

TAB TOPzS

LOW MAINTENANCE TAB TOPzS VENTED STATIONARY BATTERIES.

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.



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
- LID**
- » PP in green colour
- POLE SEALING**
- » 100 % gas-and electrolyte-tight,
- POLE**
- » M10, brass insert
- CONNECTOR**
- » flexible insulated copper cable, with cross-section of 35, 50, or 70 mm²
- POLE SCREW**
- » M10, steel, insulated

INSTALATION

CELLS MUST BE INSTALLED IN METAL TRAYS

CHARGING

- IU - CHARACTERISTIC**
- » I_{max} without limitation
- FLOAT VOLTAGE**
- » U = 2,23 V/cell ± 1 %
- BOOST CHARGE**
- » U = 2,35 to 2,40 V/cell

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.

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

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

TAB OPzV

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

TAB OPzV 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).



The stationary batteries of the type OPzV are manufactured according to DIN 40742, EN 61427 and IEC 60896-1 regulations.

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 connectors 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 and is fitted with a flame arrestor device

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)

OPERATIONAL DATA

- OPERATIONAL LIFE**
- » More than 15 years
- IEC 896-1 CYCLES**
- » 1200
- SELF-DISCHARGE**
- » Approx. 2 % per month at 20 °C
- TESTS ACCORDING**
- » IEC 896-1, EN 60896-1, EN 61427

TAB OPzS

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.



The stationary batteries of the type OPzS are manufactured according to DIN 40736, EN 60896, EN 61427 and IEC 896-1 regulations.

DESIGN

- POSITIVE ELECTRODE**
- » Tubular plate with low antimony alloy (<2 %)
- NEGATIVE ELECTRODE**
- » Flat with long life expander
- SEPARATION**
- » Microporous separator
- ELECTROLYTE**
- » Sulphuric acid of 1,24 kg/l at 20 °C
- CONTAINER**
- » High impact, transparent SAN
- LID**
- » ABS (SAN)* in grey color
- BLOCKS WITH BLIND CELLS**
- » 4V, 6V, 8V, 10V
- PLUGS**
- » Ceramic plugs according to DIN 40740
- POLE SEALING**
- » 100 % gas-and electrolyte-tight, sliding-pole
- CONNECTOR**
- » Flexible insulated copper cable with cross-section of 35, 50, 70, 95 or 120 mm² (35, 50 or 70 mm²)*
- KIND OF PROTECTION**
- » IP 25 regarding DIN 40050, touch protected according VBG 4

CHARGING

- IU - CHARACTERISTIC**
- » I_{max} 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 in the monthly average
- BOOST CHARGE**
- » U = 2,35 to 2,40 V/cell, time limited

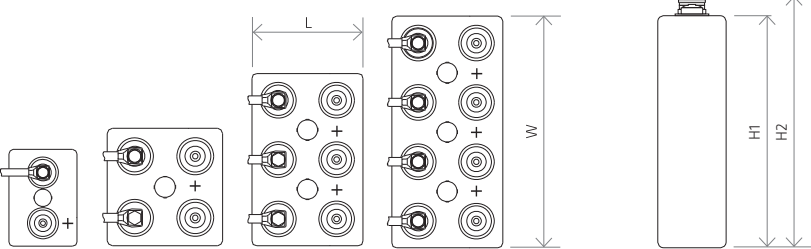
DISCHARGE CHARACTERISTICS

- 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

OPERATIONAL DATA

- DESIGN LIFE**
- » Up to 20 years (18 years)* at 20 °C
- WATER REFILLING INTERVAL**
- » More than 2 years at 20 °C
- IEC 896-1 CYCLES**
- » 1500 (1200)*
- SELF-DISCHARGE**
- » Approx. 2 % per month at 20 °C
- OPERATIONAL TEMPERATURE**
- » -20 °C to 55 °C, recommended 10 °C to 30 °C
- VENTILATION REQUIREMENT**
- » fl=0,5 (low-antimony alloy) according EN 50272-2
- MEASUREMENTS ACCORDING**
- » DIN 40 737 part 1
- TESTS ACCORDING**
- » IEC 896-1
- SAFETY STANDARDS**
- » VDE 0510 part 2 and EN 50272-2
- TRANSPORT**
- » No dangerous goods during road transport

