

AQ-LITH[®] ESS BATTERY

SUITABLE FOR:

- Lowering from the own peak consumption (peak shaving)
- Increasing the selfconsumption
- Saving energy on cheap moments (arbitration)



The AQ-LITH[®] ESS battery is being designed, assembled and tested at Battery Supplies itself. This has a number of important innovative advantages



1. The AQ-LITH[®] Lithium batteries use prism cells based on the superior LiFePO₄ (Lithium Iron Phosphate) technology. This cell offers a long service life and an excellent energy density. Compared with NMC technology (lithium-nickel-manganese-cobalt), the LiFePO₄ is a lot safer.



LiFePO₄ is only being used in industrial and logistics applications. An important advantage is that this technology does not ignite or explode, even if the battery is heavy damaged. The battery is fully protected. The cells are assembled in modules with laser welded rails. This connection reduces the internal resistance and reduces it risk of bad connections.



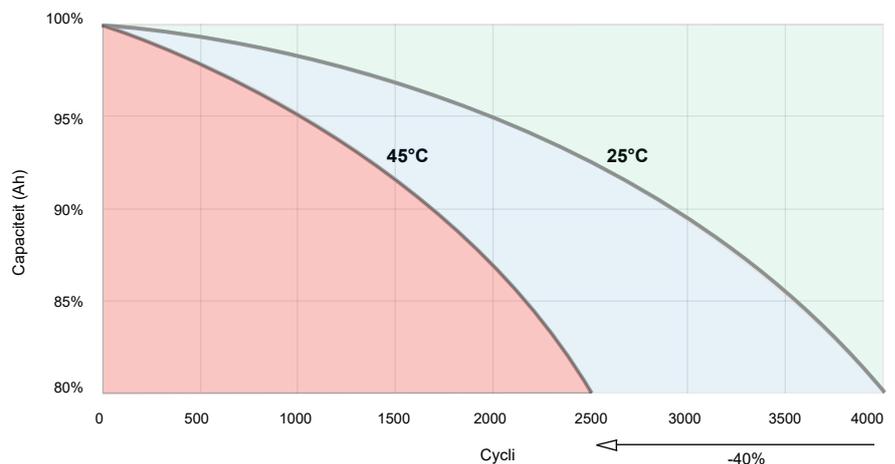
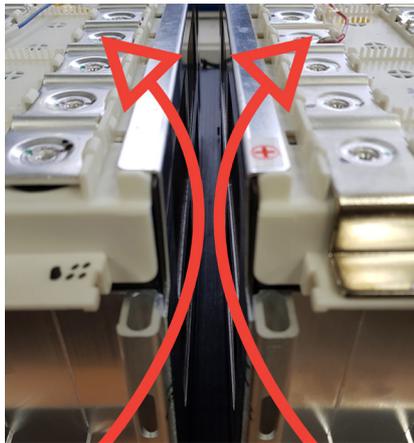
DYNAMIC

2. The core of the AQ-LITH® Lithium battery is our own innovative BMS (Battery Management System). This BMS has been developed in collaboration with a well acknowledged Belgian university and will protect the cells against overcurrent, undervoltage, overvoltage and temperatures.

The unique and patented dynamic balancing system uses a smart algorithm with active and passive balancing methods. This guarantees an optimal balanced battery with redistribution of energy during discharge.

OPTIMAL VENTILATION

3. The heat dissipation in the cells has a major negative influence on the lifespan of the battery. Higher temperatures dramatically shorten the service life (every ° C reduces the lifetime with 2%).



For most of the Li-ion batteries on the market, the cells and modules are placed close together, causing an unstable heat dissipation and local hot spots from the cells. The Lithium batteries from AQ-LITH® have an optimal heat balance: the modules are installed to allow excellent natural venting. Through this venting, the heat is transferred to the case and the overall temperature is being balanced.

Optionally, the battery can be equipped with forced cooling (air conditioning) for high temperatures or heating (Heather) for low temperatures.

The same modules are used in the AQ-LITH® traction batteries as for the AQ-LITH® ESS batteries. If the autonomy of a traction battery becomes insufficient, then the capacity of the modules is usually still sufficient to be used in one AQ-LITH® ESS battery. The mechanical construction of such an AQ-LITH® ESS battery is perfectly suitable to offer a second life in the future to used modules of traction batteries.

DIMENSIONS OF THE AQ-LITH® ESS BATTERY

The AQ-LITH® batteries have a capacity starting from 60.5kWh and can be expanded up to 4 times that value (242 kWh). These are connected to bidirectional inverters of 33kW and a multiple thereof.

