

550kV H-GIS (Hybrid-GIS)



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Improper use of products can cause severe injury or death, and may result in damage to product and other property.
Please read instruction manual before installing or using product.

H-GIS substation-Combining the advantages of AIS and GIS substations

Air Insulated Switchgear(AIS) Substation

- Reduced equipment cost but takes up more substation area
- Easy extension



Gas Insulated Switchgear(GIS) Substation

- Minimized installation space
- Less exposed parts leading to high reliability



H-GIS Substation

[GCB,DS,ES : SF₆ Gas insulated Busbar : Air insulated]

- Same equipment cost but less area compared with AIS Substation
- High reliability similar to GIS Substation
- Easy extension

Fig.1 Yard comparison between AIS and H-GIS

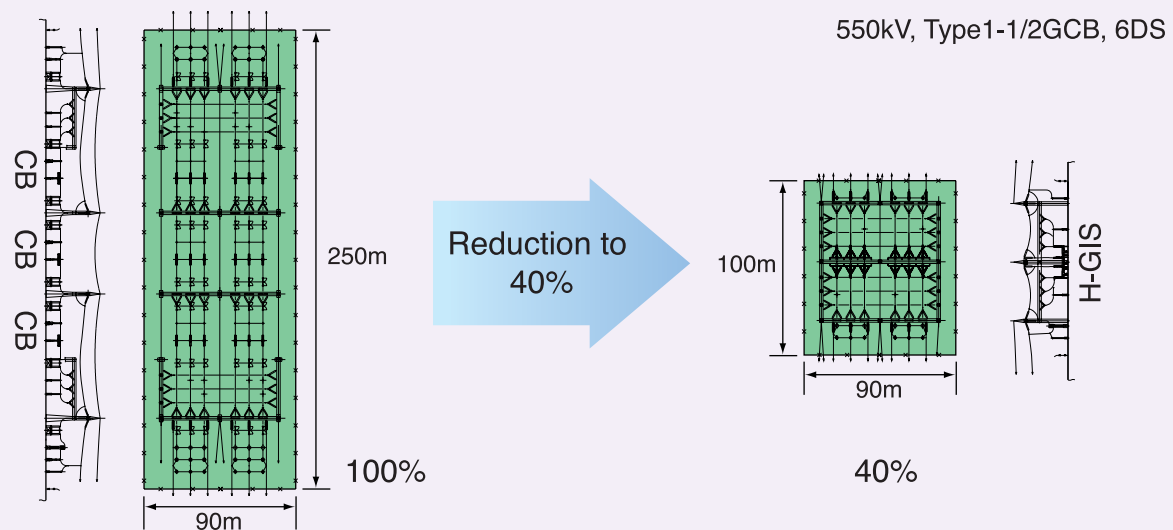


Fig.5 HIGHLY ADVANCED MONITORING AND DIGITAL TECHNOLOGIES

It is a recent trend to introduce digitalization in substation control system. MITSUBISHI's GIS is fully capable of accommodating such highly advanced technologies. H-GIS may be equipped with switching controller, Rogowski CT/capacitive voltage divider(VD) or hybrid sensor providing compact structure and operational efficiency.

● **Superior interrupter**

- Reduced operating power
- Optimized nozzle design
- Elimination of capacitor between poles

● **Hydraulic operating mechanism**

- Highly reliable system with application of constant high pressure system
- Minimum maintenance and inspection

Single break GCB

- Transient voltage suppression
- Extension of contact inspection interval
- Software interlock



Switching Controller

Hybrid Sensor



● **Integration of multifunction**

- Gas pressure monitoring
- Gas density monitoring
- Gas density monitoring switch
- Decomposed gas monitoring
- Fault localization

● **Remote monitoring**

- Online monitoring

Rogowski CT/ Capacitive VD



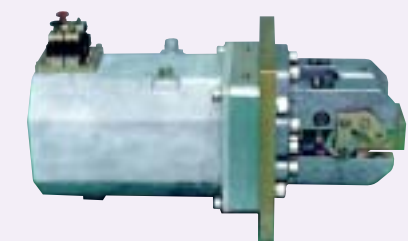
- CT/VD digital output through A/D conversion
- Elimination of CT core saturation
- Reduction in size and weight

■ **Features of MITSUBISHI 550kV H-GIS**

- 550kV H-GIS applies 1-break GCB that is equipped with hydraulic operating mechanism. Adjacent DS's are arranged in line with the GCB (See Fig.3), and provides high reliability minimizing site tank connection.
- Low profile enables easy maintenance.
- Flexible combination of unit module (See Fig.2), enables any layout, 1CB, 2CB or 3CB. (See Fig.4) Future extension can be easily implemented by addition of unit module.
- The equipment can easily cope with digital control of substation. (See Fig.5)
- Synchronous switching device can be equipped for reduction of various switching surge.