CELL TYPE	IEC 896-1 Ri (mΩ)	Isc (kA)	Dimensions (mm) L×W×H1/H2	Weight (kg)	C10 (Ah) Uf=1,80V at 20°C	C24 (Ah) Uf=1,85V at 25°C	C48 (Ah) Uf=1,85V at 25°C	C72 (Ah) Uf=1,85V at 25°C	C100 (Ah) Uf=1,85V at 25°C	C120 (Ah) Uf=1,85V at 25°C	C240 (Ah) Uf=1,85V at 25°C	Nº of poles
4 OPzV 200	1,22	1660	103×206×354/380	19	204	220	233	239	243	245	249	2
5 OPzV 250	0,98	2080	124×206×354/380	23	255	275	291	298	303	306	311	2
6 OPzV 300	0,85	2490	145×206×354/380	28	306	330	349	358	364	367	373	2
5 OPzV 350	0,75	2770	124×206×471/496	31	357	386	407	418	425	428	436	2
6 OPzV 420	0,61	3350	145×206×471/496	36	429	463	489	502	511	515	523	2
7 OPzV 490	0,52	3900	166×206×471/496	41	500	540	570	585	595	600	610	2
6 OPzV 600	0,51	4060	145×206×643/688	49	612	661	698	716	728	734	747	2
8 OPzV 800	0,38	5390	210×191×664/669	65	816	881	930	955	971	979	996	4
10 OPzV 1000	0,3	6760	210×233×646/671	80	1020	1102	1163	1193	1214	1224	1244	4
12 OPzV 1200	0,26	8120	210×275×665/670	93	1251	1351	1426	1464	1489	1501	1526	4
12 OPzV 1500	0,23	8810	210×275×796/281	115	1530	1652	1744	1790	1821	1836	1867	4
16 OPzV 2000	0,17	11510	214×399×771/796	155	2040	2203	2326	2387	2428	2448	2489	6
20 OPzV 2500	0,14	14400	214×487×769/794	200	2550	2754	2907	2984	3035	3060	3111	8
24 OPzV 3000	0,12	17260	214×576×771/796	235	3060	3305	3488	3580	3641	3672	3733	8



FEATURES

- » SAFE
- » LONG LIFE
- » VERSATILE
- » RELIABLE
- » MINIMAL GASSING
- » DEEP DISCHARGE RESISTANCE



MAINTENANCE

EVERY 6 MONTH

- » Check battery voltage, pilot block voltage, temperature

EVERY 12 MONTH

- » Take down battery voltage, block voltage, temperature

The acid density in an electrically charged cell is 1,24 ± 0,1 kg/l at 293°K (+20°C). When cycling only 80 % of the rated capacity shall be used. Deep discharge may reduce the operation life time.

The charging voltage for solar applications has to be restricted:
At daily discharge below 0,2 × C100 - 2,30V-2,35V
At daily discharge above 0,2 × C100 up to 0,3 × C100 2,35V-2,40V

MAINTENANCE

EVERY 6 MONTH

- » Check battery voltage, pilot block voltage, temperature

EVERY 12 MONTH

- » Take down battery voltage, block voltage, temperature

BEST SOLUTION FOR
STORING SUN'S ENERGY.

PHOTOVOLTAIC SYSTEMS
ARE BEST KNOWN AS A METHOD FOR
GENERATING ELECTRIC POWER
BY USING SOLAR CELLS TO CONVERT
ENERGY FROM THE SUN
INTO A FLOW OF ELECTRONS.
YOU CAN STORE SUN'S
ENERGY FOR THE TIME WHEN
NO SUN IS AVAILABLE.



TAB Motion

PASTED 300 cycles according to EN 60254-1. (Voltage: 12V) EN 61427 EN 50342 EN 60254-1 EN 50342 DIN 43593

TYPE	Dimensions (mm) L×W×H1/H2	Weight (kg)	BOX	Pcs. EUR pal.	LAYOUT	BHD	SOLAR C100 (Ah)	SLI C20 (Ah)	TRACTION C5 (Ah)	SLI EN (A)	SLI DIN (A)
50 P	242×175×190	16,7	L2	57	0	B13	70	60	50	480	300
60 P	278×175×190	19,3	L3	48	0	B13	85	75	60	560	340
85 P LS	353×175×190	26,2	L5	36	0	B13	115	105	85	800	480
85 P	312×176×212	24,4	59518	36	0	B0	122	104	85	640	395
100 P	344×172×212/234	29,9	60528	36	0	B0	140	122	100	680	410
115 P	344×172×262/284	36,4	62512	24	0	B0	150	135	115	720	430
110 P	509×175×182/208	37,4	MAC 110	24	3	B0	150	135	110	810	490
150 P	512×223×194/220	46,8	B	21	3	B0	190	180	150	1150	690
190 P	518×273×214/240	60,8	C	18	3	B0	250	225	190	1350	800

