

1、概况 Overview

1. 1 产品型号及名称 Product model and name

ZW32—12 外高压真空断路器。ZW32-12

Outdoor high voltage vacuum circuit breaker

1. 2 主要用途 Main application

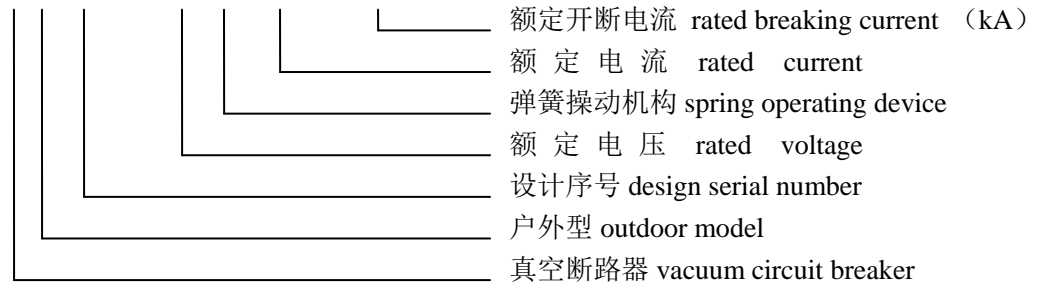
ZW32—12 型户外高压真空断路器（以下简称断路器）为额定电压 12kv，三相交流 50Hz 的户外配电设备。主要用于开断、关合电力系统中的负荷电流、过载电流及短路电流。适用于变电站及工矿企业配电系统中作保护和控制之用，及农村电网频繁操作的场所。

ZW32-12 Outdoor high voltage vacuum circuit breaker

(circuit breaker for short in the following) is a outdoor power distribution equipment whose rated voltage is 12kv with a 50Hz three phase current. It is largely used to make and break the load current, overload current and short-circuit current in the power system. It is applicable for protection and control in the transformer substation and power distribution system of industrial and mining enterprises as well as in the site where a frequent operation by rural power grid takes place.

本安装使用说明书规定了断路器的主要技术参数、产品结构，以及操作、安装、使用维护的原理和方法等内容。This manual of installation and use stipulates the primary technical parameters, product structure and the principle and method of operation , installation, use and maintenance of the circuit breaker.

Z W 32—1 2 / T 6 3 0 - 2 0



1. 3 引用标准 Standard Quoted

断路器符合《GB/T11022 高压开关及其控制设备标准的共用技术条件》、《GB1984-89 交流断路器》、《GB1985-89 交流高压隔离开关和接地开关》和 DL404、IEC56 等标准的有关要求。This circuit breaker meets the relevant requirements stated in *GB/T11022 Common specifications for high-voltage switchgear and controlgear standards* , *GB1984-89 Alternating current circuit breaker*, *GB1985-89 Alternating current high-voltage disconnectors and earthing switches*, *DL404* , *IEC56* and other standards.

1. 4 使用环境条件 Environmental conditions for use

1. 4. 1 海拔高度不超过 2000 米； altitude below 2000m;

1. 4. 2 周围空气温度：-45℃~+65℃；日温差：日变化 25℃； ambient air temperature: -45℃~+65℃； daily range of temperature: daily variation range 25℃；

1. 4. 3 风速不大于 35m/s； wind speed below 35m/s;

1. 4. 4 无易燃、爆炸危险、化学腐蚀及剧烈震动的场所。 Use in the place that is free from inflammable objects, explosion hazard, chemical corrosion and violent vibration.

