

# MV Air Insulated Indoor Switchgear

Model VHA 12S with HPA circuit breaker – 12kV



## 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 (High Voltage Direct Current) transmission and FACTS (Flexible AC Transmission System).

ABB's power technologies product portfolio includes a wide range of products such as 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 range. 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 - VHA 12S

- Designed and type tested as per IEC 60298 & 60694 / IS: 3427 standards
- Fully compartmentalised construction
- IP4X degree of protection externally and IP2X between compartments
- Independent exhaust vent for all HT compartments
- Integral earthing switch (optional)
- Saving in floor space as bus riser provided in bus coupler panel (for current rating up to 2000A)

### Breaker compartment

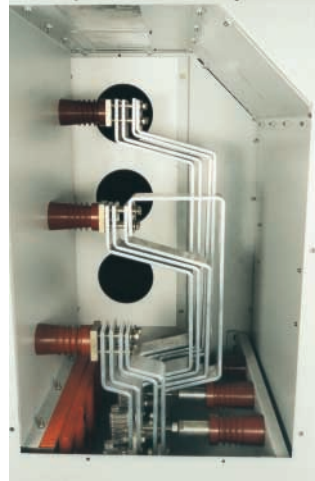


- Cassette mounted breaker with 'isolated' position on cubicle front door
- Breaker put into 'test' position from 'service' position and vice-versa (racked in/out) with cubicle door closed
- Mechanical interlock to prevent breaker 'racking in/out' when breaker poles are in closed position
- Live parts covered by automatic shutters when breaker is racked out
- Multiple guides for safe, sure and enduring self-alignment of fixed and moving power contacts



## Metering compartment

- Adequate space for protection and metering equipment, control switches, lamps etc.
- Apparatus customised as per requirement



## Busbar compartment

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

## Cable & Current Transformer (CT) compartment

- Spacious compartment to accommodate 1 set of CTs and 2 runs of cables
- Adequate height for cable termination

