

SaFT



ROBUST

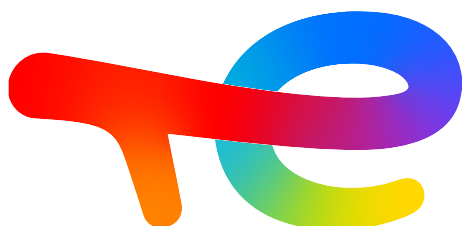


RELIABLE



SAFE

MRX Ni-Cd Battery



TotalEnergies

Rail industry operators depend on their onboard batteries to deliver the reliability, robustness and long-life essential for passenger safety and comfort. They also need the assurance that their batteries will help keep services running on time, with minimum disruption due to any loss of external power.

Soft's nickel-based batteries ensure fully predictable and reliable performance over a long service life.



- Onboard signaling
- Security lighting
- Door control & communication networks
- Emergency braking
- Power supply for monitor system during train's sleep mode
- Limited power passenger rescue traction



- Ventilation
- Air-conditioning
- Lighting
- Wi-Fi



- Pantograph lift-up
- Computers
- Electronics
- Limited power depot shunting

MRX

Reliable onboard power backup

The critical factors for rail batteries are the capability for **high-temperature operation**, **frequent cycling** and **tolerance to over-charge or over-discharge**. MRX has been developed to perform over a wide range of temperatures with low maintenance requirements.



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 520 Ah**
- Optimized integration from **1 to 10 cells per bloc**



Low maintenance

- Topping-up operations intervals at **up to 6 years***
- Built-in water filling vents for **<10 min** active topping-up operation



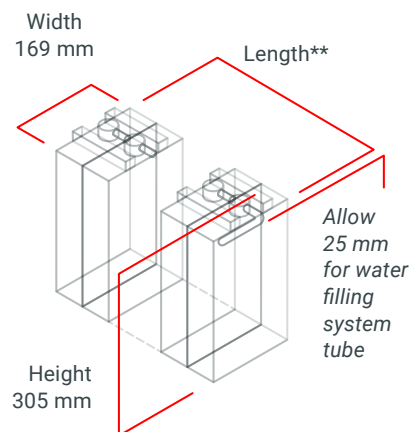
Light and compact design

- Over 30 % reduction in overall volume** compared to standard Ni-Cd batteries



Safety

- Robust, flame retardant plastic container is highly resistant to shocks and vibrations



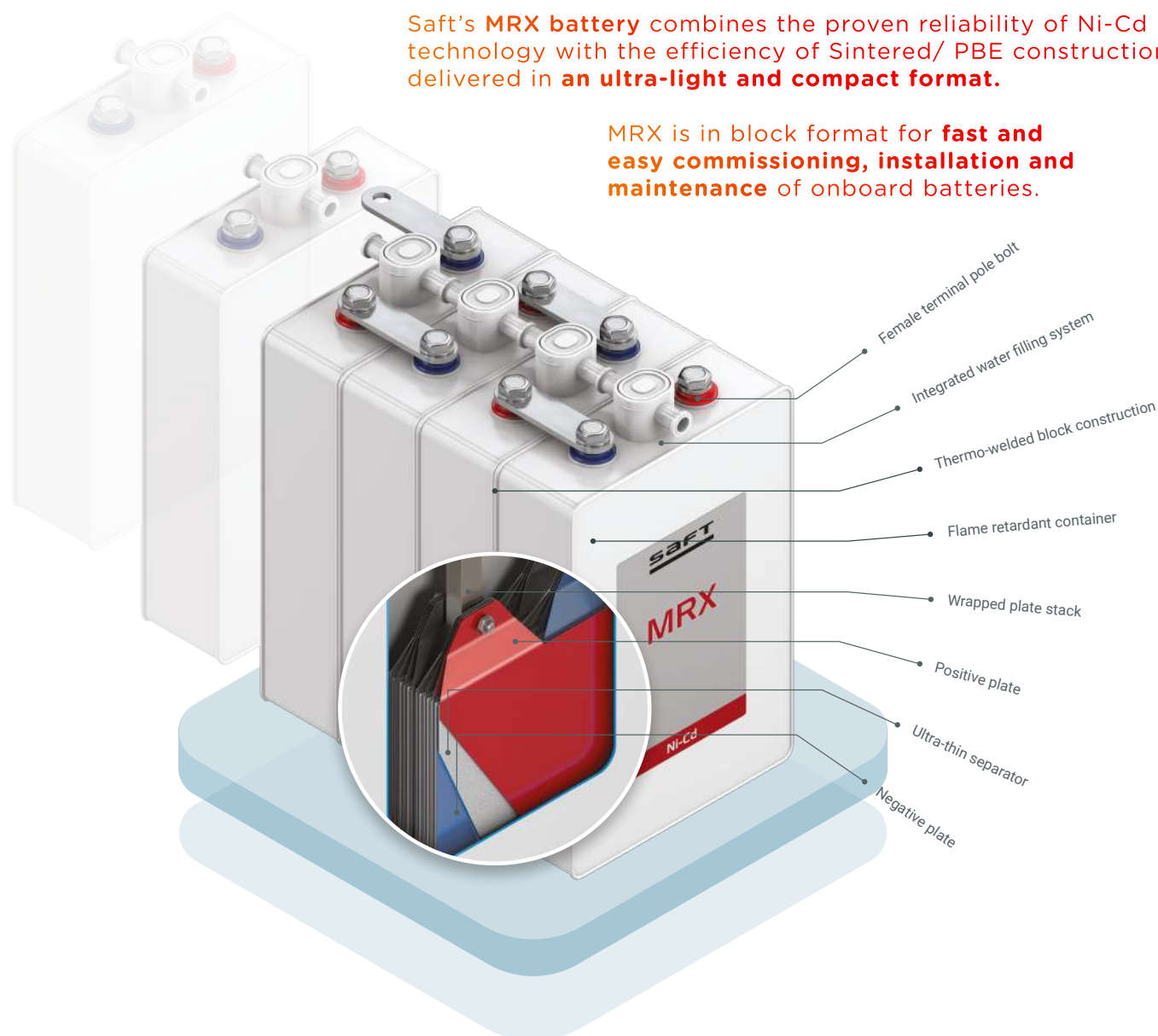
* Nominal value – actual results may vary depending on application conditions.

** The data provided are nominal values and actual results may vary depending upon application conditions.

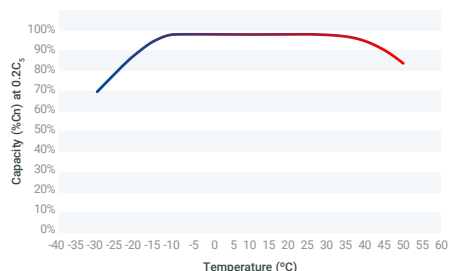
*** Values are not contractual.

Saft's **MRX battery** combines the proven reliability of Ni-Cd technology with the efficiency of Sintered/ PBE construction delivered in **an ultra-light and compact format**.

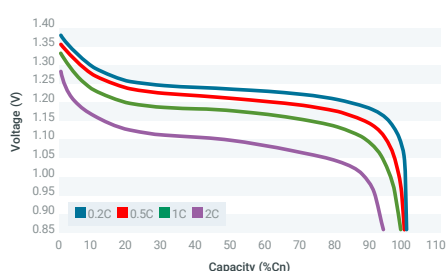
MRX is in block format for **fast and easy commissioning, installation and maintenance** of onboard batteries.



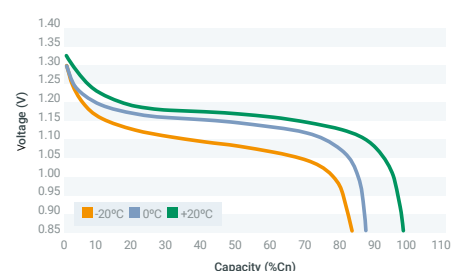
Chargeability with temperature compensation



Discharge at +20 °C



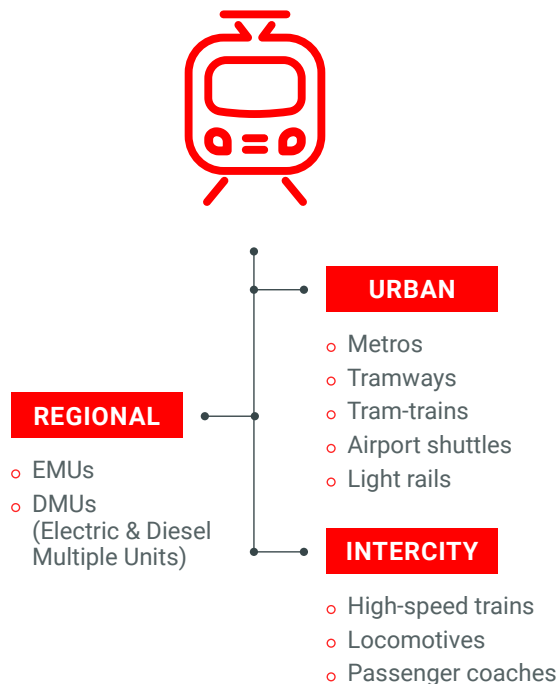
Discharge 1C at various T °C



Block type	Ah	Length (mm)***				Weight (kg)			
		Nb of cells per block				Nb of cells per block			
		3	4	5	10	3	4	5	10
MRX 70	70	158	196	384		13	16	31	
MRX 80	80	158	196	384		13	16	32	
MRX 90	90	158	196	384		14	17	34	
MRX 100	100	144	189	234		13	16	19	
MRX 115	115	144	189	234		14	17	20	
MRX 130	130	159	209	259		14	18	22	
MRX 145	145	234	309	384		21	26	31	
MRX 160	160	234	309	384		21	26	32	
MRX 180	180	234	309	384		22	28	34	

Block type	Ah	Length (mm)***				Weight (kg)			
		Nb of cells per block				Nb of cells per block			
		1	2	3	4	1	2	3	4
MRX 200	200	188	279	370		15	23	31	
MRX 230	230	188	279	370		15	24	33	
MRX 260	260	209	310	411		18	27	36	
MRX 280	280	234	347			21	32		
MRX 300	300	143	279			12	23		
MRX 350	350	143	279			12	24		
MRX 400	400	159				14			
MRX 460	460	189				16			
MRX 520	520	209				18			

**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:

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

Product certifications/standards:

- **Electrical:** exceeds the medium "M" type requirements of IEC 60 623, also significantly exceeds UIC 854 requirements.
- **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:

- Giving priority to recycled raw materials over virgin materials
- Minimizing water usage
- Reducing fossil energy consumption and associated CO₂ emissions
- 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
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R.C.S. Nanterre 481 480 465

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