

# M 20

## Primary Li-MnO<sub>2</sub> cell

### 3 V lithium manganese dioxide D-size spiral cell

Saft's M 20 cell is ideally suited for applications requiring high energy and long operating life, with stable voltage under high discharge in - 40°C / + 72°C environment.

#### Benefits

- High drain / high pulse capability
- High voltage response, stable during most of the lifetime of the application even after long dormant periods
- High capacity at high current and low temperature
- Low self-discharge compatible with long operating life (less than 1% after 1 year of storage at + 20°C)
- Superior resistance to corrosion
- Low magnetic signature

#### Key features

- Spiral construction
- Hermetic construction with glass-to-metal seal
- Stainless steel container
- Integrated safety vent
- Non-corrosive electrolyte
- Non-pressurized at room temperature
- Restricted for transport (Class 9)
- Made in Germany

#### Designed to meet all major quality, safety and environmental standards

- Safety: UL 1642 (File MH 12609)
- Transport: UN 3090 and UN 3091
- Military: VG96915 part 2 and part 154
- Quality: ISO 9001, Saft World Class Continuous program
- Environment: ISO 14001

#### Typical applications

- Radio communications
- Utility metering
- Alarms and security systems
- ELTs, EPIRBs
- Tracking systems
- GSM/GPRS communication



#### Electrical characteristics

(Typical values relative to cells stored up to one year at + 30°C max)

|  |             |
|--|-------------|
| Nominal capacity (at 150 mA, + 20°C, 2.0 V cut-off) <sup>(1)</sup> | 12.6 Ah     |
| Open circuit voltage (at + 20°C)                                   | 3.2 V       |
| Nominal voltage (under 1 mA at + 20°C)                             | 3.0 V       |
| Nominal energy (at 150 mA, + 20°C, 2.0 V cut-off)                  | 36 Wh       |
| Pulse capacity <sup>(2)</sup>                                      | up to 8.0 A |
| Recommended maximum continuous discharge current <sup>(3)</sup>    | 3.5 A       |

#### Operating conditions

|  |  |
|--|--|
| Operating temperature range <sup>(4)</sup> | - 40°C / + 72°C (- 40°F / + 161°F)                           |
| Storage temperatures                       | Recommended + 30°C (+ 86°F) max                              |
|  | Allowable <sup>(5)</sup> - 55°C to + 90°C (- 67°F / + 194°F) |

#### Physical characteristics

|  |                   |
|--|-------------------|
| Diameter (max)                                 | 34.2 mm (1.35 in) |
| Height for the tabbed version (max)            | 61.5 mm (2.42 in) |
| Height for the version with +/- end caps (max) | 62.5 mm (2.46 in) |
| Typical weight                                 | 117 g             |
| Li metal content                               | approx. 3.5 g     |

<sup>(1)</sup> Dependent upon current drain, temperature and cut-off.

<sup>(2)</sup> Dependent upon pulse characteristics, temperature, cell history and application. Higher rates are available under certain circumstances

<sup>(3)</sup> To maintain cell heating within safe limits. Battery packs may imply lower level of maximum current and may request specific thermal protection. Consult Saft.

<sup>(4)</sup> Operating temperatures up to + 85°C can be achieved. Consult Saft.

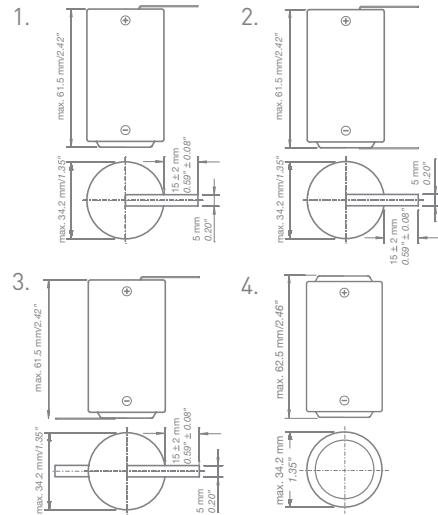
<sup>(5)</sup> Long time storage at high temperature may affect performances. Consult Saft.



