Low maintenance TAB OPzS vented stationary batteries

**Technical Data and Dimensions**

**6V 4 OPzS 200**

<table>
<thead>
<tr>
<th>Rated Voltage</th>
<th>Type of plates</th>
<th>Capacity at 10-hour discharging</th>
<th>Number of positive plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions**

- L
- W
- H

**Application**

Stationary batteries of the OPzS type are intended for the supply of telecommunication facilities, computers, emergency lightning, alarm, control and monitoring systems in power plants and distribution stations, at railway stations, airports etc.

Due to their extremely low self-discharging they are suitable for plants supplied by solar cells.

**Operation and Maintenance**

It is recommended that the OPzS batteries are installed in the systems where they are constantly connected to the rectifier.

The battery can be float-charged with voltage of 2.23 to 2.25 V/cell, or, in case of rapid charging after discharge, with voltage of 2.35 to 2.40 V/cell.

Rapid charging usually lasts another 3-5 hours after the voltage has already reached 2.35 to 2.40 V/cell. After that, an automatic switchover to the constant maintaining voltage of 2.23 to 2.25 V/cell takes place. Battery maintenance is reduced to a minimum and required only from time to time.

At normal operation, only some destilled water has to be added once in a 2-3 year period and, if necessary, the surface of cells has to be cleaned. All stated voltage values are valid for the temperature range from 15 to 25 degrees C. Out of this range, the corrections given by the battery producer are necessary.

For detail information please check our operation manual.
ORDERS
IN ORDER THAT THE BATTERIES WOULD MEET ALL YOUR DEMANDS, WE KINDLY ASK YOU TO ENCLOSE THE FOLLOWING DATA WITH YOUR ORDER:

- kind of consuming device
  (telephone plant, DC-AC converter, emergency lighting etc.)
- operating energy of the consumer
  (kW, kVA, \(\cos \Phi\))
- minimum and maximum allowable rated voltage at consuming device (V)
- time diagram of a consumer load, and the required time autonomy (reserve)
- expected voltage drop in the supply lines
- surrounding temperature in the battery room (average, minimum, maximum)
- type of rectifier, its characteristics, regulating point I (A) or U (V), respectively, float voltage (V) (direct voltage of rapid-charging current \(I_{\text{max}}\) (A), float charging voltage)
- outline or dimensions of a battery room
- type of installation (welded, bolted, on wooden or metal racks, in case, on earthquake-proof racks)
- battery maintenance accessories
  (areometers, thermometers, jug ...)
- battery type: filled up with electrolyte and electrically charged or dry-charge battery.

IN CASE OF PROBLEMS WITH ORDERING WE WILL BE GLAD TO ADVISE AND ASSIST YOU IN THE SELECTION OF THE SUITABLE TYPE OF BATTERY.

CONSTRUCTION
The positive armored plate is of a tubular type, which means that the active substance (\(\text{PbO}_2\)) is contained in special gauntlet made of polyester fibres and hardened by an impregnation compound. Such construction prevents escaping of an active substance during the operation and ensures a long life time. The grids of a positive and a negative plate are made of special low percentage (less than 2 \%) antimony alloy with addition agents for improvement of crystalline structure of casting.

Negative plates are pasted-type plates with special alloys maintaining porosity of an active substance during the operation. As an electrolyte, a diluted sulphuric acid (\(\text{H}_2\text{SO}_4\)) with a density of 1.24 ± 0.01 kg/l at 20 degrees C, and at a maximum permitted level is used. Separators separating the positive plates from the negative ones are made of microporous plastic material with a low electric resistance.

The cell containers are made of transparent SAN, while lid of nontransparent SAN or ABS material (SAN for blocks, ABS for 2V cells).

In a special process, the lids are tightly sealed to the container. The terminal plugs are sealed with rubber seals. This prevents any escape of electrolyte from the cells.

Due to the transparent containers the electrolyte level is clearly visible, the maximum and minimum levels are marked on a self-adhesive acid-proof label on a container side.

IMPROVED DESIGN
FOR BOLTED VERSION TERMINAL POST

NEW TYPE OF POLE FOR STATIONARY APPLICATIONS HAS A SPECIAL DESIGN WITH EMBRACED INJECTED PLASTIC AROUND PRE-MACHINED LEAD PART IN THE SEALING AREA.

