

# HOPPECKE HOPzS

Stationary lead  
acid batteries

## Specifications

Batteries of the HOPzS series are especially suitable for applications involving heavy cycling and long standby periods. HOPzS cells cover a capacity range from 160 Ah to 1200 Ah.

These features mean the battery is ideally suited for

- Telecommunication centres
- Control and signalling centres
- General emergency power supply installations with long autonomy

In standby power operation with float charging and an occasional discharge, the battery life time is expected to be 12 to 15 years at 20°C.

Expert advice is available from our HOPPECKE branch offices. The addresses are listed on the back page of this brochure.

Earthquake resistance up to 1.5 g horizontal and 0.2 g vertical is included in the price of the battery. However, this requires permanent fastening to ground of suitable quality.

Versions for other acceleration levels available on request.

## Battery construction

- Electrodes

The electrodes of HOPzS batteries consist of positive tubular plates

and negative grid plates. The tubular plate is constructed from a core grid which is inserted into a tubular pocket. The active material filling surrounds the core grid in the tube. This tubular pocket is easily penetrated by the electrolyte. The flat negative grid plate is constructed by pasting the active material into the grid. Lead alloys with less than 2% antimony ensure high mechanical strength and corrosion resistance. The rate of self discharge is roughly 0.1% per day.

- Separators

Microporous separators are used to separate the electrodes. The separators overlap the plates on all sides, thus preventing missing effects and consequent short circuits.

- Containers

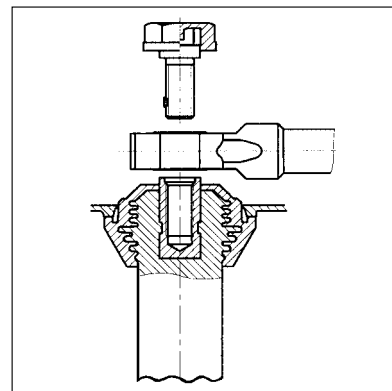
The battery containers are of impact resistant, translucent plastic. This makes it easy to check the electrolyte level.

Ribs on the inside of the container bottom create a free space for the active material debris. This ensures the shed material will not cause short circuits.

The seal between cell containers, lids and terminal post is both, air tight and liquid tight.



HOPzS pole bushing  
Simplified view



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### Features

○ HOPzS batteries are provided with vent plugs as standard. These prevent the escape of electrolyte particles and ensure a topping up interval of at least 3 to 5 years in standby power operation. When using the AquaGen recombination system, HOPzS batteries require no topping up throughout their entire life. This means the ventilation of the battery room can be reduced by 75%, according to VDE. This ensures the cost effective use of „maintenance free“ batteries while retaining the flexibility of the vented cell.

○ Connection between cells are made with copper connectors. The insulated copper connectors are screwed to the terminal posts for simple self assembly.

They have good electrical conductivity and are designed for high currents. By request, HOPzS cells up to 600 Ah can be supplied with welded connectors.

○ The electrolyte is dilute sulphuric acid with a rated density of 1.24 kg/l at 20°C nominal temperature. Normally the batteries are supplied in a filled and charged condition. They are ready for use as soon as they have been installed. For sea or air transport, delivery in a dry-charged condition is recommended. After

filling with electrolyte, the cells are ready for immediate use.

○ Option  
Cells can be supplied in crates ready for instant and easy installation. 12 V units are shown in the listing, other units are available on request.

### Features

The battery can be charged by any method of charging. In practice, IU constant voltage charging has become generally accepted for standby power and float charge operations. With this method, the

battery can be charged, according to choice, at 2.23 V/cell to 2.4 V/cell. No charging current cut-off is required for a charging voltage of up to 2.4 V/cell.

In standby power operation, the battery will be fully charged using a charging voltage of 2.23 V/cell. There will be no loss of capacity even after many years of use.

The table below shows charging time [h] depending on the discharge depth [%], charging voltage and charging current [A] [at 20°C] with a charge factor 1.0 (i.e. recharging of the energy withdrawn without mixing the electrolyte).

Charging time [h] relative to discharge depth [%], charging voltage, charging current

Charging current [A] per 100 Ah battery capacity	100%		80%		60%		40%		20%		15%	
	2.23 V	2.4 V	2.23 V	2.4 V	2.23 V	2.4 V	2.23 V	2.4 V	2.23 V	2.4 V	2.23 V	2.4 V
5	33	20	29	16	26	13	21	8.5	17	4.5	15	3.5
10	27	11	25	9	22	7	20	5	17	3.1	15	2.8
15	25	8	24	7	22	5.5	20	4.2	17	2.8	15	2.5
20	24	6.5	23	5.8	22	4.8	20	3.8	17	2.8	15	2.5
25	24	6.0	23	5.3	22	4.5	20	3.6	17	2.8	15	2.5
30	24	5.5	23	4.8	22	4.2	20	3.5	17	2.8	15	2.5

Type

Type	Capacity C <sub>10</sub> at 20°C	Dimensions in mm			Overall weight with electro-lyte, max. kg	Weight without electrolyte (density 1.24 kg/l)	Final discharge voltage (V/cell) Discharge time/ discharge current				
		Length	Width	Height max.			1.70 1 h	1.70 3 h	1.75 5 h	1.80 8 h	1.80 10 h
<b>Capacities, dimensions and weights of 12 V unit</b>											
2 HOPzS 160	160	295	320	590	83	68	84	39	27	19	16
2 HOPzS 200	200	295	320	690	98	79	106	50	34	24	20
3 HOPzS 240	240	403	320	590	115	94	126	59	41	29	24
3 HOPzS 300	300	403	320	690	138	111	159	75	52	36	30
3 HOPzS 360	360	403	320	835	175	137	185	93	63	43	36
4 HOPzS 400	400	511	320	690	179	140	212	100	69	48	40
4 HOPzS 480	480	511	320	835	225	174	247	124	85	57	48
5 HOPzS 500	500	619	320	690	212	169	265	125	87	60	50
6 HOPzS 600	600	737	320	690	253	202	318	151	104	72	60
7 HOPzS 700	700	845	320	690	292	232	371	176	121	84	70
8 HOPzS 800	800	953	320	690	331	263	424	201	139	96	80
9 HOPzS 900	900	1061	320	690	370	292	477	226	156	108	90
10 HOPzS 1000	1000	1169	320	690	408	323	530	251	174	121	100
9 HOPzS 1080	1080	1061	320	835	464	350	555	280	191	129	108
10 HOPzS 1200	1200	1169	320	835	510	383	617	311	212	143	120