

HSR高压启动电阻

High Voltage Starting Resistors



● 产品特点

1、电阻采用我司特有开发合金材料制作，大容量，产品体积小，散热佳；

Resistors are made from self-developed specific alloy material, large capacity, small size, good heat dissipation;

2、采用特有耐温合金材料制作，耐冲击性强；

Made from specific temperature resistance alloy material, high impact resistance;

3、整体结构设计可靠，产品性能稳定；

Reliable design, stable product performance;

4、可针对不同工况选用片式电阻、网状电阻、封装电阻元件，实现最佳方案。

Choose suitable resistors such as chip resistor, grip resistor, enclosed resistor for resistance components accordingly.

● 应用范围

限制电网对于子模块直流储能电容的充电电流，使换流阀和相关设备免受高电流应力和高电流变化应力的冲击，保证设备的安全，启动电阻器在系统启动后退出运行。

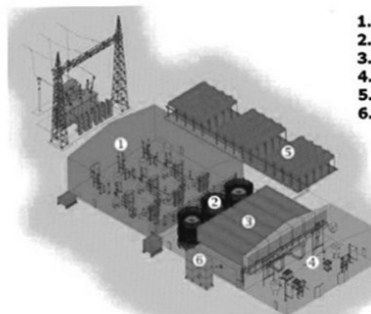
目前高压启动电阻典型应用为柔性直流输电Flexible HVDC系统及SVG系统。

Limit the current when Power Grid charge DC energy storage capacitor of submodule. Protect the converter valve and related equipment from the impact of high current stress and the change of stress of high current. Ensure the safety of equipment.

Typical applications of High Voltage Starting Resistor are now in Flexible HVDC system and SVG system.

● 外形及尺寸

根据客户要求订制 Customized as requirement



- 1.交流元件（变压器和滤波器）
 - 2.换流电抗器
 - 3.换流阀
 - 4.直流元件
 - 5.冷却系统
 - 6.电阻
1. AC components
 2. converter reactor
 3. converter valve
 4. DC components
 5. Cooling system
 6. resistor

● 性能指标

◎瞬时电流：1~500A；

Instant current:1~500A;

◎系统电压：0.38kV~110kV；

System voltage:0.38kV~110kV;

◎阻值(20℃)：10Ω~1MΩ

Resistance value(20℃):10Ω~1MΩ

◎温升：短时温升10~60S，最大不超过760℃；持续温升，最大不超过385℃。

Temperature rise: short time rise 10~60S, no higher than 760℃; Continuous rise, no higher than 385℃;

◎免维护，拆换快速便利；

Maintenance-free, convenient disassembling;

◎结构紧凑，安装方便；

Compact-sized, easy installation;

◎外壳防护等级：IP00~IP43。

Shell IP level: IP00~IP43.

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● 电气规格

项目 Items	标准 Standard
电压范围 Voltage range	1-35V-110KV
电流范围 Current range	1-500A
阻值范围 Resistance value	10R-1MR
耐压 Dielectric strength	AC2.5kV 260KV/1min 50HZ AC2.5 260KV/1min 50HZ optional
IP等级 IP level	IP00-IP43可选 IP00-IP43, optional
额定温升 Rated temperature rise	短时:760℃, 长时:386℃ Short time:760℃, long time:386℃
温漂 Temperature drift	200ppm/℃

● 应用环境

按DL/T593-1996 3.1的规定。

Refer to DL/T593-1996 3.1

户内:

Indoor:

周围空气温度: +40℃~-25℃;

Environment temperature: +40℃~-25℃

日温差: ≤15K;

Daily Range of Temperature: ≤15K;

海拔: ≤3000m;

Elevation: ≤3000m;

最小公称爬电比距: 瓷质不小于18mm/kV,

Minimal creepage distance: higher than18mm/kv for ceramics;

有机材料不小于20mm/kV。

higher than20mm/kv for organics.

户外:

Outdoor:

周围空气温度: +40℃~-35℃;

Environment temperature: +40℃~-25℃

日温差: ≤25K;

Daily Range of Temperature: ≤15K;

海拔: ≤3000m;

Elevation: ≤3000m;

最小公称爬电比距: II级20mm/kV, III级25mm/kV,

Minimal creepage distance: II Level20mm/kv, III级25mm/kV,

IV级31mm/kV。

IV Level31mm/kV.

注: 超过正常使用条件时, 由用户与制造厂协商确定。

Remark: when the using conditions are beyond the normal ones, the user should make confirmation with the manufacturer.

● 型号说明

产品类别 Style	额定功率 Power	电流 Current	雷电冲击 BIL	阻值 Value	IP等级 IP class
HSR 高压启动电阻器 High Voltage Starting Resistor	210kW	60A	175kV	80Ω	IP23