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## Termination & part numbers

- 1. + tab (radial tab on positive terminal): 4142080403
- 2. C tab (radial tabs on positive and negative terminals): 4142080203
- 3. Z tab (radial tabs on positive and negative terminals): 4142080703
- 4. +/- end caps (incl. PTC): 4142087103
- Other configuration available on request



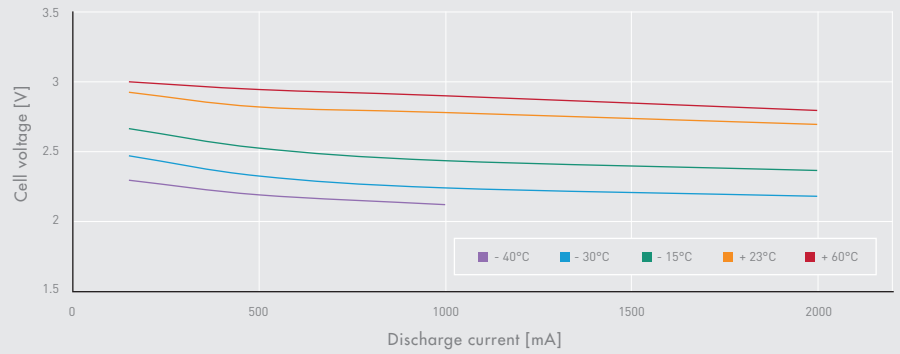
## Storage

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

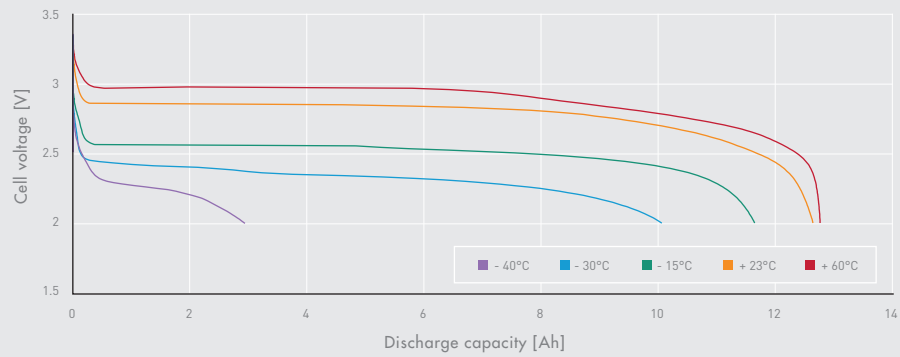
## Warning

- Fire, explosion and burn hazard.
- Do not recharge, short circuit, crush, disassemble, heat above + 100°C (+ 212°F), incinerate, or expose contents to water.
- Do not solder directly to the cell (use tabbed cell versions instead).
- Do not obstruct venting mechanism.

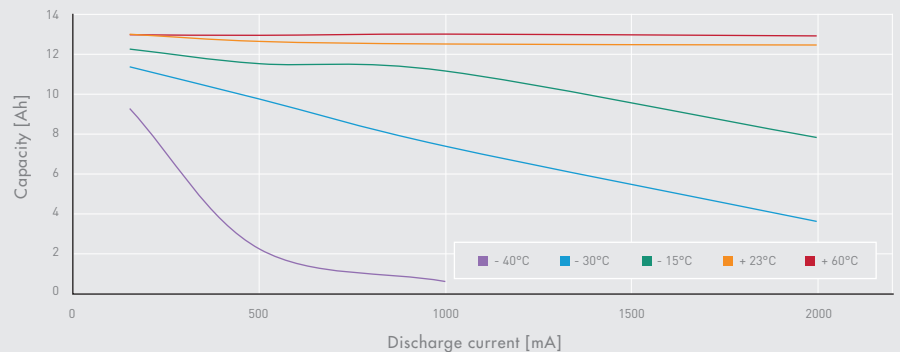
Mid-discharge voltage vs. current at various temperatures



Discharge curves at 500 mA at various temperatures



Capacity vs. current at various temperatures



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