

Data Sheet 3.62/8

Chopping Multiple Spark Gaps, Type AFC

Application

Chopping multiple spark gaps, type AFC, can be used for chopping of lightning impulse voltages between 20 kV and 3600 kV. The chopping can be realized at the front or at the tail of the impulse. They consist of a capacitively controlled series connection of single-sphere gaps. The stage voltage is 200 kV. The capacitive control divider serves as basic load for the impulse voltage test generator. Equipped with an optional low voltage (LV) capacitor, the chopping multiple spark gap can also be used as a voltage divider for the measurement of lightning impulses and alternating (AC) voltages.

Design

The chopping multiple spark gaps, type AFC, consist of capacitor, glass-fiber-reinforced plastic (GRP) column, base frame with rollers, electrodes and an isolating ladder with mounted spark gaps. The adjustment of the gap space is effected by motor drive, which is controlled by keyswitches of the operator device. The triggering signal from the control is transmitted to the ignition generator (see Data Sheet 3.18) of the spark gap via a fiber-optic link.

Table 1: General parameters and conditions

| | | |
|---|------------------|----------------------|
| Duty cycle | | continuous operation |
| Operating conditions: | | |
| Ambient temperature | °C | 0 ... 40 |
| Relative humidity | % | ≤ 90 |
| Height above sea level | m | ≤ 1000 |
| Installation | | indoor |
| Reference atmospheric conditions (according to IEC 60060-1: 2010): | | |
| Absolute pressure | hPa | 1013 |
| Temperature | °C | 20 |
| Absolute humidity | g/m ³ | 11 |

Table 2: Technical parameters

| Type | For Test Systems Series ¹⁾ | Max. chopping voltage | Related to impulse generator | Number of stages | HV capacitance | HV damping resistance | Height H | Length x Width L x B | Weight |
|---------------|---------------------------------------|-----------------------|------------------------------|------------------|----------------|-----------------------|----------|----------------------|--------|
| | | kV | kV | | pF | Ω | mm | mm x mm | kg |
| AFC 1330/600 | L, M | 600 | 400 ... 600 | 3 | 1330 | 75 | 2890 | 1800 x 1475 | 391 |
| AFC 2670/600 | G | 600 | 400 ... 600 | 3 | 2670 | 45 | 2890 | 1800 x 1475 | 391 |
| AFC 1000/800 | L, M | 800 | 600 ... 800 | 4 | 1000 | 100 | 3335 | 1800 x 1475 | 430 |
| AFC 2000/800 | G | 800 | 600 ... 800 | 4 | 2000 | 60 | 3335 | 1800 x 1475 | 430 |
| AFC 800/1000 | L, M | 1000 | 800 ... 1000 | 5 | 800 | 125 | 3930 | 1800 x 1475 | 455 |
| AFC 1600/1000 | G | 1000 | 800 ... 1000 | 5 | 1600 | 75 | 3930 | 1800 x 1475 | 455 |
| AFC 670/1200 | L, M | 1200 | 800 ... 1200 | 6 | 670 | 150 | 4680 | 1800 x 1475 | 605 |
| AFC 1330/1200 | G | 1200 | 800 ... 1200 | 6 | 1330 | 90 | 4680 | 1800 x 1475 | 605 |
| AFC 440/1800 | M | 1800 | 1400 ... 1800 | 9 | 440 | 225 | 6730 | 2430 x 2050 | 1135 |
| AFC 890/1800 | G | 1800 | 1400 ... 1800 | 9 | 890 | 135 | 6730 | 2430 x 2050 | 1135 |
| AFC 330/2400 | M | 2400 | 2000 ... 2400 | 12 | 330 | 300 | 8900 | 2730 x 2550 | 1460 |
| AFC 670/2400 | G | 2400 | 2000 ... 2400 | 12 | 670 | 180 | 8900 | 2730 x 2550 | 1460 |
| AFC 530/3000 | G | 3000 | 2600 ... 3000 | 15 | 530 | 225 | 11300 | 3910 x 3500 | 2130 |
| AFC 440/3600 | G | 3600 | 3200 ... 3600 | 18 | 440 | 270 | 13260 | 3910 x 3500 | 2550 |

¹⁾ Higher or other maximal chopping voltages on request.

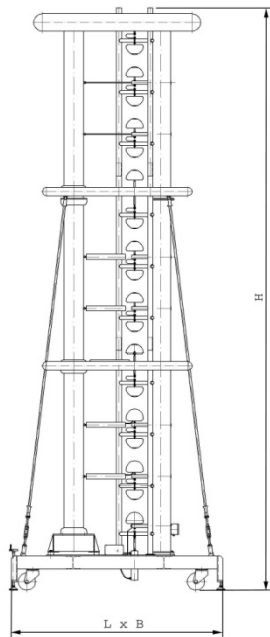


Figure 1: Dimensional drawing of chopping multiple spark gap



Figure 2: Chopping gap of a maximum chopping voltage of 1800 kV

Type designation

AFC a/b M

a = capacitance in pF

b = rated voltage in kV

M = optional LV capacitor