TUBULAR 1200 cycles according to EN 60254-1. (All Aquamatic) EN 61427 EN 50342 EN 60896-1 EN 60254-1

TYPE	Dimensions (mm) L×W×H1/H2	Weight (kg)	BOX	Pcs. EUR pal.	LAYOUT	BHD	Voltage (V)	SOLAR C120 (Ah)	SLI C20 (Ah)	STATIONARY C10 (Ah)	TRACTION C5 (Ah)
95 T	344×172×212/234	30,0	60528	36	0	B0	12	130	115	104	95
110 t	344×172×262/284	37,3	62512	24	0	B0	12	150	132	120	110
Golf Cart T	244×190×270	31,3	Golf Cart	36	0	B0	6	240	218	200	180

TAB MOTION PASTED is a flooded semi traction battery with positive pasted plates.

Semi traction batteries of TAB MOTION PASTED type are intended for solar systems, battery driven carts, boats, wheelchairs, sweeping machines, truck applications, caravans and motorhomes, etc. Advantages: excellent vibration resistance, high rate discharge capability, high performance in difficult working conditions, etc.

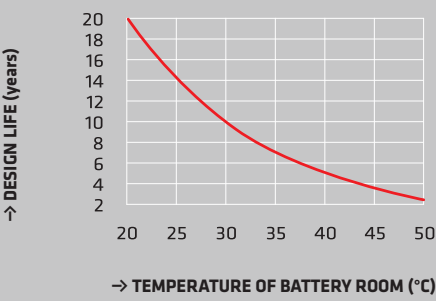
TAB MOTION TUBULAR is a flooded small traction battery with positive tubular plates.

Small traction batteries of TAB MOTION TUBULAR type are reliable and durable, intended for applications which are used in harsh environments - cleaning machines, mobile elevating work platforms, electric elevating platform trucks and also perfect solution for storing energy.

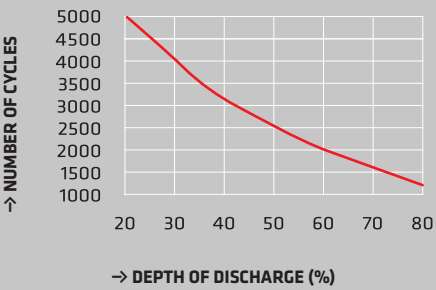
TAB OPzS SOLAR batteries

- THE SOLAR 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

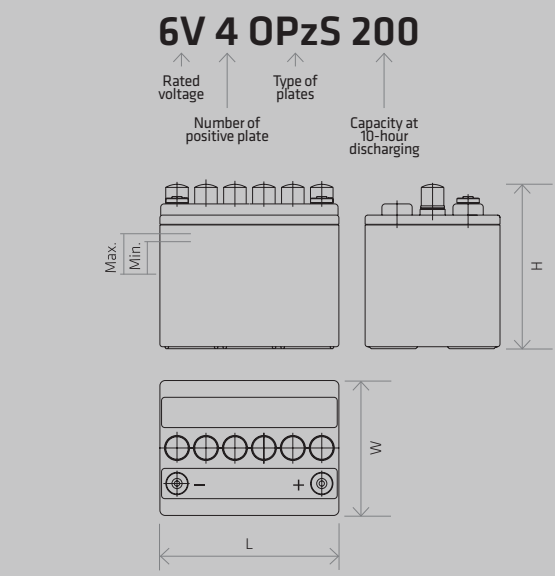
Design life vs. Temperature



No. of cycles vs. DOD



Technical data and dimensions



Application

Tab Solar batteries 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.

Construction

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 °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.

A cell plug seals well (ceramic filter), and prevents leakage of any sulphuric acid vapours, however, it lets through hydrogen and oxygen.



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.

In case of problems with ordering we will be glad to advise and assist you in the selection of the suitable type of battery. FOR DETAIL INFORMATION PLEASE CHECK OUR OPERATION MANUAL.

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SOLAR BATTERIES