Block batteries / Motive Power

Product Overview

»Durability through innovation«
For GNB Industrial Power, innovation is more than just a word - it is the foundation of all our product development activities. Market and application oriented demands challenge our engineers on a daily basis. We are happy to meet this challenge and use our extensive knowledge to always provide our customers with the ideal solution.

By encouraging co-operation between our global experts, we are able to provide batteries, charging devices and complete systems to meet the needs of every application. This guarantees that you will always benefit from state-of-the-art technologies and comprehensive services when you work with GNB.

An excellent example of our innovative power is the conception of Sonnenschein dryfit® gel technology. Although this started out as a pure niche product, we quickly recognized its potential and successfully developed an extensive product range. Our newest gel block battery, Sonnenschein M, thus represents a further important milestone on this innovative path.
A global brand with an excellent reputation and technical image providing industrial batteries with market leading gel technology for all Motive Power applications. Sonnenschein was established in 1910 and the brand has grown to symbolise pre-eminent dryfit® technology worldwide.

**drysafe®**

GNB® offers AGM batteries for traction applications under the drysafe® brand. A speciality of this range is the drysafe® RECUP batteries manufactured by GNB® – VRLA batteries with grids using a spiral wound design, which are characterized by high-current capability and micro cycles tolerance.

**MARATHON Classic**

MARATHON Classic formerly known as Classic, represents quality and durability in Motive Power applications with products that have been designed and manufactured with highest precision.

**Sonnenschein M**

Discover the latest innovation from GNB® Industrial Power – Sonnenschein M, [roman: M = thousand] the first gel block battery offering 1,000 cycles. The Sonnenschein M features significant improvements in cyclic endurance which helps reducing your operating costs. Especially suited to cleaning machines, scooters, wheelchairs, the gel battery is a reliable choice, well proven over many years.
dryfit® block batteries

Sonnenschein M (1,000 cycles gel battery)

Sonnenschein, with the robust and reliable dryfit® technology, takes the next step in product evolution: The innovative M technology which enables gel batteries to give 1,000 cycles at 70% depth of discharge.

With the experience of more than 120 years in battery manufacturing and continuous further development of the dryfit® gel technology, Sonnenschein managed to significantly extend the cycle life durability of gel batteries. The results are Sonnenschein M batteries with an excellent total cost of ownership for all traction purposes.

Main technical features and benefits:

- Battery technology: VRLA (valve regulated lead-acid)
- Maintenance-free (no topping up during the whole service life)
- Very high intrinsic safety
- Extremely robust and reliable
- Low self-discharge rate
- Up to 80% depth of discharge possible
- 1,000 cycles in accordance with IEC 60254-1

Technical characteristics and data

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>Nominal capacity $C_5$ (30 °C) (Ah)</th>
<th>Nominal capacity $C_{20}$ (30 °C) (Ah)</th>
<th>Length (l) max. (mm)</th>
<th>Width (b/w) max. (mm)</th>
<th>Height (h) max. (mm)</th>
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* The weights may exhibit a tolerance of +/-5%

Drawings with terminal position, terminal and torque

Specifications

- Nominal capacity 76 Ah ($C_5$)
- 86 Ah ($C_{20}$)
- 1,000 cycles in accordance with IEC 60254-1
- Recyclable
- Valve regulated lead-acid battery
- Proof against deep discharge
- Maintenance-free (no topping up)
dryfit® block batteries

Sonnenschein GF-Y Range (dryfit® A500 cyclic)

The GF-Y block battery range is particularly suitable for the leisure and mobility market (wheelchairs, scooters, golf carts and electric boats).

Main technical features and benefits:

- Battery technology: VRLA (valve regulated lead-acid)
- Maintenance-free (no topping up during the whole service life)
- Very high intrinsic safety
- Robust, safe and reliable
- Low self-discharge rate
- 450 cycles in accordance with IEC 60254-1

> Product range:
12 V block batteries
14 Ah up to 93.5 Ah (C5)
15 Ah up to 110 Ah (C20)

Technical characteristics and data

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>Nominal capacity C₅ (30 °C)</th>
<th>Nominal capacity C₂₀ (30 °C)</th>
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* with hold down  ** The weights may exhibit a tolerance of +/-5%

Drawings with terminal position, terminal and torque

Specifications

- Nominal capacity
- 14 - 93.5 Ah (C₅)
- 15 - 110 Ah (C₂₀)
- 450 cycles in accordance with IEC 60254-1
- Valve regulated lead-acid batteries
- Proof against deep discharge
- Maintenance-free (no topping up)
The GF-V block battery range is designed for hard industrial use. This includes applications such as cleaning machines, pallet trucks, automatic guided vehicles, mobile elevating work platforms, electric cars and buses.

