



Pinflow energy storage

Solution for stationary applications



Independent power and capacity according to requirements

When compared to conventional batteries, the power of flow battery is not directly coupled to the capacity which enables to tailor the battery parameters according to customer needs.



Excellent durability and cycleability

System is based on vanadium electrolytes, biodegradable electrodes and durable membrane. Based on accelerated testing, the durability of >15000 full charge-discharge cycles is expected (corresponding to >25 years lifetime).



Safe and environmentally friendly

Non-explosive and non-flammable solution due to the use of aqueous electrolytes. Our electrolytes do not contain heavy metals and are fully recyclable and reusable for energy storage.



Strong and robust solution

Possibility to overload (long-term) the system by up to 250 % without affecting the battery life. Total discharge without signs of degradation, operates in wide range of temperatures.



Low maintenance requirements

The whole system is remotely monitored and requires only minimal maintenance, servicing of installed systems is therefore significantly reduced.

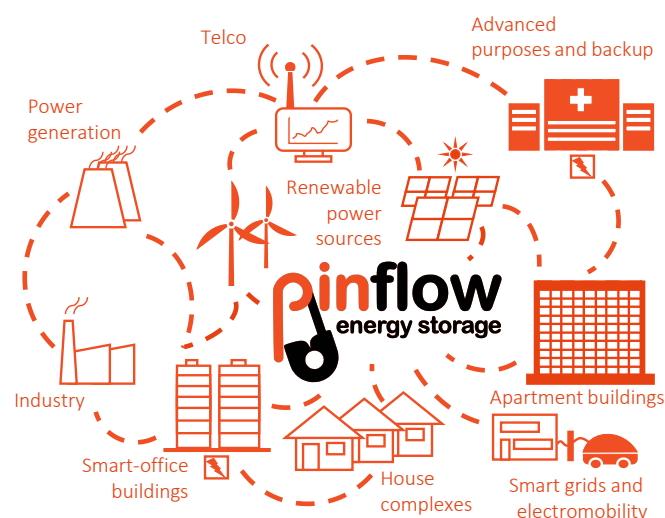


Cheaper capacity than power

Low cost storage when related to the capacity and lifetime. LCOE are enhanced by high efficiency of our battery stacks.

We are ready for your grid

The tailor-developed solutions for stabilizing and management of renewable energy sources. The advantages are fast charging, UPS mode, online monitoring and control via the mobile application.



Contact us

info@pinflowes.com
<http://pinflowes.com/>

Energy storage system PFS

Power and energy

Rated power (charge/discharge)	up to 30 kW
Maximal power	up to 30 kW
Rated energy capacity	up to 150 kWh
DC-DC efficiency	up to 80 %
Usable depth of discharge	100 %

Electrical connections

Number of stacks	up to 4
Stack DC voltage range	30 – 70 V
Stack maximal current	up to 170 A

Self-discharge

Shut down	< 1 % per year
Hot stand by	< 200 W

Mechanical

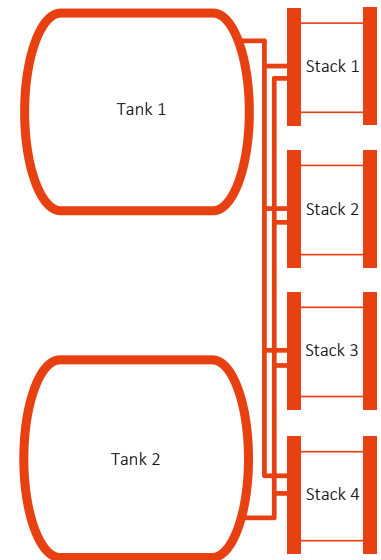
Enclosure	10ft HC container
Dimensions L x W x H	2.99 x 2.44 x 2.90 m
Weight empty / filled	4.0 / (up to 14) x 10 ³ kg
Enclosure rating	IP54

