

# Primary lithium battery

## LSH 20 HTS

3.6 V Primary lithium-thionyl chloride (Li-SOCl<sub>2</sub>)  
 High power and super robust  
 D-size spiral cell



### Benefits

- High drain/high pulses capable
- Superior voltage response
- Ability to perform reliably in wide range temperature environments (-60°C to +85°C) with severe vibration/shock constraints
- High and stable operating voltage
- Superior drain capability
- Low self-discharge rate (less than 3 % after 1 year of storage at +20°C)

### Key features

- Stainless steel container
- Hermetic glass-to-metal sealing
- Built-in safety vent
- Finish with 5 A fuse
- Non-flammable electrolyte
- Ability to withstand
  - axial vibration 20 GRMS 2-100 Hz
  - radial vibration 30 GRMS 2-100 Hz
  - sine 30 G peak 30 to 2000 Hz
  - random 20 GRMS 30 to 1000 Hz
- Restricted for transport (Class 9)

### Main applications

- Oil drilling and all downhole high temperature environments
- Measure While Drilling (MWD)
- Oil and gas well monitoring
- Military (ejection seat beacons, ...)
- Space vehicles
- Launchers

### Cell size references

R20 - D

#### Electrical characteristics

*(typical values relative to cells stored for one year or less at +30°C max.)*

Nominal capacity <i>(under 100 mA at +85°C 2.0 V cut-off. The capacity restored by the cell varies according to current drain, temperature and cut-off)</i>	11 Ah
Open circuit voltage (at +20°C)	3.67 V
Nominal voltage <i>(under 3 mA at +85°C)</i>	3.6 V
Nominal energy <i>(at +85°C)</i>	39.6 Wh

Pulse capability : Typically up to 3000 mA.

*(The voltage readings may vary according to the pulse characteristics, the temperature, and the cell's previous history. Fitting the cell with a capacitor may be recommended in severe conditions. Consult Saft)*

Maximum recommended continuous current <i>(at +85°C, to maintain cell heating within safe limits. Battery packs may imply lower level of maximum current and may request specific thermal protection. Consult Saft)</i>	1000 mA
Storage (recommended) <i>(for more severe conditions, consult Saft)</i>	+30°C (+86°F) max
Operating temperature range <i>(Higher temperature possible. Battery packs may imply lower level of maximum current and may request specific thermal protection. Consult Saft)</i>	-60°C/+85°C (-76°F/+185°F)

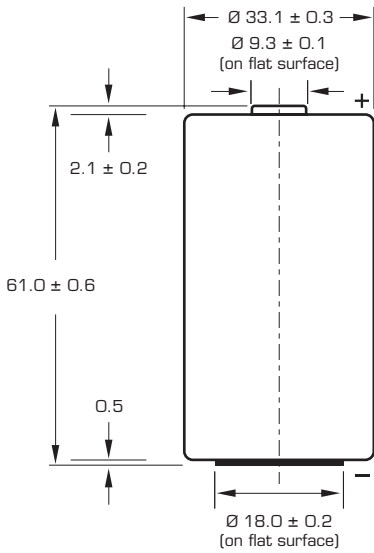
#### Physical characteristics

Diameter (max)	33.4 mm (1.32 in)
Height (max)	61.6 mm (2.42 in)
Typical weight	100 g (3.5 oz)
Li metal content	approx. 4.0 g

Custom battery packs available on request.



