

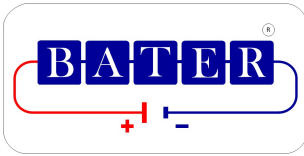
Batteries in the OPzS Block range has the highest levels of reliability and has been used in all stand-by critical application.

In addition to the long service life in stand-by parallel operation the OPzS Block range also offers high cycle consistency. Our batteries has increased capacity compared to the requirements of the DIN standard

Due to high reliability the main usage areas are telecommunication equipment, power station and power distribution, airport, railway, control systems, emergency lighting, UPS with long back-up.

MAIN FEATURES

- **capacity range C_{10} , $U_{END}=1.80V/cell @ +20^{\circ}C$:
12V: 54Ah ÷ 161Ah,
6V: 161Ah ÷ 322Ah,
is higher than DIN standard capacity,**
- **dimensions accordance to DIN 40736-1 standard and DIN 40373-3**
- **service life: 18 years @ +20°C,**
- **high reliability,**
- **low maintenance,**



TECHNICAL DATA

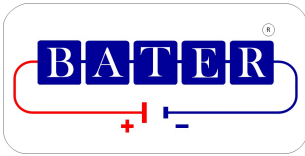
- operating mode: stand-by parallel and floating, switch or battery (charge/discharge),
- recommended charging characteristic IU acc. to EN 50272-2 and DIN 41773,
- stand-by parallel mode recommended float charge voltage: 2.23 V/cell ± 1% @ +20°C,
- boost charging: 2.40V/cell for max. charging current $4 \times I_{10}$, time 24h and $t < +30^\circ\text{C}$,

Charging characteristic "IU" 2.4 V/cell										
State of charge	Charging current I_{10} (10A/100Ah)					Charging current I_{20} (20A/100Ah)				
	60%	80%	95%	100%	Full of charge	60%	80%	95%	100%	Full of charge
DOD	Charging time [h]					Charging time [h]				
20%	< 0.5	0.5	1.5	2,6	16	< 0.5	<0.5	1	2.5	14
40%	< 0.5	2	3.5	4,6	17	<0.5	1	2	3.3	15
60%	2	4	5.5	6,6	18	1	2	3	4.3	16
80%	4	6	8	8,6	20	2	3	4	5.3	17
100%	6	8	10	10,6	24	3	4	5	6,3	18

- maximum charging current:
 - $t < +25^\circ\text{C}$ unlimited,
 - $t > +25^\circ\text{C}$ max. $4 \times I_{10}$,
- float voltage compensation in function of temperature: $-2 \text{ mV}/^\circ\text{C} \div -4\text{mV}/^\circ\text{C}$,
- ventilation requirements: acc. to EN 50272-2
- operating temperature range:
 - recommended: $+15^\circ\text{C} \div +25^\circ\text{C}$,
 - maximum long term operating temperature: $+30^\circ\text{C}$ (with ventilation assured - reduced service life),
 - maximum short term operating temperature (for hours): $+50^\circ\text{C}$ (with ventilation assured - reduced service life),
 - minimum long term operating temperature: $+5^\circ\text{C}$ (operating in lower temperature is not preferred according to possibility battery freezing in discharge case)
- self-discharge $< 3\%$ /month @ $+20^\circ\text{C}$ acc to EN 60896-21.
- 12-15 years topping-up interval with recombination plug,
- stands and racks: special BATER racking and bases. Bases are made of steel (square tubes) coated with polyethylene fluidization method. Resistance to electrostatic short circuit above 7kV. We project and produce structures according to customer documentation, or perform individual project for the special rooms or spaces.

STANDARDS

- EN 60896
- DIN 40736-1 DIN 40737-3, DIN 41773, DIN 41774, DIN 41775
- EN 50272-2:2003
- ISO 9001 i ISO 14001



CONSTRUCTION

positive plate –the grid of the tubular positive plate consists of several lead spines which are joined together by the upper frame. Spines are being die-casted. These thin lead spines, which are equipped with small concentric vanes, are covered with acid permeable tubes. Between the lead spins and tubes is the active positive material. Tubes are being wet-filled. A special lead alloy which is used for positive plate has an Sb portion 1,7%.

