

*Axyl*

# SEALED LEAD ACID BATTERIES



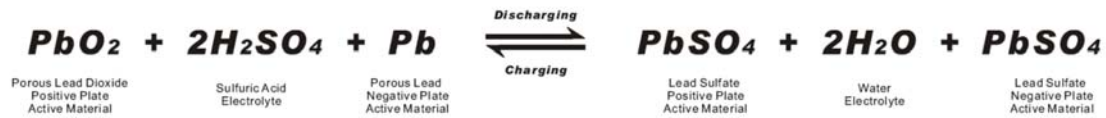
## SEALED LEAD ACID BATTERIES



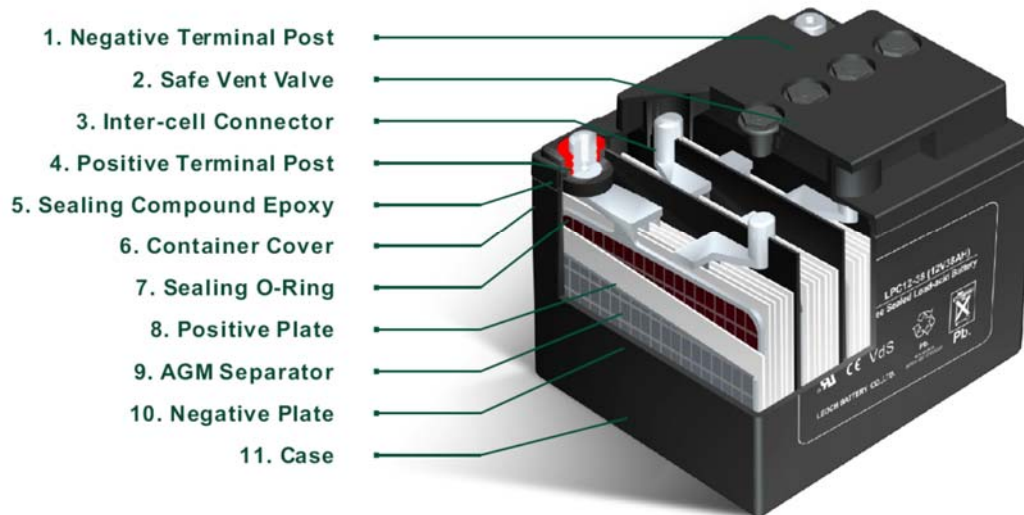
### FEATURES

- ❖ Sealed Valve-Regulated, sealed with special compound epoxy and using pressure controlled vent valves.
- ❖ Starved electrolyte design - acid solution is absorbed in separators.
- ❖ High-Compression Absorbent Glass Mat (AGM) technology.
- ❖ Using a recombination reaction to prevent the escape of hydrogen and oxygen gases.
- ❖ Spill proof / leak proof - can be operated in any position. But, upside-down installation is not recommended.
- ❖ Maintenance free, no water adding required. But connections must be retorqued and the batteries should be cleaned periodically.
- ❖ Deep discharge protection.
- ❖ Plate grids from lead-calcium alloy, free of antimony.
- ❖ No corrosion.
- ❖ Installs vertically or horizontally.
- ❖ Low gassing (unless overcharged).
- ❖ Good cycling and stationary performance.
- ❖ Excellent high current performance – optimized for short discharge time.
- ❖ Low self discharge rate – extended storage
- ❖ Very short recharge time – high availability
- ❖ Optimal power density – saves floor space
- ❖ Design life span of 10 years, provided that the temperature is kept below 25°C.
- ❖ Long shelf life, Axyl batteries may be stored for up to 6 months at 25°C(77°F) and then a freshening charge is required.
- ❖ More than 1000 discharge / recharge cycles can be realized from Axyl batteries, dependent on the average depth of discharge.
- ❖ Rugged and vibration-resistant
- ❖ Very economical
- ❖ Extreme reliability, proven over decades
- ❖ Approval: UL (Underwriter Laboratories).

## BATTERY OPERATION THEORY



## VRLA BATTERY CONSTRUCTION



**Table 1**

Calculation of the Battery capacity of maintenance free VRLA batteries acc. to EN50171.

