

水冷负载箱(Water cooled load bank)SLRB 3KW-5MW

大功率、小体积、水循环冷却低温度型电阻,消除传统方式的去离子水高成本

High Power, small size, water circulation cooled, low temperature, eliminates the high cost of traditional deionized water.



■ 适用范围 (Application)

深圳市正阳兴电子的系列水冷负载箱生产周期为3-4周，主要应用于试验测试设备如发电机负载，充电桩测试，蓄电池测试，通信设备老化，UPS,DCDC等。

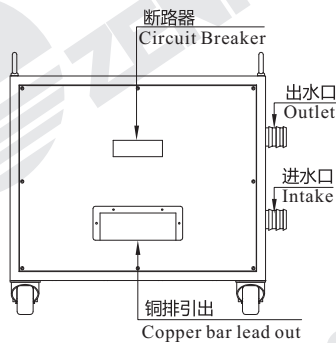
Production Time :3-4 weeks.

Widely used in test equipment, such as generator load, charging pile test, battery test, aging of communication equipment, UPS, DCDC, etc.

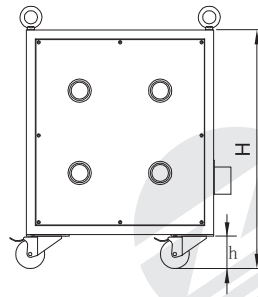
■ 产品介绍(Introduction)

- 1.水冷电阻是由流动的自来水(或蒸馏水或其它液态)进行循环冷却的电阻器，消除了传统方式的去离子水高成本。
It is circularly cooled by flowing tap water (or distilled water or other liquid), eliminates the high cost of traditional deionized water.
- 2.水冷电阻具有功率大、体积小，工作稳定，高绝缘，密封性好,温度低,使用寿命长的特点。
High power, small size, stable operation, high insulation, good sealing, low temperature and long service life.
- 3.额定功率范围：一般为3KW-5MW（可按要求定制）。
Power Range: 1kW - 5MW (others on request).
- 4.调节电流范围：0.1A-15000A。
Current Range: 0.1A - 15000A.
- 5.工作电压范围：一般为5V-1000V,交直流均可适用。
Working Voltage Range: 5V-1000V, for AC or DC.
- 6.可根据要求设计具备多项安全保护功能：短路、过流、过压、过载、过温、声光报警装置等。
Multiple safety protection functions : short circuit, over-current, over-voltage, over-load, over temperature, fan fault, audible and visual alarm device, etc.
- 7.可根据要求设计带有RS232、RS485与PC机连接，实行远程控制。
It can be designed with RS232 and RS485 to connect with PC for remote control.

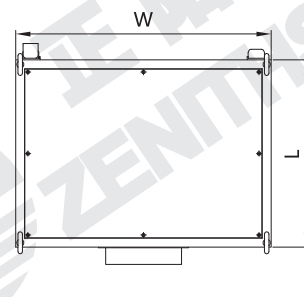
■ 产品尺寸图表(Dimension Chart)



图一 (主视图)



图二 (右视图)



图三 (俯视图)

水冷负载箱尺寸表(单位:mm) / Dimensions (mm)

功率 Power	L±5	W±5	H±5	h±5	功率 Power	L±5	W±5	H±5	h±5	说明 Note
3KW	530	300	250	70	100KW	700	600	1450	150	可配套冷却系统、水泵、水箱、连接管道电缆等。 Water pump, water tank, connecting pipeline, cable, etc.(optional)
5KW	530	300	250	70	120KW	900	850	1400	150	
6KW	600	400	250	70	150KW	900	850	1500	150	
8KW	600	500	300	70	200KW	1000	850	1500	150	
10KW	600	600	400	100	300KW	1000	850	1650	150	
15KW	600	600	550	100	400KW	1000	1000	1800	150	
20KW	600	600	600	100	500KW	1500	1400	1800	150	
25KW	600	600	650	100	600KW	1500	1500	1800	150	
30KW	600	600	700	100	800KW	1800	1500	1900	150	
40KW	700	600	800	100	1000KW	2000	1500	1900	150	
50KW	700	650	800	100	1200KW	2000	1600	1900	150	
60KW	750	750	800	100	1500KW	2200	1600	1900	150	
80KW	850	850	1000	150	2000KW	2400	1800	2000	150	

备注：如有特殊要求或者参数超出以上标准协商供货(Note: Others on request)

■ 负载箱/负载柜的制作范围(Load Bank Production Scope)

深圳正阳兴电子科技拥有在电阻界20多年的研发与制造经验，拥有专业的负载箱、负载柜研发团队和生产团队；拥有完善的测试设备及测试方案,不断更新、调整技术去响应各界客户的需求,生产出不同类别（风冷型/水冷型）、不同款式的负载箱、负载柜。正阳兴可满足大功率（单台1KW到5MW）、大电压（常见交/直流5V到1000V）或大电流（单台可到30000A以上）等电气参数，根据需要设计调节档位，配置智能数显表，各类保护措施（如过温保护，过流过压保护，声光报警装置）等，另外我们水冷负载箱/柜也可以配置冷却系统及水塔，全方位满足客户个性化需求。

