

Resistive load bank **case study** 3600kW 950VAC 50/60Hz.

A 950 VAC, 3600 kW resistive load bank is an essential device for large-scale energy-storage systems, particularly in full-power discharge testing of battery packs configured with PCS (Power Conversion System). When integrated into the test platform, the load bank simulates real-world electrical consumption and enables operators to safely verify system performance under controlled and repeatable conditions.



Description	
Model No.	S3600L
Country of origin	China
Rated power capacity(PF 1.0)	3600 kW
Rated testing voltage	950 Vac
Frequency	50/60Hz.
Phases	3
Wires(Delta connection)	4
Load step resolution	60kW
Voltage Tolerance (Short Term Operation)	+5%
Load Element Tolerance	≤+2.5%
Insulation Test To Earth	2000 Vdc
Load Connections	Copper busbars
Protection	Thermal emergency cut out
	Air flow switch
	Fan overload protection
	Emergency stop
Control voltage(Auxiliary power supply)	380Vac (3P5W) 50HZ.
Airflow volume(Approx.)	75m³/kW/H
Airflow direction	Vertical upwards air forced cooling
Fans Nos.	10 pcs . (4kW each)
Load switching contactor type	AC contactors
Rated maximum ambient temp. operation	+50°C / +122°F
Rated minimum ambient temp. operation	-20°C / -4°F
Altitude rating	≤2000 [m.a.s.l] or customized
Control chamber IP rating	IP 54 outdoor
Enclosure material	Containerised carbon steel with marine grade painting.
Portability	Standard ISO lifting points
Enclosure dimentions	
Length(mm)	5500
Width(mm)	2200
Height(mm)	2200
Weight of load bank with wind-shields (KG)	9,500 Maximum

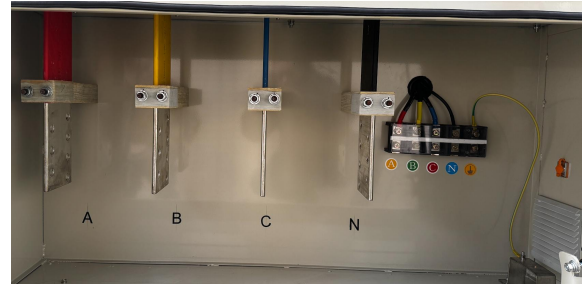
Load bank control system	
Manual control	HMI touch screen
Remote control	Remote host PC software control
Communication	Modbus TCP

Details& parts



Load Switch & Protection.

Generally choosing **Siemens Sirius** series LV AC-1 contactors for resistive circuit. AC-4 contactors for reactive circuit. Over current. fuse protection added.



Mains Copper Busbars

At the testing circuit. from the mains connection busbars till the fuse. copper busbars are used to **prevent over-heating** issues. avoid of high temp. effect.



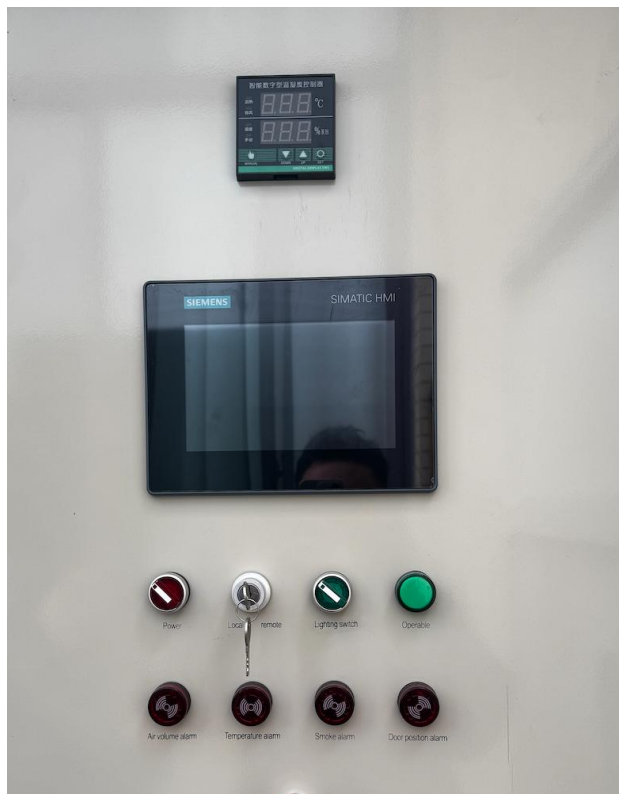
Industrial Axial Cooling Fans

700mm diameter. 3kW motor with **27000m³/hour** air volume to blow resistor blocks **360kW**. Ensuring efficient air dissipation.



Air-Exhaust Wind Chimney

10 wind chimney mounted on the top of load bank. to change air direction, meanwhile **weatherproof** for the load bank container.



