



## ZHW1-145 复合式组合电器 ZHW1-145 Hybrid Module

ZHW1系列复合式组合电器 (plug And Switch System,接插式开关电器), 是一种介于GIS和AIS之间的新型高压开关设备, 是我公司根据我国目前输变电形势需求、城网改造发展较快和城市用地的局限性, 以及铁道电气化建设快速发展需求自主研发的新产品, 满足电网改造、扩建, 升级和新建的各种需求, 产品设计符合IEC标准的要求。

1. 一次设备独立模块化设计, 可满足典型设计方案中的各种主接线要求, 适合发电厂、变电站的新建、扩建或改造工程及铁道电气化建设, 特别适用于老旧变电站升级改造, 减少施工难度和投资规模。
2. 紧凑型、小型化、轻量化设计, 可实现整机运输, 节省占地面积, 占地面积仅为常规敞开式开关站的45%左右。
3. 高可靠性、少维护量、现场布置灵活。
4. 工厂化整机预装、测试, 减少现场安装、调试环节。
5. 断路器采用三机械联动操作, 配备弹簧机构, 具有操作功低、维护量少, 绿色环保等特点, 机械寿命可以达到10000次。
6. 隔离开关与接地开关集成在一起, 采用旋转式触头组成了一个三工位开关, 共用一个操动机构, 减少了组件的数量, 合理的结构布局提高了产品的可靠性。
7. 隔离开关具有开合容性、感性小电流, 切合母线转换电流的能力。
8. 进出线通过套管与设备相连, 可选用复合绝缘套管和瓷质套管, 与GIS设备相比, 省略了封闭式母线, SF<sub>6</sub>气体用量少(不足GIS用量的50%), 绿色环保同时经济。

ZHW1 series hybrid gas-insulated switchgear (plug and switch system, Plug in switchgear) is a new type of high voltage switchgear between GIS and AIS. It is a new product independently researched and developed by our company according to the current situation of power transmission and transformation in China, the rapid development of urban power grid transformation and the limitation of urban land, as well as the rapid development of railway electrification construction, so as to meet various needs of power grid transformation, expansion, upgrading and construction, and the product is designed subjected to the IEC requirements.

1. The independent modular design of the primary equipment can meet the various requirements of wiring in typical design, suitable for new construction, expansion or reconstruction projects of power plants and substations, and railway electrification construction, especially suitable for the upgrading and reconstruction of old substations and reducing difficulty of construction and cutting down the investment scale.
2. The compact, miniaturized and lightweight design makes it possible to transport the whole equipment and save the space, which is only about 45% of the conventional substation.
3. It is with high reliability, less maintenance, and flexible arrangement on site.
4. It is pre-installed and tested in the factory, which reduces work of installation and commissioning on site.
5. The circuit breaker adopts three-pole mechanical linkage operation and is equipped with a spring mechanism. It has the characteristics of low operating power, less maintenance, environmental friendly, etc. The mechanical endurance ups to 10000 times.
6. The disconnecter and the earthing switch are integrated as a three-position switch by using rotary contacts, sharing the same operating mechanism, reducing the number of components, and the reasonable designed structure improves the reliability of the product.
7. The disconnecter has the capacity to fit in with the busbar to switch the current with capacitive and inductive low current.
8. Incoming and outgoing lines are connected to the equipment through bushings. Composite insulating bushings and porcelain bushings can be selected. Compared with GIS equipment, enclosed busbars are omitted, and the weight of SF<sub>6</sub> is less (50% than that of GIS), it is more environmental and economic.



