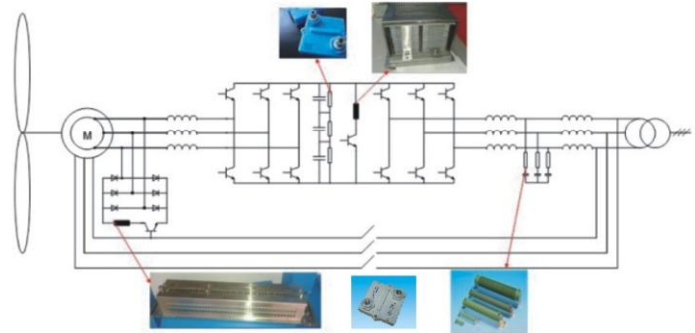


CROWBAR Resistors



■ Features

- 1、Adapted to the harsh operating environment of wind power converter
- 2、Using stainless steel resistance material, strong heat dissipation performance, can withstand continuous impact;
- 3、Can be made of mica sandwich, small volume, short-term impact energy is strong;
- 4、Shell made of stainless steel and corrosion-resistant materials, excellent appearance;
- 5、Strong anti-shock performance, suitable for harsh transport and application places.



■ Product application

The Crowbar resistor is mainly used in low voltage ride-through technology for wind turbine inverters. It is used on the rotor side of the wind turbine to bypass the rotor side converter. When a low voltage disturbance occurs in the grid, it prevents the DC bus voltage from being too high and the rotor current from being too high. It mainly works in fault condition. Crowbar resistor can dissipate 80% of the huge energy in an instant. Crowbar Resistors

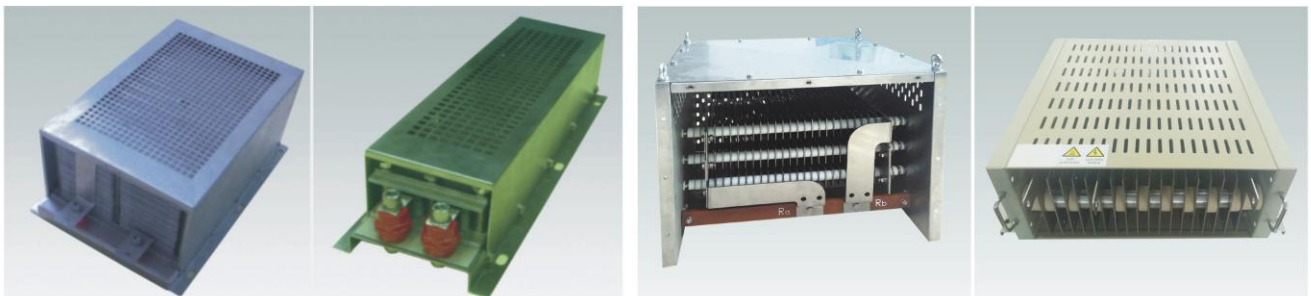
Generally CROWBAR is designed as a small resistor to protect the inverter device in case of grid failure to release the high current to play a protective role, in addition to the wind turbine's low-voltage ride-through function is also realised in CROWBAR.。

■ Dimensions

Specific size according to customer requirements

Mica laminated structure

Metal carrier grid structure

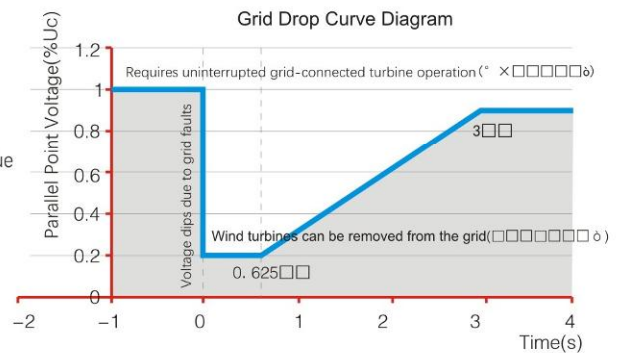
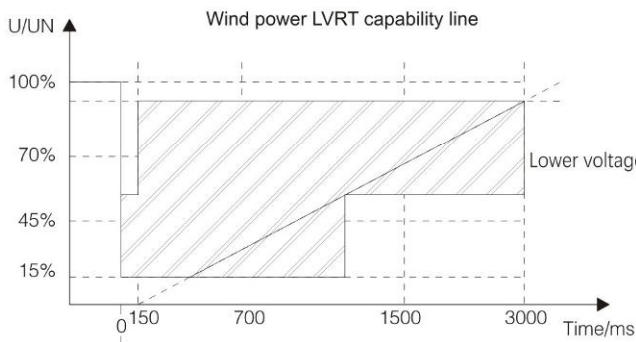


