

# 22 CBNG

## Vacuum circuit breaker

### GENERAL DESCRIPTION

The 22CBNG vacuum circuit breakers are unipolar apparatuses for AC applications. The role of the circuit breaker, based on vacuum switch technology, is to protect the downstream power circuits during the operation on the AC network (rated voltages : 25kV, 15kV or 11kV). It can be controlled by pneumatic drive or by electric drive. Additional functions can be combined with the vacuum circuit breaker; earth switch, surge arrester, EMC filter.

The 22CBNG is a compact and robust platform which also supports several optional devices. It is the latest generation of the well-known 22CB family; it integrates all improvements resulting from a long experience in many worldwide train applications.

The 22CBNG can easily replace the first generation 22CB even when including 36KS or 35 KS earth switches.

It is designed to withstand very harsh climatic conditions; it can be mounted on the roof or inside the train.

### PRODUCT CATEGORIES:

- Metro
- Regional Trains
- High-Speed Trains
- Very High-Speed Trains
- Locomotives

### CUSTOMER BENEFITS

- Proven technology
- Reduced number of components
- High reliability
- Compact design incorporating supporting optional devices
- Easy maintenance without completely dismantling the circuit breaker
- Ceramic insulator and aluminum base plate to insure long life expectancy

### KEY REFERENCES

- Alstom trains and locomotives for SNCF, DB, SKANE, SBB, PKP, China Railways, TMH Russie
- Private operators in Germany, Sweden, Italy
- Trains for Bombardier, Hitachi, Toshiba, Nippon Sharyo



## TECHNICAL SPECIFICATIONS

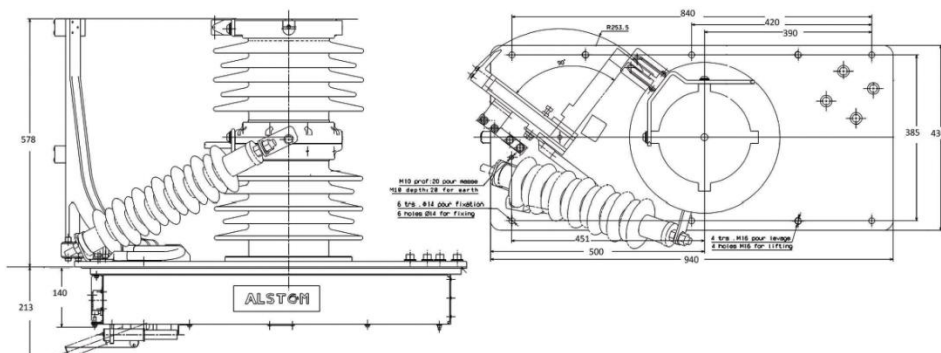
Rated input voltage	25kV, 15kV or 11kV	
Rated current in continuous operation	1000 A	
Type of closure	Electro-magnetic or pneumatic	
Automatic opening	Spring release	
Nominal Operating Temperature	Min -25°C	Max +70°C
Exceptional Operating Temperature	Min -40°C (-50°C in option)	Max +85°C
Storage Temperature	Min -50°C	Max +85°C
Operating Altitude	1400m	
Humidity	95% at 70°	
Mechanical endurance	More than 250 000 Cycles	
Mass	Electric / 38KS : 165 kg Pneumatic / 38KS : 120 Kg Accessory surge arrester : 5 kg	
Sound level generated when opening (at 1m)	Max 90 dB	
Sound level generated when closing (at 1m)	Max 81 dB	
Short circuit withstand current	100kA peak during 100 ms	
Breaking current under 33kV	16kA rms under 27,5kV / 50Hz	
Fire smoke	EN 45545 HL2	
Standards	ISO 9001 & IRIS (International Railways Industry Standard) Compliant with all IEC and EN standards related to AC circuit breakers Compliant with GOST standard (option)	

## VARIANTS

- Electrical or pneumatic drive
- Normal or reduced height VCB column
- 36 KS earth switch compatibility
- 35 KS earth switch compatibility

## OPTIONS

- Upstream surge arrester
- Downstream surge arrester
- 38KS earth switch
- EMC filter
- Interlocking key system
- Interlocking pantograph function
- Winterization -50°C



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