It has more than 20 years of R & D and manufacturing experience in the resistor industry, and has a professional R & D team & production team for load banks; It has perfect test equipment and test scheme, constantly updates and technology, to respond to the requests of customers from all walks of life, and produces different types (air-cooled / water-cooled) and different styles of load banks. ZENITHSUN can meet the electrical parameters such as high power (1kW to 5MW for a single set), high voltage (common AC / DC 5V to 1000V) or high current (more than 30000A for unit) (such as over-temperature protection, over-current and over-voltage protection, audible and visual alarm device), etc. In addition, the water-cooled load banks can also be equipped with cooling system and water tower, fully meet the personalized needs of customers.

- 1.功率范围：单台1KW-5MW/3KVA-5MVA。
Power Scope:single unit 1KW-5MW/3KVA-5MVA.
- 2.负载装置：阻性、感性、容性、阻感、阻容、阻感容一体化。
Load Types: resistive, reactive, capacitive, resistive & reactive or LCR.
- 3.工作电压：AC单相或三相/DC 1V-1000V，超高压6KV,10KV,35KV等选择。
Working Voltage:AC single phase or 3 phase/DC 1V-1000V, ultra voltage 6KV,10KV,35KV,ect.
- 4.工作电流：1A-50KA。
Working Current:1A-50KA.
- 5.工作模式：固定式、多档位可调式或无极可调式。
Working Modes:fixed type,variable type with load steps or continuing adjustable type.
- 6.散热方式：风冷散热或者水冷散热、油冷、自然冷却。
Heat dissipation modes: air cooled or water-cooled, oil-cooled, natural-cooled.
- 7.感 量：有感或纯性无感。
Inductance:inductive or non-inductive.
- 8.操控模式：本地操作，远程操作，本地/远程一体操作。
Control Modes:local operation,remote operation,local /remote integrated operation.
- 9.环境温度：-10-55℃（指负载箱所在位置的环境温度）。
Ambient Temperature:-10-55℃(refers to the ambient temperature where the load bank is located).
- 10.防护等级：IP20-IP67（常见是IP20室内工作型）。
Protection Class:IP20-IP67(normal,IP20 indoor working).
- 11.数据采集：电流，电压，频率，功率，温度等。
Meters:display current,voltage,frequency,power,temperature,etc.
- 12.保护功能：过温，过流，过压，风机失效，报警装置等。
Protection device:over-temperature,over-current,over-voltage,fan failure,alarm device, etc).

■ 负载箱/负载柜的引用标准(Load Bank Reference Standard)

序号NO.	标准 Standard	详情 Spec	备注 Note
功率型电阻常引用标准或规范(Power resistors refer to standards)			
1	GB5732-1982	电子设备用固定电阻器第四部分 功率型 Fixed resistors for use in electronic equipment - Part 4 power type	
2	GB5729-1985	总规范 General specification	
3	GB/T5729-2003	总规范 General specification	
4	GB/T5734-1985	分规范 Sectional specification	
5	JB/T 6319-2010	机械行业标准 电阻器基本技术要求 Machinery industry standard basic technical requirements for resistors	
控制部件引用标准或规范 (Control Components Standard)			
1	GB/T 2423.4-2008	电工电子产品环境试验 第2部分实验方法 Environmental test of electrical and electronic products Part 2 experimental methods	
2	GB/T 2423.5-1995	电工电子产品环境试验 第2部分实验方法 Environmental test of electrical and electronic products Part 2 experimental methods	
3	GB 2423.10-2008	电工电子产品环境试验 第2部分实验方法 Environmental test of electrical and electronic products Part 2 experimental methods	
4	GB/T 2900.18-2008	电工术语 低压电器 Sectional specification low voltage electrical apparatus	
5	GB/T5169.11-2006	电工电子产品着火危险试验 Fire hazard test for electrical and electronic products	
6	GB 14048.1-2006	低压开关设备和控制设备 Low voltage switchgear and controlgear	
7	GB150	密封试验 (适用水冷型电阻箱/柜) Sealing test (applicable to water-cooled load bank)	

注：以上引用标准，如有作废，按相应新代替标准执行。
(Note: if the above referenced standards are invalid, the corresponding new substituted standards shall prevail.)

