

ZF15

1100



NHVS 1100kV HGIS in Nanyang Substation

INTRODUCTION

ZF15-1100 GIS occupies limited area, with compact structure and high reliability, and can be applied in high-altitude and low-temperature areas. The products have already passed the evaluation of all type tests at High Voltage Apparatus Quality Test Center of Machinery Industry and National High Voltage Apparatus Quality Supervision Inspection Center (Xi'an High Voltage Apparatus Research Institute). Its technical performance has achieved internationally advanced level. NHVS has manufactured HGIS for Nanyang Substation of the first 1000kV EHV AC experimental demonstration project, and GIS for Huainan-Shanghai, Mengxi-South Tianjing, Yuheng-Weifang and other EHV key projects in China. Now, these equipment have all been put into commercial operation.

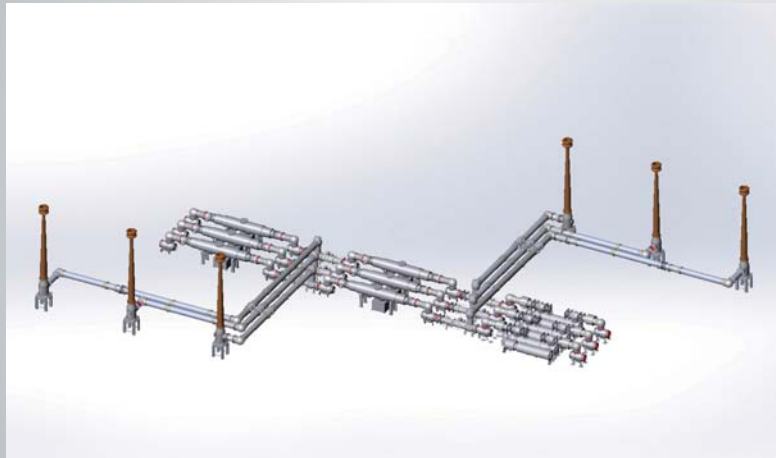
MAIN FEATURES

1. The product elements are standard modules, with universal united interface. The modules can be connected in various main wiring connection modes and arrangement modes according to customer's requirements. Extension terminals will reserve extension interfaces which are convenient for future extension of the existing project.
2. Circuit breaker can be divided into two types for customers' options: double-interrupter type and four-interrupter type.
3. Double-interrupter circuit breaker adopts puffer arc extinction structure. Arc extinction nozzle has strong arc-resistant burning capacity and high insulation performance. It can continuously break 63kA rated short circuit breaking current. The interrupter for each pole of circuit break is equipped with parallel capacitor. Circuit breaker with closing resistor or without closing resistor will be determined according to project requirement. Each pole of CB is equipped with one set of hydraulic operation mechanism, which can complete closing and opening operation twice at rated operation pressure without any supplement pressure.
4. Four-interrupter circuit breaker adopts puffer arc extinction structure. Arc extinction nozzle has strong arc-resistant burning capacity and high insulation performance. It can continuously break 63kA rated short circuit breaking current. Main interrupters and operating mechanism adopt linear transmission, with simplified structure. CB is equipped with disc spring energy stored hydraulic operating mechanism to avoid the equipment operation affected by environment temperature. The circuit breaker adopts low-position arrangement structure design and has stronger anti-seismic property.
5. Disconnecter is equipped with motor operating mechanism, and is capable of breaking and making bus transfer current, bus charging current and small inductive current.
6. New-generation parallel compensation expansion joint busbar and compound expansion joint busbar with strong compensation capability and high reliability are adopted for the temperature compensation and foundation settlement compensation of GIS busbar enclosure.
7. GIS will be assembled and tested by transportation units in the factory, which is easy for site installation in short installation period.
8. SF₆ HGIS can be conveniently assembled by circuit break, disconnecter, earthing switch, current transformer, bushing and other standard structure modules of GIS.