PLANE AND CLEAN SURFACE OF PLASTIC PART IN COMBINATION WITH RUBBER SEALING RING ENSURES PERFECT SEAL. LONG PLASTIC INJECTED PART ALLOWS POLE GROWTH AND MOVING UPWARDS BY THE GROWTH OF POSITIVE PLATE. SUCH CONSTRUCTION ENSURES TIGHT POLE BUSHING WITHOUT ANY CORROSION OR DETERIORATION DURING BATTERY LIFE.
TAB OPzS BLOCKS

TAB OPzS STATIONARY BLOCKS (CELLS) ARE PRODUCED IN THE CONVENTIONAL LEAD-ACID TECHNOLOGY.

Stationary batteries of the OPzS type are intended for the supply of telecommunication facilities, computers, emergency lightning, alarm, control and monitoring systems in power plants and distribution stations, at railway stations, airports etc.

**Uf V/cell** | 1,80 | 1,77 | 1,75 | 1,67 | **IEC 896-1** | **Dimensions (mm)** | **Weight (kg)**
---|---|---|---|---|---|---|---
**Discharging (h)** | 10 | 5 | 3 | 1 | **Rt (mΩ)** | **Isc (A)** | **L** | **W** | **H** | **Dry** | **Wet**
12V 1 OPzS 50 | 51 | 40,9 | 38,0 | 28,4 | 20,0 | 613 | 272 | 205 | 392 | 26 | 39
12V 2 OPzS 100 | 103 | 81,8 | 75,7 | 56,7 | 9,3 | 1290 | 272 | 205 | 392 | 38 | 50
12V 3 OPzS 150 | 154 | 122,6 | 113,7 | 85,1 | 6,9 | 1729 | 380 | 205 | 392 | 53 | 69
6V 4 OPzS 200 | 204 | 167,0 | 149,3 | 115,2 | 2,2 | 2703 | 272 | 205 | 392 | 53 | 69
6V 5 OPzS 250 | 255 | 208,6 | 186,6 | 143,6 | 1,9 | 3175 | 380 | 205 | 392 | 44 | 61
6V 6 OPzS 300 | 307 | 250,5 | 223,7 | 172,0 | 1,6 | 3846 | 380 | 205 | 392 | 52 | 68

**12V 2 OPzS 100**

Electrolyte density: 1,24 ± 0,01 kg/l at 20 °C.

All measures and weights are within standard production tolerances. Electrical values are approximative. Technical modifications are reserved without prior notice.
number of positive plate Armored OPzS plates capacity at 10-hour discharging

Electrolyte density: 1.24 ± 0.01 kg/l at 20 °C.
All measures and weights are within standard production tolerances. Electrical values are approximative. Technical modifications are reserved without prior notice.

**CHARGING**

**OPzS cells (block)**

**IU - CHARACTERISTIC**
- Imax without limitation
- Float Charge
  - U = 2.23 V/cell ± 1 %, between 10 °C and 30 °C
  - ΔU/ΔT = -0.004 V/K
  - below 10 °C or above 30 °C in the monthly average
- Boost Charge
  - U = 2.35 to 2.40 V/cell, time limited
  - 6h with 1.5xI10 initial current, 2.23 V/cell, 50 % C10 discharged

**DISCHARGE CHARACTERISTICS**

**OPzS cells (block)**

**REFERENCE TEMPERATURE**
- 20 °C
**INITIAL CAPACITY**
- 100 %
**DEPTH OF DISCHARGE**
- Normally up to 80 %
- More than 80 % DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

**MAINTENANCE**

**OPzS cells (block)**

**EVERY 6 MONTH**
- Check battery voltage, pilot block voltage, temperature
**EVERY 12 MONTH**
- Take down battery voltage, block voltage, temperature

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**TAB OPzS CELLS**

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**OPERATIONAL DATA**

**OPzS cells (block)**

**REFERENCE TEMPERATURE**
- 20 °C
**INITIAL CAPACITY**
- 100 %
**DEPTH OF DISCHARGE**
- Normally up to 80 %
- More than 80 % DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

**MAINTENANCE**

**OPzS cells (block)**

**EVERY 6 MONTH**
- Check battery voltage, pilot block voltage, temperature
**EVERY 12 MONTH**
- Take down battery voltage, block voltage, temperature

