

**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



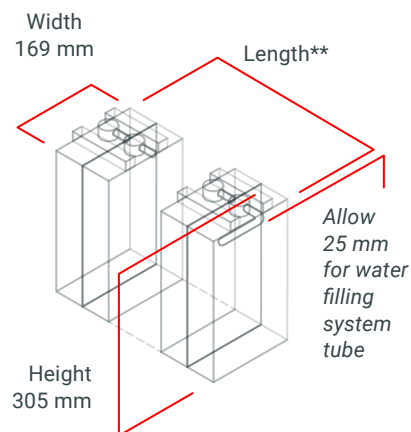
### Light and compact design

- 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



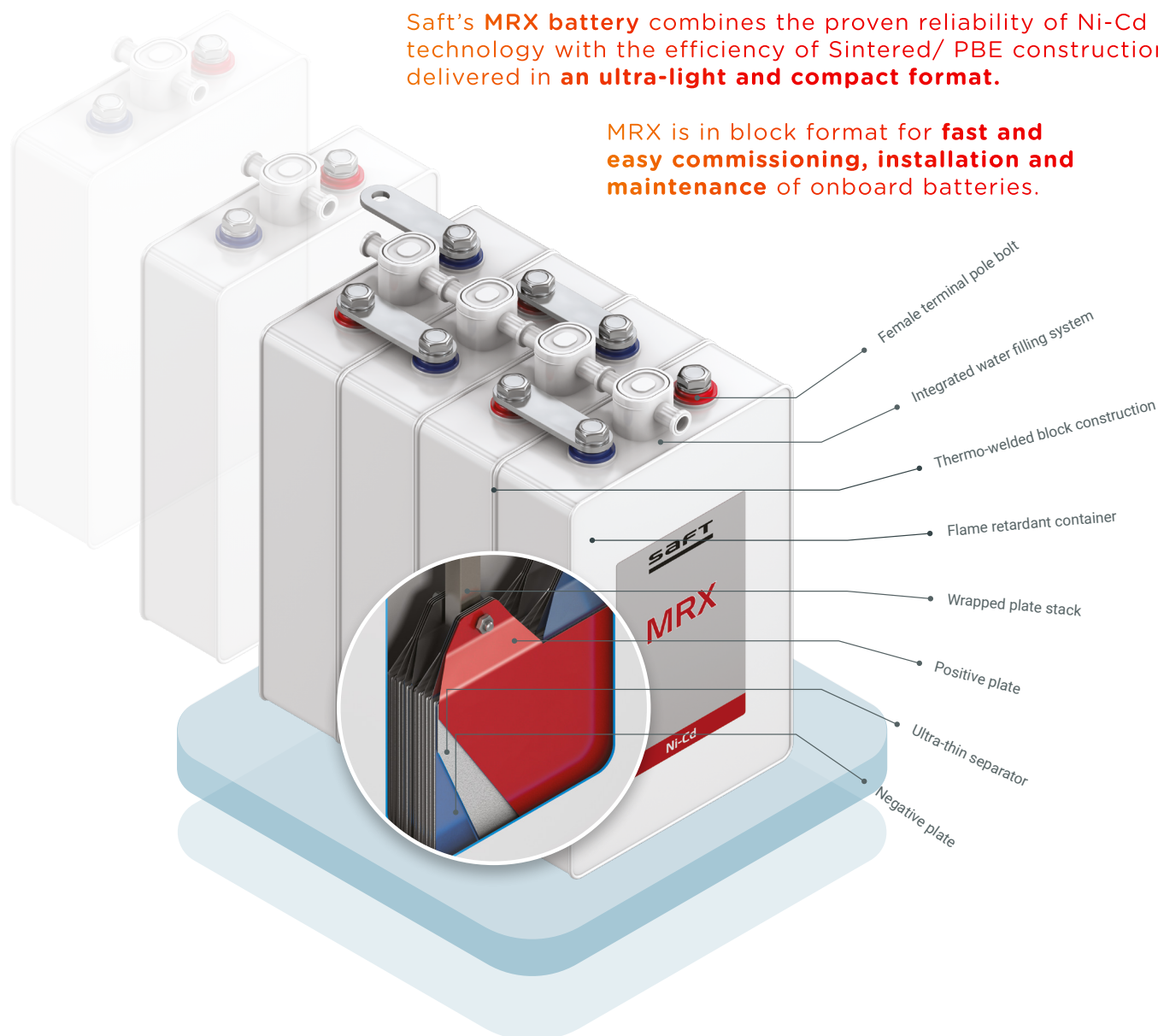
\* Nominal value – actual results may vary depending on application conditions.

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

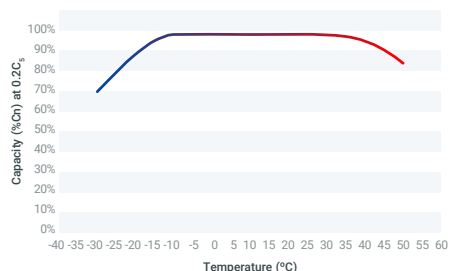
\*\*\* Values are not contractual.

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**.

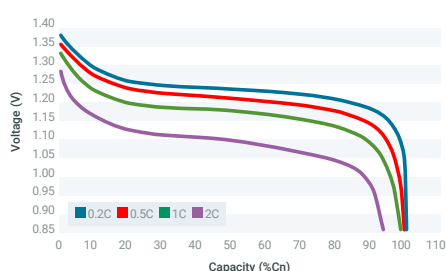
MRX is in block format for **fast and easy commissioning, installation and maintenance** of onboard batteries.



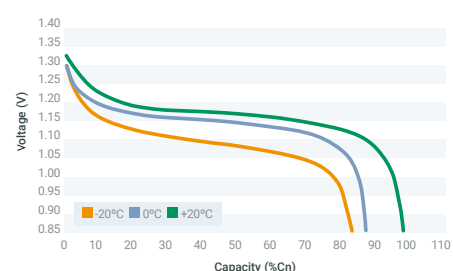
Chargeability with temperature compensation



Discharge at +20 °C



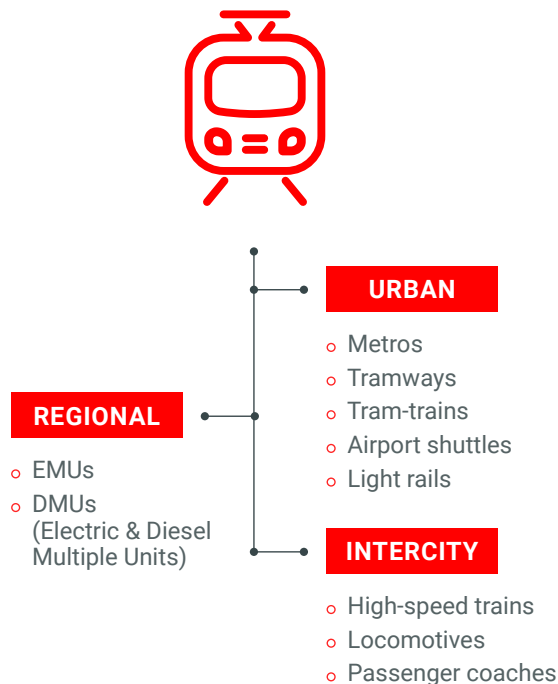
Discharge 1C at various T °C



| 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:**

- 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.

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**Saft, a subsidiary of TotalEnergies**  
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