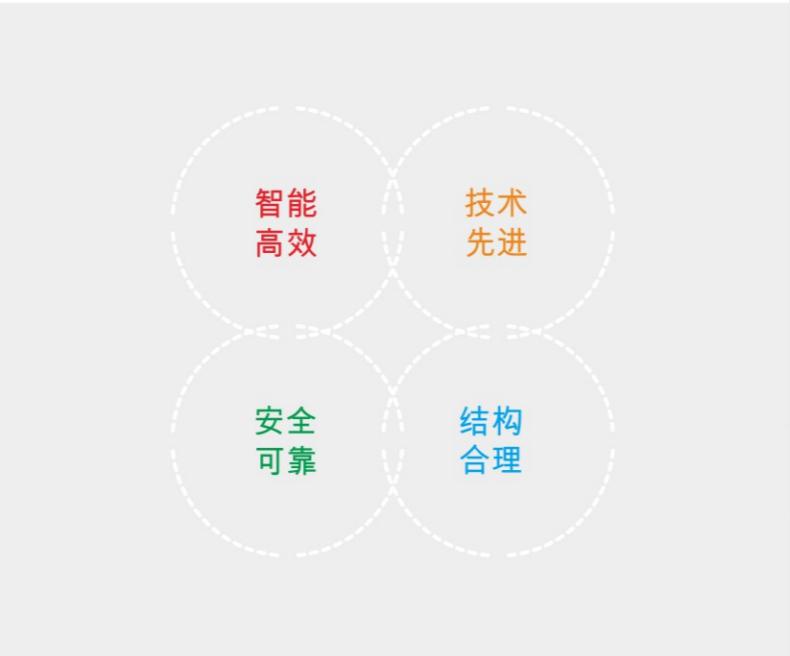


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ZHONGRUI
ELECTRIC CO., LTD.

产品选型手册
Product Selection Manual

中国·中瑞电气有限公司
CHINA ZHEJIANG ZHONGRUI ELECTRIC CO., LTD.



ZONRI® 中国·中瑞电气有限公司
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企业序言



引领[®]

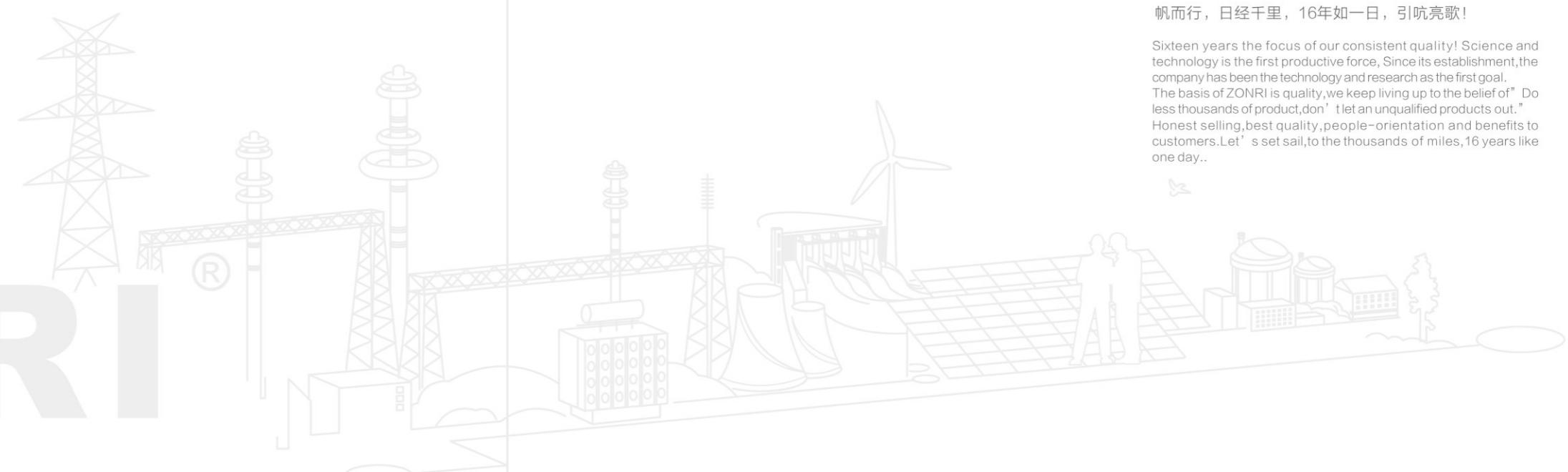
绝缘子套管行业 / 引领者总是敢想敢做的人
Insulators bushing Industry / leader
who always dare to do

16年的专注品质
16 Years Of Focus On Quality

十六年的专注使我们的品质始终如一！科学技术是第一生产力，公司自建立以来就一直把技术与研发当作第一要素，中瑞将质量做为企业的力生之本，秉承少做千万产品，也不让一个不合格产品出厂的管理理念。欣欣向荣，百舸竞风流！乘风气，借时机，披星赶月。中瑞扬帆而行，日经千里，16年如一日，引吭亮歌！

Sixteen years the focus of our consistent quality! Science and technology is the first productive force, Since its establishment, the company has been the technology and research as the first goal. The basis of ZONRI is quality, we keep living up to the belief of " Do less thousands of product, don't let an unqualified products out." Honest selling, best quality, people-orientation and benefits to customers. Let's set sail, to the thousands of miles, 16 years like one day..

ZONRI



企业简介

Company profile

中瑞电气有限公司坐落在（中国电器之都）浙江省乐清市，创建于2000年，拥有30000平方米的现代化生产厂房，具有目前国内最先进的硅橡胶绝缘子和复合干式电容型套管生产设备和齐全的硅橡胶性能及电力产品试验、检测设备200余台。员工200多名，其中从事研究、设计的高级技术人员40多名。并建有国内一流的高压试验大厅，机械性能检测和硅橡胶性能理化实验室。通过率了ISO9001:2008国家质量体系认证，是一家集生产、销售与科研院所联合研发为一体的国家高新技术企业。年生产、销售各型号复合绝缘子及电容型干式套管等系列产品200余万只。

公司专业生产复合绝缘子，复合电容型穿墙套管、电力机车套管，玻璃钢干式变压器套管，绝缘管形母线，复合氧化锌避雷器，跌落式熔断器，隔离开关等系列产品。所有产品均通过中国电力科学研究院、国家绝缘子避雷器质量监督检验中心、铁道部产品质量监督检验中心、国家电器产品质量监督检验中心，国家变压器质量监督检验中心及荷兰（KEMA）实验室等国内外知名检测机构的验

证，产品符合国家标准（GB）、行业标准（JB）及国际电工协会（IEC）的相应标准，并通过中电联及有关权威机构的产品鉴定。复合绝缘子和电容型干式套管被列为国家星火计划和国家火炬计划项目并顺利通过验收。公司目前已获得专利十余项，2012年公司成立了市级产品研发技术中心，公司注册生产的（ZONRI®）商标复合绝缘子获得市级名牌商标和市名牌产品荣誉称号。公司已成为国家电网公司、南方电网公司和中国南车集团合格供应商。截至2014年，公司产品已远销希腊，阿根廷，智利，厄瓜多尔，约旦，伊朗，越南、也门，印度，加纳，肯尼亚，坦桑尼亚，墨西哥，苏丹，乌干达，尼日利亚等60多个亚洲、欧美及非洲等国家和地区，赢得国内外用户的一致好评。

目前，公司可根据用户的要求，设计、制造和加工各种绝缘子产品。竭诚欢迎新老朋友洽谈业务。中瑞公司愿与您真诚合作，携手并进，共创辉煌明天。

Zhongrui Electric Co.,Ltd.Located at "Chinese Electric City" -Zhejiang Province Yueqing City,founded in 2000. We own domestic most advanced production equipment and complete silicone rubber silicone rubber insulator and composite dry capacity bushing performance and electrical products testing, testing equipment more than 200 sets. More than 200 employees, include research, design, senior technical personnel more than 40. And with the domestic first-class high-voltage test hall, the mechanical properties testing and performance of silicone rubber physical and chemical laboratory. Passed the ISO9001:2008 national quality system certification,we are a high technical enterprise that have succeed in turning produce and sell together. The sales of various models of composite insulator and capacitance type dry casing and other products more than 2 million in a year.

