

**HR Series**

HR(High Rate)Series Valve Regulated Lead Acid (VRLA) batteries have been developed with high efficiency active materials to stimulate inside the battery with higher power output when the battery is discharged to a extent level of discharging. Along with high-density structure design for relatively smaller inner resistance which will significantly improve the performance for high rate discharging when high power output service is needed.

**Application**

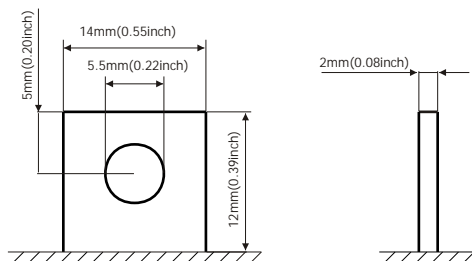
- Alarm System
- Cable Television
- Communication Equipment
- Control Equipment
- Security System
- Medical Equipment
- UPS
- Power tools
- Emergency Power System
- Toys

**General Features**

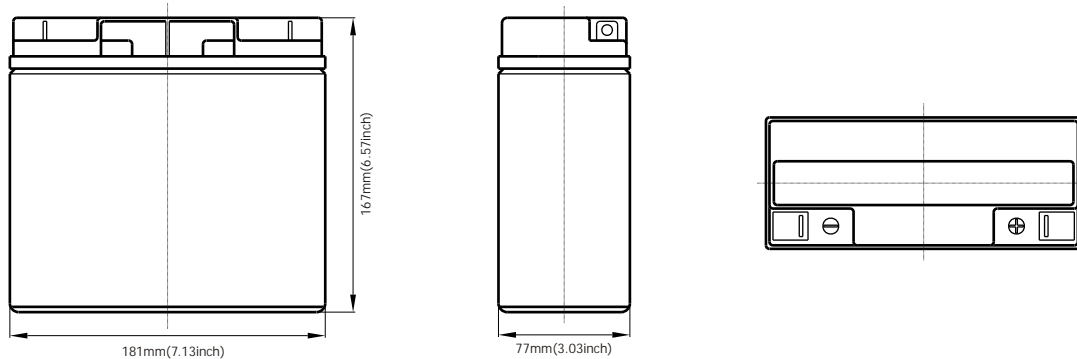
- 8 years design life
- A recognized component of UL
- Non-Spillable valve regulated lead acid battery design
- ABS containers and covers(UL94HB, UL94V-0) optional
- Safety valve installation for explosion proof
- High quality and high reliability
- Operates at a low internal pressure
- Flexibility design for multiple install positions

**Construction**

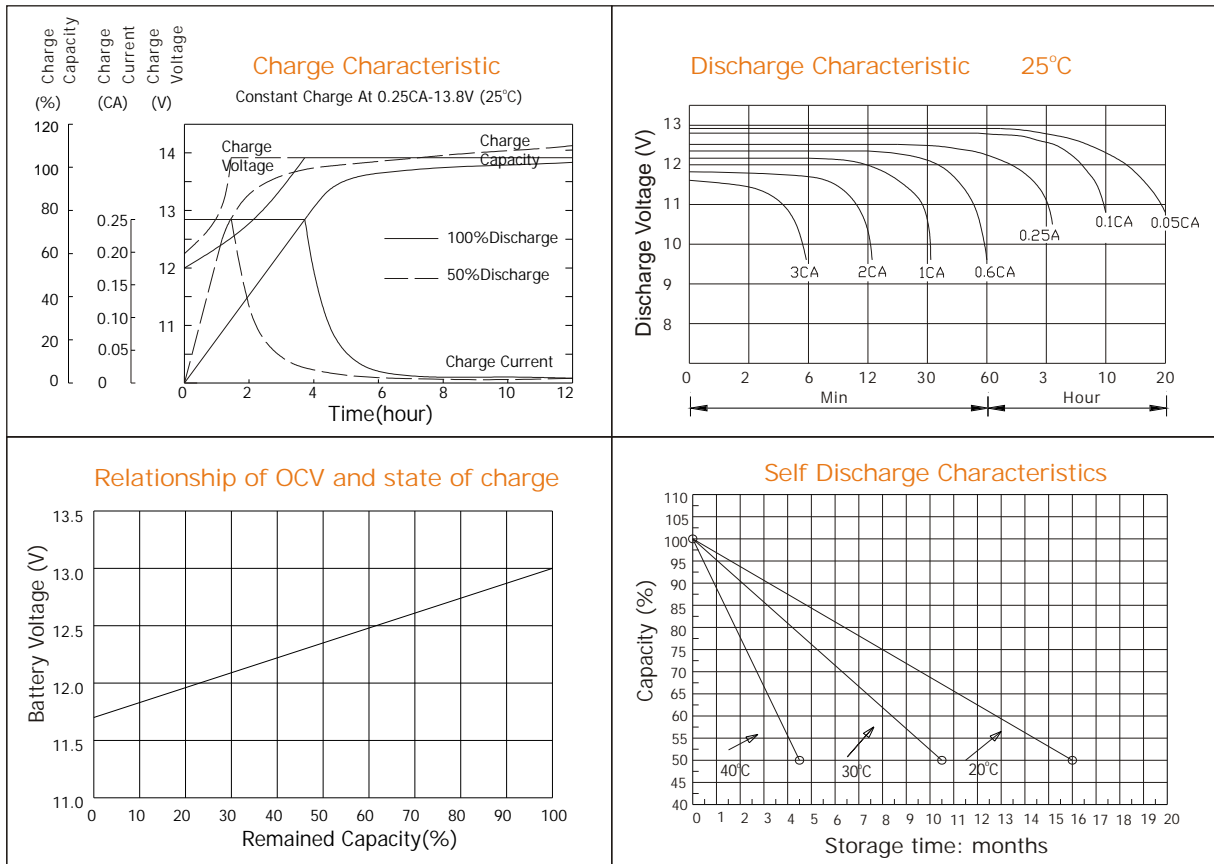
- Component .....Raw material
- Positive .....Lead dioxide
- Negative .....Lead
- Container .....ABS
- Cover .....ABS
- Sealant .....Epoxy Resin
- Safety valve .....EPDR
- Terminal .....Copper
- Separator .....Fiber glass
- Electrolyte .....Sulfuric acid



**Terminal Dimensions**



|                                  |                                             |                  |                      |                  |
|----------------------------------|---------------------------------------------|------------------|----------------------|------------------|
| Battery Model                    | HR 12-18                                    |                  |                      |                  |
| Designed Floating Life           | 5 Years                                     |                  |                      |                  |
| Capacity(25°C)                   | 20HR(1.0A,1.75V)                            | 10HR(1.8A,1.75V) | 5HR(3.06A,1.75V)     | 1HR(12.6A,1.75V) |
|                                  | 20AH                                        | 18AH             | 15.3AH               | 12.6AH           |
| Dimensions                       | Length                                      | Width            | Height               | Total Height     |
|                                  | 181mm(7.13inch)                             | 77mm(3.03inch)   | 167mm(6.57inch)      | 167mm(6.57inch)  |
| Approx. Weight                   | 6.0Kg (13.23 lbs)                           |                  |                      |                  |
| Internal Resistance              | Full charged at 25°C: 0.014 Ohm             |                  |                      |                  |
| Self Discharge                   | 3% of capacity declined per month at (25°C) |                  |                      |                  |
| Capacity Affected by Temp.(20HR) | 40°C                                        | 25°C             | 0°C                  | -15°C            |
|                                  | 102%                                        | 100%             | 85%                  | 65%              |
| Charge Voltage(25°C)             | Cycle use                                   |                  | Float use            |                  |
|                                  | 14.4-14.8V(-30mV/ °C), max. Current: 5.4A   |                  | 13.6-13.8(-20mV/ °C) |                  |



Constant current discharge ratings-amperes at 25°C

| F. V/Time | 5MIN | 10MIN | 15MIN | 30MIN | 1HR  | 3HR  | 5HR  | 10HR | 20HR |
|-----------|------|-------|-------|-------|------|------|------|------|------|
| 1.60V     | 88.6 | 55.1  | 41.6  | 25.4  | 14.2 | 6.24 | 3.81 | 2.08 | 1.12 |
| 1.67V     | 83.2 | 52.3  | 40.0  | 24.3  | 14.0 | 6.00 | 3.73 | 2.06 | 1.08 |
| 1.70V     | 76.2 | 50.4  | 39.1  | 22.1  | 13.6 | 5.60 | 3.65 | 2.05 | 1.07 |
| 1.75V     | 74.7 | 48.8  | 37.8  | 21.0  | 13.0 | 5.41 | 3.57 | 2.04 | 1.04 |
| 1.80V     | 66.9 | 46.6  | 34.3  | 19.4  | 12.1 | 5.20 | 3.36 | 2.00 | 1.01 |
| 1.85V     | 59.0 | 44.4  | 30.9  | 17.9  | 11.3 | 5.01 | 3.15 | 1.97 | 0.98 |

Constant power discharge ratings-watts at 25°C

| F. V/Time | 5MIN | 10MIN | 15MIN | 30MIN | 1HR  | 3HR  | 5HR  | 10HR | 20HR |
|-----------|------|-------|-------|-------|------|------|------|------|------|
| 1.60V     | 155  | 99.6  | 75.9  | 45.7  | 25.7 | 11.1 | 6.44 | 4.27 | 2.24 |
| 1.67V     | 150  | 97.1  | 75.0  | 44.7  | 25.5 | 10.7 | 6.42 | 4.24 | 2.16 |
| 1.70V     | 141  | 96.1  | 74.4  | 41.9  | 25.0 | 10.2 | 6.33 | 4.21 | 2.13 |
| 1.75V     | 142  | 95.8  | 73.7  | 40.7  | 24.6 | 10.0 | 6.28 | 4.16 | 2.08 |
| 1.80V     | 130  | 94.4  | 68.4  | 38.8  | 23.2 | 9.71 | 6.08 | 4.11 | 2.03 |
| 1.85V     | 118  | 89.5  | 62.0  | 36.3  | 21.8 | 9.41 | 5.89 | 4.05 | 1.95 |



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