

INDOOR VACUUM CIRCUIT BREAKER



CIRCUIT BREAKER INCLUDING RETROFIT OFFERING

One Stop Switching Solutions

S&S Power Switchgear offers a full line of Indoor & Outdoor Circuit Breakers to help meet many of your application needs. With voltage range up to 36kV, current range up to 2000A and a large variety of functions, these components are used in multiple industries. Over 18,000 have been already installed worldwide.

COMPANY HISTORY

S&S Power Switchgear Ltd (S&S) was established in 1975 in Technical collaboration with Brush Fusegear, UK for manufacture of Fuses. S&S introduced High Voltage Disconnecting Switches in 1978 collaborating with Southwales, UK. S&S indigenously developed Outdoor Porcelain Clad Vacuum Circuit Breaker and introduced for the first time in Indian market.

S&S became the industry leader in the country in sales and market shares in Medium Voltage and High Voltage Disconnecter Industry.

The factory has state-of-the-art manufacturing facilities to produce high quality equipment. A world class Factory in Puducherry houses all third generation equipment and provides low cost high quality manufacturing facility for Disconnectors.

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.

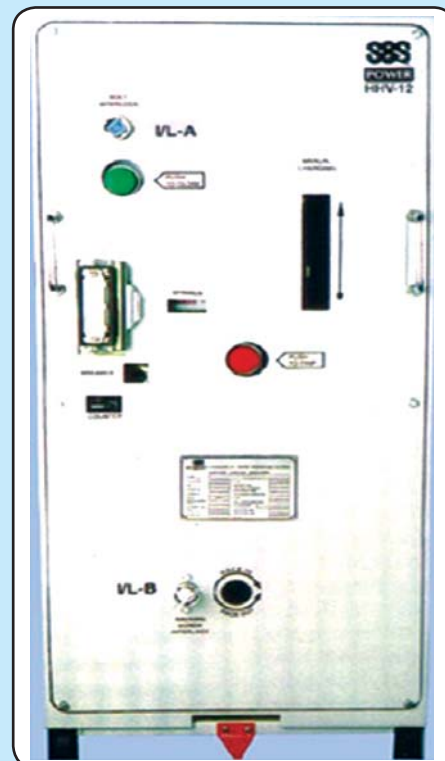
S&S is the only company in India to have sold more than 18,000 nos of Circuit Breakers and more than 25,000 nos of Disconnectors to all major Utilities in India and Worldwide.

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.

THE COMPANY

S&S Power Switchgear Equipment Ltd has its Disconnecter manufacturing unit at Puducherry in India. S&S Power Switchgear Ltd has its Circuit Breaker manufacturing unit at Maraimalai Nagar 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 Systems and Acrastyle Power (India) Ltd our Indian Engineering and CRP manufacturing setup located at Maraimainagar near Chennai.



INDOOR VACUUM CIRCUIT BREAKER TYPE HHV12 RANGE

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 12kV horizontal isolated, horizontal draw out vacuum circuit breaker type HHV12 is highly effective and easy to operate and maintain equipment for distribution at 12kV. 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. Inter locking facility is also available through limit switches.

VACUUM INTERRUPTERS

The HHV12 employs rated vacuum interrupters for arc extinction. These interrupters are procured from the world renowned manufacturer. The interrupters are suitable

for a large number of full short circuit operations and mechanical operations.

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.

Our Vacuum Interrupter Advantages:

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



When charged, the closing spring is held by a latch which can be released either by manual means or by a solenoid to close the circuit breaker. When motor charging is provided, the spring gets automatically recharged immediately after a closing operation. 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:



M 37 Mechanism

- Breaker On/Off
- Springs charged or discharged

INDOOR VACUUM CIRCUIT BREAKER



CUBICLE

Cubicle is compartmentalised 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 busbar 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.

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Idam Mechanism

ASSURED QUALITY AND SAFETY

HHV12 is manufactured strictly under technology standards set by the company with the components and subsystems selected through strict quality control procedures as per ISO 9001 certification guide lines.

Separate front door has been provided for circuit breaker to ensure double safety.

HHV12 is the only equipment successfully tested for internal arc for 20kA for 0.1sec.

KEY FEATURES

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

Applicable standard	: IEC 62271 – 100
Type designation	: HHV12
Normal Voltage	: 11Kv
Rated voltage	: 12Kv
Frequency	: 50Hz/60Hz
Normal rated current	: upto 2000 Amps
Short Circuit Breaking Capacity	: 25kA/31.5 kA
Rated 1minute power frequency withstand Voltage	: 28 Kv rms
Rated impulse withstand voltage	: 75 Kv peak
Duty Cycle-full breaking capacity	
Normal	: 0-3MIN-CO-3MIN-CO
Auto reclose	: 0-0.3 SEC-CO-3MIN-CO



S&S POWER SWITCHGEAR LIMITED

(Corporate Office)
New No. 67, (Old No. 19) 2nd Floor,
Dr. Ranga Road, Mylapore, Chennai - 4,
Tamil Nadu, India.

Tel : + 91 (0) 44 2498 8056
Fax : + 91 (0) 44 2498 8058
Email : sales@sspover.com
Website : www.sspover.com

(Factory - MV Switchgear)
NH3, 29/3 - 4, Industrial Estate
Maraimalai Nagar - 603 209
Tamil Nadu, India.

Tel : + 91 (0) 44 2745 2186
Fax : + 91 (0) 44 2745 2187
Email : sales@sspover.com
Website : www.sspover.com

S&S POWER SWITCHGEAR EQUIPMENT LTD.

(Factory - Disconnectors)
New No. 4, EVR. Street,
Sedarapet, Puducherry - 605 111
Tamil Nadu, India.

Tel : + 91 (0) 413 2677122
Fax : + 91 (0) 413 2677374
Email : sales@sspover.com
Website : www.sspover.com

ACRASTYLE POWER (INDIA) LTD

(Factory - Control & Relay Panel (Eng. Service))
NH3, 29/ 3-4, Industrial Estate,
Maraimalai Nagar - 603 209
Tamil Nadu, India.

Tel : + 91 (0) 44 2745 2186
Fax : + 91 (0) 44 2498 8058
Email : sales@acrastyle.com
Website : www.acrastyle.com

(Corporate Office)
New No. 67, (Old No. 19) 2nd Floor,
Dr. Ranga Road, Mylapore, Chennai - 4,
Tamil Nadu, India.

Tel : + 91 (0) 44 4265 8475
Fax : + 91 (0) 44 2498 8058
Email : sales@sspover.com
Website : www.sspover.com

ACRASTYLE LIMITED

(Factory - CRP & Engineering Service)
North Lonsdale Road,
Ulverston, Cumbria
LA12 9 EB UK

Tel : + 44 (0) 1229 583232
Fax : + 44 (0) 1229 582586
Email : enquiries@acrastyle.co.uk
Website : www.acrastyle.co.uk