Our company specializes in the series of products of composite insulator, composite dry wall bushing, Electric locomotive casing, FRP dry type transformer bushing, insulated tubular busbar, lightning arrester and fuse cut-out, isolating switch, etc. All products are qualified by Domestic and foreign well-known inspection institutions, such as the Netherlands KEMA laboratory verification such as China electric power academy of sciences、National Insulator & Lightning Arrester quality inspection center、The Ministry of railways quality control test of inspection center、National Electric products quality control test of inspection center,National transformer quality control test of inspection center and

Netherlands "KEMA" laboratory.Products corresponding national standards(GB) Industry standards(JB) and standards of international electrotechnical society (IEC), and accreditation Itu and relevant authorities in the product identification. Composite Insulator and Composite insulator and capacitance type dry casing has been placed "National Star plan" and "National torch plan" by Chinese Technical department. The company has more than 10 national patents, In 2012 company was founded the municipal product research and development technology center, Company registered (ZONRI®) the trademark production of composite insulator has won the honorary title of city famous trademark and city famous brand product. Company has become a qualified supplier for National grid company、Southern power grid company and China southern railway group. As for 2014,our products sell well through all parts of the country, as well as finding good markets in Greek ,Argentina,Chile,Ecuador, Jordan,Vietname ,yemen,India,Ghana,Kenya,Tanzania,Mexico,Sudan, Uganda,Nigeria and so on more than 60 Asia,Europe and United States and Africa and other countries and region, Won the domestic and foreign customers consistent high praise.

At present, we can design and produce all type insulators as per customers requirement.Warmly welcome all old and new customers to negotiate business. ZONRI company will go ahead together with you, and cooperate with you in sincerely.



TESTING EQUIPMENT

检测设备

优质的产品，是我们的根本，完善的检测设备，使产品内在的品质与外在个性化紧密结合，从而满足并引领工业现代化的需求。先进的品质管理技术严格的控制每件产品的质量，定期对品质管理部人员进行专业技能培训，确保产品的完美品质，

The high quality product, it is our fundamental, perfect testing equipment, make the product intrinsic quality and external connected with personalized to meet the demand of the modern and leading industry. The advanced quality management technology strictly control the quality of each product, professional and technical training to quality management department personnel on a regular basis, to ensure the perfect quality of products.





ZONRI®
缔造行业精品

HONOR

资质证书 Qualification Certificate

我们秉承“质量为生命、信誉为根本”的经营理念，深化企业改革，强化质量管理，加大科技投入，增强整体素质，严格执行ISO9001国际质量体系的管理制度。

We keep living up to the belief of: " Quality as the life, reputation as a fundamental". Deepening enterprise reform, strengthening quality management, increase investment in technology, enhance the overall quality, strictly in accordance with the ISO9001 international quality system management system



SALES AND SERVICE

销售服务

我们一直致力于以品质、服务、品牌来巩固和开拓市场。积极推行品牌营销、服务营销、提倡诚信经营，向顾客提供优质优廉的高端产品和优良服务，从容应对全球经济一体化，更好的参与国际竞争。

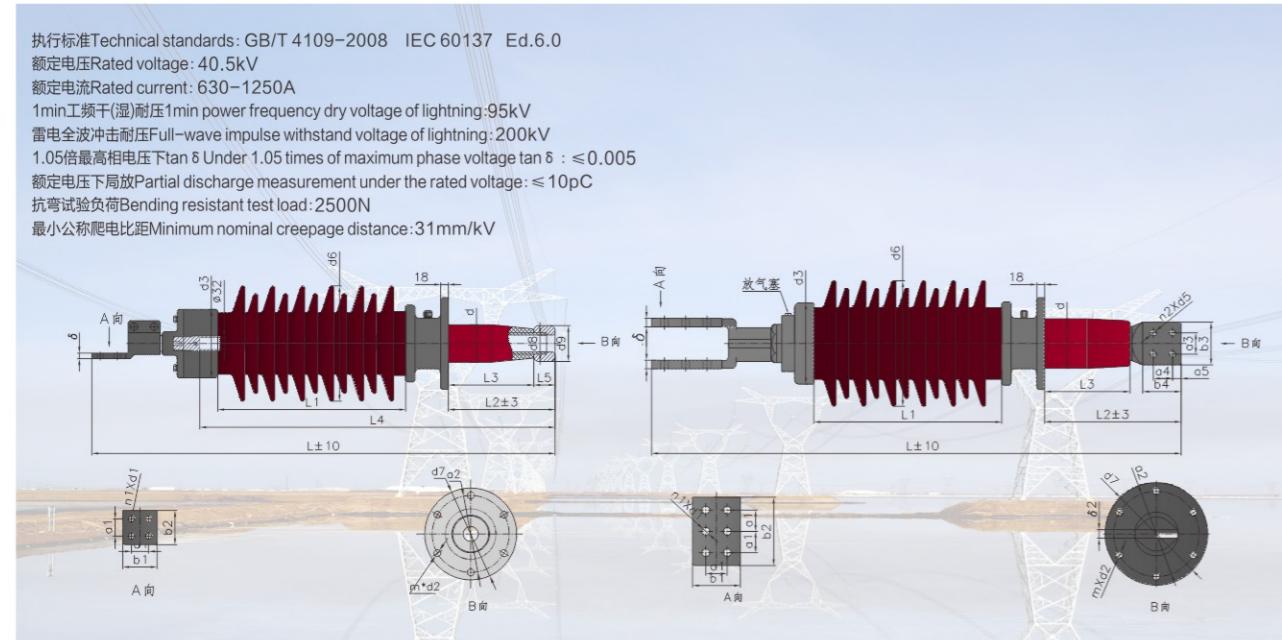
We have been committed to quality, service, brand to consolidate and expand the market. Actively promote the brand marketing, services marketing, good faith management, to provide customers good quality inexpensive products and excellent service, calmly deal with the global economic integration, better participate in international competition.





