

# Saft M 52 EX SV

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

3 V lithium manganese dioxide C-size spiral cell certified for ATEX applications

Saft's M 52 EX SV 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. The cell is certified according to ATEX and IECEx for use in potentially explosive atmospheres.

### 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 and very high pulse capability
- Low self-discharge compatible with long operating life (less than 1% after 1 year of storage at + 20°C)
- ATEX and IECEx certified
- 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 61234) IEC 60086-4
- ATEX/IECEx: IEC 60079-0, IEC 60079-11
- Transport: UN 3090 and UN 3091
- Military: VG96915 part 2 and part 170
- Quality: ISO 9001, Saft World Class Continuous program
- Environment: ISO 14001

### Typical applications

- Smart gas meters
- Gas and oil tank level monitoring
- Leak detectors
- Portable gas detectors
- Petrochemical facilities
- Mining applications



### Electrical characteristics

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

|                                                                     |             |
|---------------------------------------------------------------------|-------------|
| Nominal capacity (at 60 mA, + 20°C, 2.0 V cut-off) <sup>(1)</sup>   | 5.6 Ah      |
| Open circuit voltage (at + 20°C)                                    | 3.2 V       |
| Nominal voltage (under 1 mA at + 20°C)                              | 3.0 V       |
| Nominal energy (at 60 mA, + 20°C, 2.0 V cut-off)                    | 16 Wh       |
| Pulse capacity <sup>(2)</sup>                                       | up to 4.0 A |
| Recommended maximum continuous discharge current <sup>(2) (3)</sup> | 2.0 A       |

### Operating conditions

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

### ATEX properties

|                                        |                                    |                  |                  |
|----------------------------------------|------------------------------------|------------------|------------------|
| Cell marking                           | Ex II 2G                           |                  |                  |
| EC-type examination certificate nb     | BVS 13 ATEX E 035 U <sup>(5)</sup> |                  |                  |
| IECEx certificate of conformity nb     | IECEx BVS 13.0053 U <sup>(5)</sup> |                  |                  |
|                                        | + 23°C (+ 73°F)                    | + 40°C (+ 104°F) | + 72°C (+ 161°F) |
| Short circuit current (max)            | 70 A                               | 72 A             | 82 A             |
| Ri (min)                               | 48 mΩ                              | 41 mΩ            | 39 mΩ            |
| Max surface temperature <sup>(6)</sup> | + 100 °C                           | + 101°C          | + 108°C          |
| Temperature class                      | T4                                 | T4               | T4               |

### Physical characteristics

|                                     |                   |
|-------------------------------------|-------------------|
| Diameter (max)                      | 26.2 mm [1.03 in] |
| Height for the tabbed version (max) | 51.5 mm [2.03 in] |
| Typical weight                      | 58 g              |
| Li metal content                    | approx. 1.6 g     |

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

<sup>(2)</sup> Limitation of the max. current to a lower level, e.g. by a series resistor, may be necessary depending on the electrical properties of the device and the desired level of protection (Ia, Ib, Ic) and the explosion group (IIA, IIB, IIC).

<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> Long time storage at high temperature may affect performances. Consult Saft.

<sup>(5)</sup> Owner of the certificate: Friemann & Wolf Batterietechnik GmbH.

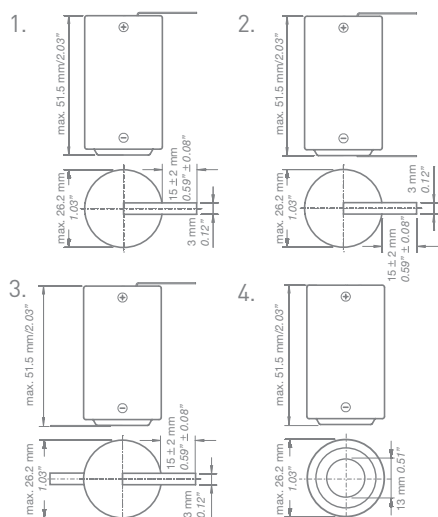
<sup>(6)</sup> During the 3 mΩ short-circuit test according to IEC 60079-11.