■ **Ratings (IEC)**

Insulation level	Rated voltage (kV)	550
	Rated lightning impulse withstand voltage (kV)	1550, 1675
	Rated switching impulse withstand voltage (kV)	1050, 1175
	Rated power-frequency withstand voltage (kV)	680, 740
CB	Rated current (A)	2000, 3150, 4000
	Rated short-time withstand current (kA)	50, 63
	Rated interrupting current (kA)	50, 63
	Rated interrupting time (cycle)	2 (cycles)
	Number of breaks	One
	Operating mechanism	Hydraulic
DS	Rated current (A)	2000, 3150, 4000
	Rated short-time withstand current (kA)	50, 63
	Operating mechanism	Motor
ES	Rated short-time withstand current (kA)	50, 63
	Operating mechanism	Motor, Manual
FES	Rated short-time withstand current (kA)	50, 63
	Operating mechanism	Motor spring, Manual



Hydraulic operating Mechanism (For Circuit Breaker)

TYPICAL LAYOUT AND ARRANGEMENT

Fig.2 Unit module

Combinations of 4 unit modules constitute either 1CB, 2CB or 3CB units.

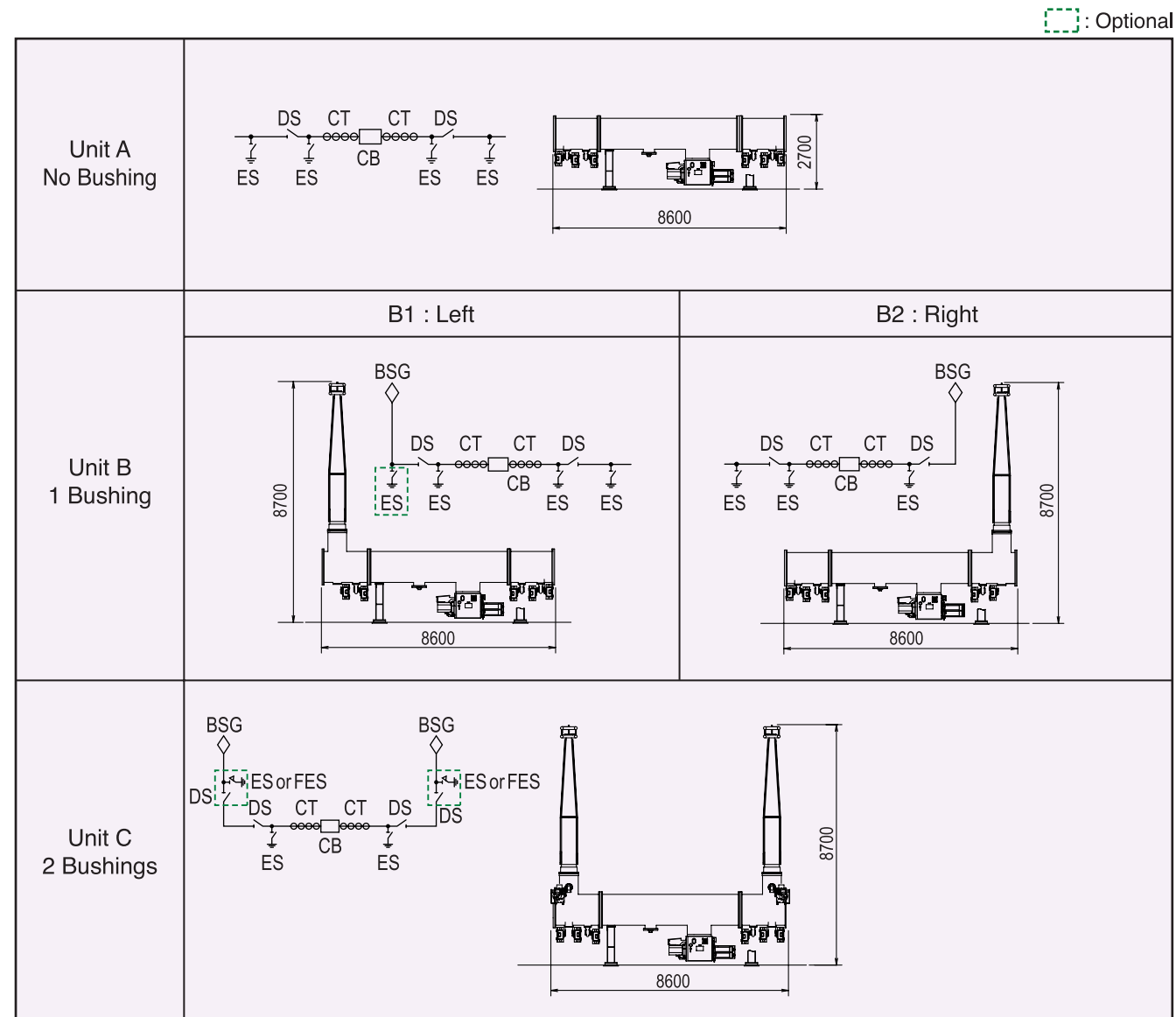


Fig.3 Cross section

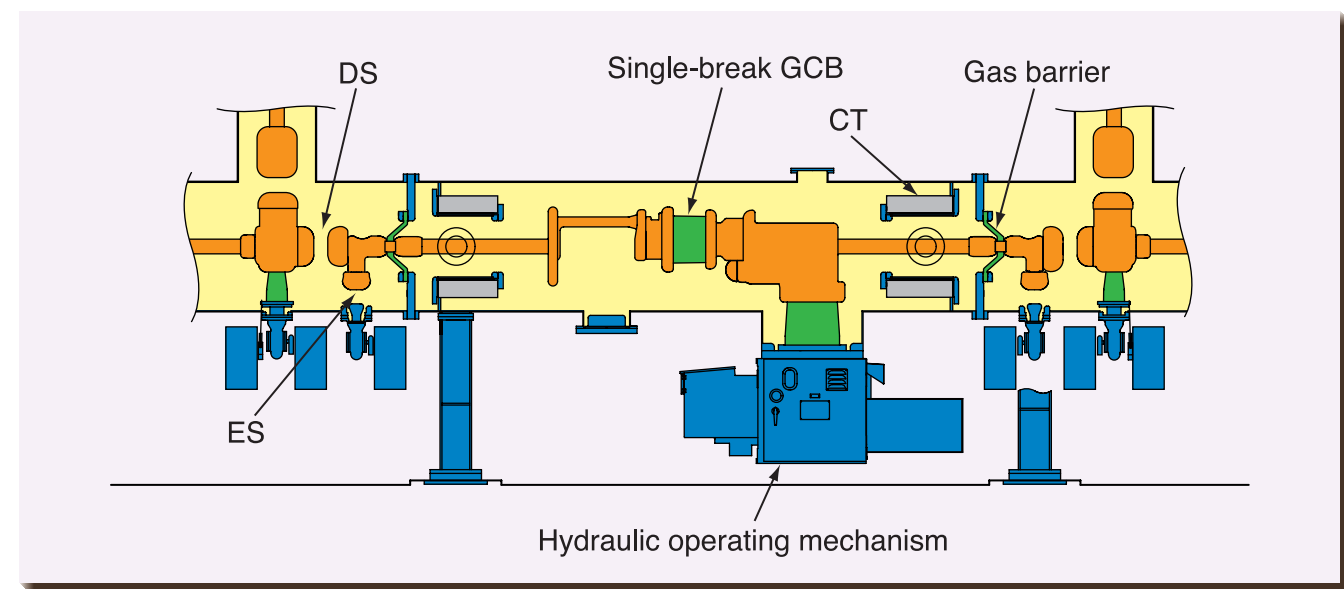


Fig.4 Arrangement

Maintenance/Inspection : Suitable gas compartment is provided to prevent unnecessary outage during CB inspection.
 Extension : Partial diameter could easily be extended to a complete diameter by addition of any of the appropriate module.

