



产品技术参数说明

Explanation for technical data of products

1 主要执行标准

1.1 GB 311.1-1997《高压输变电设备的绝缘配合》(neq IEC 60071-1:1993)。

1.2 DL/T 539-1993《户内交流高压开关柜和元部件凝露及污秽试验技术条件》。

1.3 DL/T 404-2007《3.6kV~40.5 kV 交流金属封闭开关设备和控制设备》(IEC 62271-200:2003, MOD)。

1.4 GB 1208-2006《电流互感器》(IEC 60044-1:2003, MOD)。

1.5 GB 1207-2006《电磁式电压互感器》(IEC 60044-2:2003, MOD)。

1.6 GB 1094.11-2007《干式变压器》(IEC 60076-11:2004, MOD) 及 GB/T 10228-2008《干式电力变压器技术参数和要求》。

1.7 GB/T 1094.6-2011《电抗器》(IEC 60076-6:2007, MOD) 及 JB/T 5346-1998《串联电抗器》。

1.8 GB 1985-2004《高压交流隔离开关和接地开关》(IEC 62271-102:2002, MOD)。

1.9 广东省企业产品标准 Q/SH001-2008《环氧树脂浇注阻容式过电压吸收器》。

1.10 触头盒、套管、绝缘子参照 GB/T 4109-2008《交流电压高于 1000V 的绝缘套管》(IEC 60137Ed.6.0,MOD)、JB/T 10305-2001《3.6kV~40.5kV 高压设备用户内有机材料支柱绝缘子技术条件》(neq IEC 60660:1999)。

2 使用条件

户内式互感器、干式变压器、电抗器、开关、过电压吸收器、触头盒、套管、绝缘子及其他绝缘件、各类手车等的使用条件如下：

1 Standards applied for products

1.1 GB 311.1-1997 *Insulation co-ordination for high voltage power transmission and transformation equipment* (neq IEC 60071-1:1993).

1.2 DL/T 539-1993 *Technical specifications for dewing and pollution test of indoor AC high voltage switchgear board and parts*.

1.3 DL/T 404-2007 *Alternating-Current metal-enclosed Switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5kV* (IEC 62271-200 :2003,MOD).

1.4 GB 1208-2006 *Current transformers* (IEC 60044-1:2003, MOD).

1.5 GB 1207-2006 *Inductive Voltage transformers* (IEC 60044-2:2003, MOD).

1.6 GB 1094.11-2007 *Dry-type transformers* (IEC 60076-11:2004,MOD) and GB/T 10228-2008 *Technical Specifications and requirements for dry-type power transformers*.

1.7 GB/T 1094.6-2011 *Reactors* (IEC 60076-6:2007, MOD) and JB/T 5346-1998 *Series reactors*.

1.8 GB 1985-2004 *AC high voltage disconnecting switches and earthing switches* (IEC 62271-102:2002, MOD).

1.9 Q/SH001-2008 *Cast resin epoxy R-C type over voltage absorbers*, the enterprise standard of GD province.

1.10 GB/T 4109-2008 *Insulated bushings for alternating voltages above 1000V* (IEC 60137Ed.6.0,MOD), JB/T 10305-2001 *Technical specifications of 3.6kV-40.5kV indoor post insulators made of organic material for high voltage equipments* (neq IEC 60660:1999).

2 Service Conditions

Service conditions are as the following for indoor instrument transformers, dry-type transformers, reactors, switches, over voltage absorbers, contact covers, bushings, insulators and other insulating articles, varieties of trucks etc.



- 2.1 环境温度：最高 40℃，最低-10℃。
- 2.2 海拔高度
 - 2.2.1 普通型产品可在不超过 1000 米的海拔高度下运行。
 - 2.2.2 全工况型产品可在潮湿、凝露及 II 级污秽条件下，不超过 1000 米的海拔高度下运行。
 - 2.2.3 高原型产品可在海拔高度不超过 3000 米或 2000 米（视顾客要求而定）条件下运行。
- 2.3 大气条件
 - 2.3.1 大气中无严重影响电器设备绝缘及导电能力的气体、蒸汽、灰尘、盐雾、化学性沉积、污垢及腐蚀性或爆炸性介质。
 - 2.3.2 全工况型产品可在相对湿度 $\geq 95\%$ 时运行；普通型产品应在相对湿度 $\leq 85\%$ 时运行。
- 2.4 安装场所应无火灾危险、严重粉尘及剧烈震动。

3 技术参数补充说明

- 3.1 额定电压
 - 3.1.1 开关类及各类手车产品的额定电压是以其最高工作电压来标称的。如 GN30-12QD/630、JN11-40.5Q/31.5 和 JC II -12/210-800 等。
 - 3.1.2 除开关及各类手车产品外，其余产品则以电网电压等级标准值作为产品的额定电压。如 LDJ1-35Q/300、JDZ10-10、SC9-50/10 等。
- 3.2 额定工作电压
 - 3.2.1 额定电压为 12kV 的开关及各类手车，其额定工作电压为 10kV。
 - 3.2.2 额定电压为 40.5kV 的开关，其额定工作电压为 35kV。
- 3.3 电流互感器保护级的准确级
按 GB 1208-2006 标准，电流互感器保护级的准确级为：准确级 P 准确限值系数。如 10P15。

- 2.1 Ambient air temperature: max 40℃, min -10℃.
- 2.2 Altitude
 - 2.2.1 The altitude does not exceed 1000m above sea level for ordinary products.
 - 2.2.2 The altitude does not exceed 1000m above sea-level and at the conditions of moisture, dewing and pollution class II for “all operating conditions” products.
 - 2.2.3 The altitude does not exceed 3000m or 2000m (according to customers’ requirements) for plateau-type products.
- 2.3 Atmosphere conditions
 - 2.3.1 There have to be no gas that may seriously affect the insulation and conductive ability of electric equipments, steam, ash, salt, chemical deposit, pollution and corrosive or explosive material.
 - 2.3.2 The relative humidity may be equal to or more than 95% for “all operating conditions” products while has to be less than 85% for ordinary products.
- 2.4 The site for installation should be no fire danger, no serious powder and ash and no serious vibration.

