

**saft**



**COMPACT**

**HIGH-  
POWER**

**SAFE**

# MSX Ni-Cd Battery



**TotalEnergies**

In an ever-connected world, rail services are vital to keep the world running for passengers and freight. For decades, Saft has been at the forefront of providing a wide range of safe and sustainable onboard battery solutions for the rail industry.

With Saft, operators can expect reliable and predictable battery performance over a long service life.



- Security lighting
- Door control & communication networks
- Emergency or depot traction backup



- Onboard signaling
- Ventilation
- Air-conditioning
- Lighting
- Wi-Fi



- Pantograph lift-up
- Computers
- Electronics

# MSX

## Contact high-power for rail

Electric trains and trams require a variety of backup support services. These include **full load backup, emergency or depot traction backup** for limited distances, magnetic braking (especially at low voltage) and short duration backup at **low temperatures**. MSX can also support DMU and diesel locomotive applications in a light weight, space-saving and low maintenance module.



### Wide temperature range

- Operating temperature from **-30°C to +50°C**
- Resistance to extreme temperatures from **-50°C to +70°C**



### Predictable service life

- Service life (20 years)\*, **without risk of sudden death**



### Wide capacity range

- Optimized sizing from **70 to 260 Ah**
- Optimized integration from **1 to 10 cells per bloc**



### Low maintenance

- Topping-up intervals **up to 6 years**
- Built-in water filling vents for topping in less than **10 minutes**



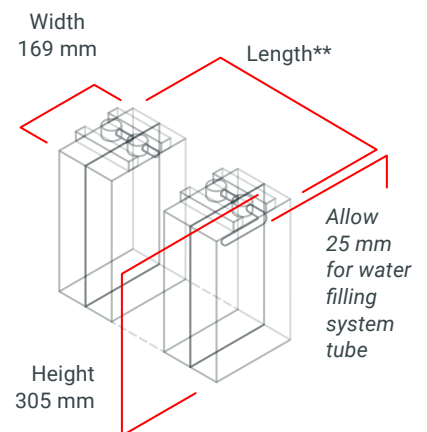
### Robust

- Designed for continuous discharge currents up to **5 times the rated cell capacity (5C 5Ah)** and for peak discharge up to **10 times the rated capacity (10C 5Ah)**



### Reliable

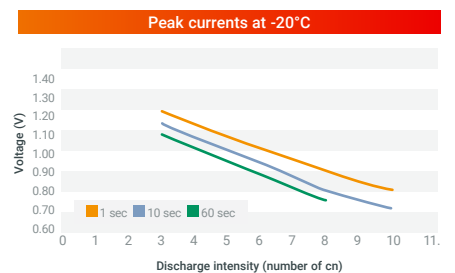
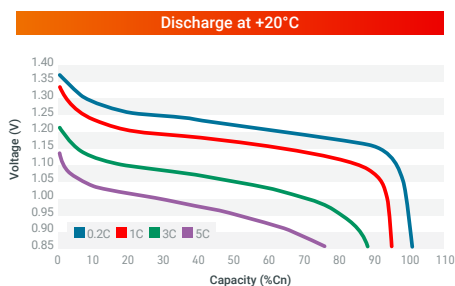
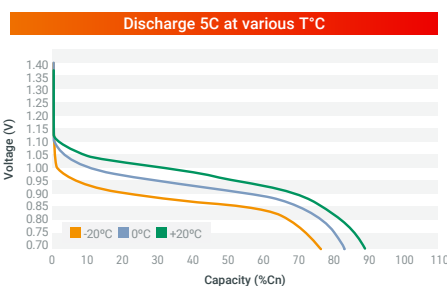
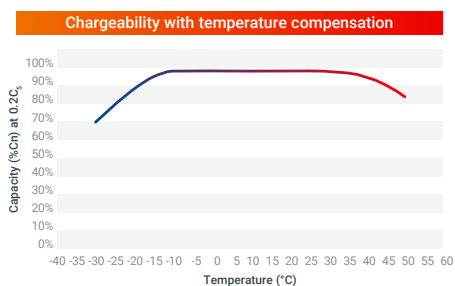
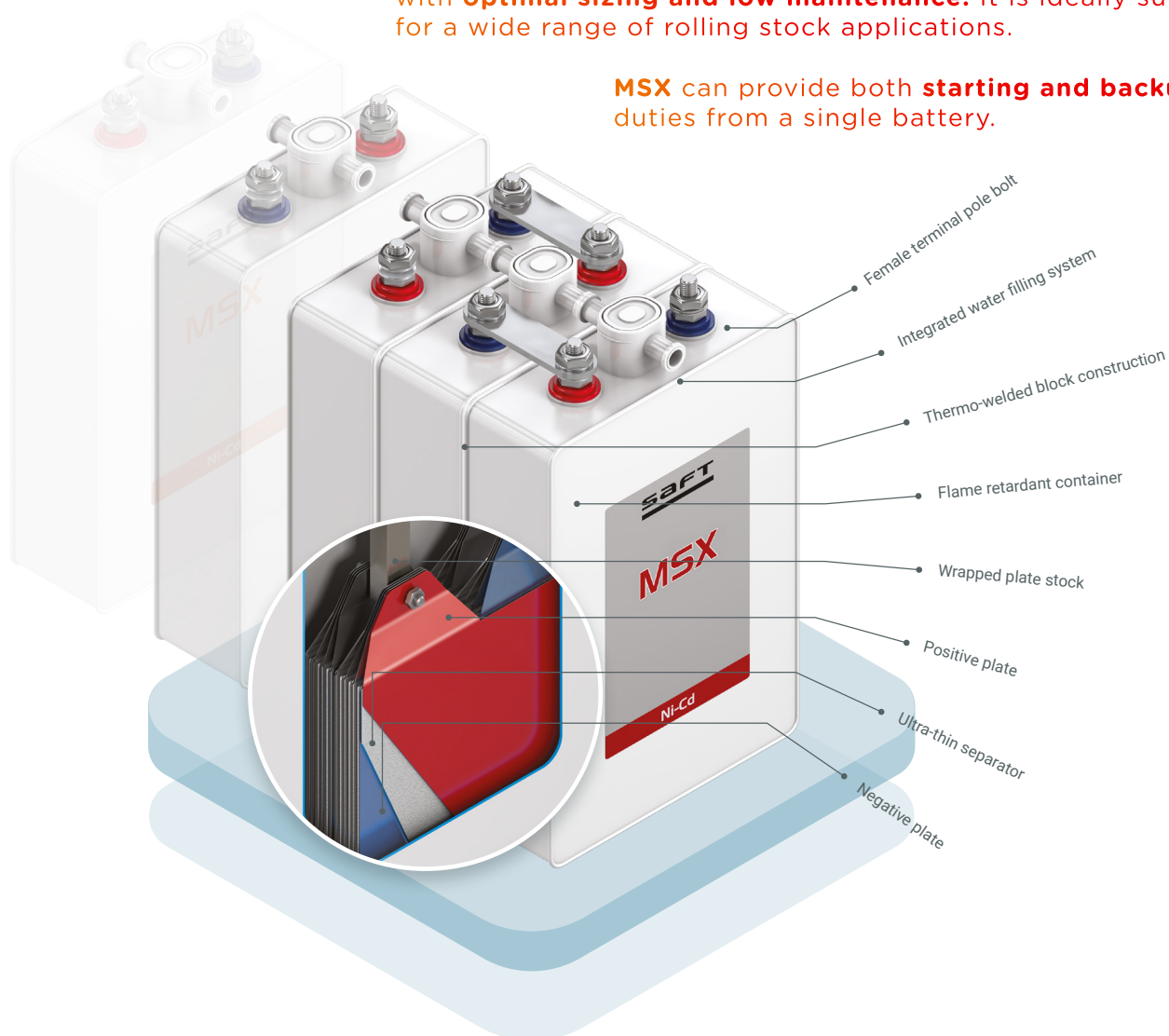
- Proven resistance to heavy cycling
- Withstands railway shock and vibration



\* Nominal value – actual results may vary depending on application conditions.  
 \*\* The data provided are nominal values and actual results may vary depending upon application conditions.  
 \*\*\* Values are not contractual.

