



Medium & High Voltage Capacitor Banks Product Specifications

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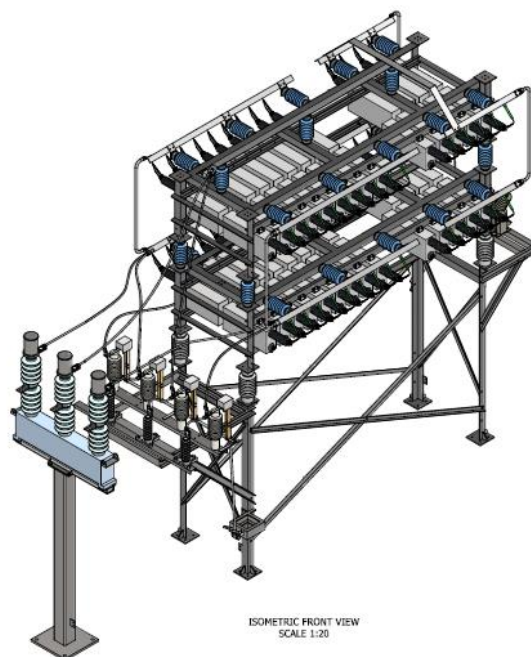


Open Rack

Open Rack

Open Rack capacitor banks and harmonic filters with Southern States CapSwitcher® are the most widely used solution for reactive power compensation.

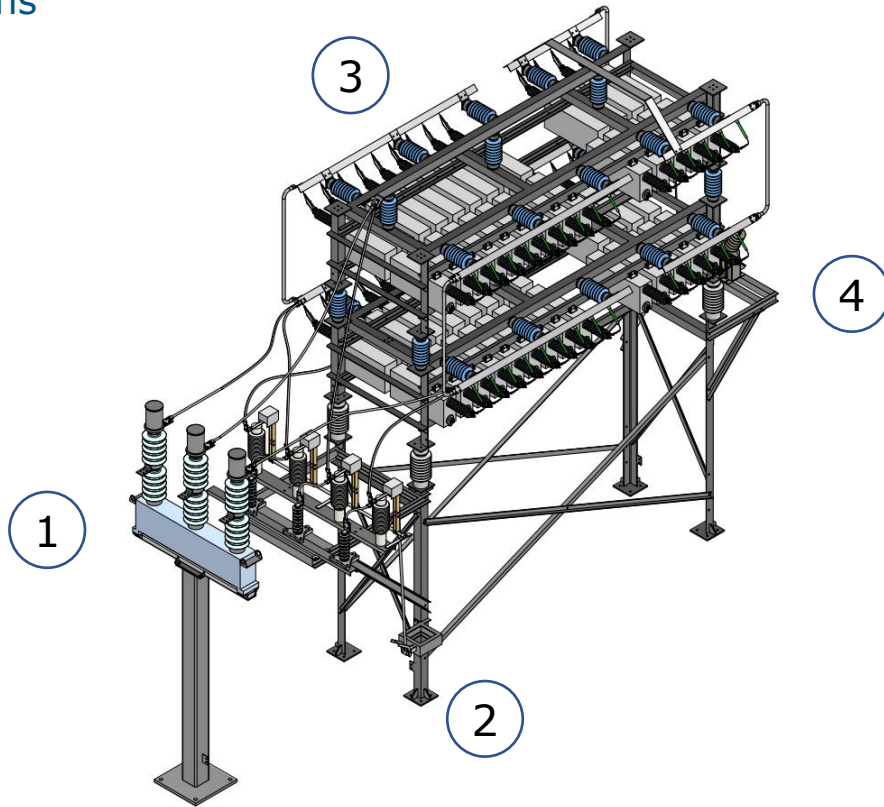
Open Rack solutions are very **cost-effective** for applications with large, steady-state reactive power compensation requirements.



