



VACUUM CIRCUIT BREAKER HHV12 PRIME

12kV, 800A - 2500A, 40kA/3s SWITCHGEAR PANEL
FOR POWER PLANT & INDUSTRIAL APPLICATIONS

IEC 62271-100 & IEC 62271-200



RATINGS

SHORT TIME CURRENT 40KA

MAKING CAPACITY 100KA PEAK

BREAKING CAPACITY 40KA

BASIC INSULATION LEVEL 75KV
(95KV ON DEMAND)

FEATURES

INTEGRAL EARTHING FOR SAFETY

ARC FAULT PROTECTION

GAS VENT DUCTS FOR ALL
CHAMBERS

FULLY DOOR CLOSED OPERATION
IN SERVICE AND TEST POSITION

INTERNAL ARC PROVISION

MEDIUM VOLTAGE SWITCHGEAR S&S POWER

S&S Power Switchgear Ltd (S&S) was established in 1975 in Technical collaboration with Brush Fuse gear, UK for manufacture of Fuses. S&S introduced High Voltage Disconnecting Switches in 1978 collaborating with South wales, UK. In 1987 S&S indigenously developed Outdoor Porcelain Clad Vacuum Circuit Breaker and introduced for the first time in Indian market sold more than 20000 no's of circuit breakers Indoor & Outdoor India & Worldwide. During 90's S&S became the industry leader in the country in sales and market shares in Medium Voltage circuit breaker.

Today S&S Power has three manufacturing locations within the group including subsidiary- Pondicherry, Maraimalai Nagar and Lake District in UK. HHV12 Prime is Assembled and Tested in Maraimalai Nagar Plant, while components are manufactured in Pondicherry Plant. Application Engineering team uses modern software to customize the design for electrical and mechanical application variations. Our Routine Testing Facilities are compliant to IEC requirement.

The products of S&S have been tested in internationally renowned Laboratories- Kema Holland and CESI-Italy. The type test conducted include Ice Breaking test for High Altitude installation of these Disconnectors. S&S continues its success march backed by a strong team of quality Engineers and a fully equipped in house Research and Development. S&S continues its thrust and introduced wide range of products to meet the customer's changing needs which are their core strength in staying ahead successfully in the competitive market. Careful selection of automatic and semi-automatic machines enables S&S to manufacture quality products to meet the stringent customer requirements

S&S Power Switchgear Equipment Ltd has its Disconnector manufacturing unit at Pondicherry in India. S&S Power Switchgear Ltd has its Circuit Breaker manufacturing unit at Maraimalainagar in Chennai, India. S&S also has a group company called Acrastyle Limited located in the United Kingdom who is the world leader in design and manufacture of Control and Protection for Power Generation, Transmission & Distribution. Indoor Metal Clad Vacuum Circuit Breaker The product range includes the following: HHV12 - PRIME: Indoor Metal Clad Vacuum Circuit Breaker (12kV, 800A - 2500A, 40kA/3s)

INDOOR VACUUM CIRCUIT BREAKER TYPE HHV12PRIME

INTRODUCTION

S&S Power is the first company in India to introduce horizontal draw Vacuum Circuit Breaker in this country way back in early 1990s. Pioneering zeal of S&S Power together with the innovative skill of its R&D team made this circuit breaker meet highly demanding needs for performance from all quarters including Consultants, Contractors, Industries and Utilities. Large numbers of these circuit breakers are still in operation in India, South East Asia, and other parts of the world. This Baseline design of HHV12- 12kV horizontal isolated, horizontal draw out vacuum circuit breaker has been redesigned and upgraded as HHV12-PRIME for enhanced performance rating suitable for Industrial Application, Power Plant as new Switchboard also as retrofit breaker. This is easy to operate and maintain equipment for distribution at 12kV, same product is supplied for 6.6/7.2 kV applications. This specially designed offers following concepts. This circuit breaker has been developed after extensive consultation with clients, and consultants in various parts of the world keeping primarily in mind their requirements. Circuit breaker is fully short circuit tested in the international testing laboratory of CESI, Italy to relevant IEC specification and caters to all types of climatic conditions.