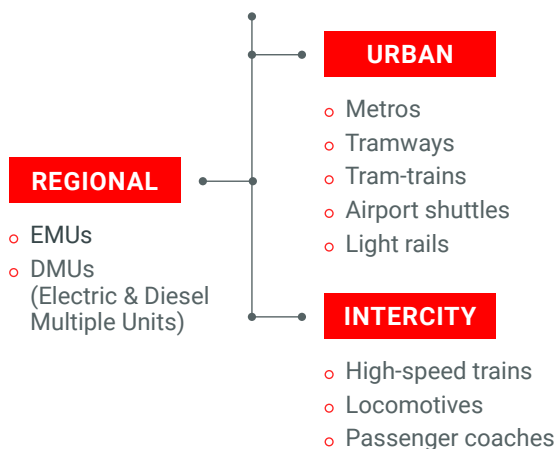
Saft's **MSX battery** offers a high-power backup solution with **optimal sizing and low maintenance**. It is ideally suited for a wide range of rolling stock applications.

**MSX** can provide both **starting and backup** duties from a single battery.



Block type	Ah	Length (mm) <sup>***</sup>						Weight (kg) <sup>***</sup>					
		Nb of cells per block						Nb of cells per block					
		2	3	4	5	6	10	2	3	4	5	6	10
MSX 70	70			158	196		384			13	16		32
MSX 80	80			158	196		384			13	16		33
MSX 90	90			158	196					14	18		35
MSX 100	100		143	189	234	279		12	16	20	24		
MSX 115	115			189	234					18	21		
MSX 130	130		159	209	259				14	19	23		
MSX 145	145		234	309	384				22	27	32		
MSX 160	160		234	309	384				22	27	33		
MSX 180	180		234	309	384				22	29	35		
MSX 200	200	189	279	370				16	24	32			
MSX 230	230	189	279	370				17	25	34			
MSX 260	260	209	310	411				20	28	37			

## The perfect fit for all types of modern electric trains



## Saft's commitment to a sustainable future

### Full conformity with quality, safety and environment standard.

#### Company certifications/standards:

- o Quality: ISO 9001, ISO/TS 22163 (IRIS), Saft world class continuous improvement program.
- o Environment: fully recyclable, ISO 14001, RoHS, REACH.

#### Product certifications/standards:

- o **Electrical:** exceeds the medium "M" type requirements of IEC 60 623, also significantly exceeds UIC 854 requirements.
- o **Integration:** EN 50547 and IEC 62973-2 railway auxiliary onboard battery fire & smoke NFF 16101-16102, DIN 5510, UNI IEC 11170-3, UL 94-V0 shocks & vibrations IEC 61 373.

#### At Saft, we are committed to a more sustainable planet by:

- o Giving priority to recycled raw materials over virgin materials
- o Minimizing water usage
- o Reducing fossil energy consumption and associated CO<sub>2</sub> emissions
- o Providing comprehensive recycling solutions for spent batteries

For industrial Ni-Cd batteries, Saft has been in collaboration with collection companies across the world to receive and dispatch customers' batteries at the end of their lives to fully approved facilities, in compliance with the laws governing trans-boundary waste shipments.

Also, Saft assists users of its batteries in finding environmentally sound recycling solutions.

Please contact Saft representative for further information.

# SAFT

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**Saft, a subsidiary of TotalEnergies**  
Saft Groupe S.A.S.  
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R.C.S. Nanterre 481 480 465

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