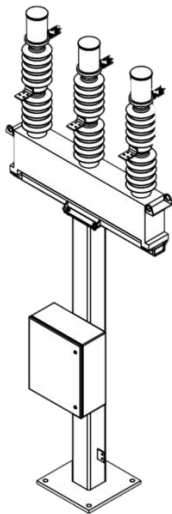
Product Specifications

Brand		Southern States
Standards	-	IEEE STD 18 / CSA ratings
Power Rating	KVAR	Any
Nominal Voltage	V	Up to 230 kV
Frequency	Hz	50 / 60
Type of operation	-	Fixed / Automatic single-step or Multi-step
Design	-	Capacitor bank / Detuned HF / Tuned HF
Topology	-	Ungrounded Wye Ungrounded split wye Grounded Wye Delta
Structure	-	Galvanized steel (std) / Aluminium (optional)
Switching element	-	SF6 (Other technologies available upon request)

Main Sections



① Capacitor Switching



The Southern States CapSwitcher, a high-voltage capacitor switching device specifically designed for re-strike free switching of capacitor banks, is a reliable, long-life SF6 capacitor switch that addresses this utility need, offering significant improvements in product life and overall reliability.

Other capacitor switching options are available upon request.

CapSwitcher Ratings

15-38 kV (Type 38M)

Maximum Voltage	15.5 kV	27 kV	38 kV
BIL	110 kV	150 kV	200 kV
Rated Power Frequency	50/60 Hz		
Continuous Current	600 A (800 A optional)		
Rated High Freq. Transient-Making Current	42 kA peak at 8,100 Hz		
Short-Time Symmetrical Withstand	40 kA RMS (1 sec)		
Endurance Life	10,000 operations		
Ambient Temperature Rating	-35°C to +50°C (standard) -50°C to +50°C (optional)		

Capacitor Switching Ratings (IEEE C37.09a-2005)

High Freq. Transient Making Current	23 kA peak at 5,400 Hz
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38-72.5 kV

Maximum Voltage	38 kV	48.3 kV	72.5 kV
BIL	200 kV	250 kV	350 kV
Rated Power Frequency	50/60 Hz		
Continuous Current	600 A		
Primary Fault Interrupting Rating	25 kA RMS* 18 kA (optional -50°C)		
Short-Time Symmetrical Withstand	50 kA RMS (1 sec)		
Endurance Life	10,000 operations		
Ambient Temperature Rating	-40°C to +50°C (standard) -50°C to +50°C (optional)		

Capacitor Switching Ratings (IEEE C37.09a-2005)

High Freq. Transient Making Current	18 kA peak at 4,630 Hz
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*31.5 kA rating available (max 3 full fault interruptions)

**Design has SF₆/N₂ mixture

CapSwitcher Ratings

123/170 kV

Maximum Voltage	123 kV	145 kV	170 kV*
BIL	550 kV	650 kV	750 kV
Rated Power Frequency	50/60 Hz		
Continuous Current	650 A		
Primary Fault Interrupting Rating	40 kA RMS (standard) 25 Ka rms (optional -50°C)**		
Short-Time Symmetrical Withstand	40 kA RMS (3 sec) 63 kA RMS (18 cycles)		
Endurance Life	10,000 operations		
Ambient Temperature Rating	-40°C to +50°C (standard) -50°C to +50°C (optional)		

Capacitor Switching Ratings (IEEE C37.09a-2005)

High Freq. Transient Making Current	20 kA peak at 4,600 Hz
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*Suitable for use on grounded capacitor banks only

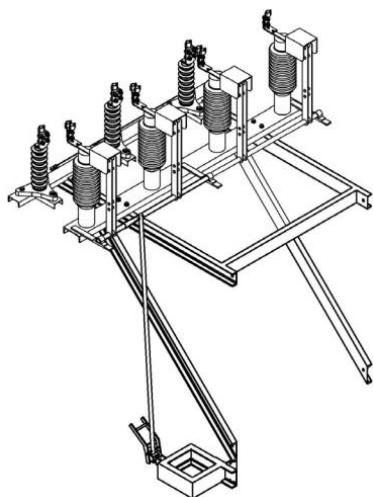
**Design has SF₆/N₂ mixture

245/362 kV

Maximum Voltage*	362 kV
BIL	1,300 kV
Rated Power Frequency	50/60 Hz
Continuous Current	810 A
Power Frequency Withstand Voltage	555 kV
Chopped Wave Voltage (Optional)	1,680 kV
Short-Time Withstand Current	40 kA RMS (1 sec) 63 kA RMS (18 cycles)
Peak Withstand Current	40 kA RMS - 104 kA peak
Ambient Temperature Rating	-30°C to +50°C (standard)
Capacitor Switching Ratings (IEEE C37.09a-2005)	
High Freq. Transient Making Current	20 kA peak at 4,600 Hz

