

**AC Vacuum Circuit-Breaker  
type BVAC**  
for electrical traction vehicles



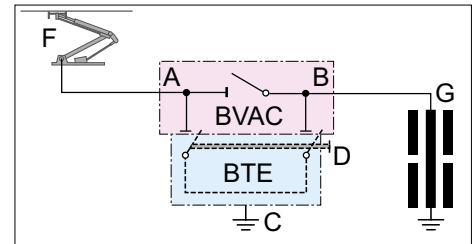
## General

The Sécheron type BVAC circuit-breaker is a roof mounted way applications. It is equipped with a vacuum switch tube, pneumatic closing, electromagnetic holding and opening through spring induced force.

The BVAC is used as the main line breaker to switch ON and OFF the traction power circuit, as well as to interrupt the overloads and short-circuit currents.

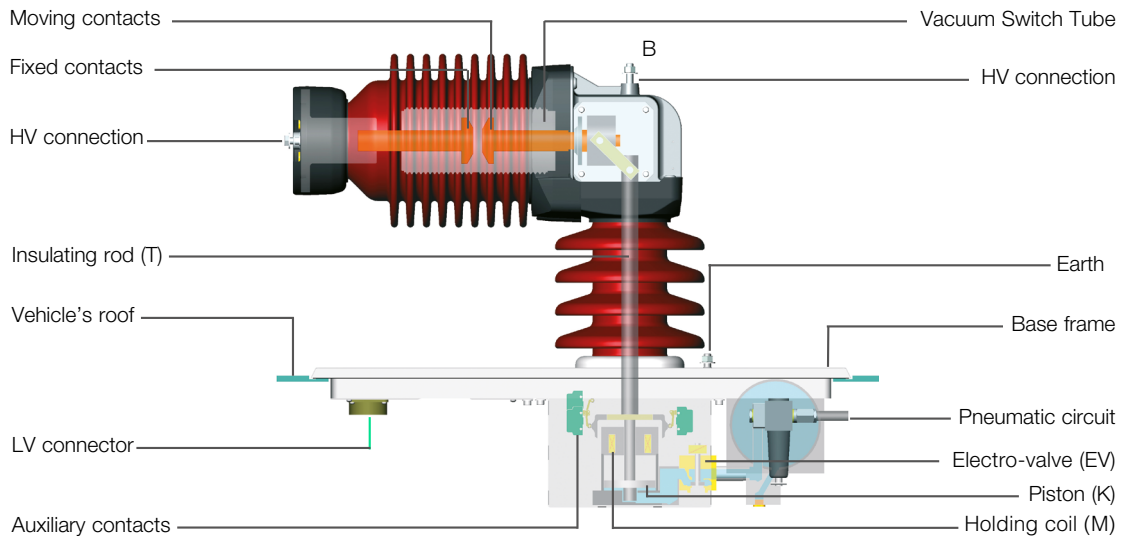
It can replace the type DBTF air blast circuit-breaker without modification of the roof.

As an option, the BVAC can be equipped with an earthing switch type BTE 15/25.04.



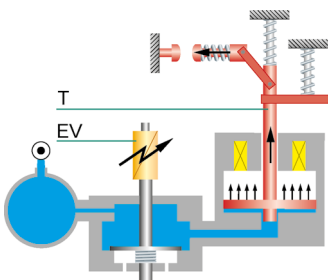
A: towards pantograph  
 B: towards transformer  
 C: grounding circuit  
 D: earthing switch type BTE (option)  
 F: pantograph  
 G: transformer

## Description



## Operation

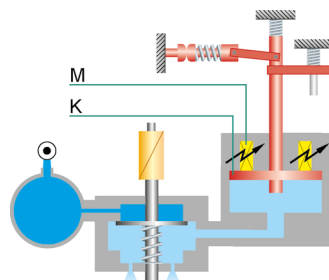
The operation of the BVAC breaker includes 3 steps.



### Closing

(pneumatic)

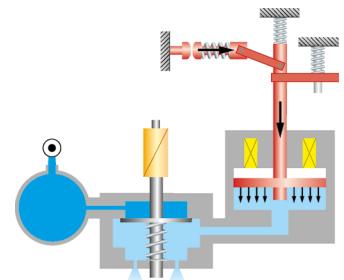
The BVAC is closed by actuation of the solenoid valve (EV). Moved by the piston (K) and the insulating rod (T), a mechanism closes the the mains contacts inside the vacuum switch tube (VST) and prestress the opening springs.



