



RS309-MD-EVP/EVPM Round tube flat bolt connection fuse

Strong impact resistance, high reliability and high breaking capacity!

Selection Specifications

No.: ZR/YC-0028-03 A2
(2018)

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DC500V/AC500V 200A-630A

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DC500V/AC500V 200A-630A

Product Basic Information

- Rated voltage: AC/DC500V
- Rated current: 200A~630A
- Use category: gR(IEC)
- Breaking capacity: AC200kA, DC50kA (time constant ≤15ms)
- Performance reference IEC60269, ISO8820, GB/T 31465
- CE certified, compliant with RoHS directive

This product is a round tube flat bolt connection type fuse. It has the characteristics of small size, high breaking capacity, and resistance to current shock; it can withstand high-intensity mechanical vibration and shock, wide temperature range shock, and strong chemical load, and is suitable for road vehicle industry applications. It can be used for short circuit, overload and backup protection of electric vehicle drive power systems, power conversion systems, energy storage and power systems, frequency conversion controllers, chargers, wires and other automotive devices and equipment.

Note: All test data in this specification are measured under DC environment. The time constant (expected test current $I \geq 20kA$, take 10-15ms; expected test current $I < 20kA$, take $0.5 \cdot I_{0.3ms}$) and wiring methods refer to ISO8820 and GB/T31465.

Serial number	model	Size code	Rated current <i>A</i>	$I^2t (A^2s)$		Rated power consumption <i>W</i>	Install	
				Fore-arc	Circuit Breaker			
1	RS309-MD-EVP200A	5ZF	200	6100	20500	twenty three	Mounting Bolts M6 Recommended torque $6 \pm 1N.m$	
2	RS309-MD-EVP225A		225	9300	31000	25		
3	RS309-MD-EVP250A		250	12100	40500	27		
4	RS309-MD-EVP275A		275	15400	50700	29		
5	RS309-MD-EVP300A		300	17600	61000	31		
6	RS309-MD-EVP325A		325	20000	74800	32		
7	RS309-MD-EVP350A		350	23100	88500	34		
8	RS309-MD-EVP375A		375	26400	104000	36		
9	RS309-MD-EVP400A		400	30800	119000	38		
10	RS309-MD-EVP450A	6ZF	450	57400	325000	41	Mounting Bolts M8 Recommended torque $12 \pm 1N.m$	
11	RS309-MD-EVP500A		500	89000	370000	44		
12	RS309-MD-EVP550A		550	116000	415000	48		
13	RS309-MD-EVP630A		630	153000	520000	50		
14	RS309-MD-EVPM200A	5ZH	200	6100	20500	twenty three		Mounting Bolts M8 Recommended torque $12 \pm 1N.m$
15	RS309-MD-EVPM225A		225	9300	31000	25		
16	RS309-MD-EVPM250A		250	12100	40500	27		
17	RS309-MD-EVPM275A		275	15400	50700	29		
18	RS309-MD-EVPM300A		300	17600	61000	31		
19	RS309-MD-EVPM325A		325	20000	74800	32		
20	RS309-MD-EVPM350A		350	23100	88500	34		
twenty one	RS309-MD-EVPM375A		375	26400	104000	36		
twenty two	RS309-MD-EVPM400A		400	30800	119000	38		
twenty three	RS309-MD-EVPM450A	6ZH	450	57400	325000	41		
twenty four	RS309-MD-EVPM500A		500	89000	370000	44		
25	RS309-MD-EVPM550A		550	116000	415000	48		
26	RS309-MD-EVPM630A		630	153000	520000	50		