Part nos.	Nominal Voltage (V)	Capacity (AH)	Max. load current for 1hr (A)	Max. load current for 1.5hrs (A)	Max. load current for 2hrs (A)	Max. load current for 3hrs (A)
AXB1270	12	7	4.31	3.27	2.6	1.86
AXB12120	12	12	7.39	5.59	4.45	3.19
AXB12200	12	20	12.3	9.32	7.42	5.32
AXB12260	12	26	16	12.1	9.64	6.92
AXB12330	12	33	21.6	16.3	13.0	9.32
AXB12400	12	40	24.4	18.4	14.6	10.7
AXB12500	12	50	30.5	23	18.3	13.4
AXB12550	12	55	33.5	25.3	20.1	14.7
AXB12650	12	65	39.6	29.9	23.8	17.4
AXB12750	12	75	45.7	34.6	27.5	20.0
AXB121000	12	100	60.9	46.0	36.6	26.7
AXB121200	12	120	73.1	55.2	43.9	32.0
AXB121500	12	150	91.4	69.1	54.9	40.1
AXB121800	12	180	110	83.0	65.9	48.1
AXB122000	12	200	121	91.8	73.2	53.4
AXB122500	12	250	151	115.0	91.5	66.8

Note: The above values are based on end cell voltage 1.80V. Any ageing factor or spare capacity to be considered additional. Nominal operating temperature range is 20 - 25°C.

**Table 2**

Physical characteristics of maintenance free VRLA batteries.

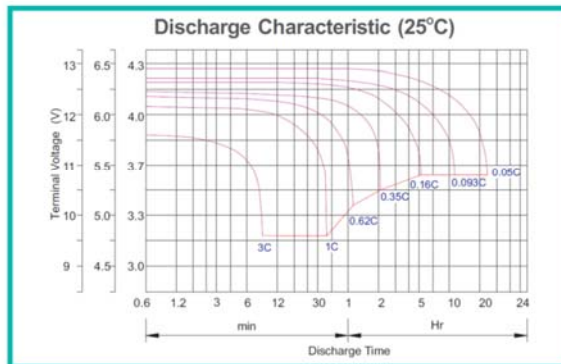
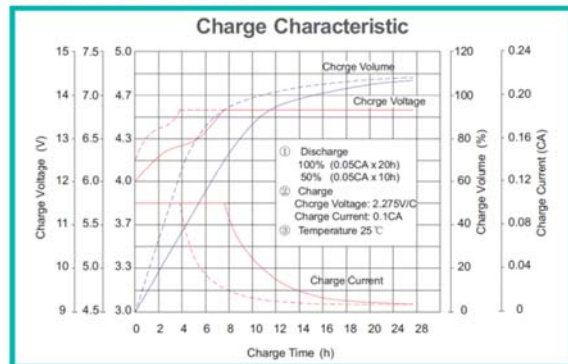
Part no.	Nominal Voltage (V)	Nominal Capacity (Ah)	Length (mm)	Width (mm)	Height (mm)	Total Height with terminal (mm)	Weight (kg)	Terminal type
AXB1270	12V	7	151	65	93	99	2.1	F2
AXB12120	12V	12	151	98	95	101	3.45	F2
AXB12200	12V	20	181	77	167	167	5.7	F17
AXB12260	12V	26	166	175	125	125	7.8	F18
AXB12330	12V	33	195	130	155	168	10.2	F14
AXB12400	12V	40	197	165	170	170	12.5	F14
AXB12500	12V	50	229	138	208	212	15.5	F14
AXB12550	12V	55	229	138	208	212	16.5	F14
AXB12650	12V	65	350	167	179	179	20.0	F14
AXB12750	12V	75	260	169	208	212	22.0	F14
AXB121000	12V	100	328	171	214	220	29.5	F13
AXB121200	12V	120	408	176	225	225	34.0	F13
AXB121500	12V	150	485	172	240	240	42.5	F13
AXB121800	12V	180	530	207	213	218	52.5	F13
AXB122000	12V	200	522	238	218	222	59.5	F13
AXB122500	12V	250	520	269	220	225	70.0	F13

