



# RT 12280 (12V28Ah)

RT series is a general purpose battery with 5 years design life in float service . It meets with IEC and JIS standards .With up-dated AGM valve regulated technology and high purity raw materials, the RT series battery has reliable standby service life. It is suitable for UPS/EPS, medical equipment, emergency light and security systems applications.



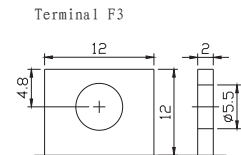
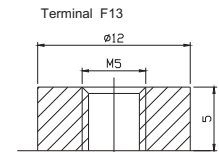
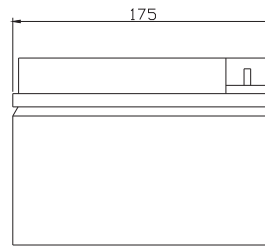
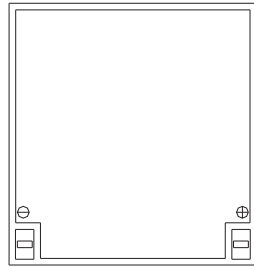
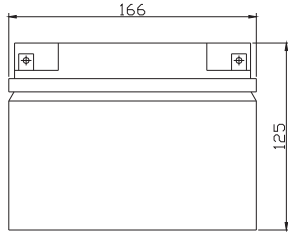
## Specification

|  |   |
|--|---|
| Cells Per Unit                             | 6   |
| Voltage Per Unit                           | 12  |
| Capacity                                   | 28Ah@20hr-rate to 1.75V per cell @25°C  |
| Weight                                     | Approx.8.6 Kg(Tolerance±3%)   |
| Max. Discharge Current                     | 280 A (5 sec)   |
| Internal Resistance                        | Approx.9 mΩ   |
| Operating Temperature Range                | Discharge: -20°C~60°C<br>Charge: 0°C~50°C<br>Storage: -20°C~60°C  |
| Normal Operating Temperature Range         | 25°C±5°C  |
| Float charging Voltage                     | 13.7 to 13.9 VDC/unit Average at 25°C   |
| Recommended Maximum Charging Current Limit | 8.4 A   |
| Equalization and Cycle Service             | 14.6 to 14.8 VDC/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                                   | Faston F3/F13   |
| Constainer Material                        | A.B.S. UL94-HB, UL94-V0 Optional.   |



## Dimensions

Unit: mm Dimension: 166(L)×175(W)×125(H)



## Constant Current Discharge Characteristics : A(25°C)

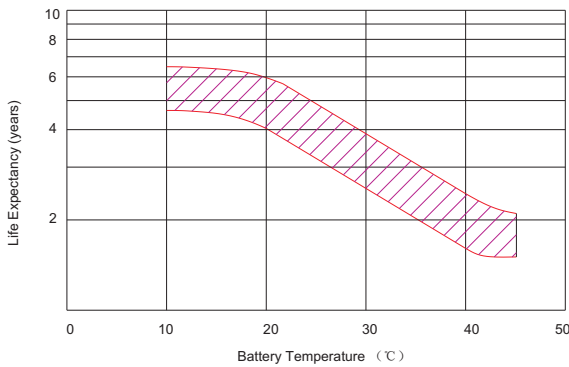
| F.V/Time | 5MIN  | 10MIN | 15MIN | 30MIN | 1HR   | 2HR   | 3HR   | 4HR   | 5HR   | 8HR   | 10HR  | 20HR  |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 9.60V    | 104.9 | 69.51 | 51.77 | 27.84 | 18.20 | 11.13 | 7.333 | 5.972 | 4.908 | 3.233 | 2.799 | 1.498 |
| 10.0V    | 101.1 | 67.77 | 50.11 | 27.49 | 17.96 | 10.90 | 7.197 | 5.888 | 4.864 | 3.220 | 2.770 | 1.486 |
| 10.2V    | 95.18 | 64.42 | 48.72 | 27.07 | 17.78 | 10.79 | 7.133 | 5.829 | 4.832 | 3.191 | 2.728 | 1.444 |
| 10.5V    | 85.56 | 60.24 | 45.95 | 26.32 | 17.57 | 10.65 | 7.070 | 5.743 | 4.793 | 3.163 | 2.714 | 1.414 |
| 10.8V    | 76.66 | 56.17 | 43.36 | 25.45 | 17.32 | 10.56 | 6.987 | 5.546 | 4.769 | 3.150 | 2.669 | 1.357 |
| 11.1V    | 67.07 | 51.50 | 40.00 | 24.49 | 16.91 | 10.13 | 6.850 | 5.466 | 4.748 | 3.125 | 2.627 | 1.335 |