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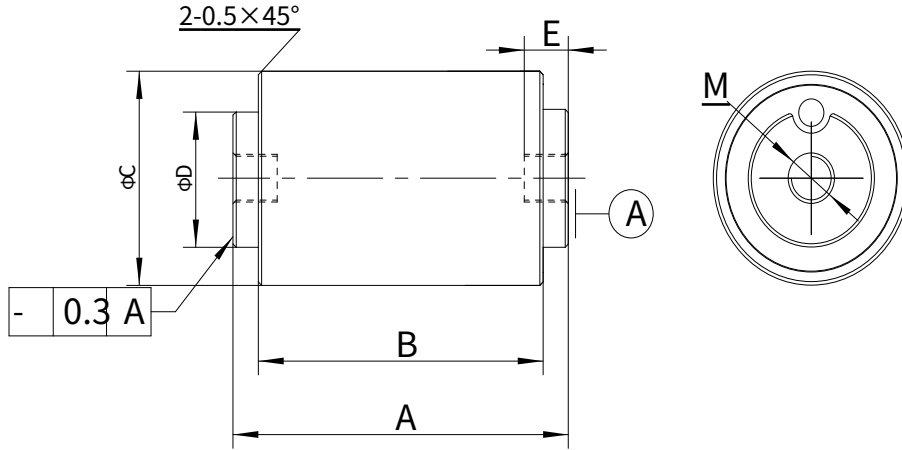
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Product dimensions (mm)

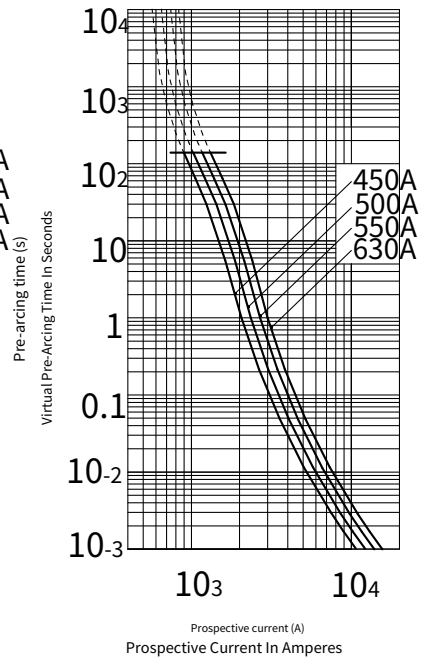
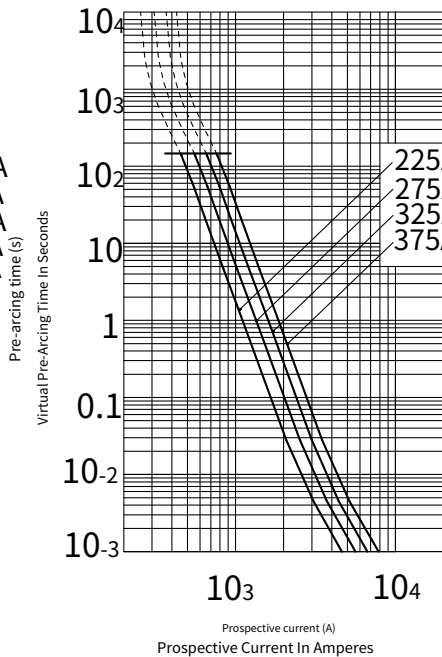
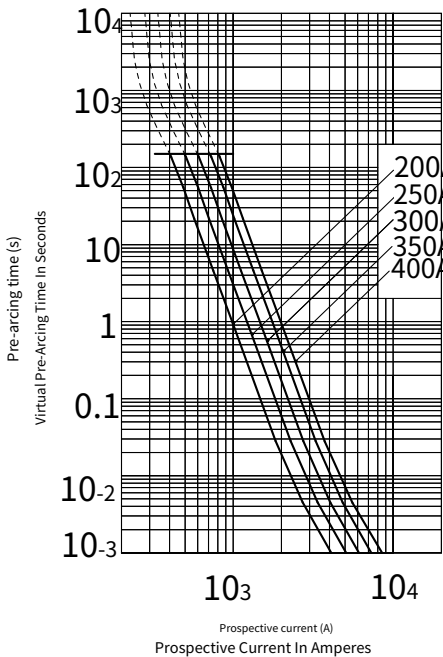
Fuse appearance and installation dimensions



尺寸代码	A±0.3	B±0.5	C±0.5	D ^{+0.3}	E ^{+0.5}	M
5ZF	53	45	31	20	7	M6
5ZH	53	45	31	20	7	M8
6ZF	53	45	37	24	7	M6
6ZH	53	45	37	24	7	M8

