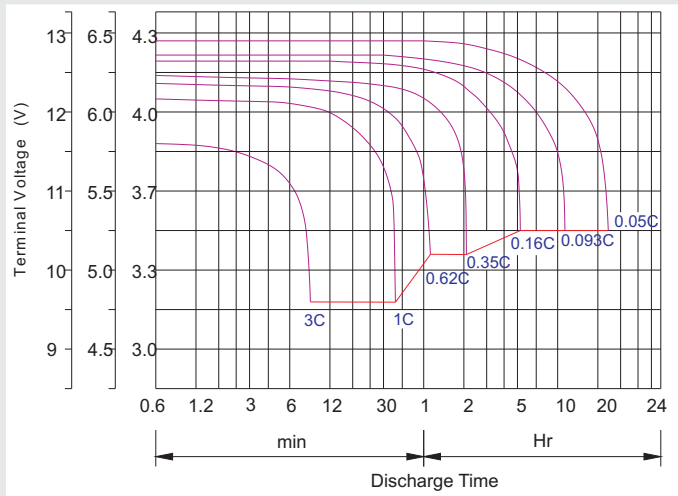
### Storage characteristic



### Charge characteristic curve for cyclic use



### Discharge characteristic curve



## Capacity Factors With Different Temperature

| Battery Type |        | -20°C | -10°C | 0°C | 5°C | 10°C | 20°C | 25°C | 30°C | 40°C | 45°C |
|--------------|--------|-------|-------|-----|-----|------|------|------|------|------|------|
| GEL Battery  | 6V&12V | 50%   | 70%   | 83% | 85% | 90%  | 98%  | 100% | 102% | 104% | 105% |
|              | 2V     | 60%   | 75%   | 85% | 88% | 92%  | 99%  | 100% | 103% | 105% | 106% |
| AGM Battery  | 6V&12V | 46%   | 66%   | 76% | 83% | 90%  | 98%  | 100% | 103% | 107% | 109% |
|              | 2V     | 55%   | 70%   | 80% | 85% | 92%  | 99%  | 100% | 104% | 108% | 110% |

### Discharge Current VS. Discharge Voltage

|                                 |           |                   |           |
|---------------------------------|-----------|-------------------|-----------|
| Final Discharge Voltage V /cell | 1.75V     | 1.70V             | 1.60V     |
| Discharge Current (A)           | (A) ≤0.2C | 0.2C < (A) < 1.0C | (A) ≥1.0C |

**Charge the batteries at least once every six months, if they are stored at 25°C.**

Charging Method:

|                  |  |
|------------------|--|
| Constant Voltage | -0.2Cx2h+2.4-2.45V/cellx24h, Max. Current 0.2C |
| Constant Current | -0.2Cx2h+0.1Cx12h                              |
| Fast             | -0.2Cx2h+0.2Cx6h                               |

## Maintenance & Cautions

### Cycle service

- ※ Avoid battery over discharge, especially battery series connection use.
- ※ Charged with recommend voltage, ensure battery can be full recharged.
- In general, recharge capacity should be 1.1-1.15 times discharge capacity.
- ※ Effect of temperature on cycle charge voltage: -4mV/°C/Cell.
- ※ There are a number of factors that will affect the length of cyclic service.
- The most significant are depth of discharge, ambient temperature, discharge rate, and the manner in which the battery is recharged.
- Generally specking, the most important factors is depth of discharge.

|          |                       |                  |                       |
|----------|-----------------------|------------------|-----------------------|
| Bolt     | M5                    | M6               | M8                    |
| Terminal | F3 F4 F13 F18 T25 T26 | F8 F11 F12-1 F15 | F5 F9 F10 F12 F14 F16 |
| Torque   | 6-7N-m                | 8-10N-m          | 10-12N-m              |