- **negative plate** – a lead grid pasted with active material forms the negative plate. Grids are being die-casted. A special lead alloy which is used for negative grid has an Sb portion 1,7%.
- **separators** – Amersil polyethylen, low resistance, high acid proof, microporus material.,
- **terminals** – are being made from corrosion resistant lead alloy with brass inserted designed to give minimum resistance,
- **connection** –fully insulated solid copper with full insulated screw with measurements hole,
- **container** – the cell container is made of transparent SAN,
- **lid** – is made of grey ABS and equipped with well proven seal for leakage-proof insulation of the terminal construction. Lid and container are being glued and is proof against the escape of gas or leakage of electrolyte,
- **electrolyte** – sulphuric acid with a density 1,24kg/dm³ @+20°C/max level/full charged cell.

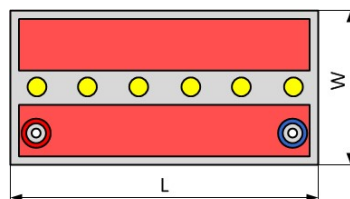
DIMENSIONS AND TECHNICAL DATA OF BLOCKS

@ +20°C

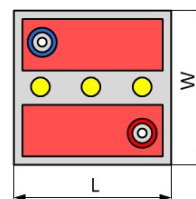
No	Block type	Nom volt.	Capacity					Charging current <i>I_{nom}</i> ⁽¹⁾	Length L	Width W	Height H	Weight	
			<i>C</i> ₁₀ ⁽²⁾ U _{end} =1.80 V/cell	<i>C</i> ₅ U _{end} =1.75 V/cell	<i>C</i> ₃ U _{end} =1.75 V/cell.	<i>C</i> ₁ U _{end} =1.67 V/cell.	<i>C_{nom}</i> ⁽¹⁾ U _{end} =1.80 V/cell					dry +/-5%	wet +/-5%
			[V]	[Ah]								[A]	[mm]
1	6x1 OPzS 50	12	54	46	40	30	50	5	272	205	347	30	39
2	6x2 OPzS 100	12	107	92	79	60	100	10	272	205	347	41	50
3	6x3 OPzS 150	12	161	138	118	90	150	15	380	205	347	54	70
4	3x3 OPzS 150	6	161	138	118	90	150	78	272	205	347	33	48
5	3x4 OPzS 200	6	215	183	157	119	200	20	272	205	347	36	49
6	3x5 OPzS 250	6	268	230	197	148	250	25	380	205	347	45	59
7	3x6 OPzS 300	6	322	275	236	178	300	30	380	205	347	53	67

(1) Nominal parameters according to DIN 40737-3

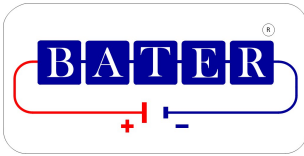
(2) Capacity *C*₁₀ after 10 cycles



6 x 1 OPzS 50
6 x 2 OPzS 100
6 x 3 OPzS 150



3 x 3 OPzS 150
3 x 4 OPzS 200
3 x 5 OPzS 250
3 x 6 OPzS 300



BATTERY STANDS

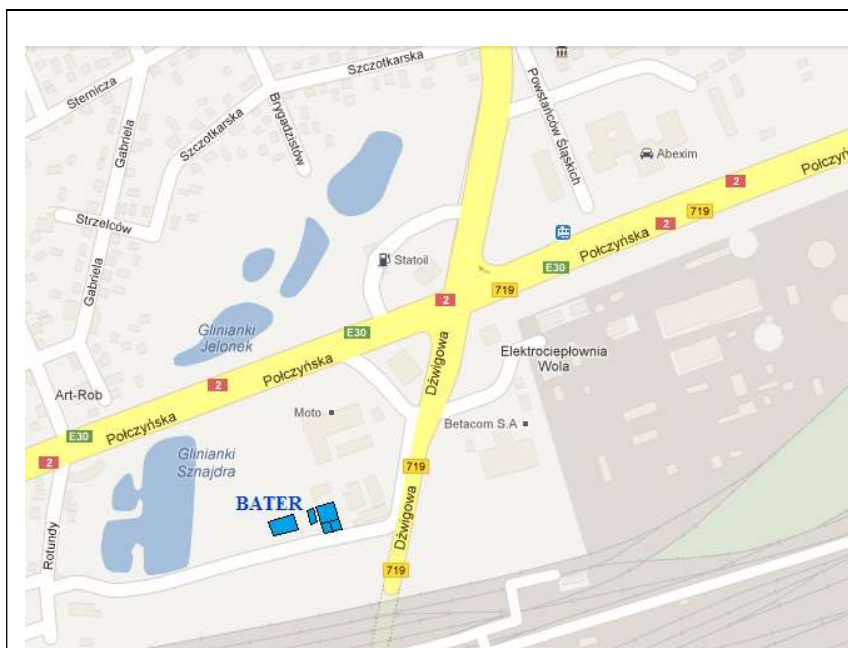
Bater is a manufacturer of all types of corrosion resistant stands for OPzS Block batteries. The stands are made of square tube and covered with polyethylene by fluidization. We design housing in accordance with customer’s documentation or carry out our own project individually according to the target room dimension.