40.5kV玻璃钢干式电容型变压器套管 FRP dry type capacitive bushing

④ 外形及安装尺寸 Outlinge and installing dimension



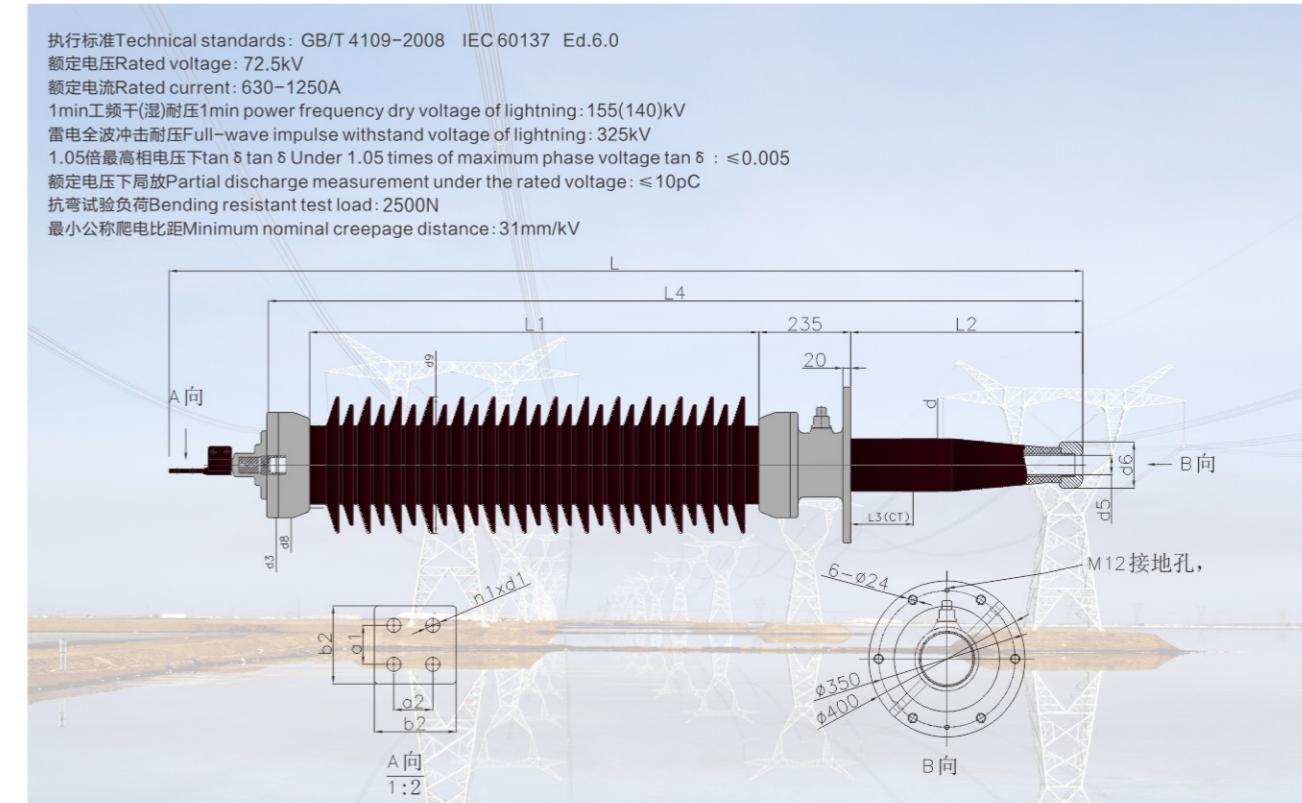
主要性能 Main performance		1min工频干(湿)耐压1min power frequency withstand voltage: 55kV; 雷电全波冲击耐压Lightning impulse withstand voltage: 125kV; 1.05倍最高相电压下tan δ : <0.005 额定电压下局放Partial discharge measurement under the rated voltage: <10pC; 抗弯试验负荷The bending test load: 1000-3500N 最小公称爬电比距Minimum nominal creepage distance: 31mm/kV													
型号 Type	主要尺寸(mm) Main dimension	图号 Mode	套管 总长 Total length of casing	接线端子 terminal				电缆 引入 长度 Length of cable is introduced into	头部 直径 Head diameter	引线 接头 绝缘 距离 Insulation distance	复合外绝缘 composite insulation	法兰 Flange			
				孔数 Hole number	孔径 Hole diameter	板面 board	板厚 Thickness					最大 金径 Maximum diameter of shed	法兰盘 Outer diameter of flange plate	安装孔 Center distance of insulation hole	孔数 Hole number
CFBRGW-40.5/630-800-4	2	1060	4*14	30	63*63	11	850	168	28	440	1290	252	215	180	6*16
CFBRGW-40.5/1000-1250-4	2	1090	4*14	40	80*80	10	850	168	32	440	1290	252	215	180	6*16
CFBRGW-40.5/630-800-4	3	1030	4*14	30	63*63	11		168		440	1290	252	215	180	6*16
CFBRGW-40.5/1000-1250-4	3	1060	4*14	40	80*80	10		168		440	1290	252	215	180	6*16
CFBRGW-40.5/1600-4	4	1105	4*18	50	100*100	16		168		440	1290	252	215	180	6*16
CFBRGW-40.5/2000-4	4	1115	4*18	50	100*100	16		168		440	1290	252	215	180	6*16
CFBRGW-40.5/2500-4	5	1160	4*18	50	100*100	20		178		440	1290	272	240	200	6*18
CFBRGW-40.5/3150-4	5	1205	4*18	60	125*125	20		178		440	1290	272	240	200	6*18
CFBRGW-40.5/4000-4	5	1230	6*18	50	112*160	20		190		440	1290	294	240	200	6*18

型号 Type	主要尺寸(mm) Main dimension	浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油端 绝缘 长度 Oil insulation length	均压球 Equipotential shielding for HV bushing	导电 管的 内径 The inner diameter of the conductive tube	油中接线端子 In the oil terminal									
							板面 board		孔距 Pitch of holes			孔数 Hole number	孔径 Hole diameter	板厚 Thickness		
L2	d	L3	L5	d9	d10	b3	b4	a3	a4	a5	n*5d	δ 2				
CFBRGW-40.5/630-800-4	250	88	200	50	84	40										
CFBRGW-40.5/1000-1250-4	250	88	200	50	84	40										
CFBRGW-40.5/630-800-4	290	88	200			40	65			30	15	2*14	20			
CFBRGW-40.5/1000-1250-4	290	88	200			40	65			30	15	2*14	20			
CFBRGW-40.5/1600-4	310	88	200			65	90			45	20	2*14	20			
CFBRGW-40.5/2000-4	320	88	200			80	90	40	45	20	4*14	20				
CFBRGW-40.5/2500-4	335	102	200			80	90	40	45	20	4*14	20				
CFBRGW-40.5/3150-4	335	102	200			80	90	40	45	20	4*14	20				
CFBRGW-40.5/4000-4	320	116	200			100	90	50	45	20	4*14	20				

注: 表中产品外形尺寸为推荐尺寸, 关键安装配合尺寸都可以根据用户要求设计, 最终尺寸以双方确定图纸尺寸为准。
Product appearance size is recommended in the table size, the key installation dimension can be designed according to user requirements, the final size will be subject to both parties determine the drawings.