### Holding

(electro-magnetic)

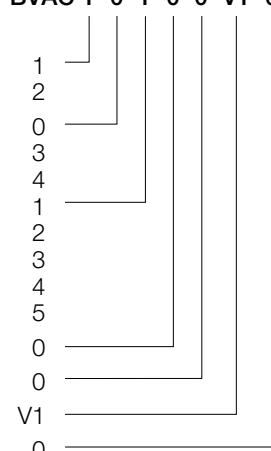
The pneumatic cylinder is equipped with a holding electro-magnet (M), which holds the BVAC in the closed position, without air pressure.



### Tripping

The opening of the BVAC is caused by the prestressed springs release, which occurs when the holding current is cut off.

## Standard version ordering designation code

AC vacuum circuit-breaker			<b>BVAC 1 0 1 0 0 V1 0</b>	
Rated operational voltage	17.5 kV:	1		
	30.0 kV:	2		
Connections for earthing switch type BTE	Without:	0		
	BTE on right side:	3		
	BTE on left side:	4		
Nominal control voltage	24 V DC:	1		
	36 V DC:	2		
	48 V DC:	3		
	72 V DC:	4		
	110 V DC:	5		
Lightning arrester	Without:	0		
Low voltage connector	Sicem 35 poles:	0		
Control circuit	Standard:	V1		
Auxiliary contacts	5 switches:	0		

The order acknowledgement codification differs from the ordering one.

Note: when ordering spare BVAC version delivered before March 2006, provide Sécheron with the part number of the delivered product.

## Technical data

	Symbol	Unit	BVAC 1...	BVAC 2...
<b>Main Circuit</b>				
Rated operational voltage	$U_e$	V	17'500	30'000
Rated insulation voltage	$U_i$	V	17'500	30'000
Rated power frequency withstand voltage	$U_{50}$	kV <sub>rms</sub>	45	75
Rated impulse withstand voltage	$U_{imp}$	kV	95	170
Rated operational current	$I_e$	A	1000	1000
Conventional free air thermal current	$I_{th}$	A	1000	1000
Rated operational frequency	f	Hz	16 2/3	50/60
Frequency of operation			C3	C3
Rated short-circuit making capacity		kA	62.5	50
Rated short-circuit breaking capacity		kA <sub>rms</sub> /%	25/50	20/50
Rated short time withstand current	$I_{ow}$	kA	25 / 1s	25 / 1s
Opening time	$Dt_o$	ms	20..60	20..60
Outdoor pollution degree			PD4	PD4
Indoor pollution degree			PD3	PD3
<b>Auxiliary Circuit</b>				
Nominal voltage	$U_n$	Vdc	24 / 36 / 48 / 72 / 110	
Maximum closing power ( $Dt_{EV} = \sim 0.6$ s) <sup>(2)</sup>		W	50-200	50-200
Nominal holding power*		W	15-50	15-50
Number of auxiliary contacts			5	5
Air pressure		bar	4.5-10	4.5-10
Air supply pipe diameter			G 3/8	G 3/8
Ambient temperature		°C	-40..+70	-40..+70
Weight		kg	120	135

Compliant to the standards IEC 60077-1/2/4, NF F16-101 grid 18 and NF F 16-102 level 1

The BVAC 2... is designed for a rated operational voltage of 30 kV, but can also be used for a rated operational voltage of 17.5 kV with the same performances as the BVAC 1...

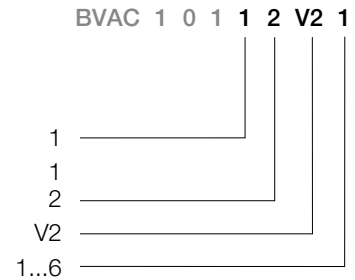
\* Depending on the selected control voltage.

## Options

Lightning arrester:  
Low Voltage connector:

Control circuit:  
Auxiliary contacts

With  
Sicem 31 poles  
Harting 16 poles  
compatible with all former BVAC versions  
from 1 to 6 additional switches



## Main dimensions

