

Tata Power, Mumbai

Space saving and enhanced power reliability with HV hybrid switchgear, PASS



To cater to the power needs of a fast growing city, Tata Power the power distribution utility in the city of Mumbai, needed to augment the capacity of its existing substations. It chose the ABB 145kV plug and switch system (PASS) solution to add new bays in extremely limited space and with minimal shutdown time.

ABB solution

Supply, installation and commissioning of 19 nos. 145kV hybrid switchgear PASS systems for 8 existing substations.

Customer benefits

- The compact solution results in space savings of over 50% compared to conventional AIS solution
- Single module encompasses all functions of a bay including circuit breaker, disconnecter, earthing switch, current and voltage measurements and SF₆ density monitoring



- Power supply reliability and personnel safety with operating and interrupting functions encapsulated in SF₆ gas
- Modular solution enables minimum order to commissioning time
- Factory assembled and tested solution provides easy and quick installation with minimum shut down (within 3 days)
- Flexible substation layouts

PASS – The concept

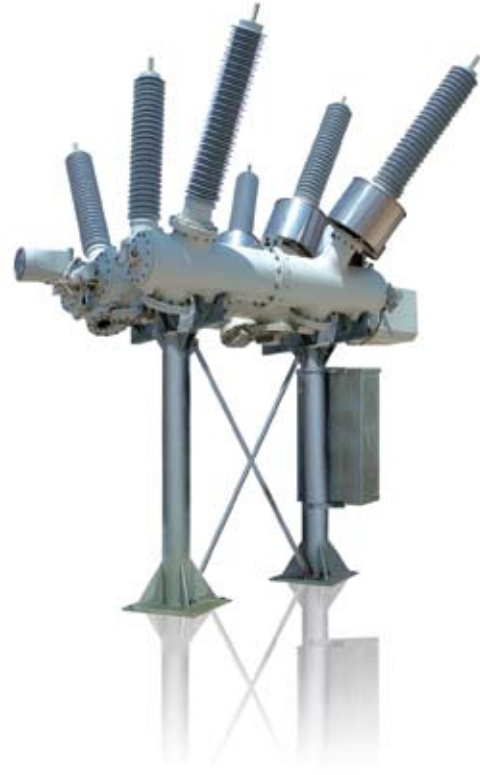
For many existing substations that have outlived their operational life a one-to-one replacement of conventional AIS components like circuit breakers and disconnectors is not economically advisable. On the other hand completely new substations have to meet tight requirements in term of occupied space, environment and availability. Substation extensions require high flexibility on primary equipment, to cope with already existing control systems, lack of available space, limited down time.

PASS is the ideal primary equipment to meet all the above scenarios and it is the result of a different thinking; that is the performance of the substation as a complete system.



PASS switchgear limits the number of equipment to what is really necessary to assure the best functionality of the bay; its modular design ensure all possible substation layouts can be realized. In PASS all live parts, excluding busbars, are encapsulated in a grounded aluminium tank which is filled with pressurised SF₆ gas. Each pole has its own enclosure, to increase availability and safety. The enclosures are of cast and aluminium construction.

PASS is based on the extensive ABB experience in building both air-insulated switchgear (AIS) and gas insulated switchgear (GIS).



Technical parameter	M00		M0			M0S
Rated voltage (kV)	72.5	100	123	145	170	245
Rated current (A)	2000*		3150			3150
Breaking current (kA)	31.5	20	40			40
AC test voltage (kV)	140	185	230	275	325	395/460
Impulse test voltage (kV)	325	450	550	650	750	950/1050

*2500 on request.

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