72.5kV玻璃钢干式电容型变压器套管 FRP dry type capacitive bushing

④ 外形及安装尺寸 Outlinge and installing dimension

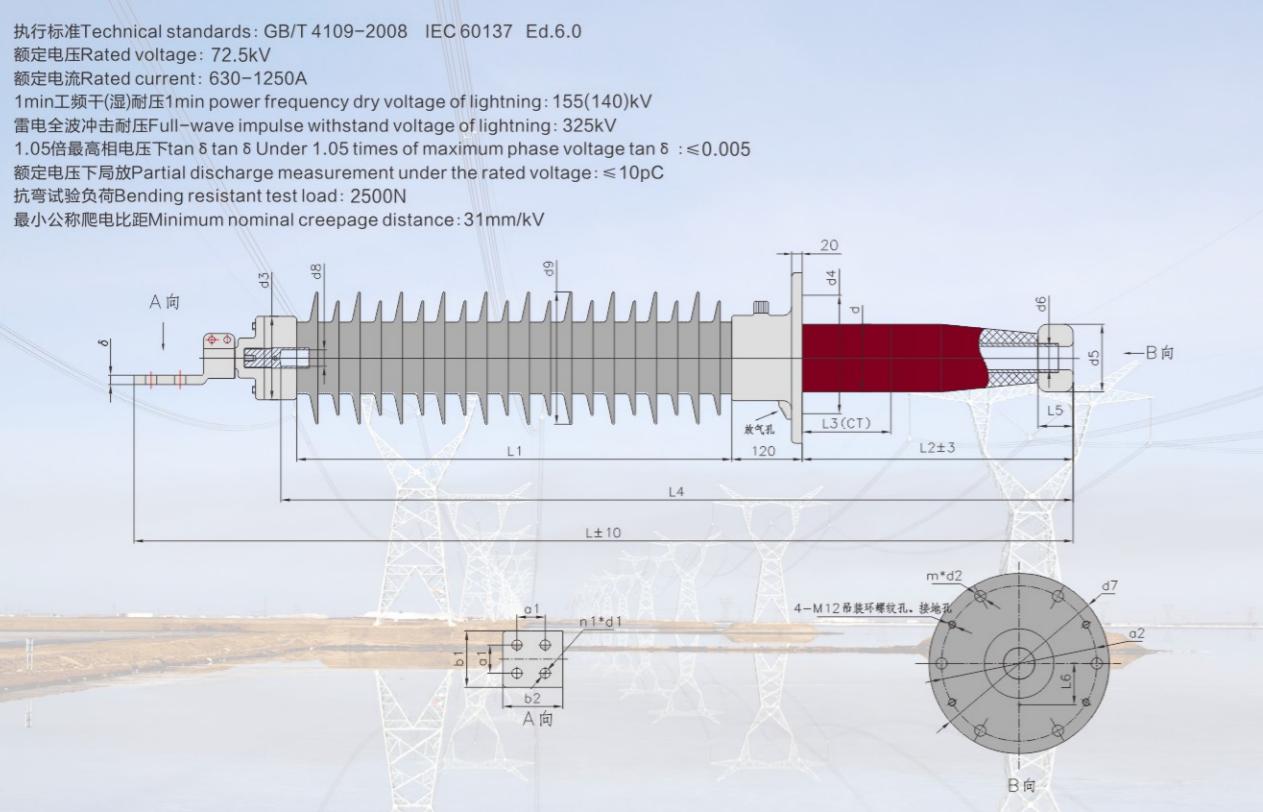


型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				电缆 引入 长度 Length of cable is introduced into	头部 直径 Head diameter	引线 接头 孔径 The pitch of pin connector	瓷套外绝缘 porcelain insulation	
			孔数 Hole number	孔径 Hole diameter	板面 board	板厚 Thickness					
CBRGW-72.5/630-800-4	1510	4*14	40	80*80	10	1260	190	28	700	2250	294
CBRGW-72.5/630-800-4	1910	4*14	40	80*80	10	1660	190	28	700	2250	294
CBRGW-72.5/1250-4	1515	4*18	50	100*100	13	1260	190	32	700	2250	294
CBRGW-72.5/1250-4	1915	4*18	50	100*100	13	1660	190	32	700	2250	294

型号 Type	主要尺寸(mm) Main dimension	法兰 Flange					浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 In the oil body diameter	均压球 Equipotential shielding for HV bushing	导电 管的 内径 The inner diameter of the conductive tube
		法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter	密封面 内径 Sealing face	放气孔 中心距 Vent hole center distance					
CBRGW-72.5/630-800-4	325	280	6*20	160	78	390	116	0	60	110	40
CBRGW-72.5/630-800-4	325	280	6*20	160	78	390	116	400	60	110	40
CBRGW-72.5/1250-4	325	280	6*20	160</							

72.5kV玻璃钢干式电容型变压器套管 FRP dry type capacitive bushing

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				电缆 引入 长度 Length of cable is introduced into	头部 直径 head diameter	引线 接头 孔径 The pitch of pin connector	复合外绝缘 composite insulation		
			孔数 孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness				绝缘 距离 Insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed
			L	n1*d	a1	b1*b2	δ	L4	d3	d8	L1	S
FBRGW-72.5/630-800-4		1515	4*14	40	80*80	10	1290	138	28	740	2250	232
FBRGW-72.5/630-800-4		1915	4*14	40	80*80	10	1690	138	28	740	2250	232
FBRGW-72.5/1250-4		1520	4*18	50	100*100	13	1290	138	32	740	2250	232
FBRGW-72.5/1250-4		1920	4*18	50	100*100	13	1690	138	32	740	2250	232

型号 Type	主要尺寸(mm) Main dimension	法兰 Flange			浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 In the oil body diameter	均压球 Equipotential shielding for HV bushing		导电 管的 内径 The inner diameter of the conductive tube
		法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter				L2	d	
		d7	a2	m*d2						
FBRGW-72.5/630-800-4		290	250	6*18	390	116	0	60	110	40
FBRGW-72.5/630-800-4		290	250	6*18	790	116	400	60	110	40
FBRGW-72.5/1250-4		290	250	6*18	390	116	0	60	110	40
FBRGW-72.5/1250-4		290	250	6*18	790	116	400	60	110	40

注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。

上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长（L2）、电缆引入长度（L4）和总长（L）相对变化。

Product appearance size is recommended in the table size, the key installation dimension can be designed according to user requirements, the final size will be subject to both parties determine the drawings.

Superscript in the list only a CT length, The user can make CT length according to the product requirements, As the change of CT length, at the same time introduced oiled section presidents (L2) cable length (L4) and length (L) relative changes

126kV玻璃钢干式电容型变压器套管 FRP dry type capacitive bushing

④ 外形及安装尺寸 Outlinge and installing dimension

执行标准Technical standards: GB/T 4109-2008 IEC 60137 Ed.6.0

额定电压Rated voltage: 72.5kV

额定电流Rated current: 1600~3150A

1min工频干(湿)耐压1min power frequency dry voltage of lightning: 155(140)kV

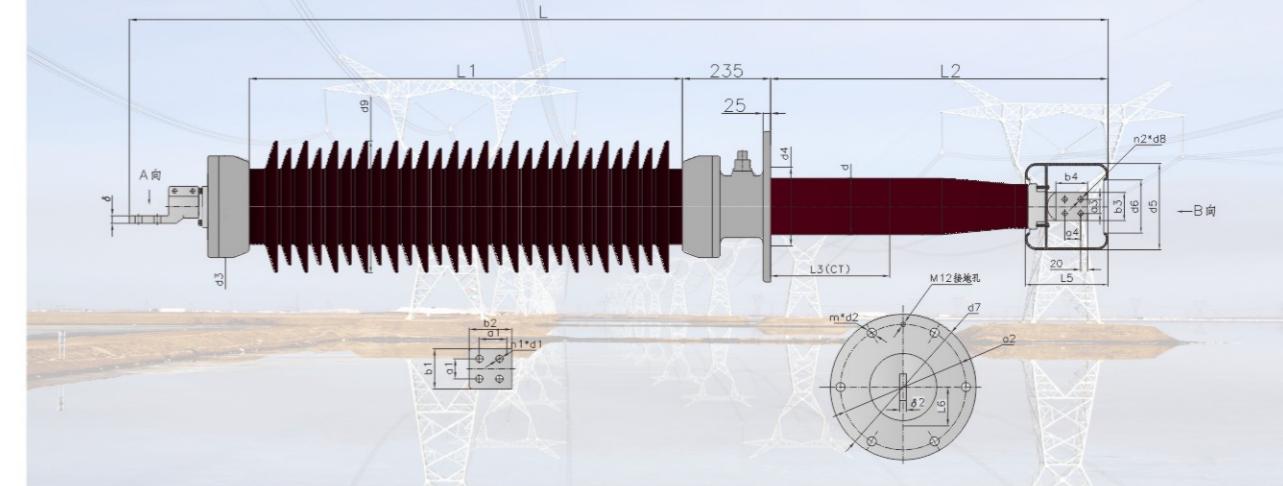
雷电全波冲击耐压Full-wave impulse withstand voltage of lightning: 325kV

