

Product information

Nilar reoxygenating series

The sustainable choice



BENEFITS IN BRIEF



Performance

Longer service life with the ReOx[®] technology



Safety

Water-based, non-flammable technology with superior safety benefits



Sustainability

Produced in Sweden using renewable energy, with components that can be recycled

It has never been easier to do good while doing what's best for you and the planet

Nilar batteries are connected as strings in series of 2-5 battery packs to fit customer system voltage, delivering from 2.67 to 6.67 kWh per string and configurable for system sizes ranging from kWh to MWh sizes. The battery strings are controlled by a Nilar Battery Management System (BMS) for verification of specified performance. Nilar's battery technology is based on Nickel Metal Hydride (NiMH) electrochemistry with a water-based electrolyte, which provides both higher safety and enables a longer service life while allowing the components to be recycled and reused.

Nilar reoxygenating battery strings

| PRODUCT NAME | REOX2-576V-6.40KWH | REOX2-288V-3.20KWH | REOX2-240V-2.67KWH | REOX2-480V-5.33KWH | REOX2-600V-6.67KWH |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Article number | 20010011 | 20010012 | 20010013 | 20010014 | 20010015 |
| SIZE | | | | | |
| Nominal voltage, Vdc | 576 | 288 | 240 | 480 | 600 |
| Rated energy, kWh | 6.40 | 3.20 | 2.67 | 5.33 | 6.67 |
| Rated capacity, Ah | 10 | 10 | 10 | 10 | 10 |
| Weight, kg | 151.2 | 75.6 | 64.1 | 128.1 | 160.2 |
| Specific energy, Wh/kg | 42.3 | 42.3 | 41.6 | 41.6 | 41.6 |
| Dimensions HxWxD, mm | 332x720x500 | 332x360x500 | 332x360x450 | 340x720x450 | 332x900x450 |
| Volume, dm ³ | 119.5 | 59.8 | 53.8 | 107.6 | 134.5 |
| Energy density, Wh/dm ³ | 53.5 | 53.5 | 49.6 | 49.6 | 49.6 |
| CONFIGURATION | | | | | |
| Cell structure formulation | 10S(12S(4S)) | 10S(12S(2S)) | 10S(10S(2S)) | 10S(10S(4S)) | 10S(10S(5S)) |
| Type of battery pack | 144 V / 1.6 kWh | 144 V / 1.6 kWh | 120 V / 1.33 kWh | 120 V / 1.33 kWh | 120 V / 1.33 kWh |
| Number of battery packs (blocks) | 4 | 2 | 2 | 4 | 5 |
| ELECTRICAL SYSTEM | | | | | |
| Overvoltage category | CAT III | CAT III | CAT III | CAT III | CAT III |
| Voltage range, VDC | 480-768 | 240-384 | 200-320 | 400-640 | 500-800 |
| Ingress protection code for battery pack with pack-enclosure | IP20 | IP20 | IP20 | IP20 | IP20 |
| ENVIRONMENTAL LIMITS | | | | | |
| Operating ambient temperature, °C | +1 to +30 | +1 to +30 | +1 to +30 | +1 to +30 | +1 to +30 |
| Humidity, % RH | 5 - 55 (non condensing) | 5 - 55 (non condensing) | 5 - 55 (non condensing) | 5 - 55 (non condensing) | 5 - 55 (non condensing) |
| Pollution degree | 2 | 2 | 2 | 2 | 2 |
| Maximum altitude, m | 2000 | 2000 | 2000 | 2000 | 2000 |
| ELECTRICAL PERFORMANCE | | | | | |
| C-rate, 1 h charge time from 0 % SOC and at 20 °C | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| C-rate, 1 min charge time from 0 % SOC and at 20 °C | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |
| C-rate, 1 h discharge duration from 100 % SOC and at 20 °C | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| C-rate, 1 min discharge duration from 100 % SOC and at 20 °C | 2.42 | 2.42 | 2.42 | 2.42 | 2.42 |
| Warranty, years | 10 | 10 | 10 | 10 | 10 |
| Efficiency | | | | | |
| 100-0 % SOC, 50 % of rated energy, 20 °C, % | 85 [2.88 kW] | 85 [1.44 kW] | 85 [1.2 kW] | 85 [2.4 kW] | 85 [3kW] |
| 90-10 % SOC, 50 % of rated energy, 20 °C, % | 91 [2.88 kW] | 91 [1.44 kW] | 91 [1.2 kW] | 91 [2.4 kW] | 91 [3kW] |
| Cycle life including 4 ReOx services | | | | | |
| 100-0 % SOC | 2 580 | 2 580 | 2 580 | 2 580 | 2 580 |
| 90-10 % SOC | 3 600 | 3 600 | 3 600 | 3 600 | 3 600 |
| 85-25 % SOC | 5 530 | 5 530 | 5 530 | 5 530 | 5 530 |
| 70-30 % SOC | 10 130 | 10 130 | 10 130 | 10 130 | 10 130 |
| 60-40 % SOC | 28 500 | 28 500 | 28 500 | 28 500 | 28 500 |
| Cycle life to 1st ReOx service, 90-10 % SOC | 1 000 | 1 000 | 1 000 | 1 000 | 1 000 |
| Constant power discharge performance at 100% DOD and 20°C | | | | | |
| 20 h discharge duration, C-rate (W) | 0.050 | 0.050 | 0.050 | 0.050 | 0.050 |
| 10 h discharge duration, C-rate (W) | 0.100 | 0.100 | 0.100 | 0.100 | 0.100 |
| 8 h discharge duration, C-rate (W) | 0.121 | 0.121 | 0.121 | 0.121 | 0.121 |
| 5 h discharge duration, C-rate (W) | 0.186 | 0.186 | 0.186 | 0.186 | 0.186 |
| 3 h discharge duration, C-rate (W) | 0.291 | 0.291 | 0.291 | 0.291 | 0.291 |
| 2 h discharge duration, C-rate (W) | 0.423 | 0.423 | 0.423 | 0.423 | 0.423 |
| 1 h discharge duration, C-rate (W) | 0.782 | 0.782 | 0.782 | 0.782 | 0.782 |
| 45 min discharge duration, C-rate (W) | 0.986 | 0.986 | 0.986 | 0.986 | 0.986 |
| 30 min discharge duration, C-rate (W) | 1.315 | 1.315 | 1.315 | 1.315 | 1.315 |
| 20 min discharge duration, C-rate (W) | 1.652 | 1.652 | 1.652 | 1.652 | 1.652 |
| 12 min discharge duration, C-rate (W) | 1.970 | 1.970 | 1.970 | 1.970 | 1.970 |
| 5 min discharge duration, C-rate (W) | 2.279 | 2.279 | 2.279 | 2.279 | 2.279 |
| 1 min discharge duration, C-rate (W) | 2.417 | 2.417 | 2.417 | 2.417 | 2.417 |