Characteristic curves

Time-current characteristic curve

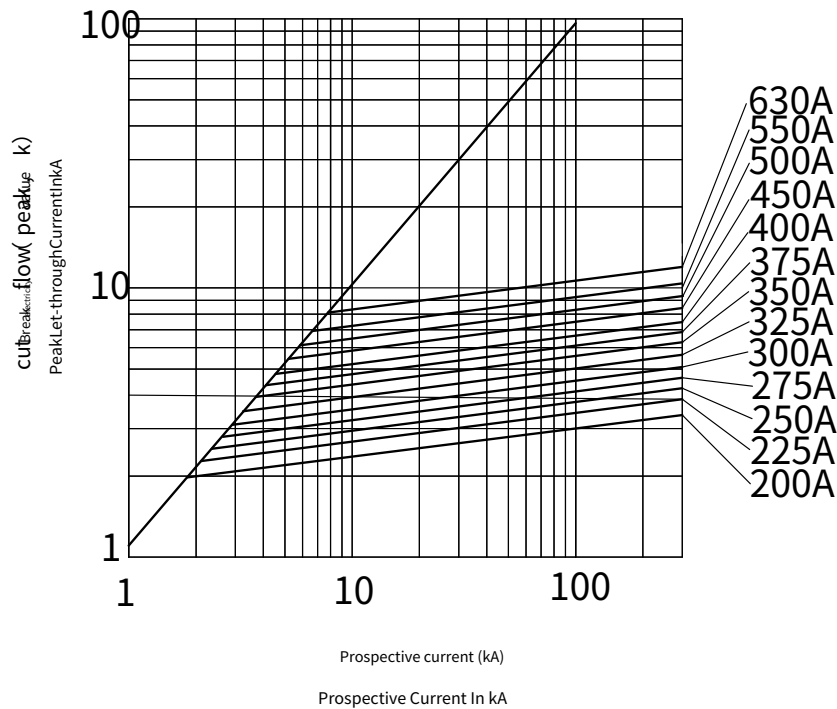


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Cut-off current characteristic curve



Transportation and storage

transportation

During transportation, rain, snow and mechanical damage should be avoided.

storage temperature

Product storage temperature: $-40^{\circ}\text{C}\sim 120^{\circ}\text{C}$. Relative humidity is not more than 90% at 40°C , and moderate or above condensation should be avoided. Package storage temperature: $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$. Relative humidity is not more than 90%, and no obvious condensation.

Conditions of Use

Normal use Parts and parameter correction

The fuse works under the normal use conditions described below and no additional correction is required. When the normal use conditions are exceeded, if it is within the allowable use conditions, some parameters may need to be corrected or consultation may be required. If it exceeds the allowable use conditions, our company should be consulted and the working adaptability evaluation and test of the conditions should be carried out.

The recommended long-term current value is no more than 80% of the rated current.

Ambient air temperature Spend

Normal use conditions

$-5^{\circ}\text{C}\sim 40^{\circ}\text{C}$.

Permitted Use Conditions

$-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$.

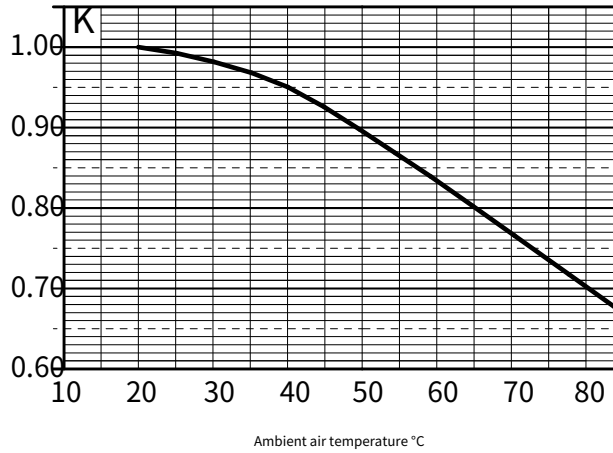
Parameter correction for ambient air temperature changes: When working below -5°C , the pre-arcing time of the low-overload overcurrent of the fuse is slightly prolonged, and the rated current is slightly increased. However, unless the temperature above -5°C is not within the working range, it is generally not considered to increase the rated current of the fuse.

When the fuse works above 40°C , the rated current needs additional correction, and the correction factor is $-Kt$. Note 1: The value of Kt has taken into account the impact of the rated current safety margin of the fuse under normal working conditions. Note 2: The ambient air temperature needs to last for more than 1 to 2 hours to have a significant impact.

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altitude

Normal use conditions

The altitude does not exceed 2000m.