---

**Uf V/cell** | 1.80 | 1.77 | 1.75 | 1.67 | IEC 896-1 | Dimensions (mm) | Weight (kg) | No of poles
---|---|---|---|---|---|---|---|---
Discharging (h) | 10 | 5 | 3 | 1 | Ri (mΩ) | Isc (A) | L | W | H | Dry | Wet |
---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
**2 OPzS 100** | 107 | 94 | 82 | 60 | 1.48 | 1350 | 103 | 206 | 420 | 8.7 | 13.7 | 2 |
**3 OPzS 150** | 155 | 136 | 117 | 86 | 1.08 | 1845 | 103 | 206 | 420 | 11 | 16 | 2 |
**4 OPzS 200** | 208 | 180 | 158 | 115 | 0.84 | 2376 | 103 | 206 | 420 | 13 | 18 | 2 |
**6 OPzS 300** | 310 | 268 | 234 | 171 | 0.58 | 3438 | 145 | 206 | 420 | 18 | 26 | 2 |
**5 OPzS 350** | 380 | 325 | 280 | 205 | 0.64 | 3137 | 124 | 206 | 536 | 20 | 29 | 2 |
**6 OPzS 420** | 454 | 389 | 336 | 245 | 0.55 | 3641 | 145 | 206 | 536 | 24 | 34 | 2 |
**7 OPzS 490** | 532 | 454 | 392 | 286 | 0.48 | 4169 | 166 | 206 | 536 | 28 | 39 | 2 |
**6 OPzS 600** | 640 | 544 | 477 | 348 | 0.45 | 4466 | 145 | 206 | 571 | 35 | 50 | 2 |
**8 OPzS 800** | 853 | 727 | 638 | 466 | 0.33 | 6035 | 210 | 191 | 711 | 46 | 65 | 4 |
**10 OPzS 1000** | 1065 | 909 | 796 | 581 | 0.26 | 7720 | 210 | 233 | 711 | 57 | 80 | 4 |
**12 OPzS 1200** | 1278 | 1088 | 954 | 696 | 0.23 | 8814 | 210 | 275 | 711 | 66 | 93 | 4 |
**12 OPzS 1500** | 1613 | 1381 | 1196 | 873 | 0.23 | 8605 | 210 | 275 | 861 | 88 | 119 | 4 |
**16 OPzS 2000** | 2143 | 1838 | 1591 | 1162 | 0.17 | 12042 | 212 | 397 | 837 | 115 | 160 | 6 |
**20 OPzS 2500** | 2675 | 2295 | 1988 | 1452 | 0.13 | 15007 | 212 | 487 | 837 | 145 | 200 | 8 |
**24 OPzS 3000** | 3298 | 2752 | 2382 | 1739 | 0.12 | 17390 | 212 | 576 | 837 | 170 | 240 | 8 |

Electrolyte density: 1.24 ± 0.01 kg/l at 20 °C.
### TAB OGi BLOCK BATTERIES

**TAB OGi BLOCK BATTERIES ARE ROBUST VENTED LEAD-ACID BATTERIES DESIGNED FOR INDUSTRIAL APPLICATIONS IN POWER SUPPLY WITH HIGH SAFETY REQUIREMENTS.**

TAB OGi block batteries can be used for both long duration discharge (10 hours) and short duration discharge (few minutes). The main areas of application are DC power supply systems in power stations, UPS systems, industrial systems and emergency power supply systems. They can also be used for engine starting and PV power systems.