1. 5 主要技术参数 Main technical parameters (见表 1 see table 1)

序号 Serial number	项目 Item	数值 Numerical value	单位 Unit
1	额定电压 rated voltage	Kv	12
2	额定频率 rated frequency	Hz	50
3	额定电流 rated current	A	630, 1250
4	额定短路开断电流 rated short circuit breaking current	KA	20, 31.5
5	额定峰值耐受电流 rated peak withstand current	KA	50, 80
6	额定短时耐受电流 (4S) rated short-time withstand current	KA	20, 31.5
7	额定短路关合电流 (峰值) rated short-circuit making current(peak value)	KA	50, 80
8	机械寿命 mechanical life	次 time	10000
9	额定电流开断次数 rated current breaking times	次 time	10000
10	额定短路开断电流开断次数 breaking times of rated short circuit breaking current	次 time	30
11	1min 工频耐压 (湿) (干) 相间、 对地/断口 1 min interphase power frequency withstand voltage (wet and dry) , to ground/fracture	KV	42 55
12	c、对地/断口 interphase lightning impulse withstand voltage(peak value), to ground/fracture	KV	75/85
13	二次回路 1min 工频耐压 second circuit 1 min power frequency withstand voltage	KV	2

1. 6 机械特性 (见表 2) Mechanical characteristics (see table 2)

序号 Serial number	项目 Item	单位 Unit	数值 Numerical value
1	触头开距 clearance between open contacts	mm	10±1
2	触头超行程 over-travel of the contact	mm	3±1
3	分闸速度 opening speed	m/s	1.2±0.2
4	合闸速度 closing speed	m/s	0.8±0.2

5	触头合闸弹跳时间 closing bouncing time of contact	ms	≤2
6	相间中心距离 interphase central distance	mm	380±1.5
7	三相分合闸不同期性 non-synchronism of three-phase opening and closing	ms	≤2
8	各相导电回路电阻 resistance of contactor circuit of each phase	μ Ω	≤80
9	带隔离开关各相导电回路电阻 resistance of contactor circuit of each phase of disconnecting switch	μ Ω	≤150
10	合闸时间 closing time	ms	25~60
11	分闸时间（分励脱扣） opening time(shunt trip)	ms	18~45
12	储能电动机额定功率 rated power of energy-storage electromotor	W	40

2、结构特点 Structural feature

2. 1 该断路器由三相支柱、机构箱组成，结构简单明了，三相支柱及电流互感器采用户外环氧树脂固体或硅橡胶绝缘，具有耐高低温、耐紫外线、耐老化等优点；采用小型化弹簧操动机构，分合闸能耗低，机构传动输出采用主轴滑动方式，无扭力损耗，分合传动件少，可靠性高；电流互感器安装于动端出线，二次采用插拔结构，维护更换方便。

This circuit breaker has a simple structure consisting of three-phase support and mechanism case, the three-phase support and current transformer adopt the outdoor epoxy resin solid or silicon rubber for insulation, having the advantages of tolerating high and low temperature, ultraviolet ray and aging resistance and so on; it adopts a miniaturized spring operating device with a low opening and closing energy consumption, the principal axis slide manner is adopted for its mechanism transmission output to avoid the torsion loss and have less merge-joint driving medium with a high reliability; the current transformer is installed on the outgoing line at the moving end, the second circuit adopts a plug-pull structure, which is convenient for maintenance and replacement.

该断路器可装隔离开关，三相联动，在隔离开关分闸状态下有明显的可见断口，并具备与断路器本体之间的防误联锁，维护方便，安全。

The disconnecter can be installed on this circuit breaker, which is three-phase united action, having a clear visible fracture when the disconnecter is in an open position, and the disconnecter has an anti-misoperation interlock between it and circuit breaker, which is convenient and safe to maintain.

2. 2 装有真空灭弧室的高压断路器开断性能稳定可靠，具有~~列~~燃烧和爆炸危险、安全、免维护、体积小、重量轻（<150kg）和使用寿命长等特点。

The high-voltage circuit breaker installed with a vacuum arc-extinguishing chamber has a stable and reliable performance of breaking and making, which is characterized with combustion and explosion hazard-free, safety, maintenance-free, small size, low weight (<150kg), long life and so on.