1.05倍最高相电压下tan δ tan δ Under 1.05 times of maximum phase voltage tan δ : ≤0.005

额定电压下局部放Partial discharge measurement under the rated voltage: ≤10pC

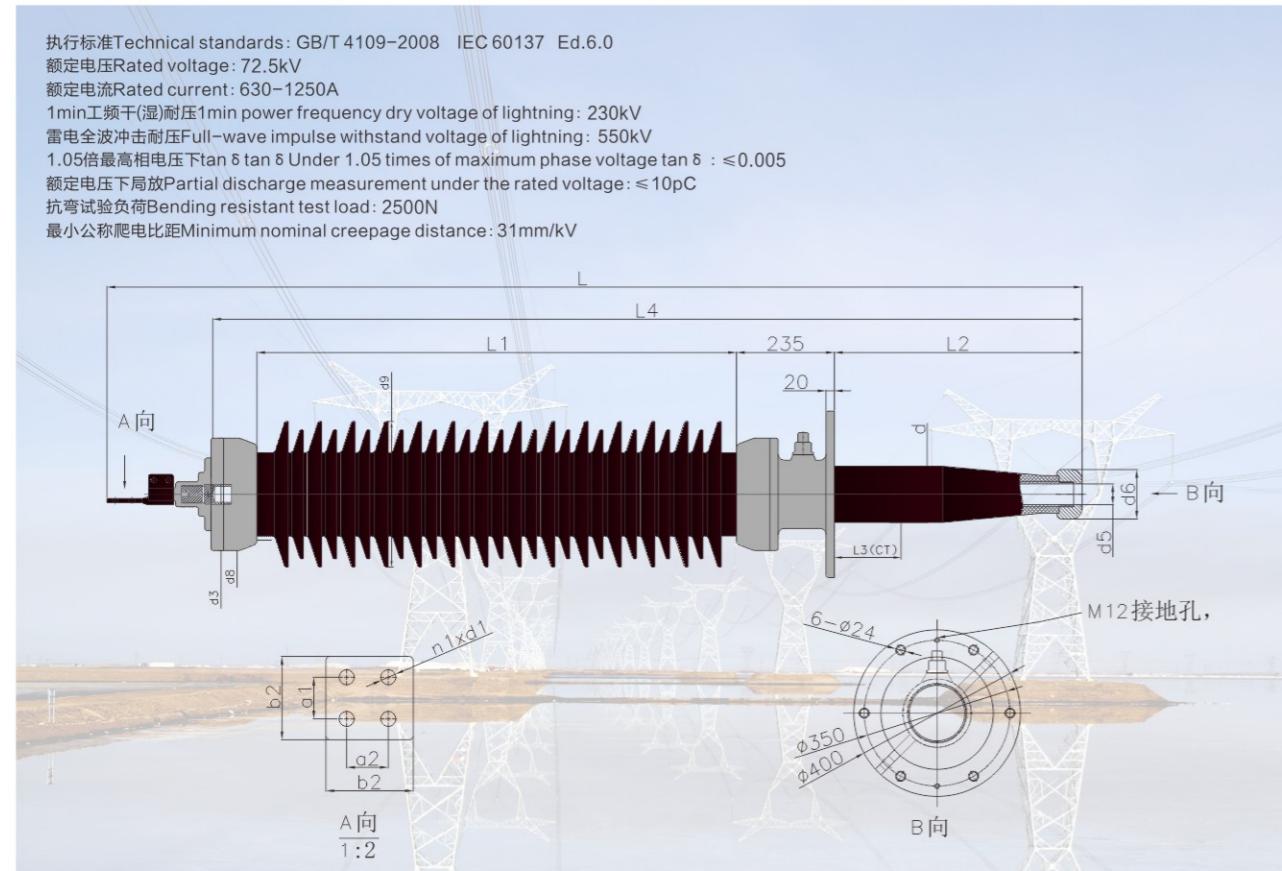
抗弯试验负荷Bending resistant test load: 2500N

最小公称爬电比距Minimum nominal creepage distance: 31mm/kV



126kV玻璃钢干式电容型变压器套管 FRP dry type capacitive bushing

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				电缆 引入 长度 Length of cable is introduced into	头部 直径 head diameter	引线 接头 孔径 The pitch of pin connector	瓷套外绝缘 porcelain insulation		
			孔数 孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness				绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed
L	n1*d	a1	b1*b2	δ	L4	d3	d8	L1	S	d6		
CBRGW-126/630-800-4		2170	4*14	40	80*80	10	1920	223	28	1140	3910	338
CBRGW-126/630-800-4		2470	4*14	40	80*80	10	2220	223	28	1140	3910	338
CBRGW-126/1250-4		2175	4*18	50	100*100	13	1920	223	32	1140	3910	338
CBRGW-126/1250-4		2174	4*18	50	100*100	13	2220	223	32	1140	3910	338

型号 Type	主要尺寸(mm) Main dimension	法兰 Flange					浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 In the oil body diameter	均压球 Equipotential shielding for HV bushing		导电 管的 内径 The inner diameter of the conductive tube
		法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter	密封面 内径 sealing face	放气孔 中心距 Vent hole center distance				L6	L2	d
d7	a2	m*d2	d4	L6	L2	d	L3	L5	d5	d6		
CBRGW-126/630-800-4		400	350	6*24	180	90	600	148	100	60	120	40
CBRGW-126/630-800-4		400	350	6*24	180	90	900	148	400	60	120	40
CBRGW-126/1250-4		400	350	6*24	180	90	600	148	100	60	120	40
CBRGW-126/1250-4		400	350	6*24	180	90	900	148	400	60	120	40

注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。

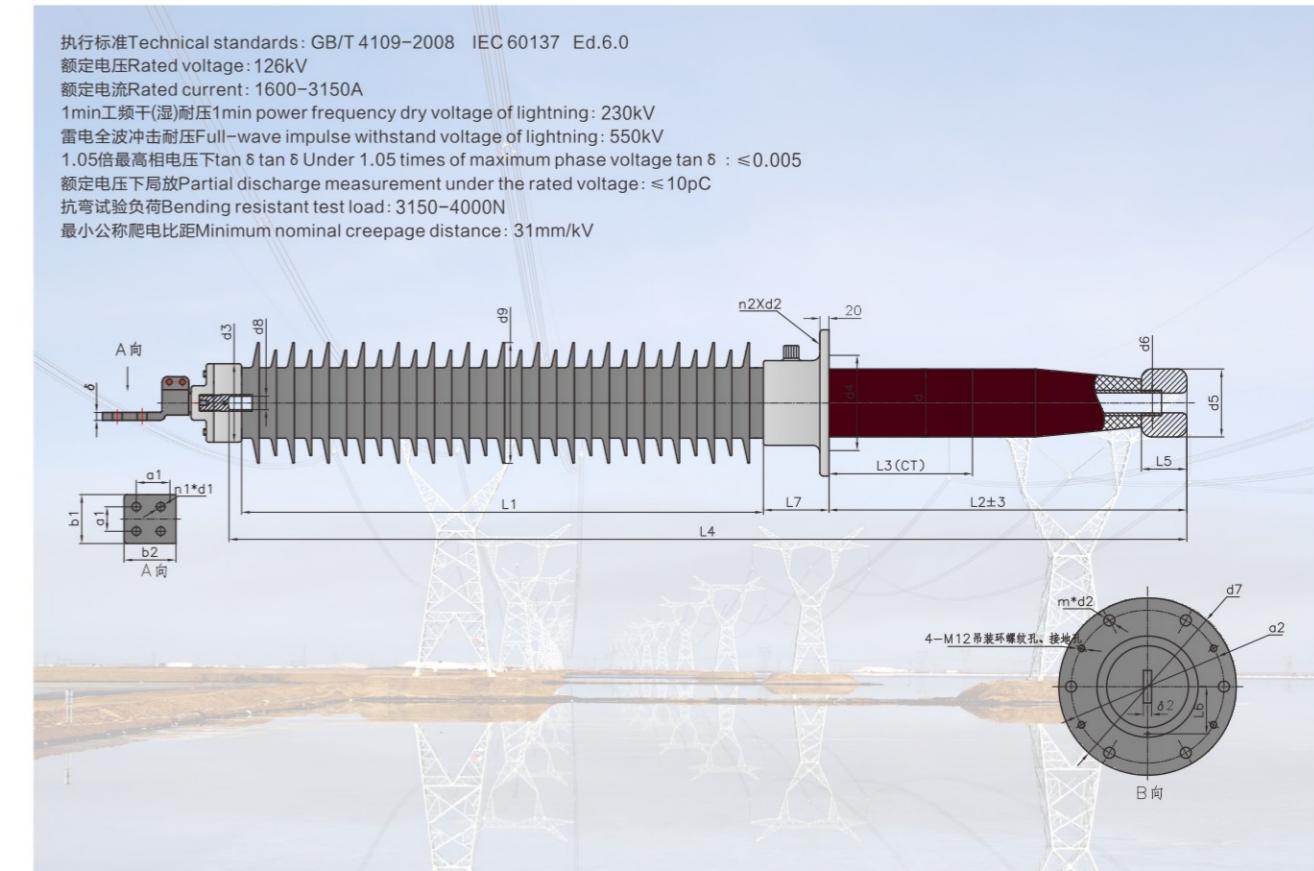
上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长(L2)、电缆引入长度(L4)和总长(L)相对变化。

Product appearance size is recommended in the table size, the key installation dimension can be designed according to user requirements, the final size will be subject to both parties determine the drawings.