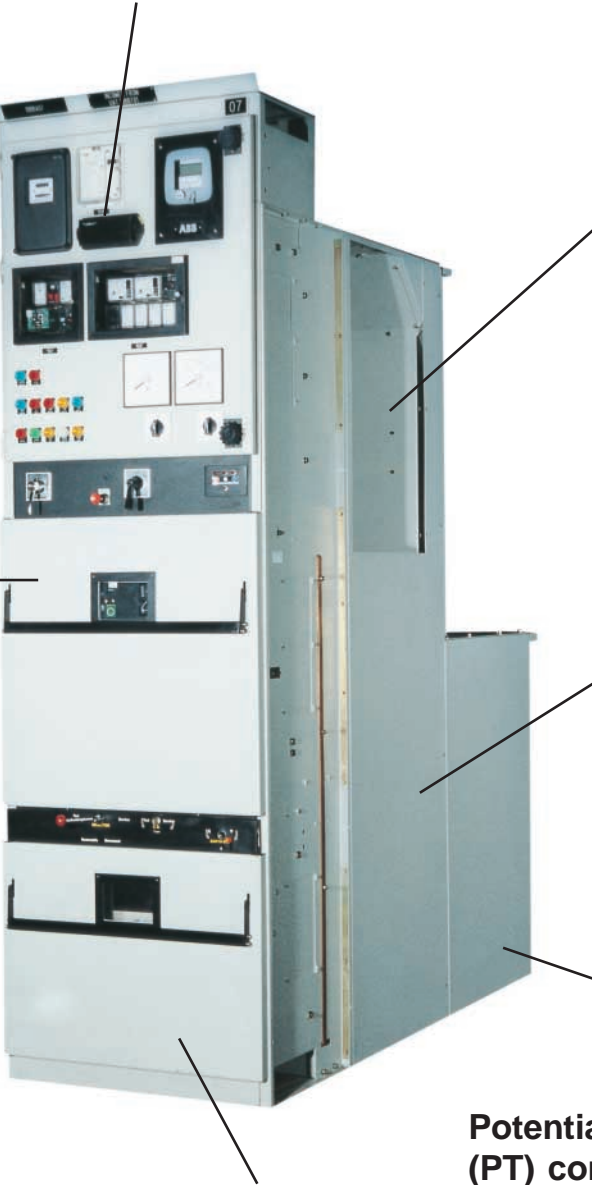


## Potential Transformer (PT) compartment

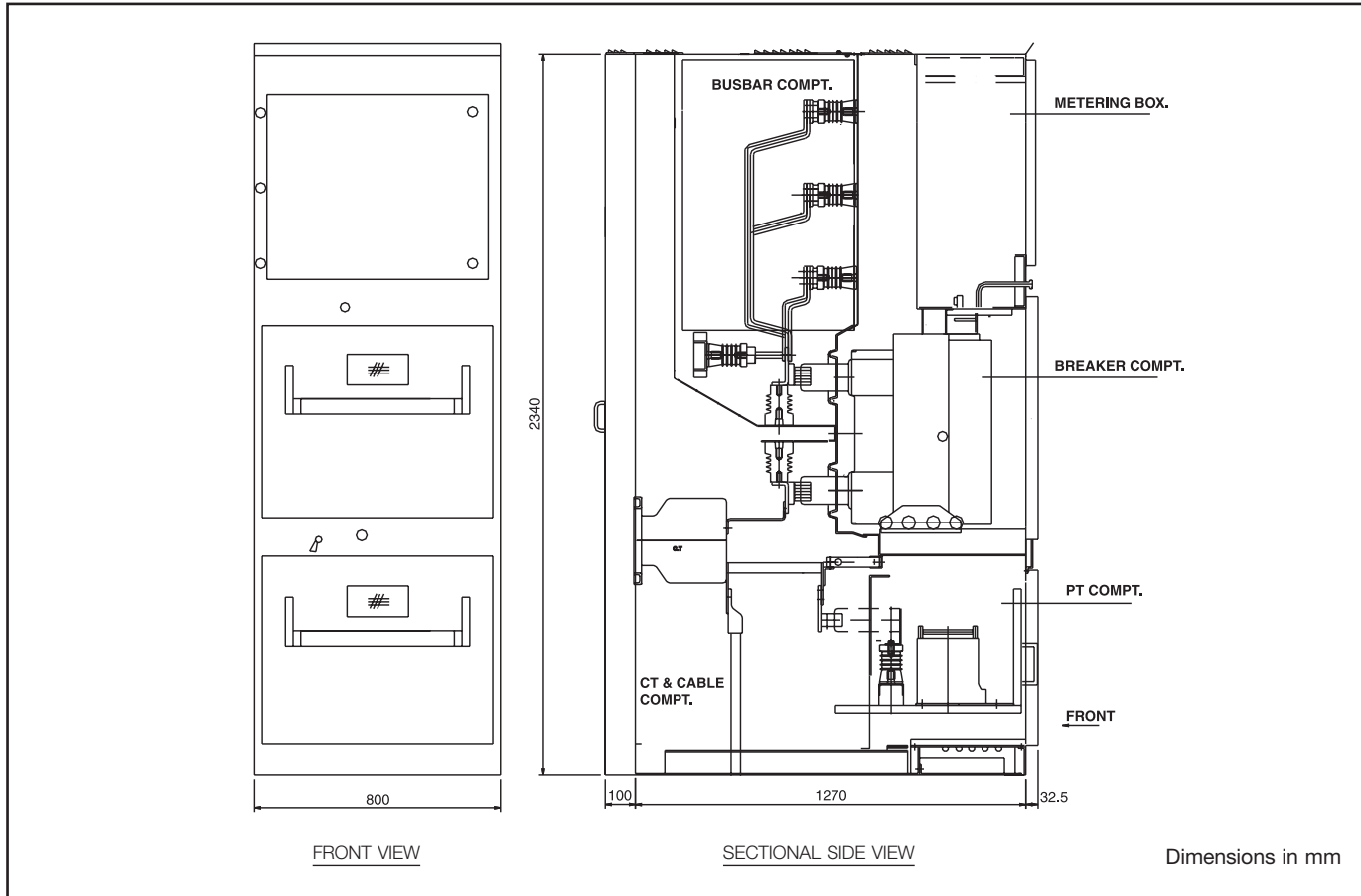
- Withdrawable line PT provided in the breaker panel
- Removable fuses mounted on the PT
- Safety shutters between PT and cable compartment close automatically on PT withdrawal