2. 3 断路器采用全封闭结构，密封性能好，有防潮、防凝露性能，适应于高温潮湿地区使用。The circuit breaker adopts a complete sealed structure, having a good sealability and damp and

condensation-proof property, it is applicable to the hot and humid region.

2. 4 断路器的合、分、可手动或电动操作及远方操作。可与控制器配套实现配电自动化，也可与重合控制器配合组成重合器。

The opening and closing of circuit breaker can be operated in a manual or power-driven as well as remote manner. It can be matched with the controller to realize the automation of power distribution, it can also be matched with the reclosing controller to form a recloser.

2. 5 操作机构新颖、简单、动作可靠、体积小、机械寿命可过 1 万次。

The operating device is novel, simple, reliable in action, small in size, with a mechanical life above ten thousand times.

2. 6 断路器的安装方式可采用单杆或双杆座装方式。The circuit breaker can be installed in a single-shaft seat or double-shaft seat way.

3、安装、使用及维护 Installation , use and maintenance

3. 1 开箱后应检查柱上断路器绝缘罩有无损坏，产品铭合格证是否与实物相符。

After opening the case, the insulation cover of the pole-mounted circuit breaker should be checked for its intactness, and the product inscription and certificate of quality should be checked to see if they match with the real object.

3. 2 柱上断路器投入运行前，应仔细核对各操作元件的额定电压、额定电流与实际情况是否相符。并用机构所具有的合分闸方式进行试操作，以检查各项指示是否正确。

Before the pole-mounted circuit breaker is put into operation, the rated voltage and rated current of each operating component should be verified to see if they conform to the actuality. And a trial operation should be done to it in a legitimate way of opening and closing of the device to check if each indication is correct.

3. 3 断路器可以分单杆架设，也可双杆架设（如图二、三、四、五所示）。

The circuit breaker can be divided into single-shaft erection and double-shaft erection.(as shown in the figure 2, 3, 4, 5)

3. 4 本柱上断路器因某特殊的设计结构确保用户在使用中长期免维护。

Due to a special design structure, this pole-mounted circuit breaker can ensure that it is free from the maintenance by the user for a long time.

3. 5 用户不^生随意更换使用与原型号规格不一致的电器元件。The user is not allowed to randomly replace or use the electrical components which are inconsistent with the specification of original model.

3. 6 操作人员应初步了解机构的性能及安装调整、维护知识，对运行中问题应予以记录，必要时可通知制造厂家。The operator should have a preliminary knowledge of the performance , installation and adjustment and maintenance of the device, the problems occurring in the operation process should be recorded, the manufacturer may be notified if necessary.

4、运输、验收及贮存 Transport, acceptance check and storage

4. 1 运输 Transport

运输时必须整台装入封闭的包装箱内加以固定。运输过程中^{不生}翻转、倾斜、需采取防震措施。The whole device shall be put into a sealed packaging case and fixed before transport. It shall not be overturned or slanted during transport, and a quakeproof measure shall be taken.

4. 2 验收 Acceptance check

用户收到柱上断路器后应进行如下工作：the user should carry out the following work upon receiving the pole-mounted circuit breaker:

4. 2. 1 检查^生是否损坏 check its intactness

4. 2. 2 对照产品装箱单检查文件是否齐全、附件及备件是否齐全。Check if the documents, attachments and spare parts are complete according to the product packing list.

4. 2. 3 检查柱上断路器铭牌上的技术参数、产品合格证是否符合订货要求。

Check if the technical parameters on the nameplate of pole-mounted circuit breaker and manufacturer certificate are consistent with the order requirements .

4. 3 贮存 Storage

本柱上断路器应存放在干燥、通风、防潮、防震及防有害气体侵袭的室内，长期存放应定期检查环境是否符合要求。装箱、开箱和保管应在干燥的室内，对产品及各部件要进行核对是否完整和相符。This pole-mounted circuit breaker should be stored in a room that is dry, ventilated, damp-proof and free from harmful gas invasion. If it is to be stored for a long time, the surrounding environment shall be checked regularly to see if it meets the requirement. The encasement, unpacking and custody shall be done in a dry room, the product and various parts shall be verified to ensure their completeness and consistency.