### TABLE OF SPECIFICATIONS

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Uf Voltage</th>
<th>Discharging (h)</th>
<th>Dimensions (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12V 1 OGi 25</td>
<td>29,0</td>
<td>10</td>
<td>1272 x 205 x 392</td>
<td>392</td>
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<td>5</td>
<td>2272 x 205 x 392</td>
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<tr>
<td>12V 3 OGi 75</td>
<td>80,0</td>
<td>3</td>
<td>3072 x 205 x 392</td>
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<td>12V 4 OGi 100</td>
<td>105,0</td>
<td>1/2</td>
<td>3872 x 205 x 392</td>
<td>392</td>
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<tr>
<td>12V 5 OGi 125</td>
<td>135,0</td>
<td>1/6</td>
<td>4672 x 205 x 392</td>
<td>392</td>
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<tr>
<td>12V 6 OGi 150</td>
<td>165,0</td>
<td>1/12</td>
<td>5472 x 205 x 392</td>
<td>392</td>
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<tr>
<td>6V 7 OGi 175</td>
<td>187,2</td>
<td>5</td>
<td>6272 x 205 x 392</td>
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<tr>
<td>6V 8 OGi 200</td>
<td>228,0</td>
<td>1/2</td>
<td>7072 x 205 x 392</td>
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<tr>
<td>6V 9 OGi 225</td>
<td>254,0</td>
<td>1/6</td>
<td>7872 x 205 x 392</td>
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</tr>
<tr>
<td>6V 10 OGi 250</td>
<td>270,0</td>
<td>1/12</td>
<td>8672 x 205 x 392</td>
<td>392</td>
</tr>
<tr>
<td>6V 11 OGi 275</td>
<td>304,0</td>
<td>5</td>
<td>9472 x 205 x 392</td>
<td>392</td>
</tr>
<tr>
<td>6V 12 OGi 300</td>
<td>320,0</td>
<td>1/2</td>
<td>10272 x 205 x 392</td>
<td>392</td>
</tr>
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<td>2V 3 OGi 75</td>
<td>80,0</td>
<td>10</td>
<td>200 x 205 x 392</td>
<td>392</td>
</tr>
<tr>
<td>2V 4 OGi 100</td>
<td>105,0</td>
<td>5</td>
<td>300 x 205 x 392</td>
<td>392</td>
</tr>
<tr>
<td>2V 5 OGi 125</td>
<td>135,0</td>
<td>3</td>
<td>400 x 205 x 392</td>
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<tr>
<td>2V 6 OGi 150</td>
<td>165,0</td>
<td>1</td>
<td>500 x 205 x 392</td>
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<tr>
<td>2V 7 OGi 175</td>
<td>187,2</td>
<td>1/2</td>
<td>600 x 205 x 392</td>
<td>392</td>
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<tr>
<td>2V 8 OGi 200</td>
<td>228,0</td>
<td>1/6</td>
<td>700 x 205 x 392</td>
<td>392</td>
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<tr>
<td>2V 9 OGi 225</td>
<td>254,0</td>
<td>1/12</td>
<td>800 x 205 x 392</td>
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</tr>
<tr>
<td>2V 10 OGi 250</td>
<td>270,0</td>
<td>5</td>
<td>900 x 205 x 392</td>
<td>392</td>
</tr>
<tr>
<td>2V 11 OGi 275</td>
<td>304,0</td>
<td>1/2</td>
<td>1000 x 205 x 392</td>
<td>392</td>
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<td>1/6</td>
<td>1100 x 205 x 392</td>
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<td>1200 x 205 x 392</td>
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<tr>
<td>2V 30 OGi 750</td>
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<td>1400 x 205 x 392</td>
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<tr>
<td>2V 36 OGi 900</td>
<td>960,0</td>
<td>1/2</td>
<td>1600 x 205 x 392</td>
<td>392</td>
</tr>
</tbody>
</table>

**Note:** The table includes the discharge time, voltage, dimensions, and weight for each cell type. The discharge time is given as 10 hours and 5 hours. The dimensions are in millimeters, and the weight is in kilograms. The symbols used are: L, W, H for the dimensions, and Ri (mΩ) and Isc (kA) for the internal resistance and specific current. The dry and wet conditions are also specified.
**Electrolyte density:**
1,24 ± 0,01 kg/l at 20 °C.

All measures and weights are within standard production tolerances.

Electrical values are approximative.

Technical modifications are reserved without prior notice.