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Overall dimensions in mm

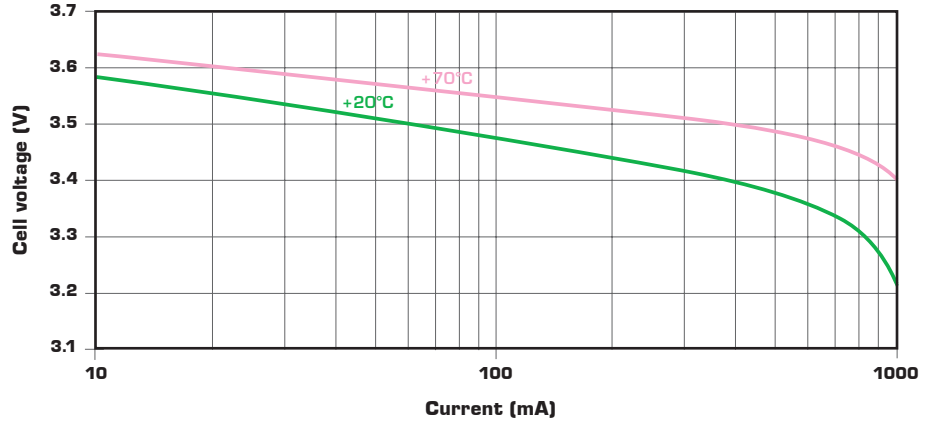
## Storage

- The storage area should be clean, cool (preferably not exceeding +30°C), dry and ventilated.

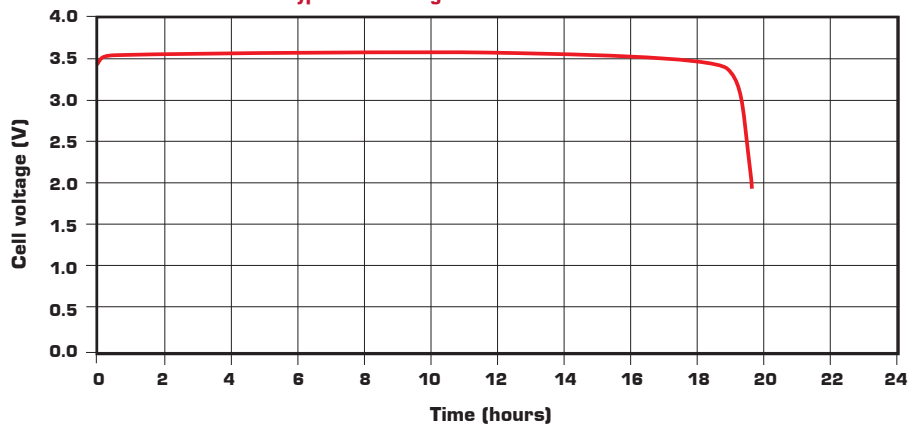
## Warning

- Fire, explosion and burn hazard.
- Do not recharge, short circuit, crush, disassemble, heat above 125°C (257°F), incinerate, or expose contents to water.
- Do not solder directly to the cell (use tabbed cell versions instead).

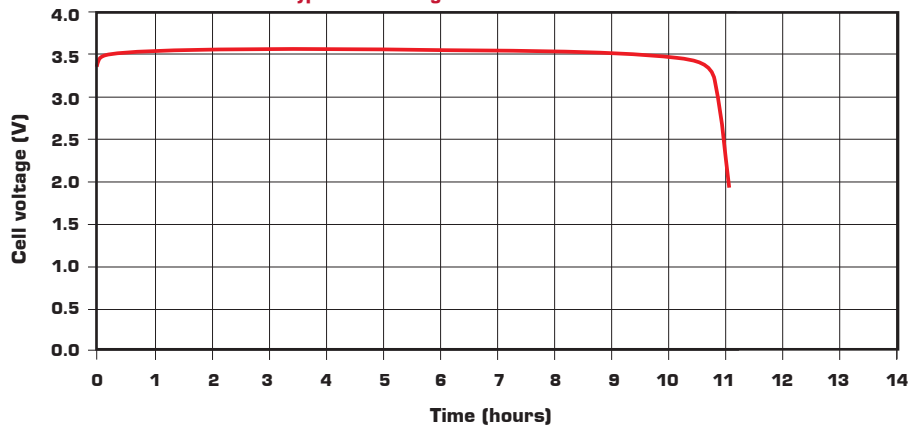
Cell voltage versus Current and Temperature (at mid-discharge)



Typical discharge under 500 mA at +85°C



Typical discharge under 800 mA at +85°C



## Saft

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Doc. N° 31057-2-0710

Information in this document is subject to change without notice and becomes contractual only after written confirmation by Saft.

For more details on primary lithium technologies please refer to Primary Lithium Batteries Selector Guide Doc N° 31048-2.

Published by the Communications Department.

Photo credit: Saft.

Société anonyme au capital de 31 944 000 €

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Produced by Arthur Associates Limited.



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