Superscript in the list only a CT length, The user can make CT length according to the product requirements, As the change of CT length, at the same time introduced oiled section presidents (L2) cable length (L4) and length (L) relative changes

126kV玻璃钢干式复合电容型变压器套管

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				头部 直径 head diameter	瓷套外绝缘 porcelain insulation			法兰 Flange				
			孔数 孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness		绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed	法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter	密封面 内径 sealing face	放气孔 中心距 Vent hole center distance
L	n1*d	a1	b1*b2	δ	d3	L1	S	d9	d7	a2	m*d2	d4	L6		
FBRGW-126/630		2345	4*14	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95
FBRGW-126/800		2645	4*14	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95
FBRGW-126/1250		2345	4*18	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95

型号 Type	主要尺寸(mm) Main dimension	浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 In the oil body diameter	均压球 Equipotential shielding for HV bushing			油中接线端子 In the oil terminal					
					板面 board	油中接线端子 孔距 In the oil terminal Pitch of holes	孔数 孔径 Hole number and diameter	板厚 Thickness					
L2	d	L3	L5	d5	d6	b3	b4	a3	a4	n*d5	δ2		
FBRGW-126/630		790	162	100	250	260	185	65	90	45	2*14	20	
FBRGW-126/800		1090	162	400	250	260	185	65	90	45	2*14	20	
FBRGW-126/1250		790	162	100	250	260	185	80	90	40	45	4*14	20

注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。

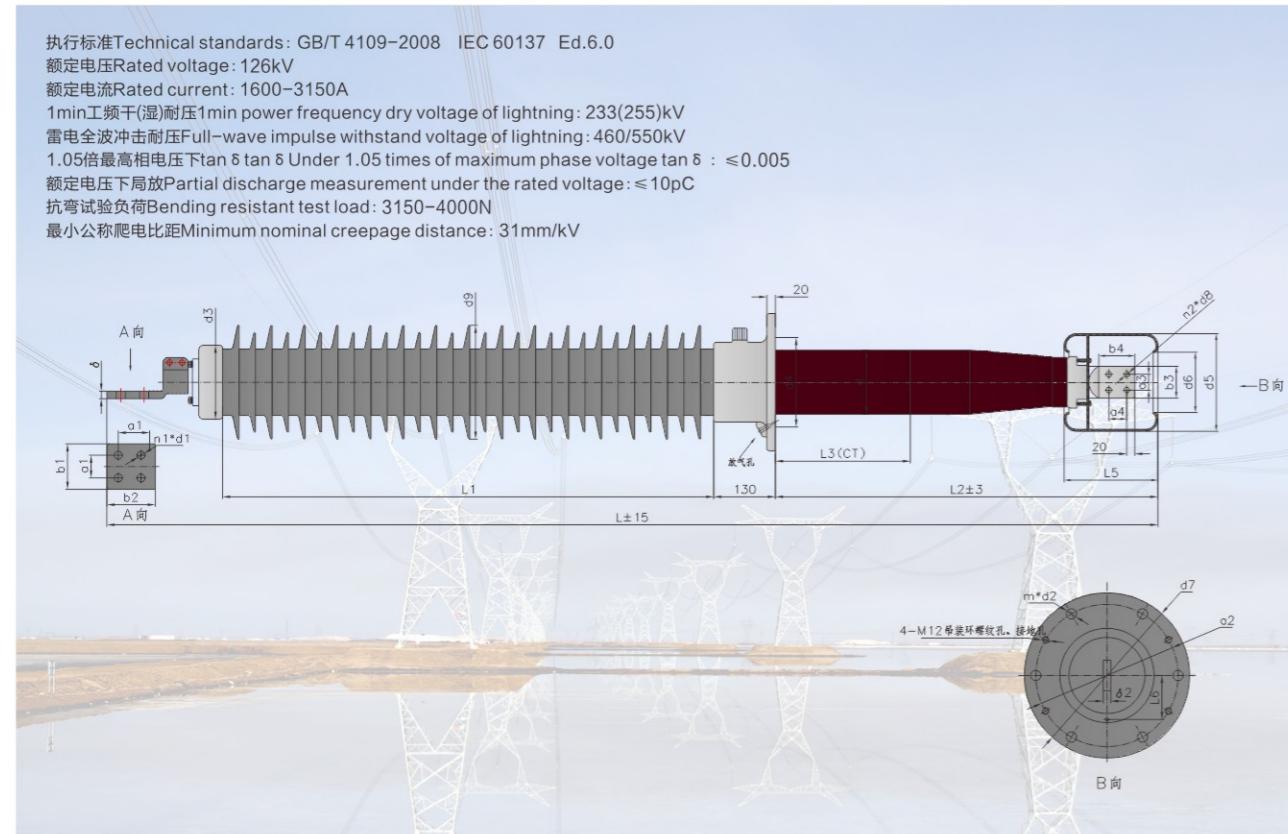
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126kV玻璃钢干式复合电容型变压器套管

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				瓷套外绝缘 porcelain insulation				法兰 Flange				
			孔数 孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness	头部 直徑 head diameter	绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed	法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter	放气孔 中心距 Vent hole center distance	
			L	n1*d	a1	b1*b2	δ	d3	L1	S	d9	d7	a2	L6	
FBRGW-126/1600-4		2345	4*14	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95
FBRGW-126/1600-4		2645	4*14	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95
FBRGW-126/2000-4		2345	4*18	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95
FBRGW-126/2000-4		2645	4*18	50	100*100	16	184	1150	3910	298	400	350	6*24	180	95

型号 Type	主要尺寸(mm) Main dimension	浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 Length of oil in the ground	均压球 Equipotential shielding for HV bushing		油中接线端子 In the oil terminal									
							板面 board	油中接线端子 孔距 In the oil terminal Pitch of holes	孔数 孔径 Hole number and diameter	板厚 Thickness	b3	b4	a3	a4	n*d5	δ 2
					L2	d	L3	L5	d5	d6	b3	b4	a3	a4	n*d5	δ 2
FBRGW-126/1600-4		790	162	100	250	260	185	65	90	45	2*14	20				
FBRGW-126/1600-4		1090	162	400	250	260	185	65	90	45	2*14	20				
FBRGW-126/2000-4		790	162	100	250	260	185	80	90	40	45	4*14	20			
FBRGW-126/2000-4		1090	162	400	250	260	185	80	90	40	45	4*14	20			

注: 表中产品外形尺寸为推荐尺寸, 关键安装配合尺寸都可以根据用户要求设计, 最终尺寸以双方确定图纸尺寸为准。

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252kV玻璃钢干式变压器套管(载流式)

④ 外形及安装尺寸 Outlinge and installing dimension

执行标准Technical standards: GB/T 4109-2008 IEC 60137 Ed.6.0

额定电压Rated voltage: 252kV

额定电流Rated current: 1600-3150A

1min工频干(湿)耐压1min power frequency dry voltage of lightning: 505(460)kV

雷电全波冲击耐压Full-wave impulse withstand voltage of lightning: 1050kV

操作冲击耐压 850kV

1.05倍最高相电压tan δ tan δ Under 1.05 times of maximum phase voltage tan δ : <=0.004

额定电压下局放Partial discharge measurement under the rated voltage: <=10pC

抗弯试验负荷Bending resistant test load: 4000-5000N

最小公称爬电比距Minimum nominal creepage distance: 31mm/kV

执行标准Technical standards: GB/T 4109-2008 IEC 60137 Ed.6.0

额定电压Rated voltage: 252kV

额定电流Rated current: 1600-3150A

1min工频干(湿)耐压1min power frequency dry voltage of lightning: 505(460)kV

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执行标准Technical standards: GB/T 4109-2008 IEC 60137 Ed.6.0