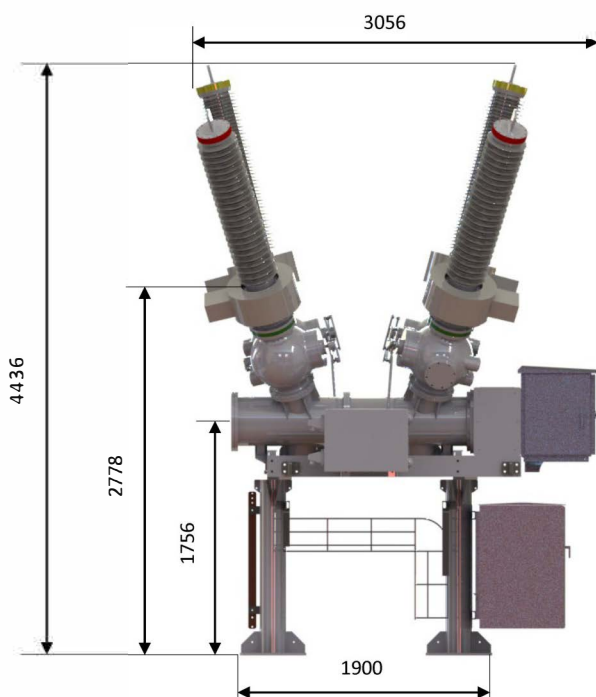
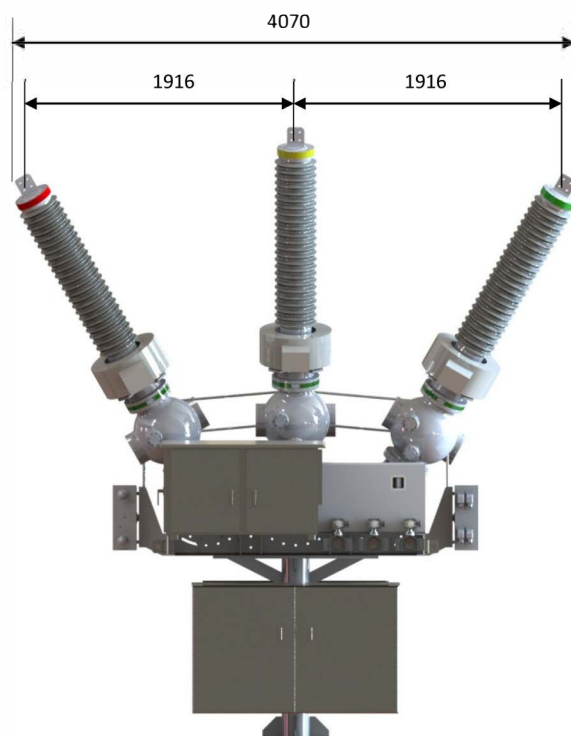
### ★ 环境条件

- 使用地点: 户外
- 风压: ≤ 700Pa
- 环境温度: -45℃ ~ +50℃
- 海拔高度: ≤ 2000m
- 污秽等级: III/IV

### ★ Service Conditions

- Location: Outdoor
- Wind pressure: ≤ 700Pa
- Ambient temperature: -45℃ ~ +50℃
- Altitude: ≤ 2000m
- Pollution level: III/IV

## ZHW1-145 产品外形图 ZHW1-145 Hybrid Module layout drawing





## 主要技术参数 / Main Technical Parameters

序号 No.	项目 Item	单位 Unit	技术参数 Technical Data
1	额定电压 Rated voltage	kV	145
2	额定频率 Rated frequency	Hz	50/60
3	额定短时耐受电压 (有效值) Rated short-duration power frequency withstand (r.m.s)	对地 To earth	275
		断口 Across the isolating distance	315
4	额定雷电冲击耐受电压 (峰值250/2500 $\mu$ s) Rated lightning impulse withstand voltage (peak 250/2500 $\mu$ s)	对地 To earth	650
		断口 Across the isolating distance	750
5	额定电流 Rated current	A	3150
6	额定短时耐受电流 (时间) Rated short-time withstand current	kA/s	40/3
7	额定峰值耐受电流 Rate peak withstand current	kA	100
8	断路器等级 Class of Circuit breaker		E2-C2-M2
9	隔离开关等级 Class of disconnecter		M2
10	接地开关等级 Class of earthing switch		E2-M2-B
11	电流互感器 Current transformer		根据客户要求配置 As required

## 主要技术参数 / Main Technical Parameters

序号 No.	项目 Item	单位 Unit	技术参数 Technical Data
SF <sub>6</sub> 气体压力 ( 20°C ) 参数 SF <sub>6</sub> Gas Pressure ( at 20°C )			
1	额定工作压力 Rated working pressure	MPa	0.6
2	补气报警压力 Replenishment Pre-filled gas alarming pressure	MPa	0.52
3	最低功能压力 Min. service gas pressure	MPa	0.5
机械特性参数 Mechanical Parameters			
1	分闸时间 Opening time	ms	25±5
2	合闸时间 Closing time	ms	80±10
3	合-分闸时间 C-O time	ms	45±5
4	分-合闸时间 O-C time	ms	≤300
5	分闸同期 Simultaneity of opening	ms	≤3
6	合闸同期 Simultaneity of closing	ms	≤5
7	全开断时间 Breaking time	ms	≤60

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