## Rear extension (Optional)

- To accommodate extra CTs or cables



## General arrangement drawing – VHA 12S

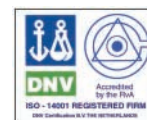


### Technical details

Description	Unit	Rating
Rated voltage	kV	12
Rated frequency	Hz	50
Rated busbar current	A	630, 1250, 1600, 2000, 2500, 3000, 4000
Short time withstand current	kA (3 secs)	40
	kAp	100
Insulation levels	kVrms/kVp	28/75
Width x Depth x Height	mm	800 x 1370 x 2340
Weight with circuit breaker (approx.)	Kg	1000
Degree of protection		
– Enclosure		IP4X
– Within the switchgear		IP2X

### Commitment to quality and sustainability

All ABB India manufacturing facilities confirm to the highest quality standards and environment norms. These are all ISO 9001 and ISO 14001 compliant and are certified by leading international authorities



## Indoor switchgear, circuit breaker type HPA



### Salient features

- Designed and tested in accordance with IEC 60056 / IS: 13118 standards
- Sulphur Hexafluoride (SF6) used as insulation and arc interruption medium
- Arc control and extinction achieved by puffer principle
- Operationally safe and reliable across a wide range of ambient temperatures ( $-5^{\circ}$  to  $40^{\circ}\text{C}$ )
- Capable of interrupting small magnetising and capacitive currents
- Features of 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, 1600, 2000, 2500, 3150
Breaking capacity	kA	40
Making capacity	kAp	100
Short time withstand current	kA	40 (1 sec): 1250A 40 (3 sec): 1600 - 3150A
Gas pressure	bar (abs)	3 - 3.5
Opening time	ms	36 - 45
Arcing time	ms	15
Total break time	ms	60
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 - 225



ABB Limited  
Medium Voltage Equipment  
Street No. 17, MIDC, Satpur  
Nashik 422 007  
Tel: +91 253-2351095 – 98  
Fax: +91 253-2350644

ABB Limited  
Power Technologies - Exports Marketing  
Maneja, Vadodara 390 013  
Tel: +91 265-2638930  
Fax: +91 265-2638908  
Email: pt-exports.inabb@in.abb.com

1VDS22005-YN  
04/2003/1000

#### Regional Marketing Offices:

North	East	West	Central	South
4th Floor NBCC Tower, No. 15 Bhikaji Cama Place New Delhi 110 066 Tel: +91 11-26186000 Fax: +91 11-26197592/84035	3rd Floor, No. 9, Lala Lajpat Rai Sarani (Elgin Road) Kolkata 700 020 Tel: +91 33-22479162/8015 Fax: +91 33-22472427	ABB House Dr. S B Path Ballard Estate Mumbai 400 038 Tel: +91 22-56318231 – 39 Fax: +91 22-56318276 – 77	Vandana House 1st Floor, G E Road Ramkund Raipur 492 001 Tel: +91 771-2660816 – 18 Fax: +91 771-2653391	4th Floor Sona Towers 71, Millers Road Bangalore 560 052 Tel: +91 80-2256315/16 Fax: +91 80-2254147  Nos. 3C, 3D and 3F 3rd Floor, "Century Plaza" 561 / 562, Anna Salai Teynampet Chennai 600 018 Tel: +91 44-24340201/203 Fax: +91 44-24340282