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额定电流Rated current: 1600-3150A

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额定电压下局放Partial discharge measurement under the rated voltage: <=10pC

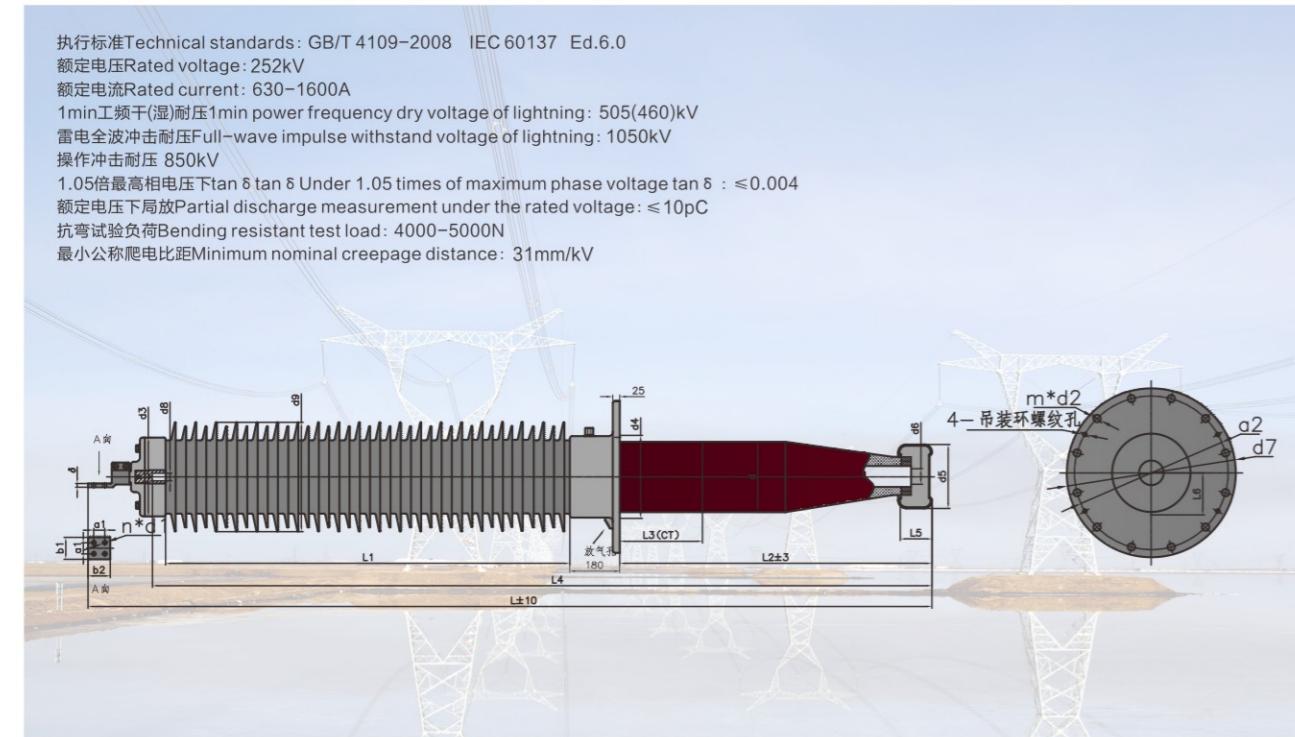
抗弯试验负荷Bending resistant test load: 4000-5000N

最小公称爬电比距Minimum nominal creepage distance: 31mm/kV

执行标准Technical standards: GB/T 4109-2008 IEC 60137 Ed.6.0</p

252kV玻璃钢干式变压器套管(穿缆式)

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				电缆 引入 长度 Length of cable is introduced into	头部 直径 head diameter	引线 接头 孔径 The pitch of pin connector	瓷套外绝缘 porcelain insulation		
			孔数 孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness				绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed
FBRGW252/630-800		3735	4*14	40	80*80	10	3500	285	28	2240	8580	396
FBRGW252/630-800		4035	4*14	40	80*80	10	3800	285	28	2240	8580	396
FBRGW252/1250		3740	4*18	50	100*100	13	3500	285	32	2240	8580	396
FBRGW126/1250		4040	4*18	50	100*100	13	3800	285	32	2240	8580	396
FBRGW252/1600		3760	4*18	50	100*100	13	3500	285	36	2240	8580	396
FBRGW252/1600		4060	4*18	50	100*100	13	3800	285	36	2240	8580	396

型号 Type	主要尺寸(mm) Main dimension	法兰 Flange					浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 In the oil body diameter	均压球 Equipotential shielding for HV bushing		导电 管的 内径 The inner diameter of the conductive tube
		法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter	密封面 内径 sealing face	放气孔 中心距 Vent hole center distance				均压球 Equipotential shielding for HV bushing	导电 管的 内径 The inner diameter of the conductive tube	
FBRGW252/630-800		550	500	12*24	300	142	1030	255	100	130	245	60
FBRGW252/630-800		550	500	12*24	300	142	1330	255	400	130	245	60
FBRGW252/1250		550	500	12*24	300	142	1030	252	100	130	245	60
FBRGW126/1250		550	500	12*24	300	142	1330	255	400	130	245	60
FBRGW252/1600		550	500	12*24	300	142	1030	255	100	130	245	60
FBRGW252/1600		550	500	12*24	300	142	1330	255	400	130	245	60

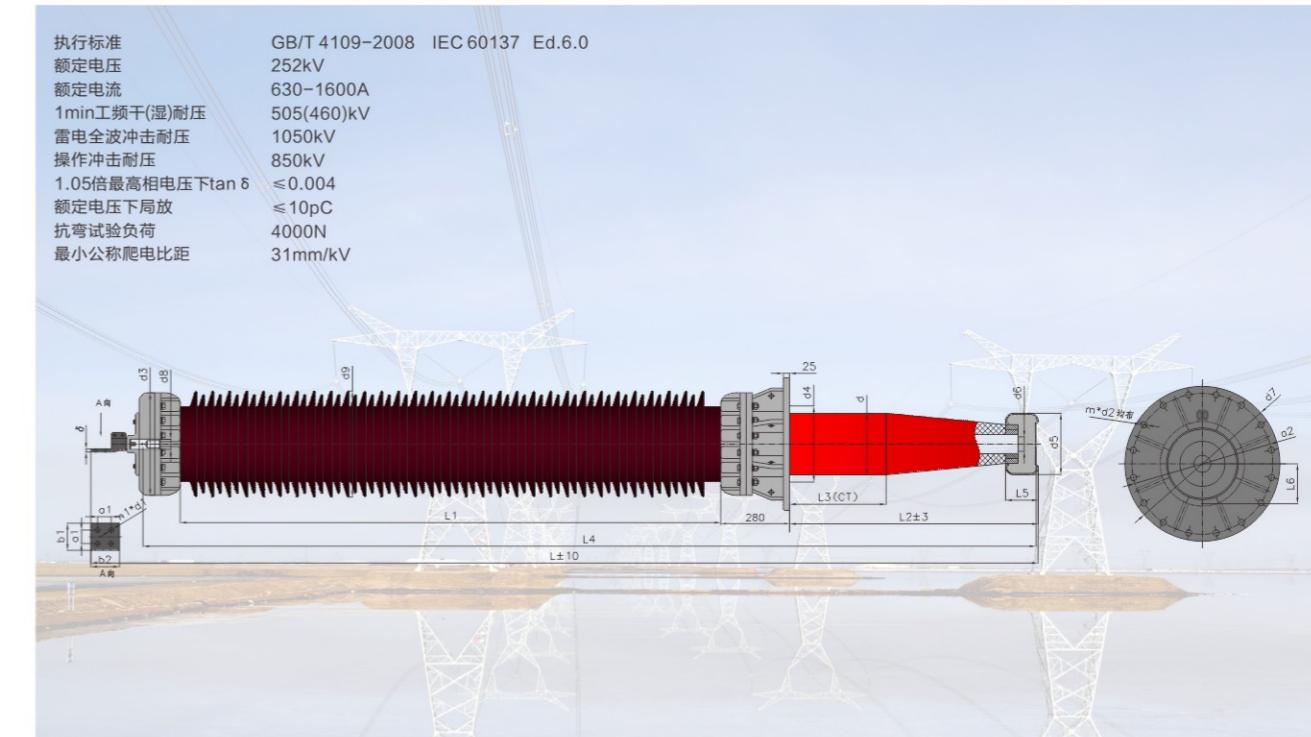
注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。

