

HV-Statcom

Technical Brochure



Get In touch!

Pro SM Power Solutions Pvt. Ltd.

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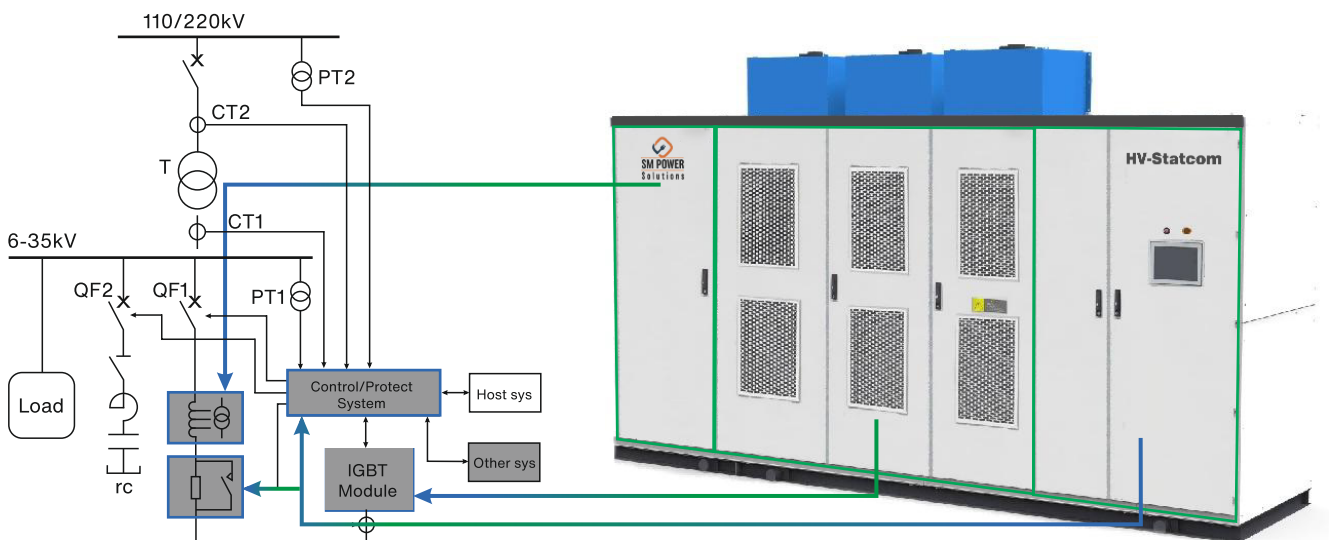
Manufacturing Unit: Plot No L15, L16, Sy No. 114/1, TSSIC General Park,
Shivanagar Jinnaram (M), Sangareddy, Telangana-502319.

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HV-Statcom Working Principle

The HV-Statcom series, an IGBT-based high-voltage reactive power compensation device, connects a reactor (or transformer) in parallel to the grid. By adjusting the AC-side voltage or current, it dynamically provides capacitive or inductive reactive power, ensuring stable, efficient, and high-quality power system operation through constant reactive power, voltage, and power factor control.



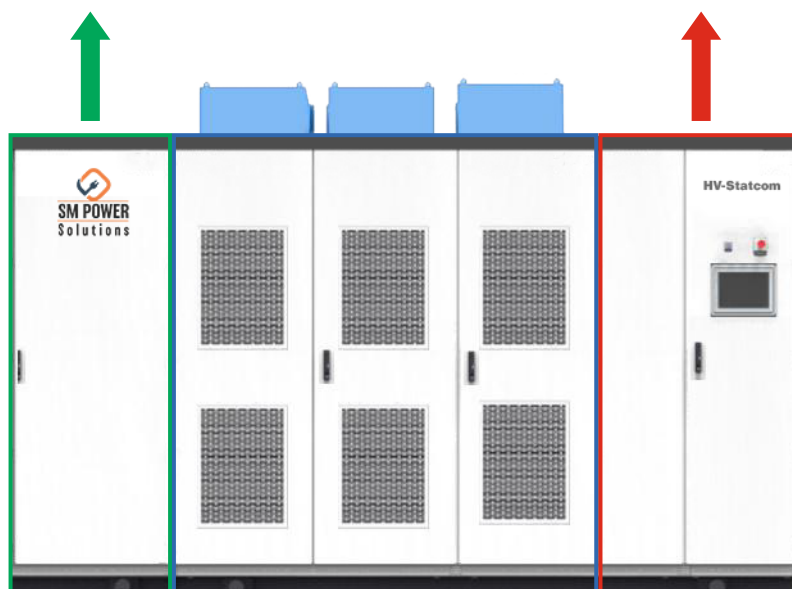
Five types of operation modes: Constant compensation mode / Constant target point reactive power comp mode / Constant target point cosfi comp mode / Constant target voltage comp mode / Load comp mode. The target value can be changed at any time by selecting the drop-down box, and the compensation effect can be checked based on the detected value.

