Primary high temperature lithium battery
LSH 20-150

3.6 V Primary lithium-thionyl chloride (Li-SOCl₂)
D-sized cell for operation up to 150°C
in demanding environments

Saft always supplies LSH 20-150
cells as complete battery assemblies

Benefits
- High energy
- Ability to perform safely and reliably up to 150°C with severe vibration/shock constraints
- Good voltage startup after exposure to high T followed by storage at room T
- Long shelf life
- Easy integration within multi-cell tubular cylindrical packs
- High and stable operating voltage

Key features
- No swelling
- Sturdy and pressure resistant stainless steel envelope
- Hermetic and corrosion-proof glass-to-metal sealing
- Non-flammable electrolyte
- Ability to withstand at 150°C 750 G peak/0.5 msec shocks
- Ability to withstand at 150°C 20 G rms random vibrations
- Ability to withstand at 150°C linear sine sweep at 30 G peak
- Automated production
- Compliant with IEC 60079-11 intrinsic safety standard
- Restricted for transport (Class 9)

Cell size references

<table>
<thead>
<tr>
<th>Cell size references</th>
<th>R20 - D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electrical characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>(typical values relative to cells stored for one year at ambient T)</td>
<td></td>
</tr>
<tr>
<td>Open circuit voltage (at +20°C)</td>
<td>3.67 V</td>
</tr>
<tr>
<td>Nominal capacity</td>
<td>14.0 Ah</td>
</tr>
<tr>
<td>(under 300 mA at +150°C 2.0 V cut-off. The capacity restored by the cell varies according to current drain, temperature and cut-off)</td>
<td></td>
</tr>
<tr>
<td>(under 100 mA at +80°C to +150°C 2.0 V cut-off)</td>
<td>13.5 Ah</td>
</tr>
<tr>
<td>(under 100 mA at +20°C 2.0 V cut-off)</td>
<td>10 Ah</td>
</tr>
<tr>
<td>Nominal voltage (under 100 mA at +150°C)</td>
<td>3.6 V</td>
</tr>
<tr>
<td>Nominal energy</td>
<td>50 Wh</td>
</tr>
<tr>
<td>Pulse capability</td>
<td>up to 2 A</td>
</tr>
<tr>
<td>(-20°C to +20°C)</td>
<td>up to 500 mA</td>
</tr>
<tr>
<td>(+80°C to +150°C)</td>
<td></td>
</tr>
<tr>
<td>(The voltage reading may vary according to the pulse characteristics and the temperature. Consult Saft)</td>
<td></td>
</tr>
<tr>
<td>Maximum recommended continuous current</td>
<td>300 mA</td>
</tr>
<tr>
<td>Storage prior to use (recommended) (possible)</td>
<td>+30°C max. +150°C</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-40°/+150°C [-40°/302°F]</td>
</tr>
</tbody>
</table>

Physical characteristics (unsleeved cells)

- Diameter (max) 32.05 mm (1.262 in)
- Height (max) 61.70 mm (2.429 in)
- Typical weight 104.5 g (3.7 oz)
- Li metal content approx. 4.1 g

Consult Saft for specific single cell finishes

February 2009
Shocks and vibrations
- Ability to withstand in the entire operating temperature range 750 G peak/0.5 msec repetitive shocks on axial and radial axes (undischarged and partially discharged cells)
- Ability to withstand in the entire operating temperature range 20 G rms random vibrations 2 to 4 hours along X, Y and Z axis
  - < 30 Hz @ ≥ 6 dB/octave
  - 30-80 Hz @ 3 dB/octave
  - 80-300 Hz @ 0 dB/octave
  - 300-1000 Hz @ -3 dB/octave
- Ability to withstand in the entire operating temperature range 1 hour of linear sine sweep at 30 G peak, from 30 to 2000 Hz along X, Y and Z axis

Storage
- It is recommended to maintain the storage area clean, ventilated and preferably not exceeding 30°C

Warning
- Fire, explosion and burn hazard
- Do not recharge, short circuit, crush, disassemble, heat above 150°C (302°F), incinerate, or expose contents to water

Typical discharge curve under 100 mA

Typical discharge curve under 100, 200 and 300 mA at +150°C