

POWER

T & D

CAT. No: 2764

Type : ZHN3 Cubicle CGIS

Max. Rating., :72.5kv

Complete with N2/ SF6

2500A, 50/60hZ



FRONT VIEW

Cubical Type Gas Insulated Metalclad Switchgear (C—GIS) is a new environmental product designed and developed using embedded circuit—breaker pole technology of the vacuum interrupter type with N₂ and SF₆ Gas Insulation.

Its applications include power utility substations, city power supply grid, large industry and mine enterprises, petrochemical industry, metallurgy, and railway applications

According to the requirements of environment protection and avoidance of greenhouse effects, low pressure (0.02 MPa) SF₆, of 15%, has been used as the insulation gas between phases and from phase to earth. The adoption of vacuum interruption avoids generation of emission of the poisonous gas. Therefore, it is friendly to environment. It is of metalclad gastight design. All the high voltage components are completely sealed in the gastight box, with no surrounding influence and maintenance free in service operation.

Technical HighLights

- ZHN3-72.5 switchgear interrupter is of Vacuum Circuit Breaker.
- All high voltage components are completely sealed in the gastight box, therefore it is of no influence upon the surrounding conditions..Any accidents caused by dew, dust, humidity, chemical vapors or small animals are excluded forever.
- .The installation, operation, expansion and replacement of the switchgear can be undertaken without operation of SF₆.
- Laser welding technology has been used to the stainless steel boxes,so the yearly leakage rate of SF₆ is less than 0.5%, ZNH3-72.5 switchgear combines the most modern vacuum interrupter technology, the embedded pole design and a reliable spring drive so that highest breaking currents and a high reliability are achieved
- The vacuum circuit breaker pole is maintenance free for the lifetime of the switchgear.
- The circuit breaker with the embedded pole and the three position switch can be operated manually or by a motor drive
- ,Mechanically It is safe and touchable because all high voltage components including cable plugs, and CT are completely sealed in the shell earthed to the ground. The protection degree of all the high voltage parts in the primary circuit is IP65. and the protection degree of the shell is IP40.

- The body of the gas is manufactured by a highly advanced laser cutting machine . After assembly, all tanks are checked for leaking by a helium leakage detecting system imported from Germany. The gas boxes are gastight.
- The modular design of ZNH3-72.5 switchgear provides dielectrically sealed plug—inconnections for the voltage transformers, cable bushings and bus bar bushings assembled outside the gas box, which is more flexible for the installation and replacement.
- The panels can easily be connected to each other by a bus bar silicon connection.



Undergoing Testing

TECHNICAL SCHEDULE

S/N	DESCRIPTION			PARAMETERS
1	Rated voltage			kV 72.5
2	Rated frequency			Hz 50
3	Rated insulating level	Power Frequency Withstand Voltage (1 Min)	Phase- Phase Distance	kV 160
			Phase to Earth	kV 202
		Lightning Withstand Peak Volt	Phase-Phase	kV 350
			Phase- Eath	kV 410
		Aux. and control circuit PF withstand voltage (1 min.)		kV 2.0
4	Rated current			A 1250 1600 2000 2500
5	Rated short circuit breaking current			kA 25/31.5
6	Rated short circuit making current (peak value)			kA 63/80
7	Rated short time withstand current			kA 25/31.5
8	Rated short circuit duration			s 4
9	FLA Rated peak withstand current			kA 63/80
10	Insulation gas			SF6
11	Water content of SF6 in the gas box			ppm 120

12	M-	.96	5
13	(20°C) SF6 rated filling	MPa	0.02
14	(20°C) SF6 alarm pressure	MPa	0.01
15	(20t) sF6 minimum function pressure (20°C)	MPa	0.0
16	Design pressure of gas box	MPa	0.05
17	Discharge pressure of the pressure relief device	MPa	.0.12
18	Vacuum circuit breaker		MI,E2, Class
20	VCB drive		Spring operation drive
21	EDS mechanical life		MI
22	Rated operating voltage		AC110/220 DC110/220
24	Energy charging time	s	-.15
25	Protection degree of the relay compartment		1P40
26	Dimensions (W*D*H)	mm	1000 X 2400 X 2700

Note: Gas pressure vale in the table is the relative value under the air condition of 20°C temperature and 0.1013MPa(Gauge Value).