**Design**
- **Positive Electrode:** Robust-grid plate with circular bars in a corrosion-resistant PbSe alloy < 2 % Sb
- **Negative Electrode:** Flat plate with long life expander and low antimony alloy
- **Separation:** Microporous separator
- **Electrolyte:** Sulphuric acid of 1,24 kg/L
- **Container:** High impact, transparent SAN Lid
- **SAN in dark grey colour**
- **Blocks with Blind Cells:** 4V, 6V, 8V, 10V
- **Plugs:** Ceramic plugs or optional ceramic funnel plugs according to DIN 40740
- **Pole Sealing:** 100 % gas-and electrolyte-tight, sliding-pole
- **Pole:** M10, brass insert
- **Connector:** Flexible insulated copper cable, with cross-section of 35, 50, 70, 95 or 120 mm²
- **Kind of Protection:** IP 25 regarding DIN 40050, touch protected according VBG 4

**Charging**
- **IU Characteristic:** Imax without limitation
- **Float Charge:**
  - U = 2,23 V/cell ± 1 %, between 10 °C and 55 °C
  - dU/dT = -0,004 mV/K below 10 °C in the monthly average
- **Boost Charge:**
  - U = 2,35 to 2,40 V/cell, time limited
  - 6h with 1.5*I10 initial current, 2,23 V/cell, 50 % C10 discharged

**Discharge Characteristics**
- **Reference Temperature:** 20 °C
- **Initial Capacity:** 100 %
- **Depth of Discharge:**
  - Normally up to 80 %
  - More than 80 % DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

**Maintenance**
- **Every 6 months:** Check battery voltage, pilot block voltage, temperature
- **Every 12 months:** Take down battery voltage, block voltage, temperature

**Operational Life**
- Up to 15 years at 20 °C
- Up to 7.5 years at 30 °C
- Up to 4 years at 40 °C

**Water Refilling Interval**
- More than 3 years at 20 °C

**IEC 896-1 Cycles**
- 1000

**Self-discharge**
- Approx. 3 % per month at 20 °C

**Operational Temperature**
- -20 °C to 55 °C, recommended 10 °C to 30 °C

**Ventilation Requirement**
- According to EN 50272-2

**Measurements According**
- DIN 40 737 part 3

**Tests According**
- IEC 896-1
- Applicable Standards
- VDE 0510 part 2

**Transport**
- No dangerous goods during road transport

**6V 7 OGi 175**
- Rated voltage
- Number of positive plate
- Capacity at 10 hour discharging

Electrolyte density:
1,24 ± 0,01 kg/l at 20 °C.
TAB UPS BATTERIES ARE ROBUST AND FOR HIGH DISCHARGE - PERFORMANCES OPTIMISED LEAD-ACID BATTERIES.

The main application for TAB UPS are Uninterruptable Power Supplies (UPS) in the size of 50 to 250 kVA. The battery is perfectly suited to start diesel engines for the auxiliary power supply.

Uf V/cell   1,80  1,75  1,70  1,65  1,63  1,60  IEC 896-1 Dimensions (mm) Weight (kg) Discharging (min) 60 30 15 10 5 Ri (mΩ) Isc (kA) L W H Dry Wet

CELL TYPE C10(Ah) W/CELL

12V 1 UPS 100 41 42 64 92 120 181 16,80 0,73 272 205 375 23,4 35,4
12V 2 UPS 200 59 73 112 169 218 323 8,40 1,46 272 205 375 30,3 41,6
12V 3 UPS 300 86 103 152 246 313 465 5,60 2,20 272 205 375 36,6 47,3
12V 4 UPS 400 114 125 210 322 410 606 4,20 2,93 272 205 375 41,1 54,5
12V 5 UPS 500 147 169 264 520 755 3,36 3,66 380 205 375 55,0 69,4
12V 6 UPS 600 179 204 327 500 629 895 2,80 4,39 380 205 375 61,8 75,8
6V 7 UPS 700 206 237 384 588 737 1040 1,20 5,13 272 205 375 35,9 47,0
6V 8 UPS 800 247 272 440 676 848 1187 1,05 5,86 272 205 375 39,4 50,2
6V 9 UPS 900 271 306 492 742 913 1294 0,93 6,59 380 205 375 48,0 63,8
6V 10 UPS 1000 293 342 558 812 1014 1403 0,84 7,32 380 205 375 51,2 66,7
6V 11 UPS 1100 325 381 592 879 1098 1509 0,76 8,05 380 205 375 53,5 68,8
6V 12 UPS 1200 347 418 640 946 1178 1613 0,70 8,79 380 205 375 56,4 71,5
2V 24 UPS 2400 742 816 1321 2027 2544 3562 0,13 17,58 205 272 375 39,4 50,2
2V 30 UPS 3000 879 1027 1674 2437 3042 4209 0,10 21,90 205 380 375 51,2 66,7
2V 36 UPS 3600 1041 1253 1920 2837 3535 4838 0,08 26,30 205 380 375 55,4 71,5

