



Naps Batteries for PV Systems

Valve-Regulated Gel Type Tubular Plate Block Batteries Type Secura OPzV Block

'Sealed' (valve-regulated) tubular plate 6 or 12 Volt lead-acid block batteries with gelled electrolyte are ideal for use in small to medium size renewable energy systems where regular additions of water to batteries are not possible or inconvenient.

Secura OPzV block batteries are 6V or 12V tubular plate lead-acid valve-regulated units with nominal capacities in the range 73 to 435 Ah (C_{120}). They are normally supplied with the necessary interconnects for the required system voltage. Racks for complete battery systems are available as an option.

Featuring the highest standards of construction, Secura OPzV block batteries feature the excellent corrosion resistance and cycling capability of the tubular positive plate construction with a lead-calcium-tin alloy. The gelled acid means no water additions are needed throughout the life of the battery, reducing maintenance requirements to a simple periodic check of cell voltages and temperatures, plus simple cleaning and checking of interconnects.

Secura OPzV block batteries Main Technical Characteristics

- High capacity and reliability is achieved with the use of proven materials and design.
- Gelled acid provides the same water reserve as an open tubular cell design, and ensures good heat conduction from the plates to the surroundings.
- Tubular positive plates with a woven polyester gauntlet combine excellent resistance to grid corrosion and good cycle life.
- Thick pasted negative plates with long life expander ensure a long service life.
- Lead-calcium-tin alloys in both positive and negative plates reduce self-discharge and corrosion throughout the lifetime of the battery.
- Microporous separator ensures electrical isolation between the plates and good retention of the active materials.
- The 1.24 acid density ensures a long service life.
- Acid gelled with fumed silica reduces stratification to a minimum.
- High impact and halogen-free container and lid (SAN). Option for flame retardant container and lid to UL94 V-0.
- Gas- and acid-tight pole bush with rubber ring seal allows for trouble-free positive plate growth during ageing.
- Screw terminals (M10 brass insert) allow easy interconnections using flexible insulated copper cables or solid copper connectors. Interconnect protection IP 25 (DIN 40050), touch protected to VBG 4.
- Measurement leads can be connected using special hollow terminal screws. Contact resistance measurement point also available on terminal.
- Pressure relief valve with flame arrestor for each cell assures operational safety. Opens at approximately 120 mbar and closes at approximately 50 mbar.
- Initial capacity 100% of nominal value.
- Very good recovery capability from deep discharge.

Information last updated 22nd August 2008

Specifications may change without notice due to Naps continuous product improvement policy.
Please check actual specifications before ordering.

Naps Secura OPzV block batteries

Technical Data

| name | Voltage | Capacity* (Ah) | | | | Dimensions | | | Weight |
|----------------|---------|----------------|-----|------|------|------------|------|------|--------|
| | V | 10h | 72h | 120h | 240h | L mm | W mm | H mm | kg |
| 12V 1 OPzV 50 | 12 | 57 | 70 | 73 | 75 | 272 | 205 | 385 | 43 |
| 12V 2 OPzV 100 | 12 | 110 | 133 | 139 | 144 | 272 | 205 | 385 | 52 |
| 12V 3 OPzV 150 | 12 | 166 | 202 | 210 | 216 | 380 | 205 | 385 | 74.2 |
| 6V 4 OPzV 200 | 6 | 229 | 280 | 290 | 300 | 272 | 205 | 385 | 51 |
| 6V 5 OPzV 250 | 6 | 287 | 349 | 363 | 374 | 380 | 205 | 385 | 65 |
| 6V 6 OPzV 300 | 6 | 344 | 420 | 435 | 451 | 380 | 205 | 385 | 73.8 |

* Initial Capacity to 1.80V/cell at 20°C

Capacity (C₁₀₀) at low temperature

| 20°C | 15°C | 10°C | 5°C | 0°C | -5°C | -10°C | -20°C |
|------|------|------|-----|-----|------|-------|-------|
| 100% | 97% | 93% | 89% | 85% | 80% | 74% | 62% |

Operating temperature:

-20°C to 45°C.

Optimum range is 10°C to 30°C.

Short-time high temperature exposure in range 45°C to 55°C.

Self discharge rate:

Approx 2% per month at 20°C

Maximum recommended depth of discharge:

80%

Standards:

Test standards: IEC 60896-21, IEC 61427

Safety standard, ventilation: EN 50272-2

Transport:

non-hazardous goods for road transport

Estimation of service life in PV systems

| average working temperature °C | years | if daily cycling less than |
|--------------------------------|-------|----------------------------|
| 20 | 16 | 12% |
| 25 | 11 | 17% |
| 30 | 8 | 25% |
| 35 | 6 | 35% |
| 40 | 4 | 49% |

of C₁₀

if daily cycling is greater than above limits lifetime will be reduced

Service life on float charge (not PV)

| average working temperature °C | years |
|--------------------------------|-------|
| 20 | 20 |
| 30 | 10 |
| 40 | 5 |

Cycle Life

1500 cycles under IEC 896-2 conditions, equivalent to 60% of nominal C10 per cycle. This cycle life is only applicable at a constant 20°C and full recharge on each cycle.