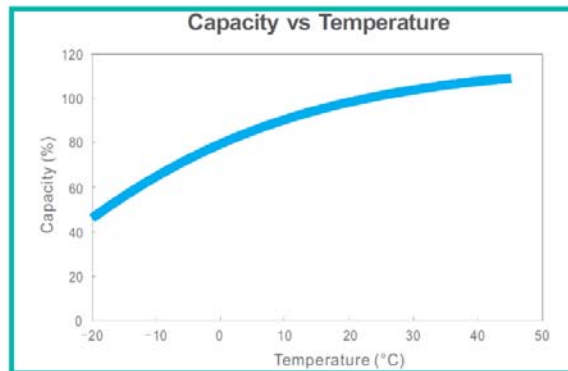
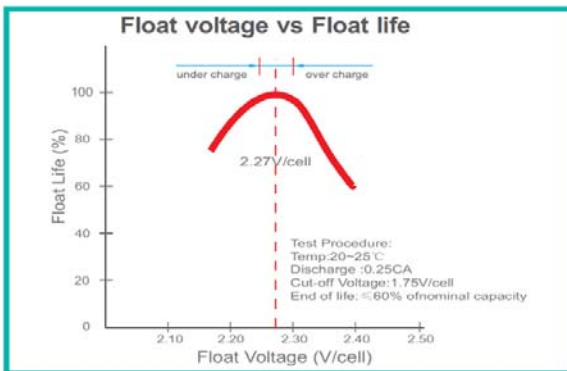
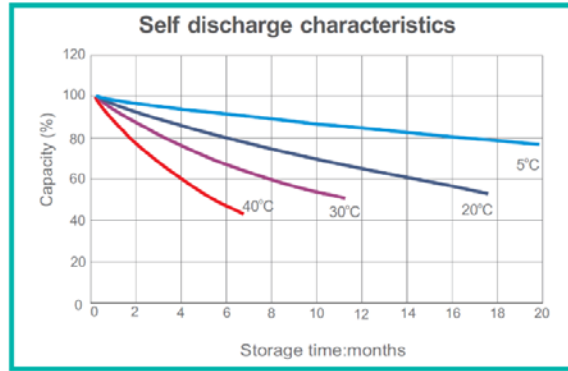
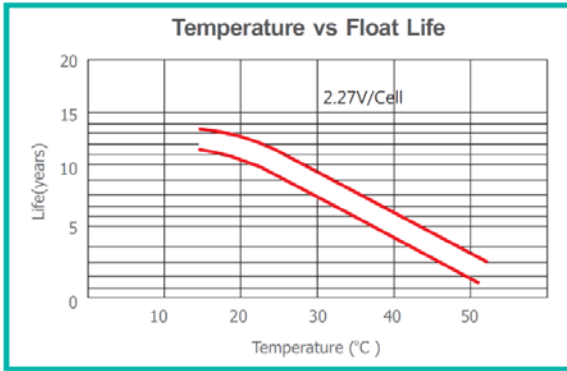
**Table 3**

Battery cabinet dimensions for maintenance free VRLA batteries.

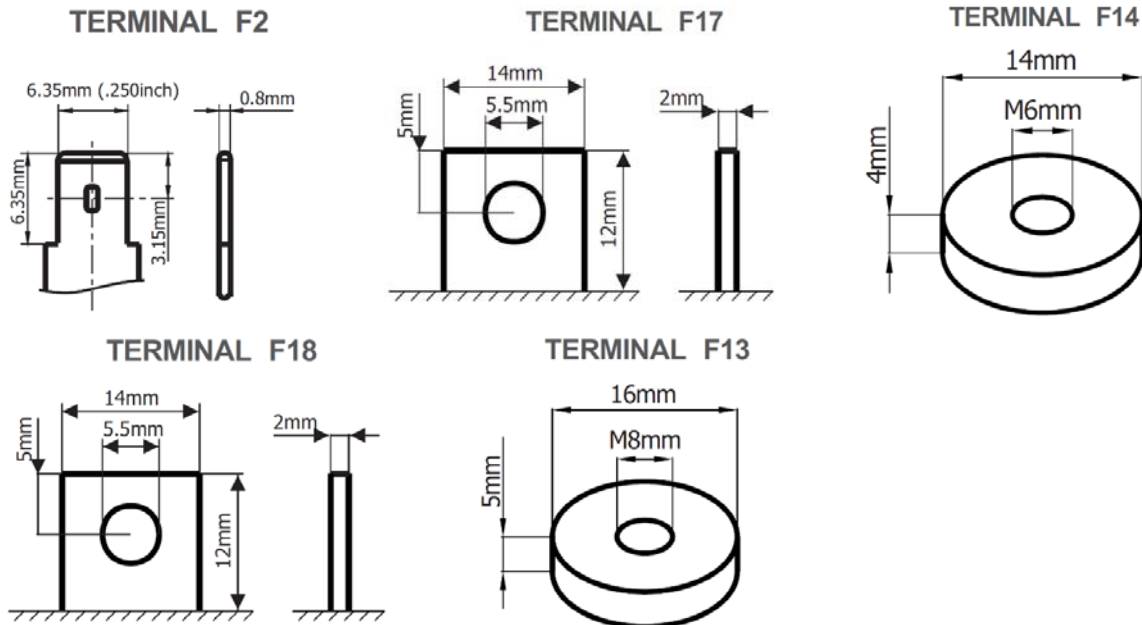
Part no.	Nominal Voltage (V)	Nominal Capacity (Ah)	Battery cabinet dimension (W x D x H) mm
AXB1270	12V	7	400 x 415 x 700
AXB12120	12V	12	400 x 415 x 700
AXB12200	12V	20	450 x 365 x 1000
AXB12260	12V	26	650 x 465 x 900
AXB12330	12V	33	650 x 465 x 1200
AXB12400	12V	40	650 x 465 x 1200
AXB12500	12V	50	600 x 365 x 2300
AXB12550	12V	55	600 x 365 x 2300
AXB12650	12V	65	650 x 465 x 1900
AXB12750	12V	75	650 x 490 x 2300
AXB121000	12V	100	650 x 490 x 2300
AXB121200	12V	120	650 x 490 x 2300
AXB121500	12V	150	750 x 615 x 2300
AXB121800	12V	180	950 x 615 x 2300
AXB122000	12V	200	950 x 615 x 2300
AXB122500	12V	250	950 x 615 x 2300