Main technical features and benefits:

> Battery technology: VRLA (valve regulated lead-acid)
> Maintenance-free (no topping up during the whole service life)
> Very high intrinsic safety
> Robust, safe and reliable
> Low self-discharge rate
> 700 cycles in accordance with IEC 60254-1

Product range:

- 6 V and 12 V block batteries
- 50 Ah up to 240 Ah (C5)
- 55 Ah up to 270 Ah (C20)

Technical characteristics and data

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>Nominal capacity C5 (30 °C)</th>
<th>Nominal capacity C20 (30 °C)</th>
<th>Length (l) max.</th>
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* The weights may exhibit a tolerance of ±/−5%

Drawings with terminal position, terminal and torque

Specifications

- Nominal capacity:
  - 50 - 240 Ah (C5)
  - 55 - 270 Ah (C20)
- Block battery
- Grid plate
- 700 cycles in accordance with IEC 60254-1
- Recyclable
- Valve regulated lead-acid batteries
- Robust, safe and reliable
- Proof against deep discharge
- Maintenance-free (no topping up)
Battery technology: VRLA (valve regulated lead-acid)
- Maintenance-free (no topping up during the whole service life)
- 300 cycles in accordance with IEC 60254-1

The AS range is suitable for all applications with a high power demand (discharge currents and charge acceptance), like hybrid drive and automatic guided vehicle systems. Additionally, AS-batteries offer excellent micro-cycle durability for applications with high opportunity charge rates, for example cleaning machines.

### AF Range (AGM Technology)

The AF battery range is suitable for all light traction applications and combines favorable investment costs with no maintenance over the entire service life.

#### Main technical features and benefits:

- Battery technology: VRLA (valve regulated lead-acid)
- Maintenance-free (no topping up during the whole service life)
- 300 cycles in accordance with IEC 60254-1

#### Technical characteristics and data

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage (V)</th>
<th>Nominal capacity C5 (30 °C) (Ah)</th>
<th>Nominal capacity C20 (30 °C) (Ah)</th>
<th>Length (l) max. (mm)</th>
<th>Width (b/w) max. (mm)</th>
<th>Height (h) max. (mm)</th>
<th>Weight* (kg)</th>
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</table>

* The weights may exhibit a tolerance of +/-5%

### AS Range with spiral wound technology

The AS range is suitable for all applications with a high power demand (discharge currents and charge acceptance), like hybrid drive and automatic guided vehicle systems. Additionally, AS-batteries offer excellent micro-cycle durability for applications with high opportunity charge rates, for example cleaning machines.

#### Main technical features and benefits:

- VRLA battery with grids in a spiral wound design
- Maintenance-free (no topping up during the whole service life)
- Superior high power performance (discharge and charge acceptance)
- Good high power performance at low temperature
- Ideal for opportunity charging and fast charging
- Excellent micro-cycle durability, especially at partial state of charge
- Vibration resistant
- 450 cycles in accordance with IEC 60254-1

#### Technical characteristics and data

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage (V)</th>
<th>Nominal capacity C5 (30 °C) (Ah)</th>
<th>Nominal capacity C20 (30 °C) (Ah)</th>
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* The weights may exhibit a tolerance of +/-5%
The FT block battery range is designed for applications in harsh environments such as golf carts, cleaning machines, mobile elevating work platforms and electric elevating platform trucks.