THE CIRCUIT BREAKER

The basic enclosure houses circuit breaker compartment, bus bar chamber, cable chamber, CT/ PT chambers, relay and instrument panels and earthing facilities. The construction is of metal clad type and uses high-grade CRCA steel of adequate thickness ensuring safety and security. The circuit breaker trolley comprising of Vacuum Interrupter, Mechanism, etc. engages to the enclosure facilitating horizontal isolation and horizontal draw out. The trolley has distinct service position, and test position with latching and locking facility as needed. Then Interlocking facility is also available through limit switches.

VACUUM INTERRUPTERS

The HHVPRIME employs rated vacuum interrupters for arc extinction. These interrupters are procured from the world-renowned manufacturer. The interrupters are suitable for many full short circuit operations and mechanical operations. Minimum Maintenance Low energy mechanism

OUR VACUUM INTERRUPTER ADVANTAGES:

- Very low arcing time
- Quick recovery of dielectric strength
- Small contact gap
- Minimum Maintenance
- Low energy mechanism



OPERATING MECHANISM

The mechanism is of conventional design and is very simple in operation and construction. The mechanism is designed for operation of very short strokes required in vacuum interrupters and is normally charged by motor. Standby manual charging facility is also provided for the operation in case of necessity. Quick O-CO operation is possible. The mechanism is retained in the "ON" position (Circuit breaker closed) by an over toggle linkage and trip solenoid to open circuit breaker. The energy required for opening is provided by the springs, incorporated in the drive assembly which is compressed during the close stroke. Springs play the major role for the trip and close time of the breaker. That's why we import springs from best manufacturers. A hinged door is provided for easy access to the above components. The closing mechanism includes the following indication.



CUBICLE

Cubicle is compartmentalized design in various segregations and bus bars are fully insulated for specified power frequency withstands voltage through use of shrinkable sleeves. Joints are also fully encapsulated. Bus bar support is rigid enough for all thermal and electrodynamic stresses arising out of 3sec. Short time current. Duplicate bus bar arrangement is also available with the breaker trolley being racked into the upper or lower bus.

CABLE CHAMBER

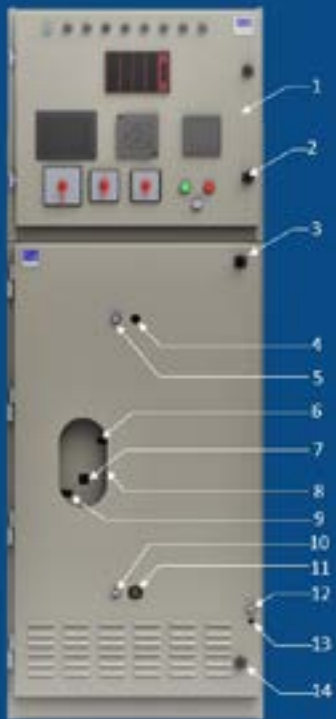
Cable chamber is located at the rear of the Panel and can accommodate 6 nos. single core 1000sq.mm cable or equivalent. This can be accessed through removable rear cover. The cable box is designed for cable entry from top or bottom and sufficient head room is provided for cable termination. Multicore cables are accommodated in separate compartments at the rear and individual course lead from the terminal compartment to the housing within metal earthed conduit. All glands and earthing facilities are provided to terminate the main and multi core cables and need to be specified by the customer.