100 W is the average power per plate at the 10 min rate Uf=1.63.
Electrolyte density: 1.28 ± 0.01 kg/l at 20 °C.
All measures and weights are within standard production tolerances.
Electrical values are approximative.
Technical modifications are reserved without prior notice.
**DESIGN**

**POSITIVE ELECTRODE**
- Robust-plate with circular bars in a corrosion-resistant PbSe alloy < 2 % Sb

**NEGATIVE ELECTRODE**
- Flat plate with long life expander and low antimony alloy

**SEPARATION**
- Microporous separator

**ELECTROLYTE**
- Sulphuric acid of 1,28 kg/l

**CONTAINER**
- SAN in dark grey colour

**BLOCKS WITH BLIND CELLS**
- 4v, 6v, 8v, 10v

**PLUGS**
- Ceramic plugs or optional ceramic funnel plugs according to DIN 40740

**POLE SEALING**
- 100 % gas-and electrolyte-tight, sliding-pole

**POLE**
- M10, brass insert

**CONNECTOR**
- Flexible insulated copper cable, with cross-section of 35, 50, 70, 95 or 120 mm²

**KIND OF PROTECTION**
- IP 25 regarding DIN 40050, touch protected according VBG 4

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**CHARGING**

**IU - CHARACTERISTIC**
- Imax without limitation

**FLOAT CHARGE**
- \( U = 2.25 \text{ to } 2.27 \text{ V/cell } \pm 1 \% \), between 10 °C and 55 °C
- \( \text{d}U/\text{d}t = -0.004 \text{ mV/K below 10 } \text{ °C in the monthly average} \)

**BOOST CHARGE**
- \( U = 2.35 \text{ to } 2.40 \text{ V/cell, time limited} \)
- 6h with 1,5\( * \text{i}10 \) initial current, 2,23 V/cell, 50 % C10 discharged

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**DISCHARGE CHARACTERISTICS**

**REFERENCE TEMPERATURE**
- 20 °C

**INITIAL CAPACITY**
- 100 %

**DEPTH OF DISCHARGE**
- Normally up to 80 %
- More than 80 % DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

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**MAINTENANCE**

**EVERY 6 MONTH**
- Check battery voltage, pilot block voltage, temperature

**EVERY 12 MONTH**
- Take down battery voltage, block voltage, temperature

---

**OPERATIONAL DATA**

**OPERATIONAL LIFE**
- Up to 12 years at 20 °C
- Up to 6 years at 30 °C
- Up to 3 years at 40 °C

**WATER REFILLING INTERVAL**
- More than 3 years at 20 °C

**IEC 896-1 CYCLES**
- 800

**SELF-DISCHARGE**
- Approx. 3 % per month at 20 °C

**OPERATIONAL TEMPERATURE**
- -20 °C to 55 °C, recommended 10 °C to 30 °C

**VENTILATION REQUIREMENT**
- according to EN 50272-2

**MEASUREMENTS ACCORDING**
- DIN 40 737 part 3

**TESTS ACCORDING**
- IEC 896-1

**APPLICABLE STANDARDS**
- VDE 0510 part 2

**TRANSPORT**
- No dangerous goods during road transport

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**6V 7 UPS 700**

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>Number of positive plate</th>
<th>Power _Watt/cell</th>
<th>Robust plates for UPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>6V 7</td>
<td>10 min _ Uf=1.63 V/cell</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The batteries are distinguished for:
- HIGH CAPACITY
- LONG LIFE TIME
- REDUCED MAINTENANCE
- LOW SELF-DISCHARGING
- QUICK AND SIMPLE ACID LEVEL CONTROL
- ECONOMICAL WATER CONSUMPTION
- APPROPRIATE DIMENSIONS AND WEIGHT
- THE LOWEST AND CONSTANT MAINTENANCE CURRENT.

The stationary batteries of the type TOPzS are manufactured according to the DIN 40736, EN 60896 and IEC 896-1 regulations. Individual cells (2V) are made from translucent PP containers.

The positive armored plate is of a tubular type, which means that the active substance (PbO2) is contained in special gauntlet made of polyester fibres and hardened by an impregnation compound. Such construction prevents escaping of an active substance during the operation and ensures a long life time.

