

115 kV SHUNT CAPACITOR BANK

Model : 115 kV 24,36 AND 48 MVAR



Introduction:

Shunt capacitor bank are normally connected in parallel to the transformer or load and installation with the object or power factor improvement, increasing the voltage and reducing the loss on power system. Primary when capacitor bank is energized in circuit, They will supply the lagging, kilovar to the point of their connection and reduces the reactive component in the line. This turn decrease the kVA loading on the source resulting in a reduce of power equipment loading and thereby make capacity available for addition load growth. i.e. power supply network is more effectively, reliable and eliminate investment in feeder, substation , sub-transmission line and generating units.

Design:

The capacitor banks including all associated equipments of current limiting reactor, instrument transformer and switching device are connected. Arranged, mounted on separate skid base shown in Layout (Top View) and furthermore the SF₆ gas circuit-breaker suitable for controlled switching.

Benefits:

- Reduction of penalty for low power factor
- Improve Voltage Stability
- Increased Transmission Capability
- Increased Transformer Capability
- Suitable both for Utility and Industrial Networks

System Architecture:

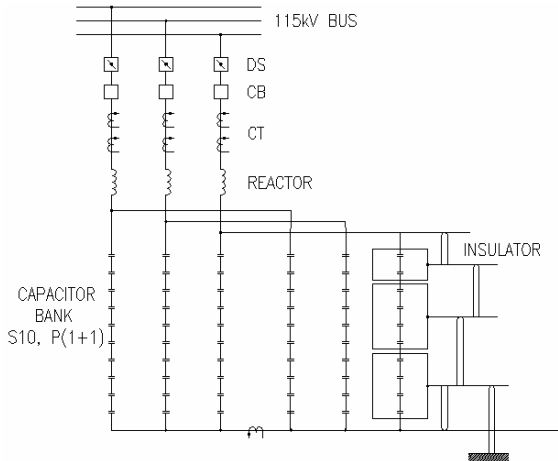
The high voltage capacitor bank is double wye ungrounded connection and built up from single phase, internal fuse capacitor units. By series and parallel connection and adequate number of unit, bank for any voltage and power ratings required. Capacitors in each phase for each bank rating are arranged and having the connection as below and furthermore in case capacitor elements fail, the capacitor banks are designed to trip by neutral unbalance current relay if 110% rated voltage appears on the remaining unit in the ground.

<u>Bank Rating</u>	<u>C-Unit Rating</u>	<u>Connection</u>
115 kV 24 MVAR	6.9 kV 400 kVAR	S10,P(1+1)
115 kV 36 MVAR	6.9 kV 400 kVAR	S10,P(1+2)
115 kV 48 MVAR	6.9 kV 400 kVAR	S10,P(2+2)

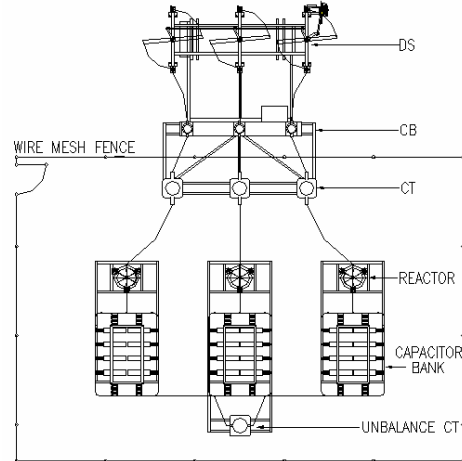
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24 MVAR Connection Diagram



24 MVAR Layout (Top View)



Specification

Capacitor Bank Rating (MVAR)	24	36	48
Shunt Capacitor Bank Data			
Type	Outdoor	Outdoor	Outdoor
Nominal System Voltage (kV)	115	115	115
Frequency (Hz)	50	50	50
Impulse Withstand (BIL), Peak (kV)	550	550	550
Capacitor Unit Data			
Type	Internal Fuse	Internal Fuse	Internal Fuse
Rated Voltage (kV)	6.9	6.9	6.9
Rated Power (kVAR)	400	400	400
Impulse Withstand (BIL), Peak (kV)	95	95	95
Number of Series per phase (Units)	10	10	10
Number of Parallel per phase (Branches)	2	3	4
Total Capacitor Unit (Units)	60	90	120
Inrush Current Limiting Reactor Data			
Type	Air Core	Air Core	Air Core
Inductance (mH)	0.5	0.5	0.5

Authorized Dealer: