

# M 20 EX SV

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

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

Saft's M 20 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 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 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 12609)
- IEC 60079-0, IEC 60079-11
- Transport: UN 3090 and UN 3091
- Military: VG96915 part 2 and part 154
- Quality: IEC 60086-4, 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 150 mA, + 20°C, 2.0 V cut-off) <sup>(1)</sup>	12.4 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)	35 Wh
Pulse capacity <sup>(2)</sup>	up to 8.0 A
Recommended maximum continuous discharge current <sup>(2)(3)</sup>	3.5 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 12 ATEX E 026 U		
	+ 20°C (+ 68°F)	+ 40°C (+ 104°F)	+ 70°C (+ 158°F)
Short circuit current (max)	57 A	64 A	85 A
Ri (min)	45 m Ω	41 m Ω	35 m Ω
Temperature rise (max)	+ 107 °C	+ 112°C	+ 118°C
Temperature class	T4	T4	T4

### Physical characteristics

Diameter (max)	34.2 mm (1.35 in)
Height for the tabbed version (max)	61.5 mm (2.42 in)
Typical weight	115 g
Li metal content	approx. 3.5 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.

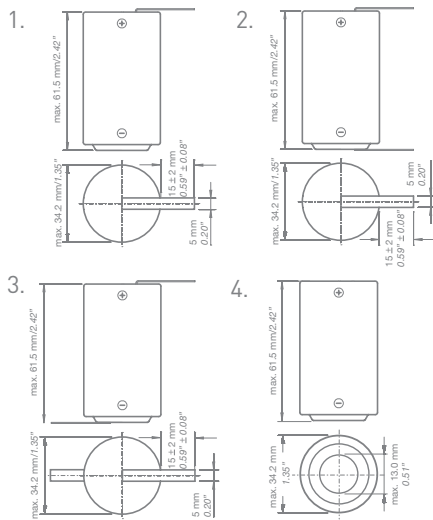
<sup>(4)</sup> Long time storage at high temperature may affect performances. Consult Saft.



**SAFT**

## Termination & part numbers

- 1. + tab (radial tab on the positive terminal): 4142180403
- 2. C tab (radial tabs on the positive & negative terminals): 4142180203
- 3. Z tab (radial tabs on the positive and negative terminals): 4142180703
- 4. End caps: 4142187103



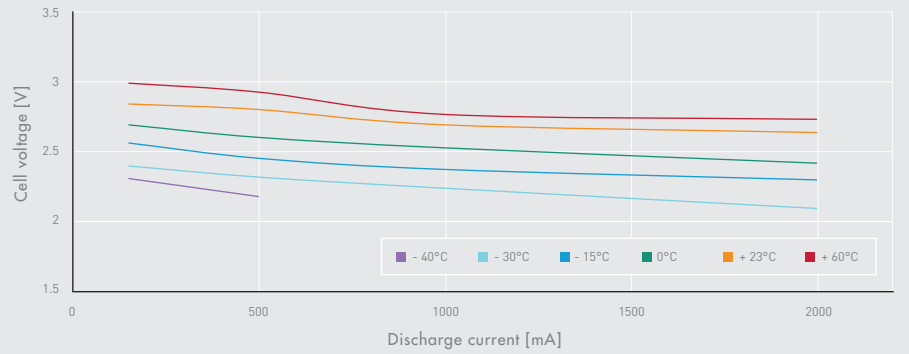
## Storage

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

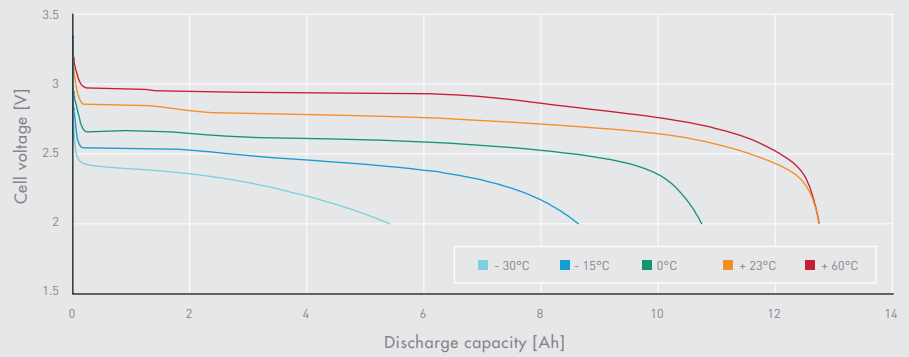
## Warning

- 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.

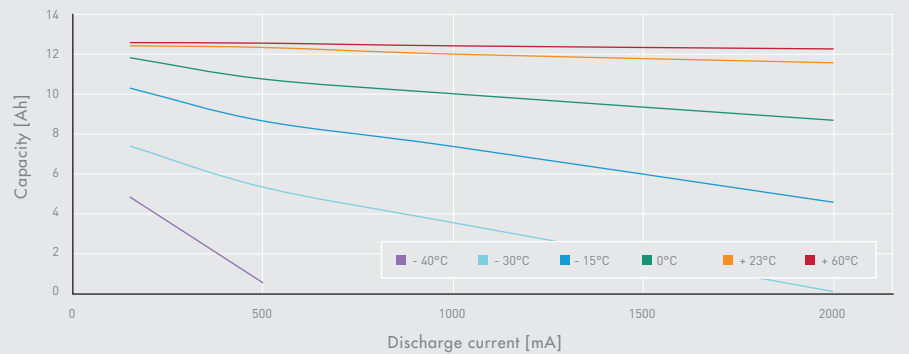
Mid-discharge voltage vs. current at various temperatures



Discharge curves at 500 mA at various temperatures



Capacity vs. current at various temperatures



**Saft**

12, rue Sadi Carnot  
93170 Bagnolet - France  
Tel. : +33 1 49 93 19 18  
Fax : +33 1 49 93 19 64  
www.saftbatteries.com

**Friemann & Wolf  
Batterietechnik GmbH**

Industriestr. 22,  
63654 Büdingen - Germany  
Tel. : +49 (0) 6042 954 0  
Fax. : +49 (0) 6042 954 190

Doc N°: 31114-2-1014

Edition: October 2014

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

Published by the Communications Department

Photo credit: Saft

Produced in FR by Soyuzgraphic