HV-Statcom Working Principle

The reactor uses an iron core or an air core, and if an air core is used, there is no reactor cabinet.



Main Control Panel: Passed EMC, temperature shock and vibration tests, realizes plug-in card interconnection, high unity, good stability and easier maintenance.



Inductor
Panel

Power
Panel

Main Control
Panel



The power unit is divided into 3 phases for independent installation.

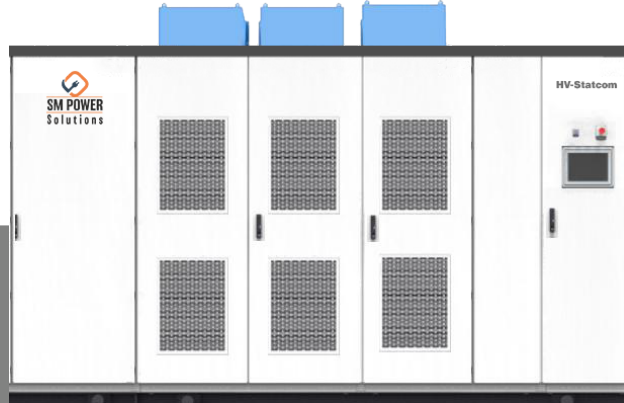


The circuit board in the power unit adopts an intelligent design to increase safety redundancy and protection circuitry.

HV-Statcom Specification

Rated Voltage	6kV $\pm$ 10% ~ 35kV $\pm$ 10%
Input Voltage Range	0.9pu~1.1pu; Low voltage ride-through
Frequency	50Hz or 60Hz, Allow for short-term fluctuations
Compensation Range	$\pm$ 0.1Mvar ~ $\pm$ 200Mvar
Minimum Adjustment Capacity	$\pm$ 0.005Mvar
Dimension	Different voltage levels and capacity decide different dimension
Compensation Current Resolution	0.5A
Response Time	Full response time <5ms
Overload Ability	>120% (1min)
Efficiency	>99%
Output Current	$\leq$ 3%
Power Supply	Dual power supply
Control Power	380VAC, 220VAC, 200VDC
Reactive Power Adjust	Capacitive, inductive automatic continuous smooth adjustment
Communication Port	Ethernet, RS485, CAN, Fiber optics
Communication Protocol	Modbus_RTU, ProfiBUS
Operation Modes	Constant compensation mode / Constant target point reactive power comp mode / Constant target point cosfi comp mode / Constant target voltage comp mode / Load comp mode
Parallel Mode	Multi-machine parallel network operation / Comprehensive compensation for multiple busbars / Multi-group FC integrated compensation control
Protection Function	Bus overvoltage protection, bus undervoltage protection, SVG over load, drive abnormal, Power module over-voltage, over-current, over-temperature and communication failure; protection of input interface, protection of output interface, system power supply abnormal and other protection functions
Troubleshooting Design	Redundant design for N-2 operation
Cooling	Air / Water Cooling
IP Class	Indoor IP30; Outdoor IP40
Noise Level	<65dB
Storage Temperature	-30 $^{\circ}$ C ~ +70 $^{\circ}$ C
Operation Temperature	-20 $^{\circ}$ C ~ +40 $^{\circ}$ C
Humidity	<95%
Altitude	$\leq$ 2000 (above 2000 meters need to be customized)
Seismic Strength	VIII
Filth Class	IV

HV-Statcom Features



- ✓ Compact structure
- ✓ Modular design
- ✓ Multiple operation modes
- ✓ Easy expansion with parallel installation
- ✓ Smooth switching
- ✓ Real-time tracking of load changes
- ✓ H-bridge power module design with IGBT
- ✓ User-friendly interface
- ✓ Voltage flicker suppression and voltage quality improvement
- ✓ Comprehensive protection functions and easy maintenance
- ✓ Response time $\leq 5\text{ms}$
- ✓ Integrated interface for fixed and dynamic compensation
- ✓ High efficiency, low heat generation, and low operating costs

HV-Statcom Optimal Cooling System

When the capacity is too large and the ambient temperature is high, SM Power provides mature water-cooled cabinet solutions to ensure the operating environment of HV-Statcom and improve the operating life.



Air Cooling

Configure Fans to force air cooling applicable to environments with better conditions.

