SRA Ni-Cd battery

The medium power backup battery for railway applications
SRA - Performance and reliability in desert heat or arctic cold

SRA - for when the going gets tough

SRA, Saft’s brand new range of Ni-Cd railway batteries for auxiliary backup applications, is the latest development in our ongoing new product investment programme to meet evolving customer needs.

Designed to perform in extreme conditions, SRA comes in three versions: SRA Standard for use between – 30°C to + 50°C, SRA LT for low temperatures (- 50°C to + 40°C) and SRA HT for high temperatures (- 20°C to + 65°C). Having specific ranges for cold and hot climates give the possibility to optimize the solution in extreme temperatures.

SRA’s optimized electrical performance, extremely compact cells and very high energy density provide the ideal basis for battery systems that are lighter in weight and occupy less onboard space. Furthermore SRA is fully compatible with Saft’s well established range of standardized railway battery systems, with the same fast and easy maintenance procedures.

SRA - Medium power solutions

<table>
<thead>
<tr>
<th>SRA Standard</th>
<th>Operating temperature range</th>
<th>Capacity range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- 30°C to + 50°C</td>
<td>75-375 Ah</td>
</tr>
<tr>
<td>SRA LT</td>
<td>- 50°C to + 40°C</td>
<td>75-375 Ah</td>
</tr>
<tr>
<td>SRA HT</td>
<td>- 20°C to + 65°C</td>
<td>70-350 Ah</td>
</tr>
</tbody>
</table>
Optimize your battery’s performance for extreme temperatures

Even in the most extreme conditions, SRA ensures continuous operation of auxiliary systems critical for passenger safety.

- SRA are designed for discharge levels of 2Cₚ and 5Cₚ peak
- SRA’s optimized performance eliminates the need to oversize the battery

Free up your onboard space and save weight

SRA’s compact design provides an overall 30% reduction in volume and weight compared with a standard Ni-Cd battery.

- Enables optimized system design for very high energy density
- Cost benefits include more space for passengers and improved fuel efficiency due to lower overall weight

Create the ideal battery for your specific needs

SRA is highly resistant to the shocks and vibrations encountered in railway applications and offers complete flexibility in term of capacity, containers and maintenance systems.

- **Choose your capacity:**
  Single cell capacities range from 70 to 375 Ah
- **Choose your container:** Available in various plastic (FRpp, FR, P) and stainless steel containers
- **Choose your maintenance system:**
  Optional centralized water filling system

Standard cell design integrates perfectly into your battery system

SRA cells are a perfect match with Saft’s railway battery systems.

- Direct fitting within standard systems
- Customized battery boxes also available

Batteries can be integrated into bespoke trays designed to suit specific applications.
SRA FRpp physical characteristics

| Capacity | Cell dimensions (mm) | Weight including crate (kg)* | L | H | W | 2 | 3 | 4 | 5 | 6 | 7 | 8 | H | W |
|----------|---------------------|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75       | 2.7                 | 61                            | 303 | 86 | 13 | 16 | 19 | 22 | 25 | 307 | 90 |
| 90       | 3.6                 | 86                            | 303 | 86 | 16 | 20 | 24 | 28 | 31 | 307 | 90 |
| 110      | 3.9                 | 86                            | 303 | 86 | 17 | 22 | 26 | 30 | 34 | 307 | 90 |
| 125      | 4.7                 | 104                           | 303 | 87 | 17 | 22 | 27 | 33 | 307 | 90 |
| 140      | 4.9                 | 104                           | 303 | 87 | 18 | 23 | 29 | 34 | 307 | 90 |
| 160      | 6.1                 | 78                            | 331 | 166 | 14 | 20 | 27 | 33 | 39 | 46 | 52 | 254 | 314 | 376 | 436 | 497 |
| 190      | 6.5                 | 78                            | 331 | 166 | 14 | 21 | 27 | 34 | 41 | 47 | 54 | 343 | 170 |
| 220      | 7.3                 | 87                            | 331 | 166 | 16 | 24 | 32 | 40 | 47 | 55 | 63 | 343 | 170 |
| 260      | 8.8                 | 103                           | 331 | 166 | 16 | 28 | 37 | 47 | 56 | 343 | 170 |
| 280      | 10.2                | 117                           | 331 | 166 | 23 | 34 | 44 | 51 | 67 | 343 | 170 |
| 310      | 10.5                | 117                           | 331 | 166 | 24 | 35 | 47 | 59 | 70 | 343 | 170 |
| 340      | 11.8                | 139                           | 331 | 166 | 27 | 39 | 51 | 64 | 343 | 170 |
| 375      | 12.2                | 139                           | 331 | 166 | 29 | 41 | 55 | 68 | 343 | 170 |
| 400      | 13.0                | 139                           | 331 | 166 | 29 | 41 | 55 | 68 | 343 | 170 |

* Values are not contractual

Saft railway batteries conform to all major quality, safety and environmental standards

Electrical:
- Exceeds the medium "M" type requirements of IEC 60 623

Fire & smoke:
- NFF 16101-16102
- DIN 5510-2
- UL 94-V0
- ASTM E 162
- ASTM E 662

Shock & vibration:
- IEC 61 373

Quality:
- ISO 9001
- IRIS
- Saft world class continuous improvement programme

Environment:
- Fully recyclable
- ISO 14001
- RoHS: Although batteries and accumulators are not within the scope of the RoHS directive, Saft has taken voluntary measures to ensure that the substances forbidden by RoHS are not present in the battery, with the exception of the electro-chemical core.
- REACH: The Saft Group has adopted internal procedures to ensure conformity with the European Regulation REACH.

Others:
- DIN 40771
- BS6260
SRA - reliable backup for auxiliary systems

SRA provides reliable onboard energy backup for auxiliary systems such as:

- Passenger safety (lighting, door control and communications)
- Passenger comfort (ventilation, air conditioning, lighting, Wi-Fi)
- Fail-safe train start-up (pantograph lifting, computing, electronics)

SRA is ideally suited for a wide variety of modern trains:

- Urban transport: metros, tramways, tram-trains, airport shuttles
- Regional transport: EMU, DMU
- Intercity transport: high-speed trains, electric locomotives, passenger coaches

Ni-Cd for a long and predictable service life

SRA’s robust Ni-Cd construction ensures a reliable and totally predictable service life of over 15 years at + 25°C (+ 77°F). Operation at higher temperatures reduces the life expectancy of any battery. However, this effect is reduced for Ni-Cd batteries. So at + 35°C (+ 95°F), the lifetime reduction for a Ni-Cd battery is 20%, while it reaches 50% for a lead-acid battery.
Saft is committed to the highest standards of environmental stewardship

As part of its environmental commitment, Saft gives priority to recycled raw materials over virgin raw materials, reduces its plants’ air and water releases year after year, minimizes water usage, reduces fossil energy consumption and associated CO2 emissions, and ensures that its customers have recycling solutions for their spent batteries.

Regarding industrial nickel-based batteries, Saft has had partnerships for many years with collection companies in most EU countries. This collection network receives and dispatches our customers’ batteries at the end of their lives to fully approved recycling facilities, in compliance with the laws governing trans boundary waste shipments.

This collection network meets the requirements of the EU batteries directive. A list of our collection points is available on our web site. In other countries, Saft assists users of its batteries in finding environmentally sound recycling solutions. Please contact your sales representative for further information.