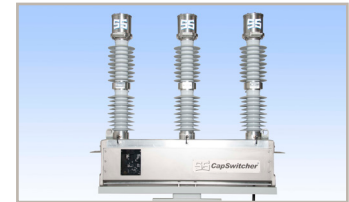
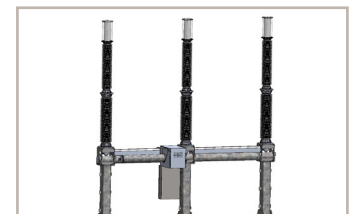


CapSwitcher® CLOSING RESISTOR SELECTION CHART

Rated Voltage (V_R) (kV)	Rated Bank Size (Q_R) (Mvar)	Closing Resistor (Ohms)
15.5	1 to 2	40
	> 2 to 4.0	30
	> 4 to 7.5	12
	> 7.5 to 15.0	6
27	1.5 to 3	90
	> 3 to 6	40
	> 6 to 11	30
	> 11 to 22	12
38	> 22 to 30	10
	3 to 5	90
	> 5 to 9	60
	> 9 to 15	30
	> 15 to 25	20
48.3	> 25 to 40	12
	4 to 18	40
	> 18 to 48	20
72.5	5 to 20	80
	> 20 to 72	40
123	15 to 40	150
	> 40 to 75	75
	> 75 to 130	37.5
145	10 to 25	300
	> 25 to 60	150
	> 60 to 120	75
	> 120 to 155	37.5
170	18 to 30	300
	> 30 to 75	150
	> 75 to 181	75
245	10 to 40	300
	> 40 to 80	150
	> 80 to 120	100
	> 120 to 200	75

DESIGN PLATFORMS

CAP38M (15 kV - 38 kV)

CAP72 (15 kV - 72.5 kV)

CAP145/170 (38 kV - 170 kV)

CAP245 (245kV) - New Design -
Notes:

- If you have a capacitor bank size not shown in the table above for one of these kV ratings, please contact Southern States for closing resistor values and provide the rated voltage and Mvar of the capacitor bank.
- Additionally, if desired, Southern States can analyze your specific installation and recommend a resistor size based upon that installation specific requirements (i.e. kV rating of the installation, single bank switching or back-to-back switching, bank size, sequence in which banks are added - for back to back applications, etc.)
- To interpolate for voltages (V_A) and Mvar (Q_A) not shown in the table, use the formula on right.

Formula: $Q_R = Q_A \times (V_R/V_A)^2$

V_A = Line-to-line voltage, in kV, of the capacitor bank Q_A = Mvar of the cap bank at voltage V_A
 V_R = Voltage in (kV) in table nearest to the line-to-line voltage (V_A), in kV, of the capacitor bank Q_R = Mvar in the table at voltage V_R

Interpolation should be limited to capacitor bank line-to-line voltages between 2.4 kV and 245 kV. Please contact factory for voltages outside of this range.

Example:

Select the proper closing resistor for a capacitor bank rated 34.5 kV, 14 Mvar.

$$Q_R = 14 [38/34.5]^2 = 16.98 \text{ Mvar}$$

The resistor value in the table for V_R (38 kV) and Q_R (16.98 Mvar) is **20 Ohm**. 20 Ohm is the proper choice.