*Consult factory for 245 kV applications

② Accessory Section



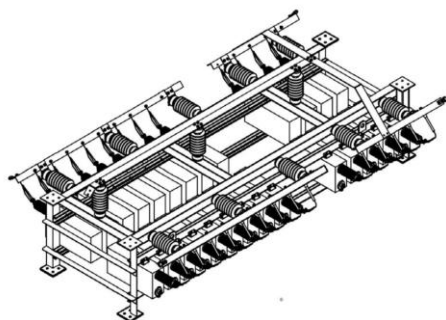
Grounding Switch

3-5 poles
2 NO/NC auxiliary contacts
Manual group operation
Provisions for Kirk Key interlock

Arresters

Full line voltage
Neutral ground

③ Power Section



Capacitors

Single Phase
Free of PCB's
50 up to 800 KVAR

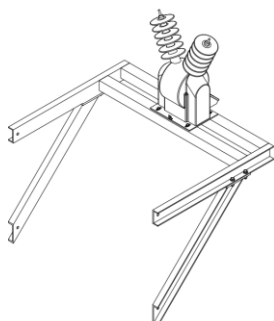
Reactors

Air core
Tuned or Inrush limiting

Capacitor protection

External fuse
Internal Fuse
Fuseless

④ Protection



Unbalance detection

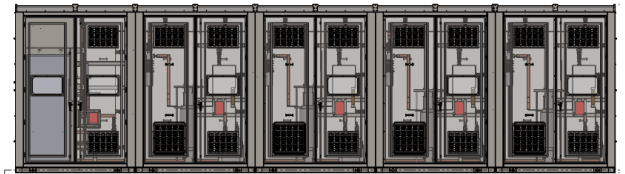
Potential transformer / 1-2 bushings
Current transformer
Auxiliary capacitors (High voltage capacitor banks)
Auxiliary resistors (High voltage capacitor banks)



Metal Enclosed

Metal Enclosed

Metal Enclosed harmonic filters and capacitor banks are **customizable** solutions for specific needs.



These systems are fully self-contained and resistant to environmental contamination and critters.

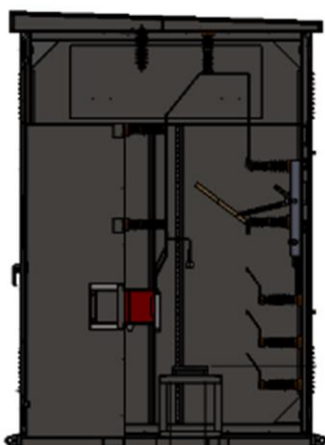
Because of their **easy installation**, metal enclosed systems are very popular among industrial load and renewable generation applications.



Product Specifications

Brand	Southern States	
Standards	-	IEEE STD 18 / CSA ratings
Power Rating	KVAR	Any
Nominal Voltage	V	Up to 38 kV
Frequency	Hz	50 / 60
Type of operation	-	Fixed / Automatic single-step or Multi-step
Design	-	Capacitor bank / Detuned HF / Tuned HF
Topology	-	Ungrounded Wye Ungrounded split wye Grounded Wye Delta
Structure	-	Galvanized steel (std)
Switching element	-	SF6 / Vacuum

① Incoming section



Protection

Bus connection
Fused disconnect
Non fused disconnect

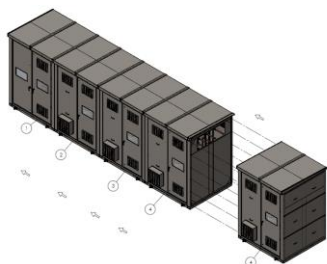
Accessories (optional)

PT Indoor service
1 Phase/ 3 Phase / Open Delta

CT Indoor service

Surge Indoor service
Arrester According to connection configuration

② Power section



Capacitors

Single Phase
Free PCB's
50 up to 1,000 KVAR

Switching device

None (fixed)
SF6
Vacuum

Reactors

Iron core
Tuned or Inrush limiting

Unbalance detection

Neutral PT
Neutral CT

③ Protection & Control

Control	Control options	Power Factor KVAR Voltage
	Features	Remote/SCADA Class A metering Time re-energization timer
Protection	Main protections	Neutral unbalance Overcurrent Over voltage Harmonics
	Custom made	Relay brand and other protection schemes can be selected by customer

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