3 Supplementary explanation for technical data

- 3.1 Rated voltage
 - 3.1.1 The rated voltage for all switches and varieties of trucks is designated by their maximum operating voltage, such as GN30-12QD/630, JN11-40.5Q/31.5 and JC II -12/210-800 etc.
 - 3.1.2 The rated voltage for all products except switches and varieties of trucks is the standard value of voltage classes of the power system relatively, such as LDJ1-35Q/300, JDZ10-10, SC9-50/10 etc.
- 3.2 Rated operating voltage
 - 3.2.1 The rated operating voltage is 10kV for switches and varieties of trucks of rated voltage 12kV.
 - 3.2.2 The rated operating voltage is 35kV for switches of rated voltage 40.5kV.
- 3.3 The accuracy class for protective class of current transformers
In Standards GB1208-2006, the accuracy class for protective class of current transformer consists of



3.3.1 准确级

以该准确级在额定准确限值一次电流下的最大允许复合误差的百分数标称,标准准确级为:5 和 10。

3.3.2 准确限值系数

是准确限值一次电流与额定一次电流之比。标准准确限值系数为:5、10、15、20 和 30。例如 5P15 表示额定准确限值一次电流值为额定一次电流值的 15 倍时,电流互感器保护级的复合误差 $\leq 5\%$ 。

3.4 保护用电压互感器准确级的标称

按 GB1207-2006 规定:所有保护用电压互感器,除剩余电压绕组外,应给出相应的测量准确级和保护准确级。

3.4.1 保护准确级

以该准确级在 5%额定电压到额定电压因数相应的电压范围内最大允许电压误差的百分数标称,其后标以字母 P。标准保护准确级为:3P 和 6P。其中 3 表示电压误差限值 3%,6 表示电压误差限值 6%。

3.4.2 剩余电压绕组只标称保护准确级

3.5 电压互感器的额定输出与准确级

每台电压互感器每个绕组只满足“额定输出”栏内相应的一个准确级要求。如同时需满足几个准确级要求,订货时须加以说明。

3.6 电流互感器二次额定电流为 5A 或 1A 或按顾客要求生产

accuracy class + P + accuracy limit factor, such as 10P15.

3.3.1 Accuracy class

It is designated by the highest permissible percentage composite error for the accuracy class concerned at rated accuracy limit primary current. The standard accuracy classes are 5 and 10.

3.3.2 Accuracy Limit Factor

It is the ratio of accuracy limit primary current and rated primary current. The standard ALF is 5, 10, 15, 20 and 30.

For example,5P15 means the composite error for protective class of current transformer is equal to or less than 5% while rated accuracy limit primary current equals to 15 times rated primary current.

3.4 The designation for accuracy class of voltage transformer for protection

According to the stipulation in GB1207-2006, both measuring accuracy class and protective accuracy class have respectively to be given for all protective voltage transformers,except the residual voltage winding.

3.4.1 Protective accuracy class

It is designated by the highest permissible percentage voltage error at the voltage range from 5% rated voltage to the voltage correspondent to the rated voltage factor for the accuracy class concerned. "P" follows the accuracy class. The standard protective accuracy class is 3P or 6P, 3 means the limit voltage error is 3% and 6 is 6%.

3.4.2 To the residual voltage winding, protective accuracy class only is designated

3.5 The rated output and accuracy class for voltage transformer

Every winding for a voltage transformer can only satisfy a accuracy class requirement in the “rated output” column correspondently. If customers want to satisfy more than one accuracy class requirement simultaneously, you have to declare while ordering.

3.6 The rated secondary current of a current transformer is 5A or 1A or customer's requirement



3.7 海拔高度 1000m 及以下产品的额定绝缘水平

额定电压 (kV)	最高工作电压 (kV)	额定绝缘水平 (kV)
3	3.6	3.6/25/40
6	7.2	7.2/32/60
10	12	12/42/75
15	17.5	17.5/55/105
20	24	24/65/125
35	40.5	40.5/95/185

4 注意事项

4.1 电流互感器的一次绕组有电流通过时，二次绕组不得开路。否则将有高电压产生，对人身安全和产品性能有危险或影响。

4.2 电压互感器二次绕组不得短路，否则互感器将被烧毁。

4.3 重复工频耐压试验，应在规定试验电压值的 80% 下进行。

3.7 The rated insulation level for products applied on altitude up to 1000m

Rated voltage(kV)	Highest service voltage(kV)	Rated insulation level(kV)
3	3.6	3.6/25/40
6	7.2	7.2/32/60
10	12	12/42/75
15	17.5	17.5/55/105
20	24	24/65/125
35	40.5	40.5/95/185

4 Notes

4.1 The secondary winding of a current transformer has not to be open absolutely while primary current is running in the primary winding. Otherwise there will produce high voltage. It would be dangerous to personal safety or affect the performance of products.

4.2 There should be no short circuit at the secondary winding for a voltage transformer, or the voltage transformer would be damaged.

4.3 The testing voltage has to be 80% stipulated testing voltage while repeated power frequency voltage withstand test needed.