Permitted Use Conditions

Not exceeding 4500m.

Parameter correction for altitude changes: Higher altitudes mainly cause insulation degradation, heat dissipation degradation, and air pressure changes. a) For

every 100 meters increase in altitude, the temperature rise of the fuse increases by 0.1-0.5K.

b) For every 100m increase in altitude, the ambient temperature decreases by about 0.5K on average.

c) In general, for fuses used in open environments, the effect of altitude on rated current can be ignored and they should still be selected according to standard conditions.

d) For fuses used in closed environments, if the ambient air temperature or the temperature inside the fuse box does not drop significantly with increasing altitude, and can still reach above 40°C, the rated current needs to be derated. For every 1,000 meters increase in altitude, the rated current is derated by 2%-5%. Note: In the same size series, the maximum rated current uses a higher derated ratio, and the smaller rated current uses a lower derated ratio. Influence of altitude on air insulation strength (breakdown strength)

a) As the altitude increases, the insulation strength of air decreases. Within 2000-4500 meters, the insulation strength decreases by 12-15% for every 1000 meters increase in altitude.

GB/T16935.1, the insulation gap should be corrected accordingly.

b) The insulation distance between fuse terminals is generally much larger than the insulation gap required by GB/T16935.1, Table A1, A2, except for some smaller

There is no need to check the insulation gap outside the fuse.

c) The user needs to consider the impact of altitude on the insulation gap between the fuse belt and other live structures, as well as the insulation gap to the ground.

Atmospheric conditions

Normal working conditions

The air should be clean and its relative humidity should not exceed 50% at a maximum temperature of 40°C. Higher relative humidity is possible at lower temperatures, for example, 90% at 20°C. Under these conditions, moderate condensation may occasionally occur due to temperature changes.

Permitted working conditions

Without obvious condensation, the relative humidity can reach 95%.

Vibration environment and ability to withstand disasters such as earthquakes

This series of fuses has good resistance to vibration and impact, and complies with JASO D622-2006 /ISO8820/GB/T 31465 standards. This series of fuses has good resistance to vibration and impact, and complies with the Class II application environment of rail transit vehicles.

This series of fuses has the ability to withstand vibration and impact, and is suitable for installation on road vehicle bodies. For applications with stronger vibration, please consult us.

Filth Level

The filthiness level meets level III.

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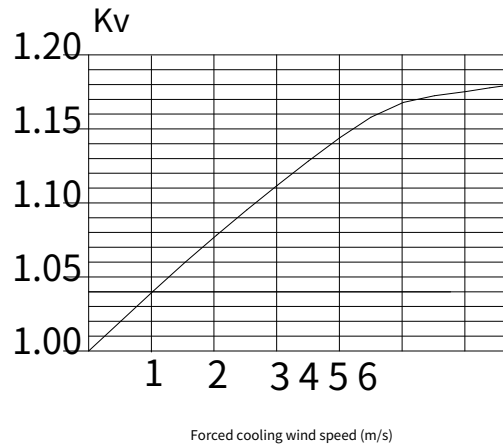
Installation conditions

Normal working conditions

a) The fuse should be installed alone in natural air without ventilation. Except for the connecting wire, there should be no other heat-generating or heat-dissipating components within 1m. b) The fuse connection terminals should ensure stable and reliable electrical contact. The contact resistance should not significantly affect the operation of the fuse. c) The fuse can be installed vertically, horizontally or tilted. If the fuse relies on spring pressure to ensure electrical connection, it is advisable to choose a suitable position when installing it to avoid the adverse effects of gravity and vibration on the electrical connection.

Forced air cooling

Forced air cooling can increase the heat dissipation of the fuse and increase the rated current of the fuse. Correction factor of wind speed and rated current - K_v .



a) When installing fuses, the minimum gap between the live parts of two adjacent fuses should meet the insulation requirements. If necessary, install insulation between the fuses.

Partition is used to prevent phase-to-phase short circuit when replacing the fuse under power.

- b) In conjunction with regular inspection and maintenance of electrical equipment, carry out inspection and maintenance to remove dust and oxide layers on conductive parts.
- c) Fuses that are mechanically damaged must be replaced.
- d) Do not replace the fuse under load unless permitted by the use requirements, such as a fuse-type load switch.

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