Environmental

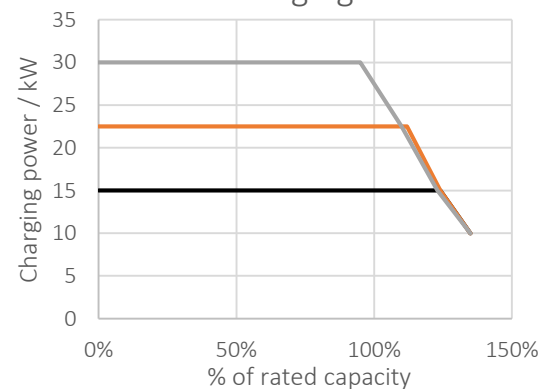
Ambient temperature	-20 – 45 °C
Altitude	up to 2000 m
Estimated system life	>25 years

PFS 30-150

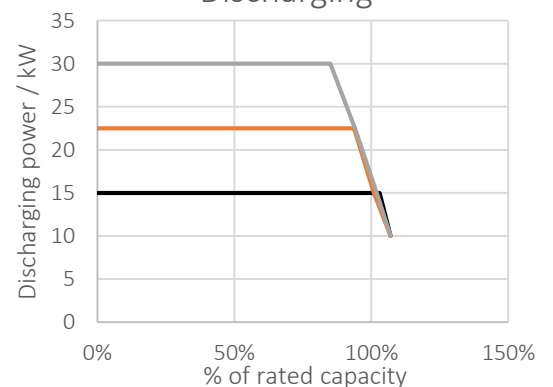
30 kW nominal power
150 kWh capacity



Charging



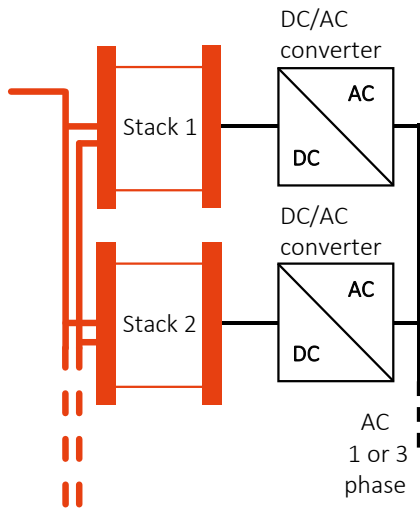
Discharging



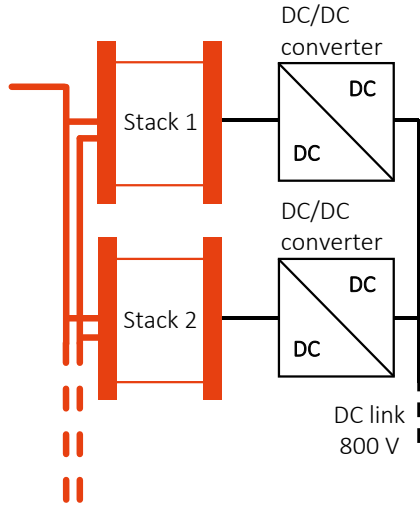
Energy storage system PFM

Connection possibilities

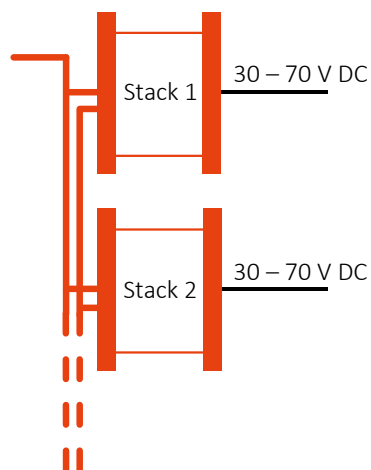
AC plug and play



DC link



Direct DC output



Power and energy

Rated power (charge/discharge)	up to 60 kW
Maximal power	up to 60 kW
Rated energy capacity	up to 300 kWh
DC-DC efficiency	up to 80 %
Usable depth of discharge	100 %

Electrical connections

Number of stacks	up to 8
Stack DC voltage range	30 – 70 V
Stack maximal current	up to 170 A

Self-discharge

Shut down	< 1 % per year
Hot stand by	< 300 W

Mechanical

Enclosure	20ft HC container
Dimensions L x W x H	6.06 x 2.44 x 2.90 m
Weight empty / filled	5.5 / (up to 40) x 10 ³ kg
Enclosure rating	IP54

Environmental

Ambient temperature	-20 – 45 °C
Altitude	up to 2000 m
Estimated system life	>25 years



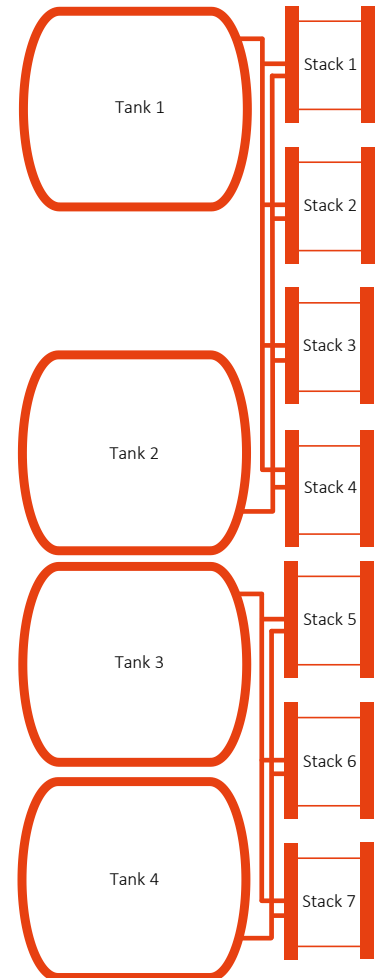
Energy storage system PFL

Power and energy

Rated power (charge/discharge)	up to 200 kW
Maximal power	up to 200 kW
Rated energy capacity	up to 600 kWh
DC-DC efficiency	up to 80 %
Usable depth of discharge	100 %

PFL 50-500

50 kW nominal power
500 kWh capacity



Electrical connections

Number of stacks	up to 20
Stack DC voltage range	30 – 70 V
Stack maximal current	up to 170 A

Self-discharge

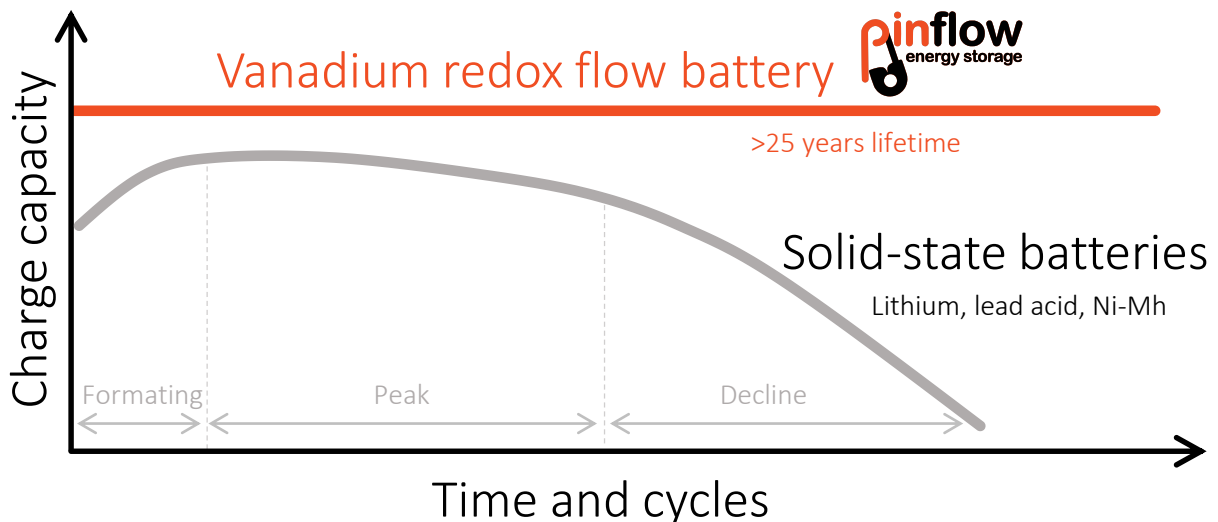
Shut down	< 1 % per year
Hot stand by	< 400 W

Mechanical

Enclosure	40ft HC container
Dimensions L x W x H	12.2 x 2.44 x 2.90 m
Weight empty / filled	5.5 / (up to 40) x 10 ³ kg
Enclosure rating	IP54

Environmental

Ambient temperature	-20 – 45 °C
Altitude	up to 2000 m
Estimated system life	>25 years



*) Technical specifications and electronics supplier are subject of change

**) Data valid at electrolyte temperature of 20 °C