The grids of a positive and a negative plate are made of special low percentage (less than 2 %) antimony alloy with addition agents for improvement of crystalline structure of casting. Negative plates are pasted-type plates with special alloys maintaining porosity of an active substance during the operation.

As an electrolyte, a diluted sulphuric acid (H2SO4) with a density of 1.24 ± 0.01 kg/l at 20 degrees C, and at a maximum permitted level is used.

Separators separating the positive plates from the negative ones are made of microporous plastic material with a low electric resistance. In a special process, the lids are tightly sealed with thermo welding to the container. The terminal plugs are sealed with rubber seals. This prevents any escape of electrolyte from the cells.

Due to the transparent containers the electrolyte level is clearly visible, the maximum and minimum levels are marked on a self-adhesive acid-proof label on a container side.

Two Versions of Batteries are being manufactured:
- **Dry-Charge Version:** a battery has to be filled up with an electrolyte and supplementary charged before use. The plates are already formed and in a special process protected against oxidation. They can be stored without problems.
- **Electrolyte-Charge:** battery can be installed immediately, because it is already filled up with electrolyte and electrically charged as well. The capacity test has already been performed by the producer.

The stationary batteries of the TOPzS type are specially designed for solar systems. Due to their extremely low self-discharging and tubular positive plates they are suitable for off-grid solar systems.

**Application**

Stationary batteries of the TOPzS type are specially designed for solar systems. Due to their extremely low self-discharging and tubular positive plates they are suitable for off-grid solar systems.
**DESIGN**

**POSITIVE ELECTRODE**
- Tubular positive plate with low antimony alloy (<2 %)

**NEGATIVE ELECTRODE**
- Flat plate with long life expander

**SEPARATION**
- Microporous separator

**ELECTROLYTE**
- Sulphuric acid of 1,24 kg/l

**CONTAINER**
- Transparent PP
- PP in green colour

**POLE SEALING**
- 100 % gas-and electrolyte-tight, rubber seal

**POLE**
- M10, brass insert

**CONNECTOR**
- Flexible insulated copper cable, with cross-section of 35, 50, or 70 mm²

**POLE SCREW**
- M10, steel, insulated

**CHARGING**

**IU · CHARACTERISTIC**
- Imax without limitation

**FLOAT VOLTAGE**
- U = 2,23 V/cell ± 1 %

**BOOST CHARGE**
- U = 2,35 to 2,40 V/cell

**DISCHARGE CHARACTERISTICS**

**REFERENCE TEMPERATURE**
- 20 °C at C10 (1,80 V/cell) and 25 °C at C100 (1,85 V/cell)

**INITIAL CAPACITY**
- 100 %

**DEPTH OF DISCHARGE**
- Normally up to 80 %
- More than 80 % DOD or discharges beyond final discharge voltages (dependent on discharge current) have to be avoided

**MAINTENANCE**

**EVERY 6 MONTH**
- Check battery voltage
- Pilot block voltage, temperature

**EVERY 12 MONTH**
- Take down battery voltage
- Block voltage, temperature

**OPERATIONAL DATA**

**OPERATIONAL LIFE**
- Up to 15 years

**IEC 896-1 CYCLES**
- 1200

**SELF-DISCHARGE**
- Approx. 3 % per month at 20 °C

**OPERATIONAL TEMPERATURE**
- -20 °C to 55 °C, recommended 10 °C to 30 °C

**TESTS ACCORDING**
- IEC 896-1, EN 60896-1, EN 61427

**SAFETY STANDARD, VENTILATION**
- EN 50272-2

**CONNECTIONS DIMENSIONS**

<table>
<thead>
<tr>
<th>CELL TYPE</th>
<th>Dimensions (mm)</th>
<th>Weight (kg)</th>
<th>C10</th>
<th>C100</th>
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<tbody>
<tr>
<td></td>
<td>L</td>
<td>W</td>
<td>H</td>
<td>Dry</td>
</tr>
<tr>
<td>3 TOPzs 265</td>
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<td>4 TOPzs 353</td>
<td>198</td>
<td>101</td>
<td>472</td>
<td>16,0</td>
</tr>
<tr>
<td>5 TOPzs 442</td>
<td>198</td>
<td>119</td>
<td>472</td>
<td>20,2</td>
</tr>
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<td>4 TOPzs 500</td>
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<td>24,3</td>
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<td>720</td>
<td>30,3</td>
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<td>7 TOPzs 875</td>
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<td>173</td>
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<td>44,0</td>
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<td>8 TOPzs 1000</td>
<td>198</td>
<td>191</td>
<td>720</td>
<td>50,2</td>
</tr>
</tbody>
</table>

Electrolyte density: 1,24 ± 0,01kg/l at 20 °C.