CT/PT CHAMBERS

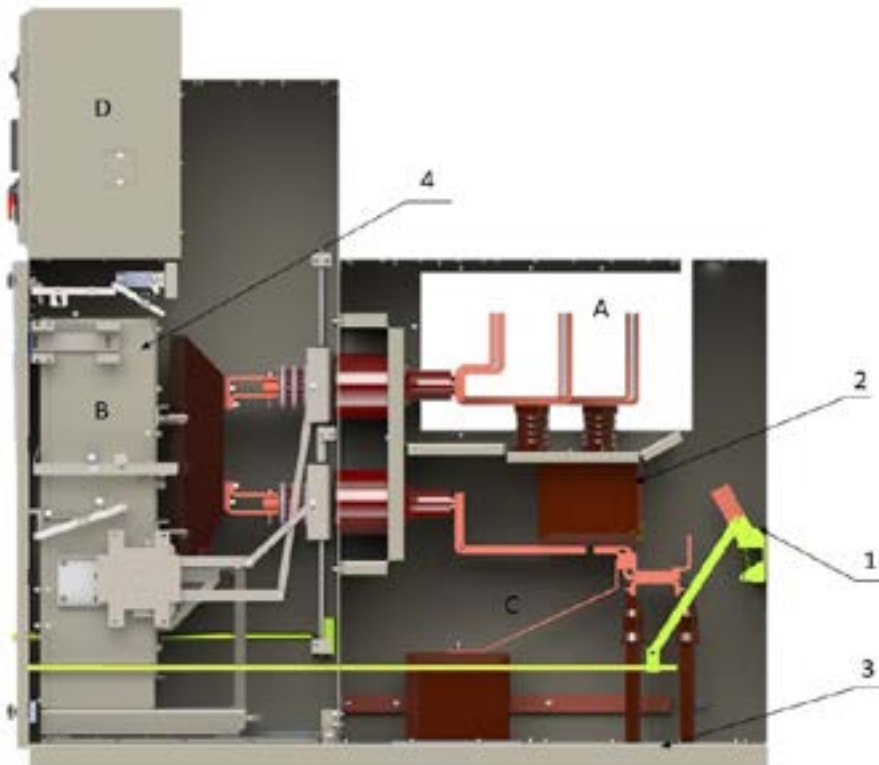
While the current transformers are housed in the chamber within the cubicle, the potential transformers (Voltage Transformer) are mounted on top of the cubicle. Range of current transformers can be provided to meet individual customer protection and metering scheme. Current transformers are easily removed for any future modification or replacement in protection or metering requirements. Provision for feeder connection for 3 phase voltage transformers are provided by means of isolatable high voltage fuse chamber mounted on top position on the circuit breaker metal clad housing.

EARTH SWITCH

Where required, earth switches can be provided as an integral part of the equipment. The earth switches are independent in operation to the main closing mechanism and are interlocked to prevent use when the VCB is connected into its service position. This prevents the vacuum circuit breaker being racked onto a circuit that has been earthed. Operator indicators are provided to warn if the earth switch is in the ON or OFF position, with the additional security that the design has been tested against a full fault make of 3 seconds. Bus bar earthing trucks are provided when required.



1. LT Panel Door
2. Panel Door Lock
3. Chamber door
4. Breaker position handle insertion.
5. Interlock for Breaker position
6. Spring Charged/Free indication
7. Breaker On/Off indication.
8. Inspection window for reading indication.
9. Counter.
10. Interlock for Racking Arrangement.
11. Racking handle insertion.
12. Earthing Interlock
13. Earth handle insertion.
14. Breaker panel door lock



- A – BUSBAR CHAMBER
 B – BREAKER CHAMBER
 C – CABLE CHAMBER
 D – INSTUMENT CHAMBER
1. EARTHING SWITCH
 2. CURRENT TRANSFORMER
 3. GLAND PLATE
 4. VACUUM CIRCUIT BREAKER

TECHNICAL DETAILS

Applicable standard	IEC 62271-100, IEC 62271-200
Type designation	HHV12 PRIME
Normal Voltage	11kV
Rated voltage	12kV
Frequency	50Hz / 60Hz
Normal rated current	800 - 2500 Amps
Short Circuit Breaking Capacity	40kA
Degree of protection	IP4X
Rated 1minute power frequency withstand Voltage(rms)	28kV
Rated impulse withstand voltage	75kV PEAK
Duty cycle full breaking capacity	
Normal : 0-3Min-CO-3Min-CO	Auto reclose : 0-0.3Sec-CO-3Min-CO

