



## Guidelines for INSTALLATION, INITIAL CHARGING & MAINTENANCE of MONOBLOC TUBULAR DRY UNCHARGED UNIK STATIONARY BATTERIES

### INSTALLATION

#### A: GENERAL

1. Install in a well-ventilated room.
2. Please ensure that batteries are not exposed to a source of heat like direct sunlight, boiler pipes, furnaces etc.
3. Keep adequate space between each battery wherever a series of batteries is used.
4. Clean all contact points preferably with a brass wire brush and smear with petroleum jelly (not grease). Ensure that all connections are firm and tight.

#### B: FILLING

1. Use only battery grade sulphuric acid and demineralised or distilled water. Always add ACID to WATER for diluting.
2. The temperature of the acid will rise high during mixing. Adjust the specific gravity only after allowing it to cool down to room temperature.
3. Temperature Correction
  - For each 1°C above 27°C: add 0.0007 to the hydrometer reading.
  - For each 1°C above 27°C: reduce 0.0007 from the hydrometer reading.
4. The specific gravity of the acid used for initial filling must be  $1.225 \pm 0.005$  at 27°C.
5. Fill the acid into the cells to a level that is about 5 mm below the level of the vent plug hole.
6. The electrolyte should be allowed to cool down to ambient temperature after filling. Allow the batteries to rest for about 12 to 24 hours.

### INITIAL CHARGING

1. After filling of electrolyte, keep the battery away from sparks, cigarettes or open flame. Avoid metallic contact across terminals to avoid shorting or sparking.
2. Check the open circuit voltage of each battery before putting them on charge. After checking all inter-battery connections, charge the battery continuously for 100 hours at a constant current equal to 0.03 times the C10 capacity of the battery.  
For example:
  - a) Charge a 60 Ah battery at  $0.03 \times 60 = 1.8$  Amps.
  - b) Charge a 100 Ah battery at  $0.03 \times 100 = 3.0$  Amps.

3. The batteries are said to have reached state of full charge when the values of cell voltage and specific gravity of the electrolyte remains constant for three consecutive hours towards the end of 100 hours of charging.
4. If the temperature of the electrolyte in the batteries exceeds 50°C at any time during the charging process, reduce the charging current or stop charging for a brief period. Restart charging after temperature comes down and charge till the specified ampere hour input has been fed into the battery.
5. If the level of electrolyte has dropped down, please top up with electrolyte of 1.225 Sp. Gr.
6. It is preferable that the end specific gravity of electrolyte is adjusted to  $1.240 \pm 0.005$  corrected at 27°C. If the sp. gravity is above 1.240, add distilled/ demineralised water. If it is below 1.240, add acid of sp. gravity 1.400 & charge for an hour before checking the gravity once again.
7. The top and sides of the battery now must be wiped clean and dry & the vent plugs fitted tight.

## MAINTENANCE

1. Everything surrounding the batteries must be dry & clean and the room must be well ventilated.
2. Ensure that the electrical connections are always tight. If any connections get heated up, it indicates that they are loose.
3. If the batteries are to stand idle, first give them a full charge and then disconnect them from the circuit.
4. Always keep the top surface of the battery clean and dry. The battery connections should also be clean and coated with petroleum jelly.
5. The battery shall be floated at a voltage of  $2.16 \pm 0.01$  volts per cell.
6. Ensure that the level of electrolyte is 5mm below the vent holes. If not, top up with distilled or demineralised water. Never add acid.