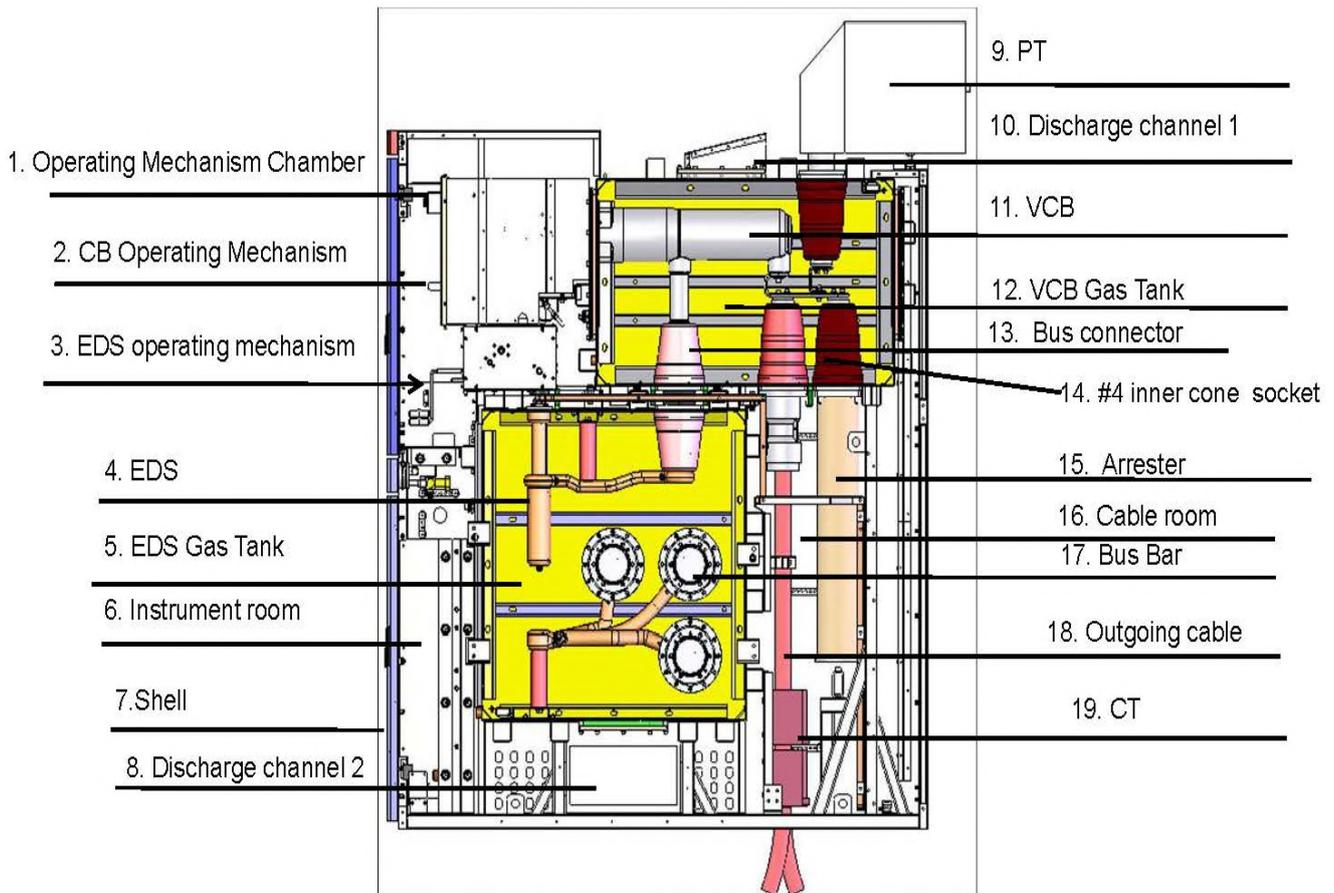
DESCRIPTION

ZHN3-72.5 switchgear is of two gas boxes structure design. The upper gas box is the VCB box and the lower gas box is the bus bar and EDS box.

Both the gas boxes are made of nonmagnetic stainless steel plate, which is laser—cut and laser—welded. The upper and low gas boxes are connected by the bus bar connector. All the non—welded connection sections are sealed by the rubber O—rings.