Local Control Panel

The control board is assembled with **Siemens HMI** touch screen, buttons, alarm indicators & Emergency stop. To simplify the operations during load testings.



Resistive Load Element.

Finned stainless heating tubular.
Ni-chrome resistance core.
temperature tolerance @1200°C

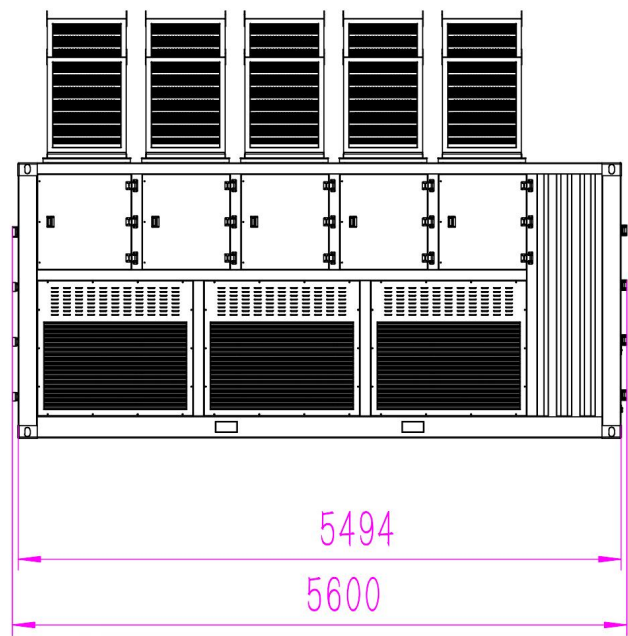


Resistors Mounting Process

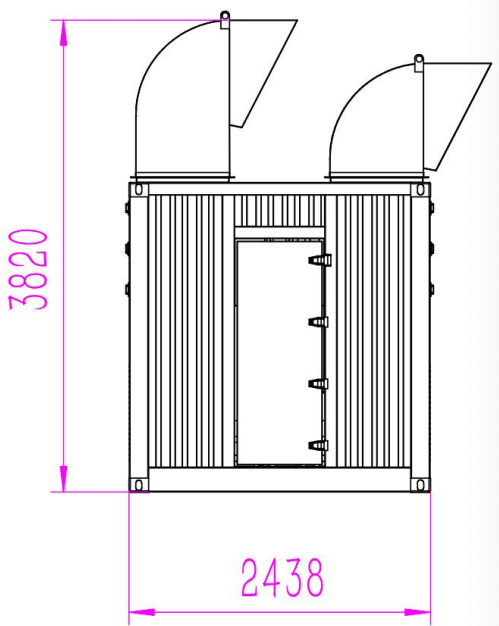
Considering the voltage is 950Vac. Resistors mounting board are using **high voltage insulation and heat-resistant material** (Multiple Epoxy board L360).

Resistors are serial connected by copper busbars and insulated by heating-shrinkable tube.

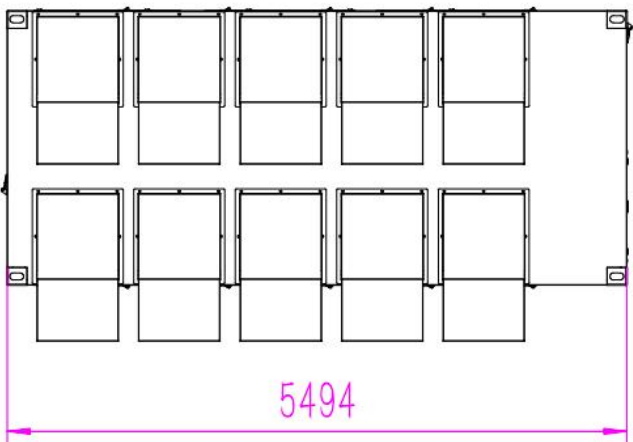
Engineering drawing



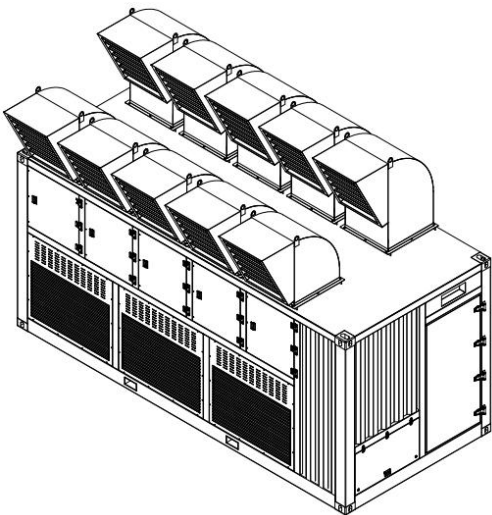
Front view



side view



Top view



General view

Figure 1