■ 负载箱/负载柜内置负载类型(Load bank configurations)



■ 负载箱检验实验性能参数(Load Bank Performance Characteristics)

项目 Test	试验条件 Conditions of Test	性能参数 Testing Results
容许误差 Tolerance	测试电压≤3V,环境温度25°C Testing Voltage ≤3V, Ambient Temperature 25°C	J(±5%) -G(±2%)-F(±1%)
外形尺寸 Profile Dimension	根据技术协议中的图纸进行 According to the drawings in the technical agreement	符合图纸要求 As per drawing requirements
通电调试 Power on for adjusting	根据技术协议中的参数进行 According to the datas in the technical agreement	仪表风机负载正常运转 meters & fans operation normal
绝缘电阻值 Insulation Resistance	试验电压为1000Vdc±20% Test voltage 1000Vdc±20%	1MΩ1Min
对地电压 Voltage to ground	常用2KV DC 60秒, 超高压依要求 normal 2KV DC for 60s, ultra voltage as required	无火花, 无击穿 No spark, no breakdown
密封性实验 Sealing Test	1-2MPa,保压4小时 1-2MPa, pressure maintaining for 4H	无渗漏, 无变形 No leakage, no deformation

■ 负载箱/负载柜质量管理 (Load Bank quality control)

在系统的设计、生产与检验流程中，厂方采取以下措施，保证系统质量合格，能满足用户需要。
In the process of system design, production and inspection, the manufacturer takes the following measures to ensure that the system quality is qualified and can meet the needs of users.

1. 质量管理 (Quality control)

- 1) 产品的设计与生产完全依据双方约定的正式技术协议进行。
The design and production of the products are carried out in full accordance with the formal technical agreement agreed by both parties.
- 2) 生产前，向用户提供产品外形图，经确认同意后，方可依据图纸生产。
Before production, the outline drawing of the load bank shall be provided to the user, then the production can be carried out according to the drawing after confirmation.
- 3) 在生产过程中，有专门的检验部门对产品所使用的原材料进行严格质量检验。
In the production process, the special inspection department should carry out strict quality inspection on the raw materials used for the load bank.
- 4) 在元件加工、组装、调试过程中进行全程质量追踪，建立产品档案。
Carry out whole process quality tracking in the process of component processing, assembly and commissioning, and establish product archives.
- 5) 保证所有配件均是先进、全新、完整且组合布置合理的，符合国家相关标准。产品内部洁净，结构合理，接口正确，标示清晰。
Ensure that all accessories are advanced, brand-new, complete and reasonably arranged, in line with relevant national standards. The interior of the load bank is clean, the structure is reasonable, the interface is correct and the mark is clear.
- 6) 严格按照图纸和有关标准、规范的要求，对产品进行功能与参数校验，保证最终产品能实现技术协议上约定的全部内容。
Check the functions and parameters of the products in strict accordance with the requirements of drawings and relevant standards and specifications to ensure that the final products can achieve all the contents agreed in the technical agreement.

2. 验收 (Acceptance)

双方可通过实际操作对产品进行验收，产品生产完毕后，提前1天通知用户进行出厂前的性能实验，验收合格方可出厂。验收遵守以下事项：

- The buyer can accept the products through actual operation. After the production of the unit is completed, the user shall be notified one day in advance to carry out the performance test before the unit leaving the factory. The products can leave the factory only after passing the acceptance. The following items shall be observed during acceptance:
- 1) 出厂验收测试应按照技术协议和双方商定的验收大纲进行，提供中文版《出厂检验报告》、《合格证》。
The factory acceptance test shall be carried out in accordance with the technical agreement and the acceptance outline agreed, by both parties, and the Chinese version of factory inspection report and certificate of conformity shall be provided.
 - 2) 指导用户按技术资料 and 图纸安装。
Guide users to install load bank according technical data and drawings.
 - 3) 厂方负责解决生产制造中出现的问题。
The manufacturer is responsible for solving the problems in production and manufacturing.

■ 负载箱/负载柜订购流程和内容 (Load Bank purchase process & content:)

- 1) 性能参数: 根据需求提出技术方案, 作为供用户参考的预案。
Technical scheme of performance parameters: put forward the technical scheme according to the demand as the plan for users' reference.
- 2) 设计: 按照技术协议设计构造及相关配件。
Design: design structure and relevant accessories according to the technical agreement.
- 3) 技术协议: 双方根据实际情况进行协商, 在方案基础上约定最终的技术协议, 系统的设计生产将严格按照最终协议进行。
Technical agreement: both parties negotiate according to the actual situation and agree on the final technical agreement on the basis of the scheme. The design and production of the system will be carried out in strict accordance with the final agreement.
- 4) 生产: 依据设计图纸进行装配。
Production: assemble according to the design drawings.
- 5) 出厂前检验: 依据技术协议与相关标准对设备进行严格调试和检验, 不达到标准不放行出厂。
Inspection: strictly debug and inspect the equipment according to the technical agreement and relevant standards. If it does not meet the standards, it will not be released from the factory.

■ 负载箱/负载柜订购流程和内容 (Load Bank purchase process & content)

- 6) 运输: 将产品安全运送到用户指定的地点
Transportation: transport the product to the designated place by the user.
- 7) 终身服务: 提供终身技术服务, 解决用户使用中的问题。
Lifelong service: provide lifelong technical service to solve problems.

■ 负载箱/负载柜降功耗曲线图(Derating Curve)