* Confirmed through tests after performing first and second ReOx® service.

| Self discharge State of Charge (SOC) after non-usage, at 20 °C, for string initially charged to 90 % (disconnected from inverter) | | | | | |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|
| Initial charge day 0, % SOC | 90 | 90 | 90 | 90 | 90 |
| Non-usage 7 days, % SOC | 78 | 78 | 78 | 78 | 78 |
| Non-usage 28 days, % SOC | 71 | 71 | 71 | 71 | 71 |
| Non-usage 84 days, % SOC | 65 | 65 | 65 | 65 | 65 |
| Non-usage 112 days, % SOC | 63 | 63 | 63 | 63 | 63 |
| OPTIMAL OPERATING CONDITIONS | | | | | |
| SOC-window, % | 10-90 | 10-90 | 10-90 | 10-90 | 10-90 |
| C-rate, charge | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| C-rate, discharge | <1 | <1 | <1 | <1 | <1 |
| Ambient operating temperature, °C | 15-20 | 15-20 | 15-20 | 15-20 | 15-20 |
| STORAGE AND TRANSPORT | | | | | |
| Maximum ambient temperature, °C | -20 to +40 | -20 to +40 | -20 to +40 | -20 to +40 | -20 to +40 |
| Modes of transport | Sea, Air, Rail, Road | Sea, Air, Rail, Road | Sea, Air, Rail, Road | Sea, Air, Rail, Road | Sea, Air, Rail, Road |
| Storage time without recharge (average ambient temperature) | | | | | |
| < 0 °C, Months | 36 | 36 | 36 | 36 | 36 |
| < 20 °C, Months | 18 | 18 | 18 | 18 | 18 |
| < 30 °C, Months | 6 | 6 | 6 | 6 | 6 |
| > 40 °C, Months | 3 | 3 | 3 | 3 | 3 |

Nilar reoxygenating battery blocks

A battery block consists of a battery pack, a fan, an insulation tray and cover with air flow guides. Each battery string consists of 2-5 battery blocks.



| PRODUCT NAME | REOX® 2 BATTERY BLOCK 144V | REOX® 2 BATTERY BLOCK 120V |
|------------------------------------|----------------------------|----------------------------|
| Nominal voltage, Vdc | 144 | 120 |
| Rated energy, kWh | 1.60 | 1.33 |
| Rated capacity, Ah | 10 | 10 |
| Weight, kg | 37.8 | 32.0 |
| Specific energy, Wh/kg | 42.3 | 41.5 |
| Dimensions HxWxD, mm | 332x180x500 | 332x180x450 |
| Volume, dm ³ | 29.9 | 26.9 |
| Energy density, Wh/dm ³ | 53.5 | 49.5 |

Nilar reoxygenating battery packs

A battery pack is a battery block excluding fan, insulation tray and cover with air flow guides.



| PRODUCT NAME | REOX® 2 BATTERY PACK 144V | REOX® 2 BATTERY PACK 120V |
|------------------------------------|---------------------------|---------------------------|
| Nominal voltage, Vdc | 144 | 120 |
| Rated energy, kWh | 1.60 | 1.33 |
| Rated capacity, Ah | 10 | 10 |
| Weight, kg | 37.3 | 31.5 |
| Specific energy, Wh/kg | 42.9 | 42.2 |
| Dimensions HxWxD, mm | 306x127x409 | 306x127x365 |
| Volume, dm ³ | 15.9 | 14.2 |
| Energy density, Wh/dm ³ | 100.6 | 93.7 |



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