Recommend capacity: <12Mvar
Financial inputs: Less
Effect: Normal
Maintenance: Easy



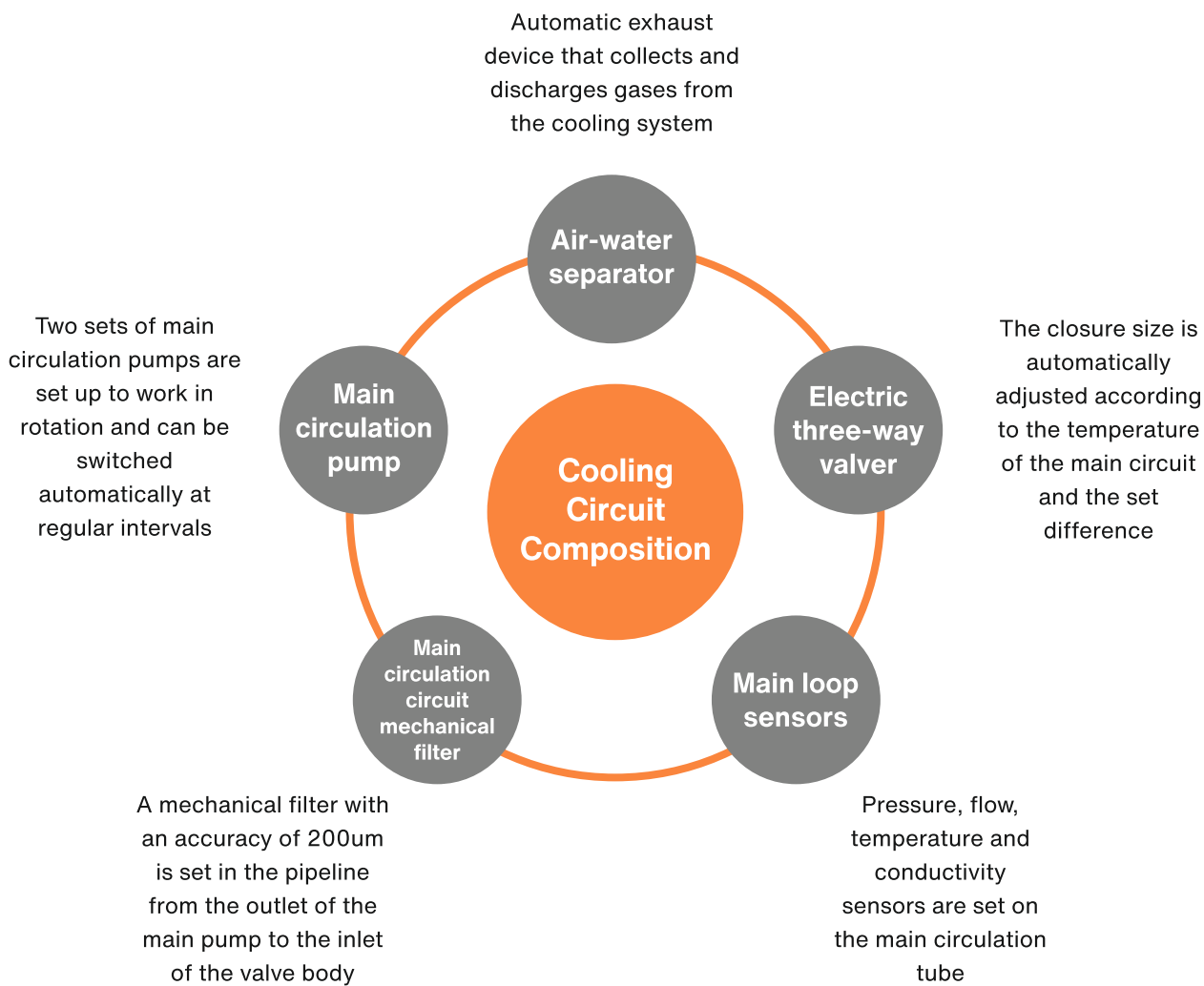
Water Cooling

Equipped with a water cooling device to cool the HV-Statcom, it is used in high-capacity and closed occasions, and is divided into water water cooling and water air cooling

Recommend capacity: >12Mvar
Financial inputs: High

Effect: Good
Maintenance: Little Hard

Sophisticated Cooling System



HV-Statcom Application

The HV-Statcom is widely used in power grids, large industries (such as steel metallurgy, petrochemicals, and other high energy consuming and high emission industrial users), new energy industries (such as wind power and photovoltaic) and others (such as airports, ports, rail transit). It plays an important role in energy conservation, improving the safety and stability of power grid, enhancing power factor and improving power quality.

Clean Energy Industry



Coal Mining Industry



Medicine Industry



Metallurgy Industry



Water Conservancy Industry



Material Manufacturing Industry



Rail Transit Industry



Chemical Industry



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