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## Termination & part numbers

- 1. + tab (radial tab on the positive terminal): 4142170403
- 2. C tab (radial tabs on the positive & negative terminals): 4142170203
- 3. Z tab (radial tabs on the positive and negative terminals): 4142170703
- 4. End caps: 4142177103



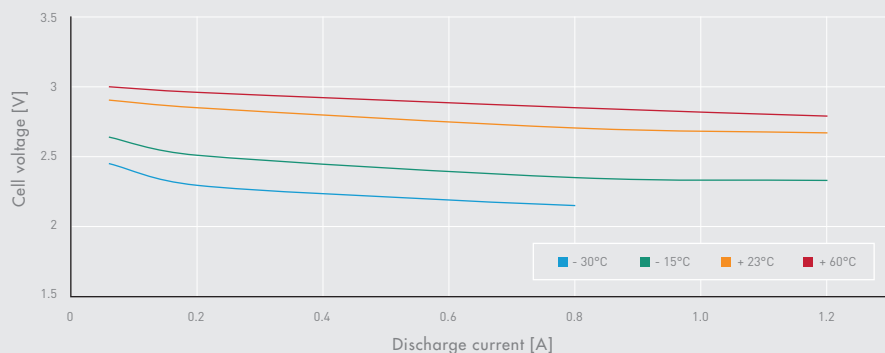
## Storage

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

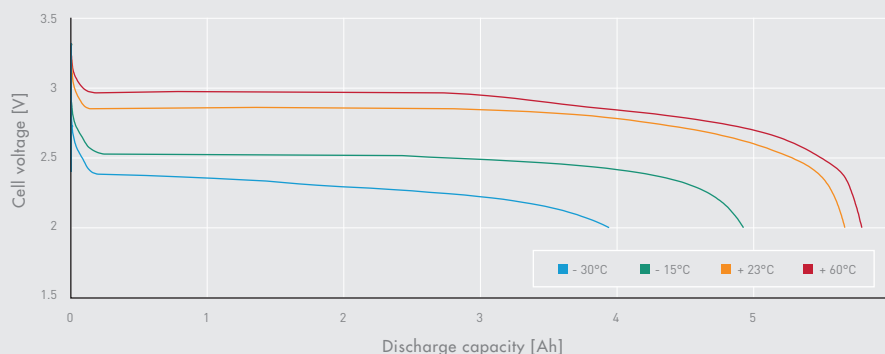
## Warning

- 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.

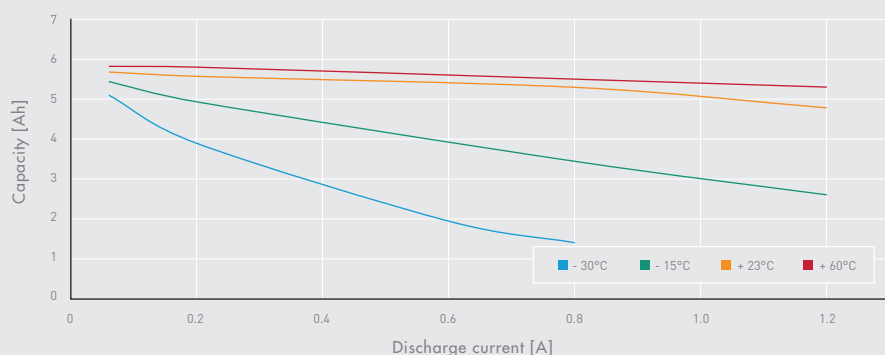
Mid-discharge voltage vs. current at various temperatures



Discharge curves at 200 mA at various temperatures



Capacity vs. current at various temperatures



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