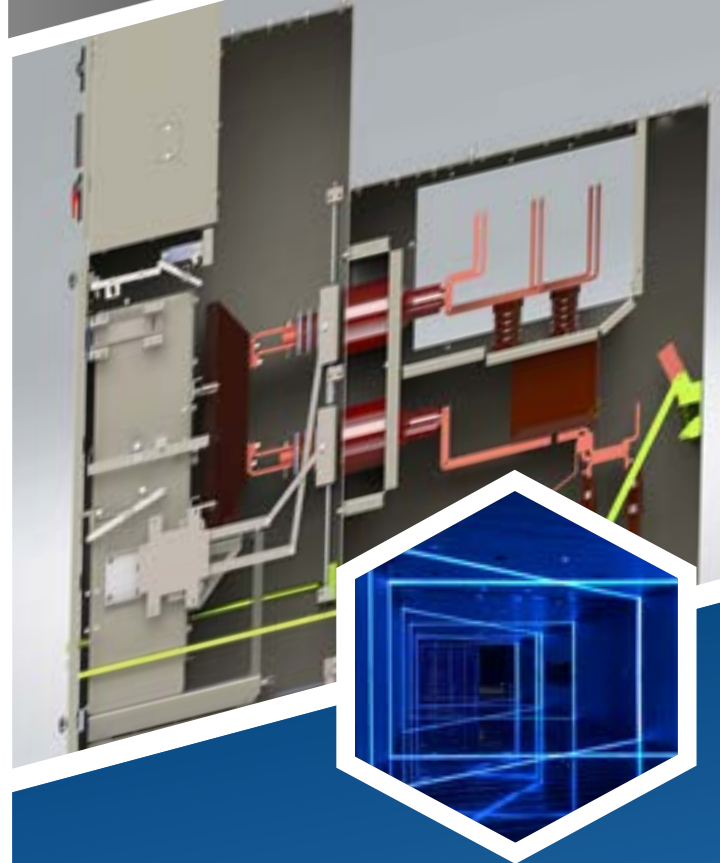


KEY FEATURES

- » Long Maintenance free operation
- » Fully metal clad design
- » Horizontal isolation
- » Bus bar system fully insulated
- » Manual or motor charged main closing mechanism
- » Fully rated earth switches
- » Complete set of interlocks and padlocking facilities

TECHNICAL DETAILS

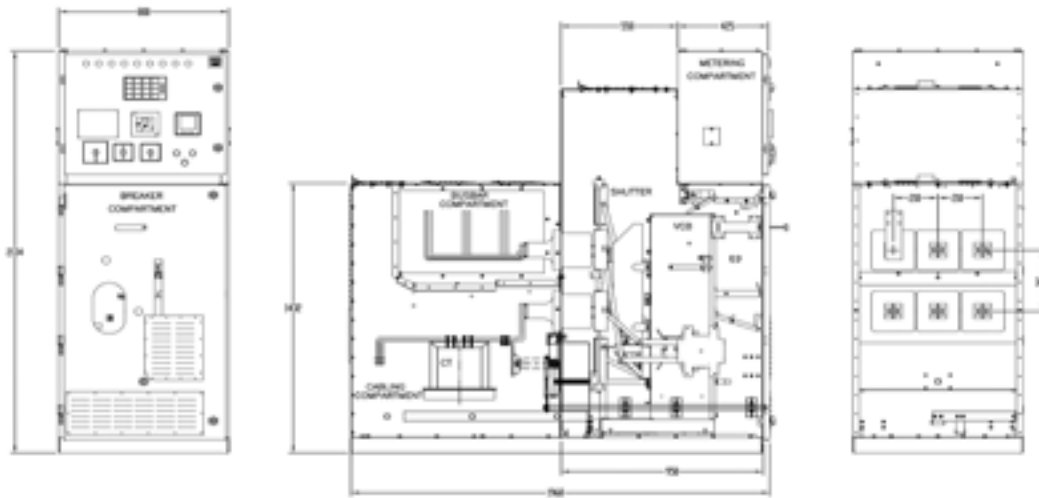
RATED VOLTAGE CLASSIFICATION ACCORDING TO IEC62271-200	
Classification according to IEC 62271-200	12kV
Partition class	PM
Service continuity category	LSC2B
Internal arc aspects class	IAC
Max. kA	40
Duration sec	1.0
Classification	AFLR
Accessibility	A
ACCESSIBILITY OF COMPARTMENT ACCORDING TO IEC62271-200	
Busbar compartment	Tool based
Switching device compartment	Interlock based access
Connection compartment (Front Access)	Tool based & Interlock based access
Connection compartment (Rear Access)	Tool based
Low voltage compartment	Tool based