## Constant Power Discharge Characteristics : W(25°C)

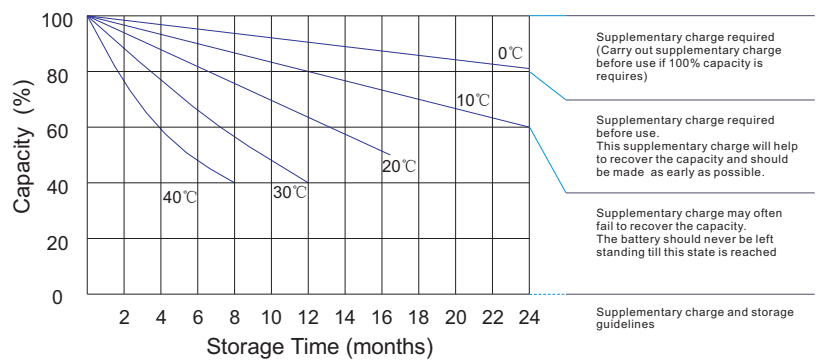
| F.V/Time | 5MIN  | 10MIN | 15MIN | 30MIN | 1HR   | 2HR   | 3HR   | 4HR   | 5HR   | 8HR   | 10HR  | 20HR  |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 9.60V    | 1138  | 762.2 | 571.3 | 318.7 | 217.5 | 131.1 | 87.67 | 71.49 | 58.80 | 38.71 | 33.53 | 17.98 |
| 10.0V    | 1108  | 746.4 | 563.1 | 315.4 | 214.4 | 129.4 | 86.24 | 70.48 | 58.27 | 38.56 | 33.22 | 17.83 |
| 10.2V    | 1054  | 716.8 | 555.6 | 312.7 | 212.8 | 128.3 | 85.50 | 69.82 | 57.92 | 38.27 | 32.79 | 17.37 |
| 10.5V    | 962.1 | 687.3 | 526.7 | 306.3 | 209.9 | 126.9 | 84.87 | 68.88 | 57.46 | 37.95 | 32.56 | 17.08 |
| 10.8V    | 868.0 | 642.9 | 497.6 | 299.1 | 207.2 | 126.0 | 83.88 | 66.56 | 57.19 | 37.78 | 32.06 | 16.39 |
| 11.1V    | 765.5 | 598.6 | 468.7 | 290.9 | 202.6 | 121.6 | 82.24 | 65.60 | 56.98 | 37.52 | 31.59 | 16.14 |

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

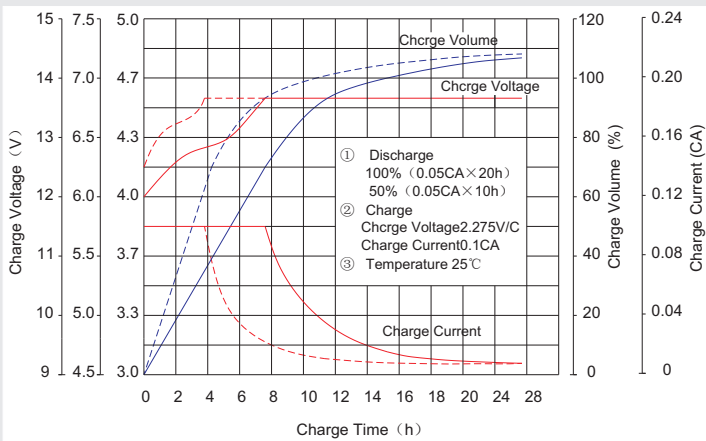
### Effect of temperature on long term float life



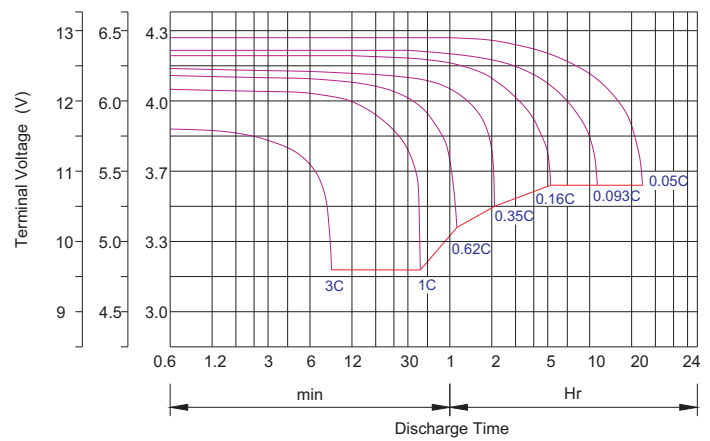
### Storage characteristic



### Charge characteristic Curve for standby 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 0.3C |
| Constant Current | -0.2Cx2h+0.1Cx12h                              |
| Fast             | -0.2Cx2h+0.3Cx4h                               |

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

### Maintenance & Cautions

#### Float Service:

- ※ Every month, recommend inspection every battery voltage.
  - ※ Every three months, recommend equalization charge for one time.
- Equalization charge method:
- Discharge: 100% rate capacity discharge.
- Charge: Max. current 0.3CA, constant voltage 2.4-2.45V/Cell charge 24h.
- ※ Effect of temperature on float charge voltage: -3mV/°C/Cell.
  - ※ Length of service life will be directly affected by the number of discharge cycles, depth of discharge, ambient temperature and charging voltage.