1. Mica sandwich structure, the product volume is small, low cost, large heat capacity, suitable for short-term absorption of large energy, suitable for long intervals.
2. Traditional metal grid structure, the product is relatively moderate in size and cost, good heat dissipation performance, suitable for short-term multiple shocks. It can be applied in Crowbar resistor, Chopper resistor and braking resistor circuits.
3. Metal tube carrier structure, the product has strong impact resistance, good heat dissipation performance; high structural strength, moderate price; suitable for short-term multiple impacts. It can be applied in Crowbar, Chopper and Braking Resistor circuits.

■ Electrical Specifications

Items	Standard
Power Range	50KJ-5MJ
Voltage Range	0.5-5KV
Value Range	0.05R-100R
Dielectric Strength	AC3KV/1min 50Hz
Insulation Resistance	100MΩ/1Min
IP Class	IP20-IP23(Selectable)
Rated Temperature Rise	450°C
Temperature drift	400-1260ppm/°C
Vibration	no visible damage

CROWBAR Resistors



Application conditions

RGCB wind resistors use environment according to DL/T593-20063.1

Indoors: ambient air temperature: +40°C~-30°C;

Daily temperature difference: ≤25K;

Altitude: ≤3000m;

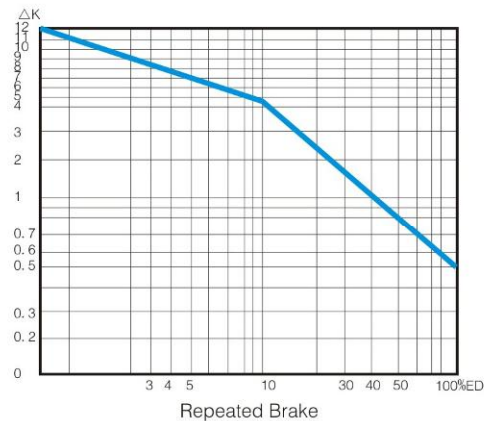
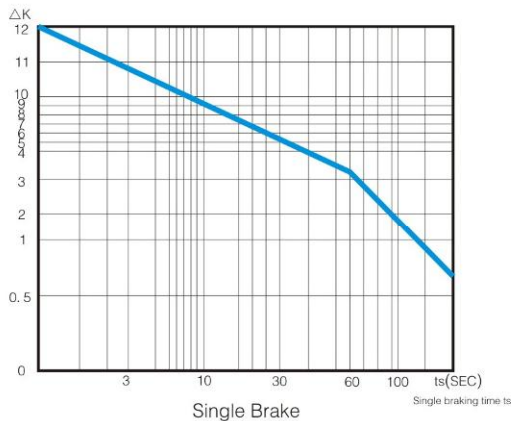
Minimum nominal creepage distance: porcelain not less than 18mm/kV, organic materials not less than 20mm/kV;

Frequency withstand voltage: resistor outlet end and shell (or mounting bracket) can withstand AC 50Hz, 3000V withstand voltage test, no flash breakdown, leakage current is not greater than 10mA.

Note: When exceeding the normal conditions of use, by the user and the manufacturer to determine the consultation.

Brake rate curve

ED braking rate to 100S operation as a cycle, the ratio of braking time: Selection of braking unit based on braking current U_{dc}/R and braking rate ED.



Type Specification

Style	Power	Resistance value	Time	Tolerance
RGCB Crowbar Resistor	60kJ 20kW	0R24 0.24Ω 1R5 1.5Ω	10ms 10ms C preservation	J ±5% K ±10%