Product Structure

Structure of ZHN3-72.5kV Environmental-Friendly C-GIS



CUT OUT SIDE VIEW

The high voltage parts are of complex design. The disconnecter and earthing switch are compounded to be three—position switch (EDS) , assembled beside the bus bar with the same moving contact. CB and EDS drives are installed in the front—upper position. Both two drives can be operated manually or by a motor .

The inner cone cable flange plates are placed on the lower-rear and upper-rear sides of the CB box, which can be used to connect cables, PTs, SAs.,and CTs .

The switchgear is modular designed with three—phase—in—one—box structure, which is formed by CB function unit (gas box), three—position switch function unit (gas box), low voltage compartment (instrument , operation drive compartment) and cable room, etc. The low voltage compartment is in front of the panel. Frame is under the gas box and supports the box.

The core parts are CB function unit (gas box) and three—position switch and bus bar unit (gas box). The gas manometer and manometer with temperature compensation function are equipped in the switchgear, which are used to monitor the gas pressure inside of the box.

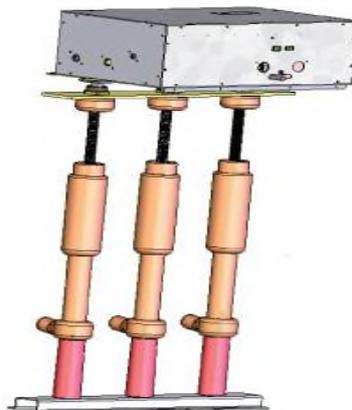
The gastight box is equipped with gas—filling valve and pressure relief device. Rubber O—rings are used for the static seal. The special designed rubber rings and gastight micro plasma welded bellows are used for the dynamic seal.

The shells of each gas box, low voltage compartment and the doors of each compartment are well earthed according to the

regulations, and marked with the signs of "Earthing

DESCRIPTION

1) EDS (Three—position switch)



- Vertical arrangement. Motor—driven

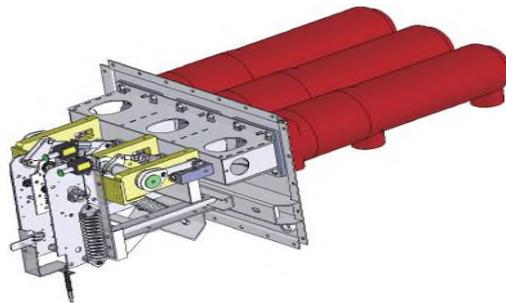
direct—action type EDS has three positions: ON, OFF and Earthing.

- Mechanical and electric interlocking

functions, which guarantee the operations only when the CB is closed. It can protect from all kinds of misoperation.

- Operated manually.
- Mechanical position indicator

2) VCB (vacuum circuit breaker)



- The VCB is of horizontal arrangement.
- Adopts the APG embedded circuit—breaker pole technology.
- The VCB drive is outside of the gas box.

The operation rod between the embedded CB pole and VCB drive is completely gas—tightened through the bellows.

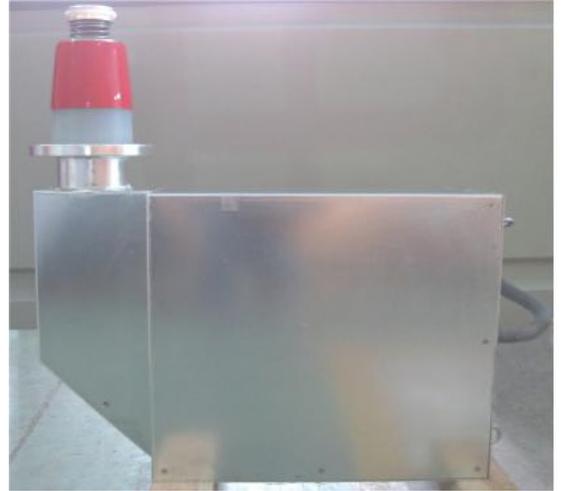
- Interlocking function guarantees that the opening and closing operation can only be carried out when the EDS is in the correct position.
- Working with EDS to achieve the earthing function for prevention short circuit.

