All over the world, chloride customers know that when they invest in the products of the largest international re-chargeable battery manufacturer, they’re buying more than just a collection of cells. They are buying the quality, reliability, service, technical know-how and skill in manufacture that can come only from a company with over eighty years experience in the business.

The Chloride tubular range offers you more than the conventional Tubular plate cell: It is specifically designed to meet rigorous International standards.

The transparent containers made from SAN (styrene acrylonitrile) give a clear view of the electrolyte level and plate condition, to make maintenance simpler.

Chloride Tubular cells give unusually high output for their size, and that’s important to the buyer where space is limited. Use Chloride Tubular anywhere that integrity of supply is vital: telecommunications, uninterruptible power supplies, control and data processing charge/discharge cycling. They can be relied on to protect processes and equipment. And there’s a wide range to choose from. Four plate sizes, 50, 70, 100 and 125 ampere-hours available, from 40 to 2500kVA.
TECHNICAL DETAILS

Chloride recommend float charging when used for standby applications, to ensure full power is available at an instant’s notice. Float charging maintains the voltage applied to the battery at 2.25 volts per cell; i.e. constant voltage. This method is also used where the application demands continuous and variable d.c. loads. It has the advantage that some degree of recharge can be achieved without any attention.

A hydrometer reading indicates the state of charge. A fully charged cell will have a specific gravity of 1.245 kg/l at 20°C.

CYCLING

Chloride Tubular Cells are also used for applications involving cycles of charge and discharge. The battery should be charged as soon as possible after any discharge greater than 5 to 10% of the rated capacity of the cells.

The ampere hour efficiency of the cells is 90%. It follows that on recharge, the amount of re-charge required will be equal to the discharge in ampere hours plus 11%. The initial current can be of any value up to twice the finishing rate of charge. The voltage of the battery will rise as the battery is charged. When the battery voltage reaches a value equivalent to 2.35 volts per cell, the charge current should be limited to a maximum of the finishing rate of charge.

On re-charge, the voltage increases as the charge progresses. The highest voltage reached with the finishing rate of charge flowing is approximately 2.70 volts per cell. It is possible to re-charge a cell by limiting the voltage of the charging equipment to a lower value than 2.70 volts per cell, 2.40 volts per cell being the minimum.

This will result in an extended re-charge period, as the battery will automatically limit the charge current irrespective of the charger output.

BALANCED CONSTRUCTION

The balanced design of the plates and separators gives highly efficient electrochemical performance. The special element design in particular provides superior, high rate performance, compared with other tubular cells.

RUGGED POSITIVE PLATES

The tubular plates are the heart of these rugged cells. The plate composition of a special Low-Antimony ≤1.65 % Sb and Selenium alloy. Each tube has a central anodic lead spine surrounded by preformed active material in polyester tubes, seal - locked at their base. Polyester has a natural elasticity which ensures that the active material is retained, to give maximum efficiency. All these features make a tough, durable positive.

PASTED NEGATIVE PLATES

The negative plates are of pasted construction, designed to match to powerful, long life of the positive plates.

HIGH POROSITY SEPARATORS

Micro-porous separators give maximum porosity, low electrical resistance combined with an envelopes perforated corrugated to provide more space for free circulation of electrolyte, and also protects from migration of solid particles to the other electrode.

CLEAR-VIEW PLASTIC CONTAINER

The injection - moulded SAN container is strong and durable; designed to withstand all normal impact and abrasion over the long working life of the cell. The container is transparent, to give a clear view of the electrolyte level and plate condition, making maintenance simpler. Reserve electrolyte space and min/max electrolyte level guide-lines reduce topping-up frequency to the minimum.

HEAVY DUTY TERMINALS

Where high-rate discharge is needed, the generous cross-section of the terminals gives maximum current. Cells up to 600 Ah, have a single pillar per pole, 800 to 1625 Ah. cells have twin pillars per pole, 1750 to 2375 Ah cells have three pillars per pole and 2500 Ah upwards have four pillars per pole.

Coloured terminal post rings make it easy to identify the positive and negative poles.
EASY CLEAN CELL LIDS
Moulded from coloured SAN, the lids are seal-bonded to the container. Gaskets complete the seal between the lid and the cell terminal posts.

LOW RESISTANCE BOLTED CONNECTORS
Bolted inter-cell connectors ensure easy installation. Made from plated copper of ample cross-section for high current duties. All nuts, bolts and washers are of stainless steel to protect them in storage.

VENT PLUGS
Are designed to return acid spray to the cell, and allow free exit of any oxygen and hydrogen generated during boost charging. Explosion minimising plugs are available for added security.

**Self-discharge rate per month < 2.50 %**

<table>
<thead>
<tr>
<th>TAP 110</th>
<th>TAP 120</th>
<th>Final Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>1100</td>
<td>1200</td>
<td>1.80</td>
</tr>
<tr>
<td>948</td>
<td>1032</td>
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<tr>
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<td>900</td>
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<tr>
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</tr>
<tr>
<td>180</td>
<td>180</td>
<td>3.4</td>
</tr>
</tbody>
</table>

ELECTROLYTE & VOLTAGE
The nominal voltage of each cell is 2 volts; i.e. a nominal 110 volt battery will have 55 cells. Pure sulphuric acid of 1.245 kg/l specific gravity at 20°C is supplied.

INSTALLATION & MAINTENANCE
Chloride Standby Power cells are supplied fully charged or in dry condition with separate electrolyte. Installation and operating instructions are provided with each battery.

STANDS
Battery stands can be supplied in wood or steel. Wood stands are constructed from selected, seasoned softwood timber, and finished in acid-resisting paint. Steel stands have an epoxy coating which is insulating, acid-resistant, fire and vermin proof.

UNIQUE CHLORIDE SERVICE
Chloride Engineers are always available to give advice on battery selection, operation and layout. Regular battery inspection is available in Egypt.

SAFETY CONNECTOR COVERS
Connection and Terminal protective covers are available on request.

PROTECTING YOUR INVESTMENT IN STANDBY POWER
This leaflet will help you to select the right Chloride Tubular battery for your job. Other Chloride Standby Power leaflets give you the specifications and design features of the Chloride Flat Plate.

What are the four questions for the buyer of Standby Power?

* How do I look after the equipment?
* What happens if I run into problems?

The world's largest industrial Battery Company will give you the answers to ensure your investment is protected.
The Chloride range of Standby Power Publications includes:

Tubular Plate cells in clear plastic containers
TAP, TBP, TEP and TFP (100-3500 AH)
For installing and operating Chloride Tubular cells, ask for Chloride Publication.
1 Vent Plugs
   Designed to return spray, but give free exit of gases.

2 Easy Clean Cell Lids
   Complete seal with container ensures no leakage Pillar Gaskets eliminate electrolyte creepage.

3 Low Resistance Cell
   Pillars and Connectors
   Bolted to ensure easy installation, with a generous cross-section to minimise volt drop.

4 Clear-View Plastic
   Containers
   Strong, durable, and transparent to simplify maintenance.

5 High Porosity
   Separators
   Give low electrical resistance and allow free circulation of electrolyte.

6 Rugged Positive Plates
   Active material is contained in pre-formed terylene tubes.

7 Tough, Pasted Negative
   Plates
   Match the powerful, long life of the positive plates.