INCREASED RETURN THROUGH THE UNIQUE YUSO INSIDE CONTROL

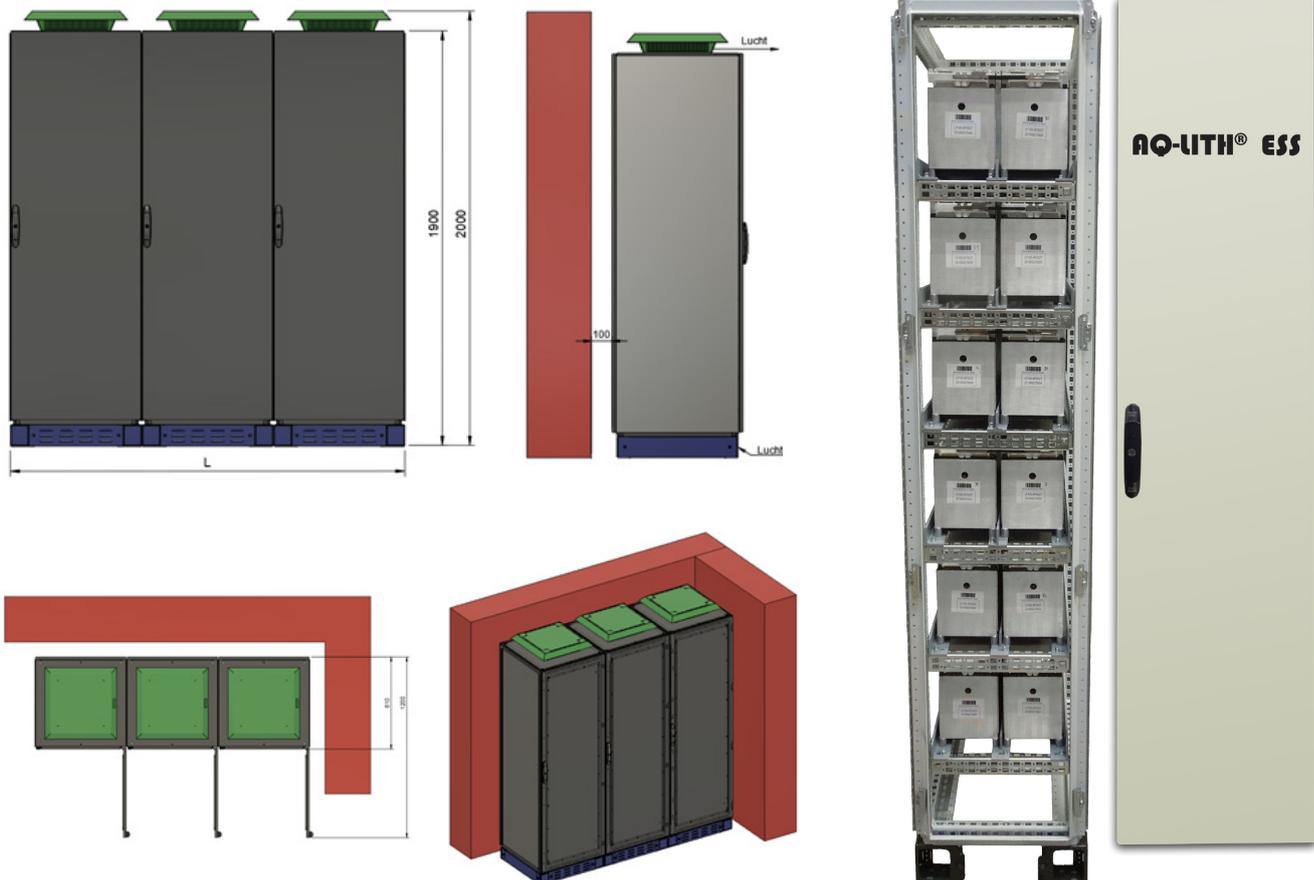
Battery Supplies works together with Yuso on battery control. Yuso is an energy company from Belgium (Waregem), that specializes in purchasing surplus solar energy, supplying green energy and controlling storage systems. The AQ-LITH® ESS batteries and inverters are controlled by an intelligent Yuso-inside platform via the cloud. This platform not only takes into account the predictions of one's own consumption but it also takes into account current and future energy prices in the wholesale market and even weather forecasts.

The control box and controller were developed in collaboration with Yuso and allow to switch dynamically between the different applications (self-consumption optimization, peak-shaving, arbitration and possible other applications via update in the future). The Yuso-inside platform will ensure that the battery and the inverters are recovered much faster than a traditional ESS battery and inverter with a standard charging and discharging algorithm.

You can find more information on the YUSO website: <https://yuso.be/batterijen/>

TECHNICAL SPECIFICATIONS

Battery					
Technology	Li-ion LFP (LiFePO4)				
Balancing technology	Dynamic (active and passive)				
Optimal economic DOD	80%				
Expected cycles	4000 cycles by 25°C, 0,5C/0,5C; 80% DOD				
Warranty on capacity	8 years or 3000 cycles				
Efficiency	Up to 98%				
Protection	IP20				
Max nominal (dis)charge rate	0,5C				
Nominal tension (V)	576				
Minimal tension (V)	450				
Maximal tension (V)	657				
Optimal temperature (°C)	25				
Minimal temperature (°C)	0				
Maximal temperature (°C)	45				
Ventilation in de cabin	Forced ventilation				
Capacity (kWh)	60,48	120,96	181,44	241,92	
Number of cabins 600mm	3	3	4	5	
Dimensions	L (mm)	1860	1860	2480	3100
	W(mm)	610	610	610	610
	H(mm)	2000	2000	2000	2000



Inverter				
kW		33	67	100
Efficiency		up to 96,3%	up to 96,3%	up to 96,3%
Ventilation		Forced ventilation		
Dimensions	L (mm)	600	1200	1200
	W (mm)	795	795	795
	H (mm)	1400	1400	1400

Control box				
With Yuso Inside control			Yes	
Dimensions	L (mm)		1200	
	W (mm)		400	
	H (mm)		1200	

Common combinations					
Battery (kWh)	60,48	120,96	181,44	181,44	241,92
Inverter (kW)	33	67	67	100	100
Ratio	55%	55%	37%	55%	41%