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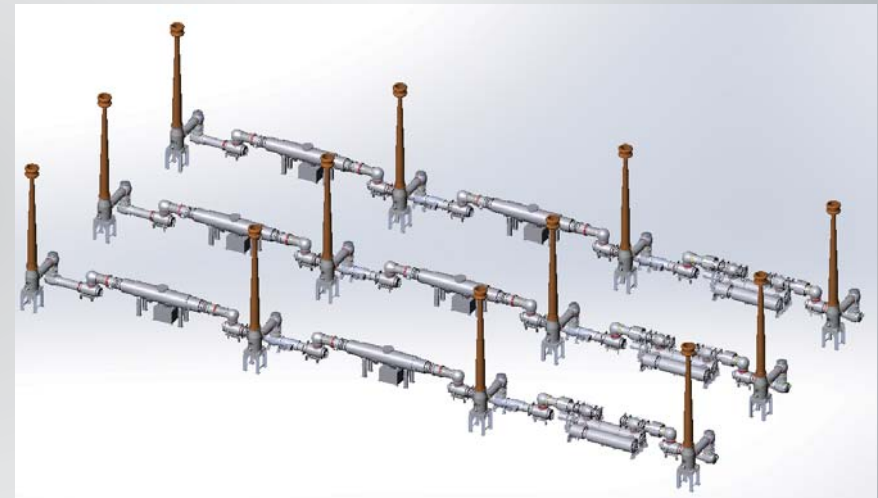
OVERALL STRUCTURE



1100kV GIS structure layout

The overall structure of 1100kV GIS is three-phase isolated type. 1100kV GIS consists of circuit breaker(CB), disconnector (DS), earthing switch (ES), fast earthing switch (FES), Bus, bellows, bushing (BSG), current transformer(CT), voltage transformer (PT), lightning arrester (LA) and other elements, which adopts standard modular layout, with flexible arrangement, compact structure, and ready for extension to meet the requirements for all kinds of connections.

1100kV HGIS is the abbreviation of hybrid GIS, and consists of CB, DS, ES, FES, Bus, Bellows, BUS, CT and elements. The relative elements will be put into metal enclosure according to different customer requirements, and are filled with SF_6 for insulation and used cooperatively with overhead line. The primary elements of HGIS and GIS are highly standardized and are used universally.



1100kV HGIS (three CBs) structure layout

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MAIN
TECHNICAL
PARAMETERS

Item		Unit	Technical data	
Rated voltage		kV	1100	
Rated current		A	6300 (incoming, outgoing, in-diameter) 8000 (main bus)	
Rated frequency		Hz	50	
Rated short time power frequency withstand voltage (effective value)	Phase to earth	kV	1100	
	Across open contacts		1100+(635)	
Rated lightning impulse withstand voltage (peak value)	Phase to earth	kV	2400	
	Across open contacts		2400 (+900)	
Rated switching impulse withstand voltage (peak value)	Phase to earth	kV	1800	
	Across open contacts		1675(+900)	
Rated short circuit breaking current		kA	63	
Rated short circuit making current		kA	171	
Rated short time withstand current and duration time		kA/s	63/2	
Rated peak withstand current		kA	171	
Radio interference voltage		μ V	500	
SF ₆ gas pressure (at 20℃ gauge pressure)	CB gas compartment	MPa	0.6	
	Other gas compartments		0.5,0.36	
SF ₆ gas leakage rate for each gas compartment		%/year	0.5	
SF ₆ gas humidity	Gas compartment with arcing decomposer	Acceptance value	μ L/L	150
		Permissible value for long time operation		300
	Gas compartment without arcing decomposer	Acceptance value		250
		Permissible value for long time operation		500
Circuit breaker operating mechanism			Hydraulic operating mechanism	
Disconnecter operating mechanism			Motor operating mechanism	
Earthing switch operating mechanism			Motor operating mechanism	
Fast earthing switch operating mechanism			Motor spring operating mechanism	
Applicable standards			GB、DL、IEC	

Note: special orders can be made if customer's requirement exceeds above-mentioned technical data.