5. 订货须知 Ordering instruction

5. 1 订货时应说明产品的型号（例如断路器的额定开断容量、断路器是否带隔离开关、断路器是否带电流互感器及基数量、辅助电源方式等）、名称、数量及所需电流互感器的变比等。

The product's model (such as the rated switching capacity of the circuit breaker, whether the circuit breaker has a disconnecter, whether the circuit breaker has current transformer and its quantity if yes, the type of auxiliary power supply and so on), name, quantity and ratio of transformation of the current transformer desired should be stated upon ordering.

5. 2 用户须提出安装方式，选择相应坚固附件。The user shall state the installation way, and select according firm attachment.

5. 3 用户须根据使用要求选择相应的功能配置。The user shall choose the according functional configuration based on the operating requirements.

6. 随机文件 the accompanying documents

6. 1 产品合格证一份。One manufacturer's certificate

6. 2 安装使用说明书一份。One manual of installation and use

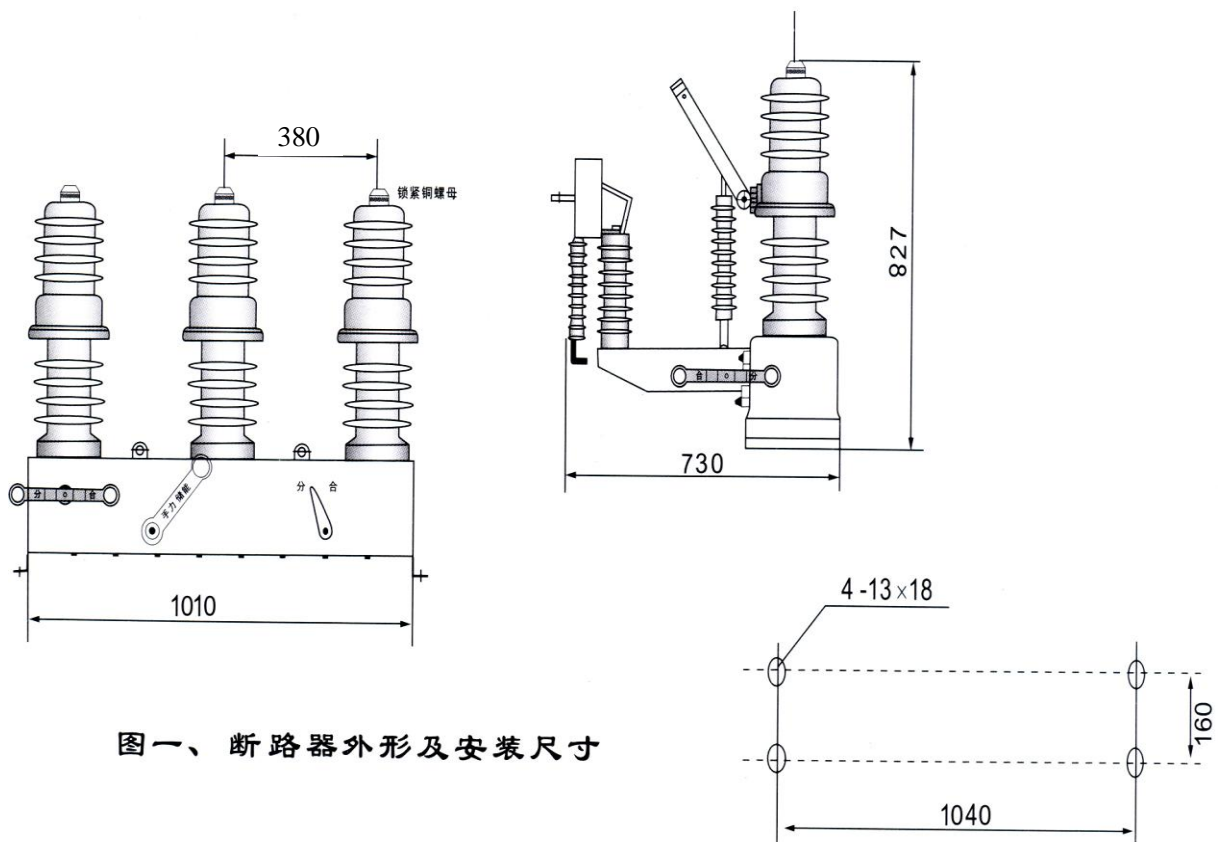
6. 3 装箱单一份。One packing list

7. 声明事项 Declaration matters

7. 1 在搬运开关时，严禁抬扛进出线桩及电流互感器，对由此造成的损坏皆不属产品本身质量。During the transfer and transport of the switches, it is prohibited to carry or lift up the incoming and outgoing line pole and current transformer, any damage caused by the prohibited actions is not associated with the product's quality.

