

# Air Insulated Indoor Switchgear

VHE 12S cubicle with HCA vacuum circuit breaker – 12kV



**ABB**

## ABB - a global leader in power and automation technologies

ABB ([www.abb.com](http://www.abb.com)) is a global leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB group of companies operates in around 100 countries.

ABB's power technologies division serves electric, gas and water utilities, as well as industrial and commercial customers, with a wide range of products, services and solutions for power transmission and distribution. ABB offers turnkey solutions for substations, utility automation, HVDC and FACTS (Flexible AC Transmission System).

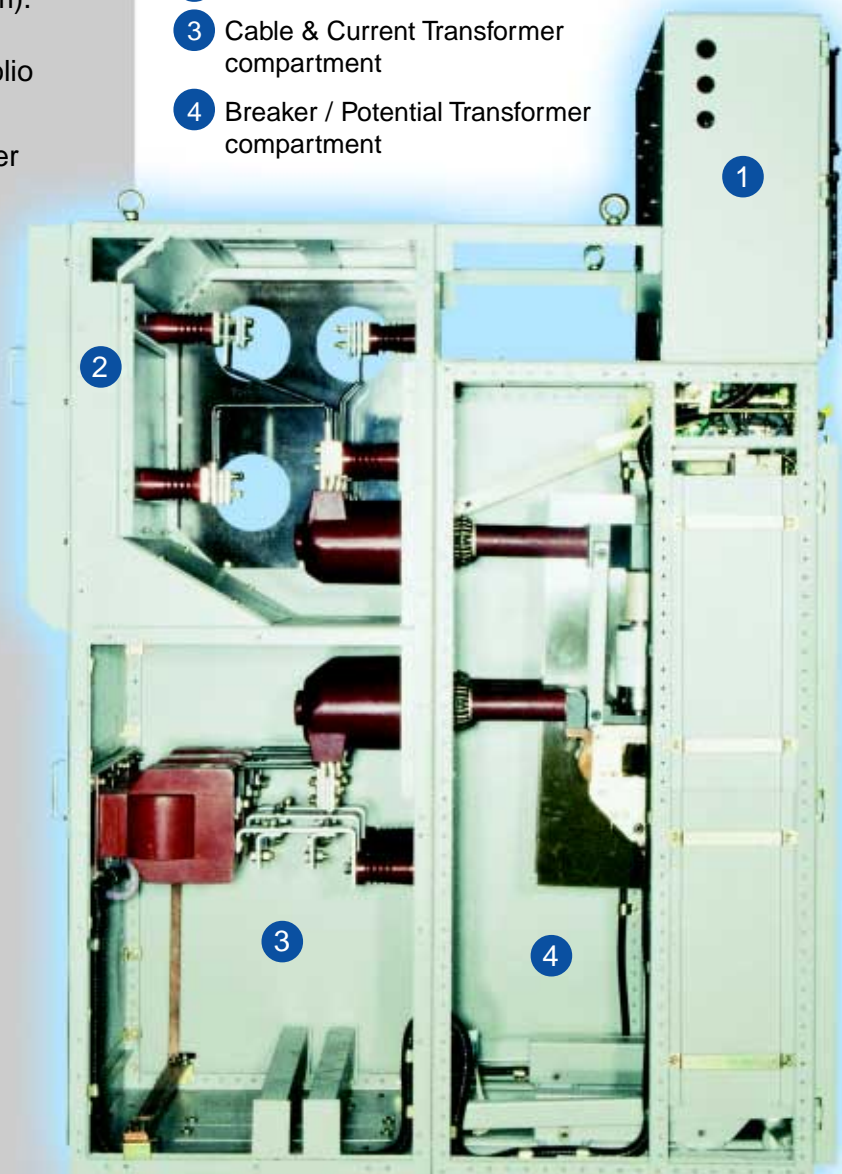
ABB's power technologies product portfolio includes outdoor and indoor circuit breakers, gas insulated switchgear, power transformers, instrument transformers, disconnectors, capacitor banks and reactive power compensators.

ABB's medium voltage product offering encompasses a complete range of innovative products, systems and technologies for applications in the 1 to 50 kV class. This includes indoor air insulated and gas insulated panels with vacuum and SF6 gas circuit breakers, outdoor vacuum and SF6 gas circuit breakers, ring main units, auto-reclosers, fuses, switch disconnectors and prefabricated modular solutions for power distribution.