CONSTRUCTION

- purpose: to put together any type of battery cells on one or more levels,
- construction: made of closed metal profiles. Produced sets are fully welded,
- corrosion protection: protected against electrolyte by a coating made of high quality polyethylene thicker than 1 mm, immersed in fluidized bed reactor on our modern technological line,
- resistance to electrostatic short circuit above 7kV,
- separation from the ground: insulators made of ABS plastic with adjustable height,
- location of blocks: on carrier brackets, which spacing can be adjusted to their width. Versatile design of stands enables the use of additional stands brackets for cells of more than 200kg.

DIMENSIONS AND TECHNICAL DATA OF BATTERY STANDS

No	Block type	B1	B2	h1	t	$I = N \times (L + t)$ (N – cells number)	
1	6x1 OPzS 50	250	500	610	12		
2	6x2 OPzS 100	250	500	610	12		
3	6x3 OPzS 150	250	500	610	12		
4	3x3 OPzS 150	250	500	610	12		
5	3x4 OPzS 200	250	500	610	12		
6	3x5 OPzS 250	250	500	610	12		
7	3x6 OPzS 300	250	500	610	12		



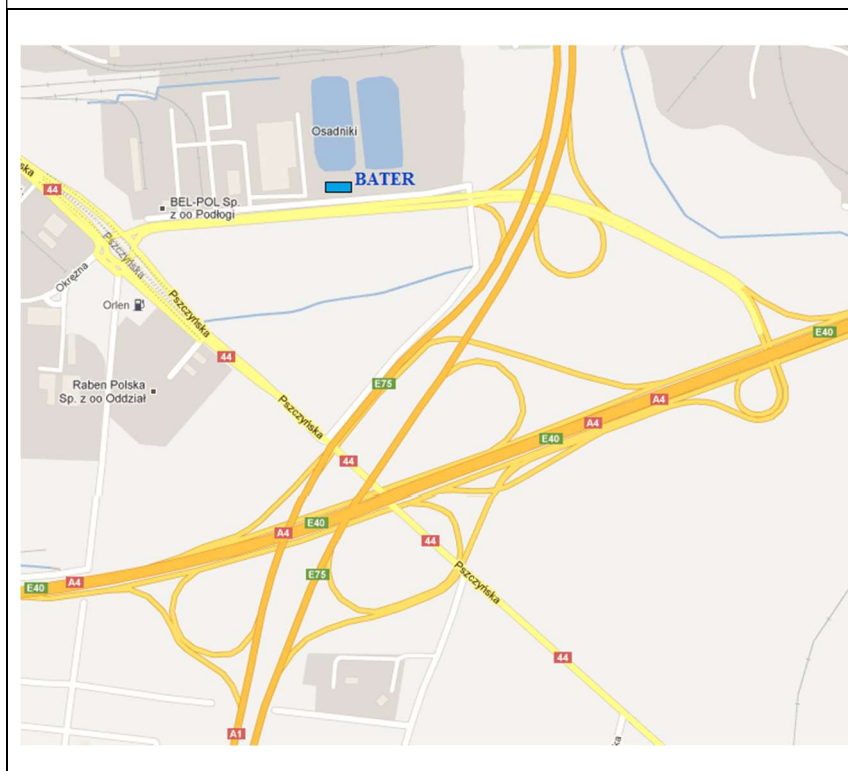
Head quater

BATER sp.z o.o.

ul. Dźwigowa 63,
01-376 Warszawa
tel.: +48 22 664 87 87
fax: +48 22 664 87 87
e-mail: biuro@bater.pl
www.bater.pl

Mechanical factory

ul. Dźwigowa 63,
01-376 Warszawa
tel.: +48 22 664 87 87 w.41
fax: +48 22 664 87 87
GPS 52°13.07N, 20°54.86E



Battery factory BATER Gliwice

ul. Pszczyńska 311,
44-100 Gliwice
tel.: +48 32 232 12 40
fax: +48 32 232 12 40 w. 29
e-mail: biuro@bater.pl
GPS 50°16.14N, 18°43.19E