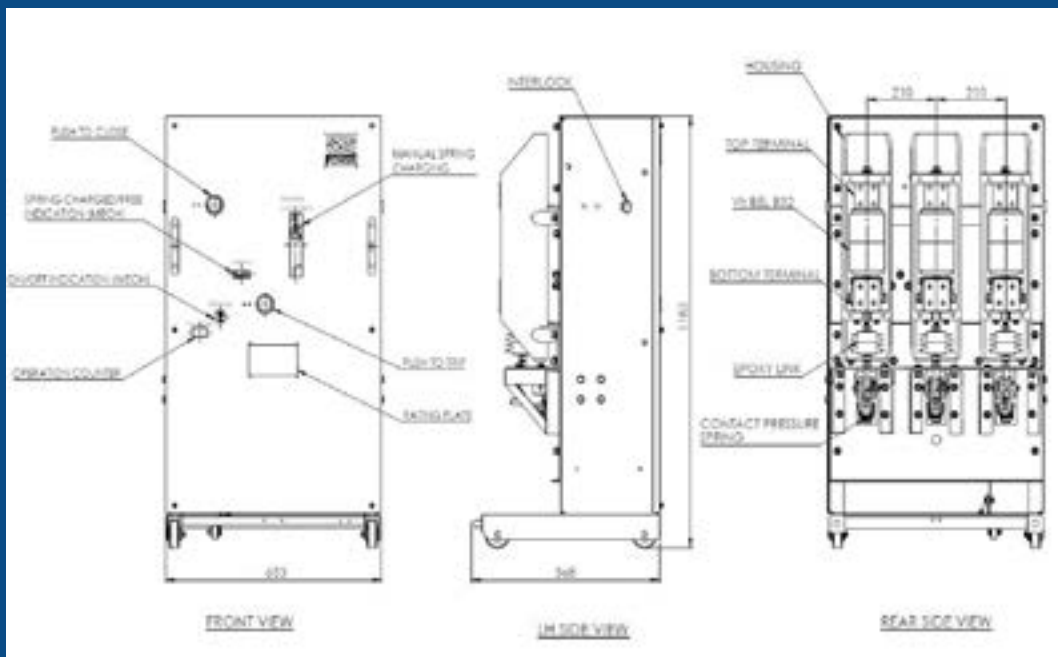
KEY FEATURES

- » Isolatable voltage transformer
- » Ample current transformer Accommodation
- » Extensive use in tropical environments
- » Very low arcing time
- » Quick recovery of dielectric strength
- » Small contact gap
- » Trouble free service
- » Low energy mechanism

DIMENSIONAL DRAWING FOR PANEL



DIMENSIONAL DRAWING FOR VCB TRUCK



CONTACT US

S&S POWER SWITCHGEAR LIMITED

Regd. Office & Works: Plot No:14, CMDA Industrial Area-II, Chithamanur Village, Maraimalai Nagar-603209, Kancheepuram-Dist, Tamil Nadu, India
Tel: +91 44 47431625
Email: sales@sspowers.com
Web: www.sspowers.com

S&S POWER SWITCHGEAR EQUIPMENT LIMITED

No. 4 EVR street, Sedarapet, Puducherry – 605 111, India
Tel : +91 9786403833
Fax : +91-413-2677374
Web : www.sspowers.com

ACRASTYLE POWER (INDIA) LIMITED

Regd. Office & Works:
Plot No.14, CMDA Industrial Area-Part II, Chithamanur Village, Maraimalai Nagar-603209, Kancheepuram-Dist
Tel : +91-44-4743 1626
Email : sales@acrastyle.com
Web : www.acrastyle.com

ACRASTYLE LIMITED (UK)

North Lonsdale Road Ulverston Cumbria LA12 9EB, United Kingdom
Tel : +44-1229-583232
Fax :+44-1229-582586
Web : www.acrastyle.co.uk