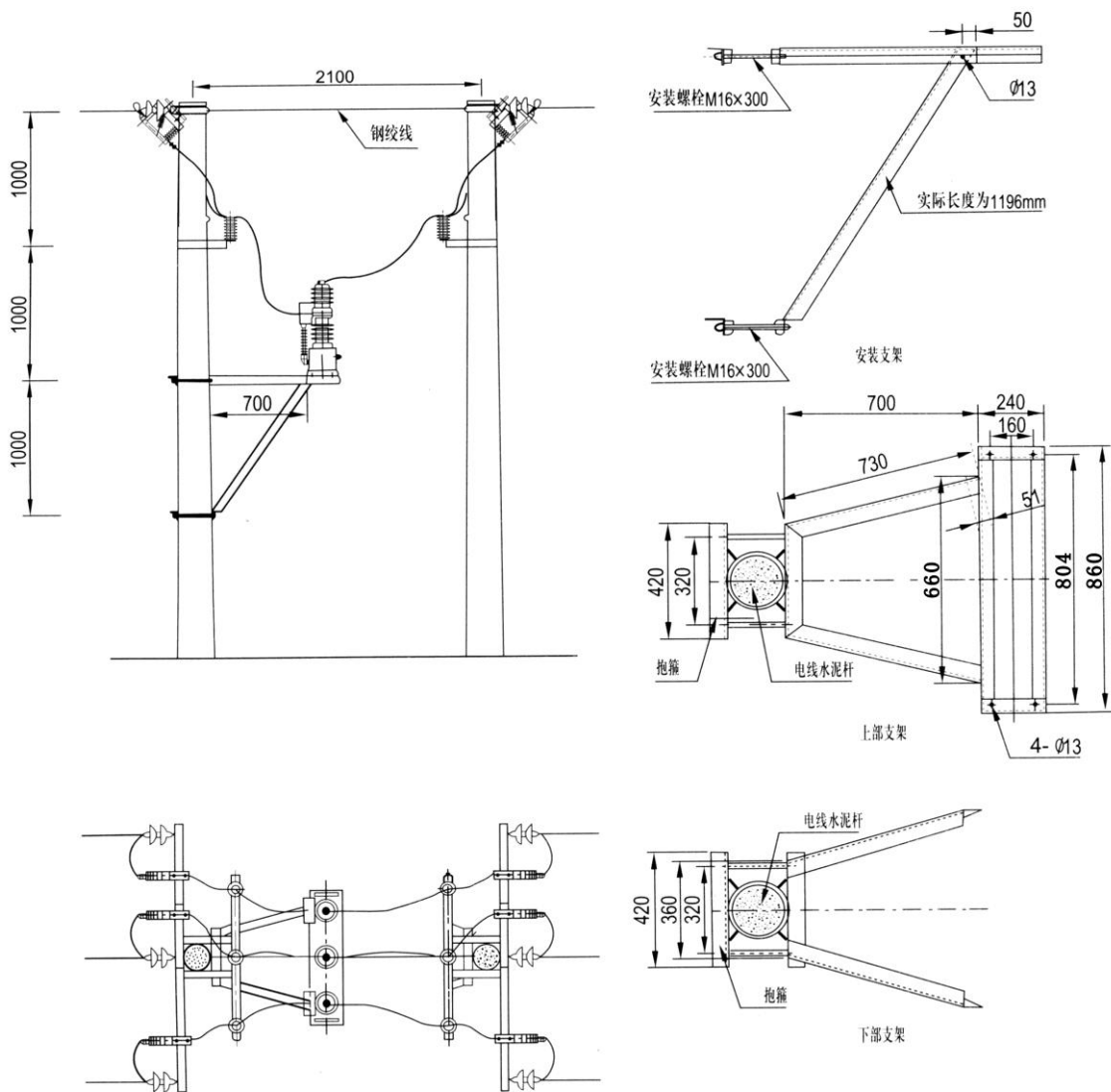
7. 2 任何状况下不准松动紧贴上绝缘罩的铜螺母（标有红漆）。

The copper nut clinging to the upper insulating cover shall not be loosen in any situation(labeled with red paint).



图一、断路器外形及安装尺寸

图二 断路器与隔离开关外形及安装尺寸



注: 抱箍尺寸按电线杆实际尺寸定

图二、安装示意图一

- 钢绞线 steel strand
- 安装螺栓 mounting bolt
- 实际长度 actual length
- 安装支架 installing support
- 抱箍 beam clamp
- 电线水泥杆 electrical wire concrete pole
- 上部支架 upper support
- 下部支架 lower support

开关侧 26 芯航空插件管脚电气定义 the electric definition of the pin of 26-chip aerial linker at the side of switch

开关侧连接器引脚 the pin of the connector at the side of switch	配弹簧机构开关 the switch of device equipped with spring	
	标记 sign	标记说明 sign instruction
1	CN-	储能- energy storage-
2	CN+	储能+ energy storage+
3	HZ-	合闸- Closing-
4	HZ+	合闸+ Closing +
5	FZ-	分闸- Opening-
6	FZ+	分闸+ Opening+
7	Ia	A 相电流 A-phase current
8	Ib	B 相电流 B-phase current
9	Ic	C 相电流 C-phase current
10	In	相电流公共端 Common port of the phase current
11	I0	零序电流 Zero-sequence current
12	I0com	零序电流公共端 Common port of the

		Zero-sequence current
13	--	--
14	--	--
15	--	--
16	--	--
17	PT- (可选 optional)	内置 built-in PT-
18	PT+ (可选 optional)	内置 built-in PT+
19	YXCOM	遥信公共端 common port of the remote signaling
20	HW	合位 Closing position
21	FW(可选 optional)	分位 Opening position
22	WCN	未储能位 Non-energy storage position
23	--	--
12	--	--
25	--	--
26	--	--

整流块	Rectifier block
辅助开关	Auxiliary switch
行程开关	Travel switch
分闸线圈	Opening coil
过流线圈	Overcurrent coil
合闸线圈	Closing coil
电机	Electrical machine
消涌器	Surge elimination device
插座（21 芯）	Socket(21 chip)
接线端子	Amphenol connector
分闸，合闸，储能，负电源	Opening, closing, energy storage, negative power source
注：… …	The item with a * should be connected with 2.5mm ² wire, all of the rest should be connected with 1.0mm ² wire.
图八 … …	The internal wiring diagram of ZW-12 outdoor high-voltage vacuum circuit breaker (power-driven) (for reference)
绿，蓝，黄	Green, blue, yellow