**OPERATION - MAINTENANCE**

For more detail information please check our operation manual.

**TRANSPORT**

Batteries are not subject to ADR (road transport).
**TAB OPzV BATTERIES**

TAB OPzV range of valve regulated lead acid stationary batteries combine the benefits of recombination technology (i.e. virtually no maintenance due to very low gas emissions) plus the advantages of conventional vented batteries with positive tubular plates (i.e. long life and excellent cycling capability).

**TAB OPzV VALVE REGULATED LEAD ACID BATTERIES ARE THE IDEAL ENERGY SOURCE FOR MANY DIFFERENT STANDBY APPLICATIONS.**

---

### DESIGN

**TUBULAR POSITIVE PLATES**
- Special grid construction, pressure cast from antimony free alloy, with highly porous gauntlets that retain the active material

**PASTED NEGATIVE PLATES**
- Service lives consistent with the positive plates

**ELECTROLYTE**
- Gel structure

**SEPARATORS**
- Extremely high porosity and low internal resistance

**CONTAINERS AND LIDS**
- Made of plastic (ABS) material. Also available in ABS flame retardant material as an option (according to IEC 707 FV0)

**TERMINALS**
- Female treated terminal (M10) perfect contact and low resistance with flexible cable connectors

**POST SEALS**
- Prevents electrolyte leakage and terminal corrosion

**CONNECTORS**
- Flexible, fully insulated cable con nectors screwed (with 20 ±1 nm) to the terminal with an insulated screw having a probe hole on the top for electrical measurement

**ONE WAY RELIEF VALVE**
- Opens at low pressure

---

### INSTALLATION

**CELLS ARE NORMALLY INSTALLED IN AN UPRIGHT POSITION ON STEEL STANDS**

### CHARGING

**FLOAT VOLTAGE**
- Standby use 2.25 V/cell

**BOOST RECHARGE**
- Maximum voltage of 2.35 - 2.40 V/cell with a maximum current of 0.25 C10 (A)

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### TAB OPzV RANGE OF VALVE REGULATED LEAD ACID BATTERIES

**STATIONARY BATTERIES COMBINE THE BENEFITS OF RECOMBINATION TECHNOLOGY (I.E. VIRTUALLY NO MAINTENANCE DUE TO VERY LOW GAS EMISSIONS) PLUS THE ADVANTAGES OF CONVENTIONAL VENTED BATTERIES WITH POSITIVE TUBULAR PLATES (I.E. LONG LIFE AND EXCELLENT CYCLING CAPABILITY).**

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### FEATURES

- **SAFE**
- **VERSATILE**
- **RELIABLE**
- **MINIMAL GASSEING**
- **DEEP DISCHARGE RESISTANCE**

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**According to DIN 40742, IEC 60896-2**

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**DIN 40742**

<table>
<thead>
<tr>
<th>Nomin. Cap.</th>
<th>10 h to</th>
<th>5 h to</th>
<th>3 h to</th>
<th>1 h to</th>
<th>Weight (kg)</th>
<th>Dimensions (mm)</th>
<th>tsc (A)</th>
<th>Ri (mΩ)</th>
<th>Nº of Poles</th>
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<tr>
<td>4 OPzV 200</td>
<td>200</td>
<td>204</td>
<td>172</td>
<td>150</td>
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<td>103</td>
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<td>4 OPzV 250</td>
<td>250</td>
<td>255</td>
<td>215</td>
<td>188</td>
<td>133</td>
<td>23</td>
<td>124</td>
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<tr>
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<td>306</td>
<td>258</td>
<td>225</td>
<td>159</td>
<td>28</td>
<td>145</td>
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<td>300</td>
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<td>420</td>
<td>368</td>
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<td>235</td>
<td>214</td>
<td>576</td>
<td>771/796</td>
</tr>
</tbody>
</table>

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