3) CT (current transformer)



- Ring iron—core structure, locates outside of gas box.
 - Assembling in the incoming and outgoing cable, forming the primary wiring with the main loop.
 - Free from the influence of dielectric stress.
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4) PT (voltage transformer)



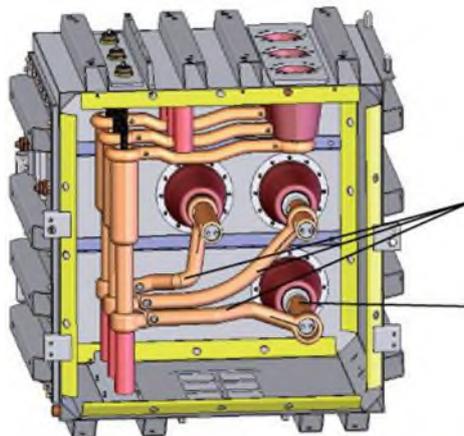
- Single phase and plug—in design.
- Installed outside of gas box, metal enclosed and safe to touch. Connecting with system through connection—peg.
- Standard #4 inner cone plug connector. Induction type.
- The manufacture of epoxy resin casting makes it free from surrounding influence.
- Meet with the standard of IEC60044-2 and GB1207.
- Passed type test.

5) SURGE ARRESTER

- Equipped with plug—in type silicone insulation end. And shielded metal shell, which is safe to touch.
- Standard #4 inner cone plug terminals.
- Easy to install. Reliable performance.
- Unnecessary to separate panel.
- Meets with standard of IEC60099-4 and GB11032
- Passed type test.

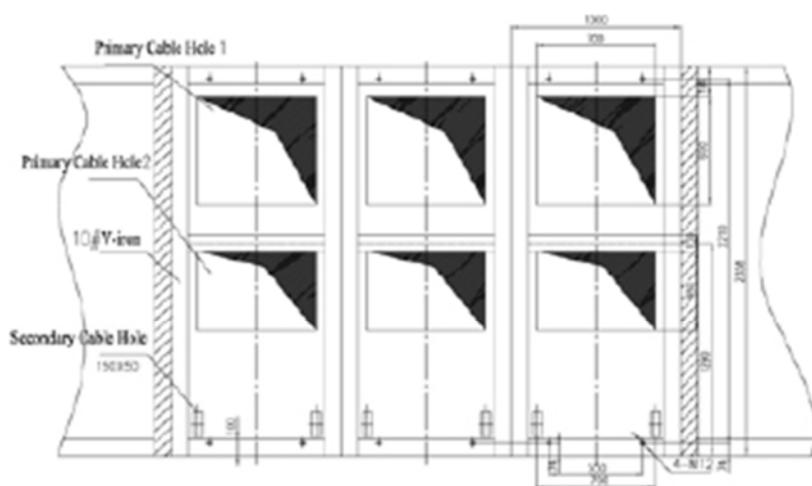
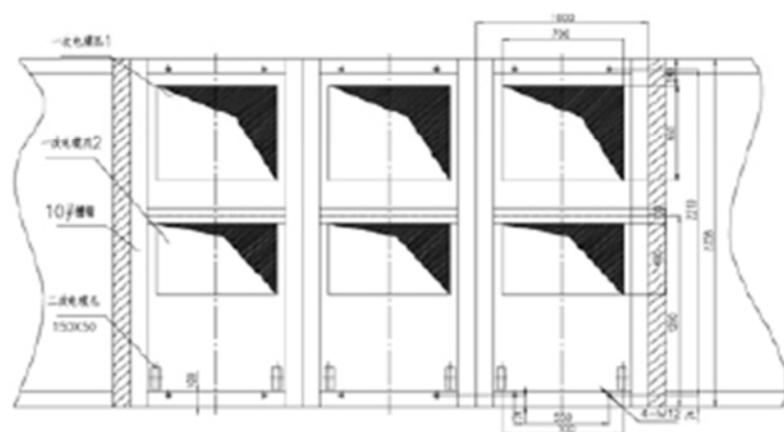


6) CABLE BOX



CABLE BOX

F Foundation frame



Note: Primary Cable Hole 2 just fits for Primary Scheme 3.

MANUFACTURER :

POWER T & D LTD

Sovereign Way , Chester West Employment Park

CH 1HJ

England . U.K

TEL : +44 1853-4239

LOCAL AGENT