**CHARACTERISTICS**





### Battery Terminal Details



### Top-charge and precautions

Any VRLA-AGM battery will be damaged by continual undercharging or overcharging (Capacity is reduced and life is shortened), although Axyl batteries accept a charge very well due to their low internal resistance. Overcharging is extremely harmful to any VRLA battery because of the sealed design. Overcharging dries out the electrolyte by driving the oxygen and hydrogen out of the battery through the pressure relief valves which will lead to less capacity

and shorter lifetime. If a battery is continually undercharged, a barrier layer of sulfate will build up on the positive plate which will impact recharging acceptability. Premature plate shedding can also happen. Performance is reduced and life is shortened.

It is critical that a charger be used that limits voltage. The charger must be temperature-compensated to prevent under or overcharging due to ambient temperature changes. The warranty is void if improperly charged. Use a good constant potential, temperature-compensated, voltage-regulated charger. Constant current chargers should never be used on VRLA batteries.

### **Battery storage**

If the battery has high temperature or poor ventilation during storage and delivery, the self-discharge will increase. It is important to store the battery in a well ventilated area, away from fire, flame, heat supply etc. When storing the battery, take it off from the charger and keep it in the dry and cool place. Please supplement charge before use when the battery has been kept for a long time.

### **Cautions:**

- 1) Keep batteries in a place, where children cannot reach.
- 2) Do not attempt to disassemble, revise, damage, impact, dispose batteries, otherwise the battery can leak, be overheated, or explode.
- 3) Do not dispose of the batteries in water or fire and do not heat the batteries. Local regulations to be followed for disposal.
- 4) Do not short batteries.
- 5) Do not put your face near the top of batteries. Please wear gloves, eye protection when you measure or repair batteries.
- 6) There is sulfuric acid in the battery. Do not allow your skin, clothes, and especially your eyes to make contact with the sulfuric acid. If your eyes make contact with sulfuric acid, please wash with a lot of clean water, and consult a physician immediately.

### **Maintenance guidelines**

For best battery life and warranty, maintenance should be only carried out by skilled, qualified technician.

#### • **Battery**

- The float voltage should be maintained within the specified value.
- Do not allow the battery to be exposed to more than 50°C for long periods.
- Do not store the battery without recharge.
- Do not place the battery close to the fire.
- Use specified chargers.
- If the voltage is over 45V, use insulated gloves and other safety measures before operation. If without safety protection, it will face the risk of electric shock.

#### • **Cleanliness**

- It is important to keep the battery dry and clean. This will contribute to top the performance and maximum service life and non-contamination of cells during topping up.

- If potassium carbonate crystals (grey white deposits) form on top of the battery, rub with a soft brush and wipe with a clean damp cloth followed by a clean dry cloth.
- Do not use a wire brush or solvents of any kind, such as gasoline, thinner, acetone, kerosene etc.
- Before cleaning or checking the battery, remove the static electricity by metal.#

#### • **Vent Caps**



- Vent caps should be kept clean to avoid blocking of holes and prevent venting of gases produced during charging.
- Vent caps can be removed from the cells, rinsed in clean water, dried and replaced, vent caps can also be cleaned by wiping with a clean damp cloth followed by a clean dry cloth while mounting on the cells.

- **Connectors**

- Check at least once a year that all connectors are tight. This is especially important if the battery is subjected to vibration or shocks during service.
- The connectors and terminal screws should be corrosion protected by coating with a thin layer of anti-corrosion oil / petroleum jelly.
- **Manufacturers' / System specialist's recommended maintenance procedures to be followed and recorded to support all warranty claims.**