Main technical features and benefits:

- Battery technology: Vented / tubular plates
- Extremely robust and reliable
- 900 cycles in accordance with IEC 60254-1

Product range:
- 6 V and 12 V block batteries
- 52 Ah up to 200 Ah \( (C_5) \)
- 62 Ah up to 235 Ah \( (C_{20}) \)

Technical characteristics and data

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>Nominal capacity ( C_5 ) (30 °C)</th>
<th>Nominal capacity ( C_{20} ) (30 °C)</th>
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* The weights may exhibit a tolerance of +/-5%

Drawings with terminal position, terminal and torque

Specifications

- Nominal capacity: 52 - 200 Ah \( (C_5) \), 62 - 235 Ah \( (C_{20}) \)
- Block battery
- Tubular plate
- 900 cycles in accordance with IEC 60254-1
- Recyclable
The MARATHON Classic FF-range battery is suitable for mobile elevating work platforms, cleaning machines, leisure and many other Motive Power applications due to its high rate discharge capability.

Main technical features and benefits:

> Battery technology: Vented / grid plates
> Good high rate discharge capability
> 300 cycles in accordance with IEC 60254-1
> Product range:
  - 6 V and 12 V block batteries
  - 40 Ah up to 296 Ah ($C_5$)
  - 50 Ah up to 380 Ah ($C_{20}$)

Technical characteristics and data

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<td>Stud/A-Terminal</td>
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</table>

* The weights may exhibit a tolerance of ±5%.

Drawings with terminal position, terminal and torque

Specifications

- Nominal capacity:
  - 40 - 296 Ah ($C_5$)
  - 50 - 380 Ah ($C_{20}$)
- Block battery
- Grid plate
- 300 cycles in accordance with IEC 60254-1
- Recyclable
- Special high current performance
Incorporating the latest technology, these high frequency chargers are the ideal choice to recharge batteries on small electric vehicles, cleaning machines and pallet trucks. Suitable for flooded or valve regulated blocs and batteries, their design ensures reliability, safety, ease of use and optimal charging. These highly efficient chargers are reduced in size and weight, making them very easy to install and handle.

Your benefits:

> **Efficiency optimisation:**
  > GNB’s unique charger profiles and $dv/dt$ charging time termination avoid any risk of under or over charging, therefore optimising battery usage and life
  > The charger ensures that the charging current and voltage remain constant during any mains fluctuations, guaranteeing a constant and optimised charging time
  > **Very high energy efficiency due to HF technology – small CO$_2$ footprint**
  > **Modern charging technology at an affordable price**
  > **Easy-to-use automatic start - "plug & play"**
  > Small and light – requires less installation space
  > Simple and comprehensible charging display (red-yellow-green)
  > Integral wall mounting
  > **Ready for fleet management 2100.net**
Battery and Charger Service – Energy Solutions
Keeping your business on the move

GNB® is the expert

Who could do this job better than the professionals from a company with more than 120 years of experience in battery development, production and operation?

Leave the responsibility for the maintenance of your batteries and chargers to the experts: a GNB® service contract provides you with exceptional economic advantages through time and cost savings as well as higher safety!

Whatever your application – GNB® has the experience

Professional handling is the key to a long service life for your batteries and chargers and to the maximum uptime of your fleet.

Based on many years of experience GNB® is your competent partner for all questions regarding batteries and chargers. GNB® offers tailored solutions to power your intralogistic operations.

www.gnb-shop.eu

Visit our GNB® online shop*

Since July 2013 you can order GNB® products through our online shop www.gnb-shop.eu. The easy and convenient way to buy our products.

Your benefits:

> Always fresh batteries directly from the factory
> Made in Germany
> Fast delivery
> Ordered directly from the manufacturer
> Assured manufacturer warranty
> Up-to-date and reliable product information

* Currently deliveries within Germany only
Exide Technologies, with operations in more than 80 countries, is one of the world’s largest producers and recyclers of lead-acid batteries. Exide Technologies provides a comprehensive and customized range of stored electrical energy solutions. Based on over 120 years of experience in the development of innovative technologies, Exide Technologies is an esteemed partner of OEMs and serves the spare parts market for industrial and automotive applications.

GNB Industrial Power – A division of Exide Technologies – offers an extensive range of storage products and services, including solutions for telecommunication systems, railway applications, mining, photovoltaic (solar energy), uninterrupted power supply (UPS), electrical power generation and distribution, fork lifts and electric vehicles.

Exide Technologies takes pride in its commitment to a better environment. An integrated approach to manufacturing, distributing and recycling of lead-acid batteries has been developed to ensure a safe and responsible life cycle for all of its products.