## Air insulated indoor switchgear Cubicle type - VHE 12S

- Designed and type tested to meet IEC 60298 & 60694 / IS : 3427 standards
- Fully compartmentalised metal clad construction
- IP4X degree of protection externally and IP2X between compartments
- Independent exhaust vent for all HT compartments

- 1 Metering compartment
- 2 Busbar compartment
- 3 Cable & Current Transformer compartment
- 4 Breaker / Potential Transformer compartment



## Breaker / Potential Transformer (PT) compartment

- Floor mounted breaker / PT truck has 'test' position inside the cubicle, enabling closure of the front door for safety
- Racking in/out of breaker from 'test' to 'service' position and vice versa with cubicle door closed
- Mechanical interlock to prevent racking in/out of breaker, when breaker is in closed position
- Live parts covered by automatic shutters when breaker is racked out
- Multiple guides for safe, sure and enduring self-alignment of fixed and moving power contacts
- Epoxy moulded spout bushing for power contacts
- Withdrawable line PT provided in the breaker truck
- Removable fuses mounted on the PT



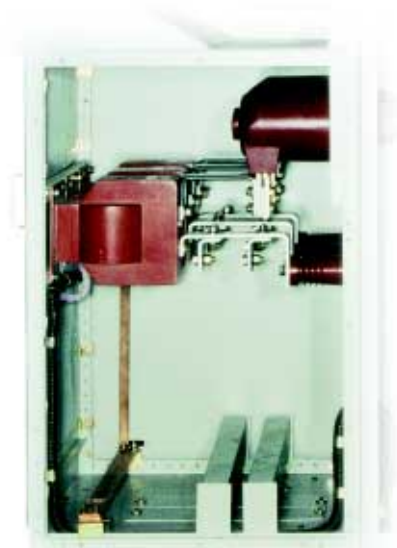
## Metering compartment



- Protection and measuring apparatus customised as per requirement

## Cable & Current Transformer (CT) compartment

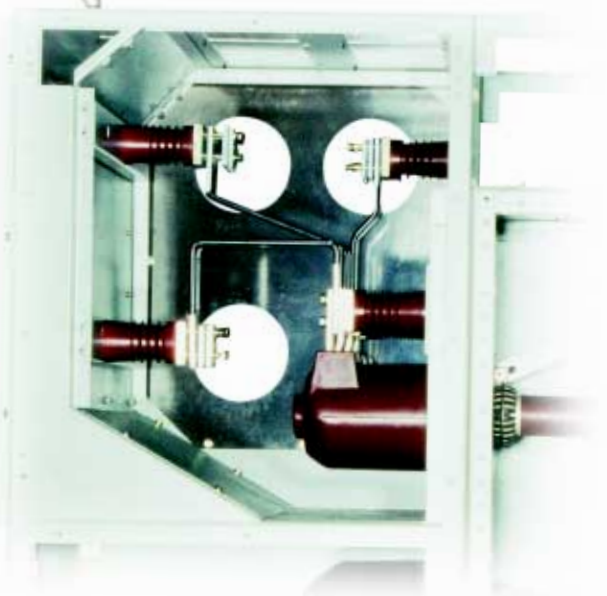
- Spacious compartment to accommodate 1 set of CTs and 2 runs of cables
- Option of rear extension to accommodate extra CTs or cables
- Adequate height for cable termination





## Busbar compartment

- Spacious busbar compartment for adequate air clearance
- Option for busbar insulation
- Option for shrouds on joints



### Commitment to quality and sustainability

All ABB India manufacturing facilities are ISO 9001 and ISO 14001 certified ensuring the highest quality standards as certified by leading global certification bodies.



### Technical details

Description	Unit	Rating	
Rated voltage	kV	12	12
Rated frequency	Hz	50	50
Rated busbar current	A	630, 1250, 1600, 2000	2500, 3000
Short time withstand current	kA (3 secs)	40	40
	kAp	100	100
Insulation levels	kVrms/kVp	28/75	28/75
Width x Depth x Height	mm	800 x 1750 x 2500	950 x 1750 x 2500
Weight with circuit breaker (approx.)	Kg	800	850
Degree of protection			
– Enclosure		IP4X	IP4X
– Within the switchgear		IP2X	IP2X

## Indoor switchgear, vacuum circuit breaker type HCA

### Salient features

- The HCA type circuit breaker is designed and tested to meet IEC - 62271-100 / IS:13118 standards
- Fitted with high performance and reliable vacuum interrupter
- Capable of interrupting small magnetising and capacitive currents
- Operationally safe and reliable across a wide range of ambient temperatures ( $-5^{\circ}$  to  $40^{\circ}\text{C}$ )
- User-friendly operating mechanism:
  - O-C-O operation without recharging
  - Closing spring charged by motor in less than 15 seconds
  - Electrical anti-pumping
  - Provision for manual recharging
  - Synchronisation and fast auto reclosure duty



### Technical details

Description	Unit	Rating
Rated voltage	kV	12
Insulation levels	kVrms/kVp	28/75
Normal current (40°C amb.)	A	1250, 2000, 3000
Breaking capacity	kA	40
Making capacity	kAp	100
Short time withstand current	kA (3 secs)	40
Opening time	ms	35 - 50
Arcing time	ms	15
Total break time	ms	65
Making time	ms	75
Operating sequence	-	0 - 3 min - CO - 3 min - CO 0 - 0.3 sec - CO - 3 min - CO
Weight (approx.)	Kg	190 - 250