上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长(L2)、电缆引入长度(L4)和总长(L)相对变化。Product appearance size is recommended in the table size, the key installation dimension can be designed according to user requirements, the final size will be subject to both parties determine the drawings.

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252kV玻璃钢干式变压器套管

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	接线端子 terminal				电缆 引入 长度 Length of cable is introduced into	头部 直径 head diameter	引线 接头 孔径 The pitch of pin connector	瓷套外绝缘 porcelain insulation		
			孔数 孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness				绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed
CBRGW252/630-800		3945	4*14	40	80*80	10	3710	425	28	2240	7820	440
CBRGW252/630		4240	4*14	40	80*80	10	4010	425	28	2240	7820	440
CBRGW252/1250		3950	4*18	50	100*100	13	3710	425	32	2240	7820	440
CBRGW252/1250		4245	4*18	50	100*100	13	4010	425	32	2240	7820	440
CBRGW252/1600		3970	4*18	50	100*100	13	3710	425	32	2240	7820	440
CBRGW252/1600		4365	4*18	50	100*100	13		425		2240	7820	440

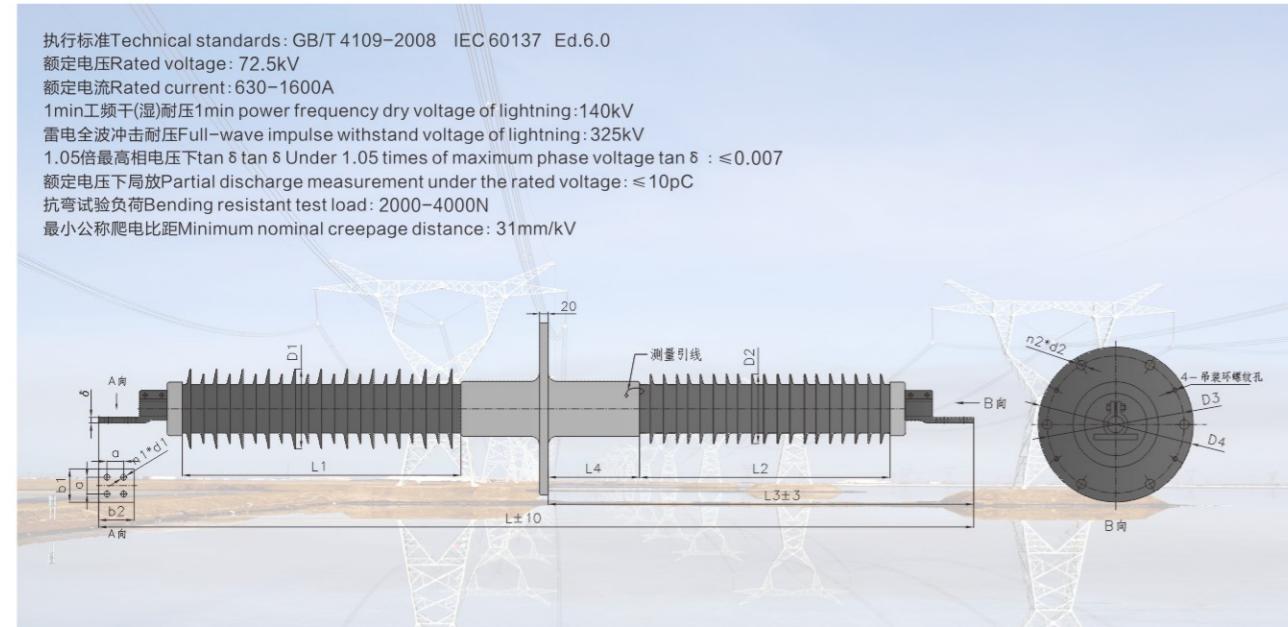
型号 Type	主要尺寸(mm) Main dimension	法兰 Flange					浸油 部分 总长 Oiled section length	油中 主体 直径 In the oil body diameter	油中 接地 长度 In the oil body diameter	均压球 Equipotential shielding for HV bushing		导电 管的 内径 The inner diameter of the conductive tube
		法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter	密封面 内径 sealing face	放气孔 中心距 Vent hole center distance				均压球 Equipotential shielding for HV bushing	导电 管的 内径 The inner diameter of the conductive tube	
CBRGW252/630-800		550	500	16*22	300	145	1030	255	100	130	245	60
CBRGW252/630		550	500	16*22	300	145	1330	255	400	130	245	60
CBRGW252/1250		550	500	16*22	300	145	1030	252	100	130	245	60
CBRGW252/1250		550	500	16*22	300	145	1330	255	400	130	245	60
CBRGW252/1600		550	500	16*22	300	145	1030	255	100	130	245	60
CBRGW252/1600		550	500	16*22	300	145	1330	255	400	130	245	60

注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。

上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长(L2)、电缆引入长度(L4)

72.5kV玻璃钢干式复合电容型穿墙套管 FRP dry compound capacitance type casing wall

● 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	户外端 Outdoor part			户外端 Indoor part		
			绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed	绝缘 距离 insulation distance	户内 总长 Indoor lengtg	接地部 份长度 Grounding lead length
L	L1	S	D1	L2	L3	L4	S	D2
FCRGW-72.5/630-800-4		2050	700	2250	219	660	1030	200
FCRGW-72.5/630-800-4		2200	700	2250	219	660	1180	350
FCRGW-72.5/1000-1250-4		2110	700	2250	219	660	1065	200
FCRGW-72.5/1000-1250-4		2260	700	2250	219	660	1215	350
FCRGW-72.5/1600-2000-4		2160	700	2250	219	660	1085	200
FCRGW-72.5/1600-2000-4		2360	700	2250	219	660	1285	400
FCRGW-72.5/2500-4		2160	700	2250	219	660	1085	200
FCRGW-72.5/2500-4		2410	700	2250	219	660	1335	450

型号 Type	主要尺寸(mm) Main dimension	接线端子 terminal				法兰 Flange		
		孔数 孔径 Hole number and diameter	孔 距 Pitch of holes	板面 board	板 厚 Thickness	法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter
n1*d	a1	b1*b2	δ	d7	a2	m*d2		
FCRGW-72.5/630-800-4		4*14	30	63*63	11	400	350	6*24
FCRGW-72.5/630-800-4		4*14	30	63*63	11	400	350	6*24
FCRGW-72.5/1000-1250-4		4*14	40	80*80	10	400	350	6*24
FCRGW-72.5/1000-1250-4		4*14	40	80*80	10	400	350	6*24
FCRGW-72.5/1600-2000-4		4*18	50	100*100	16	400	350	6*24
FCRGW-72.5/1600-2000-4		4*18	50	100*100	16	400	350	6*24
FCRGW-72.5/2500-4		4*18	50	100*100	20	400	350	6*24
FCRGW-72.5/2500-4		4*18	50	100*100	20	400	350	6*24

注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。

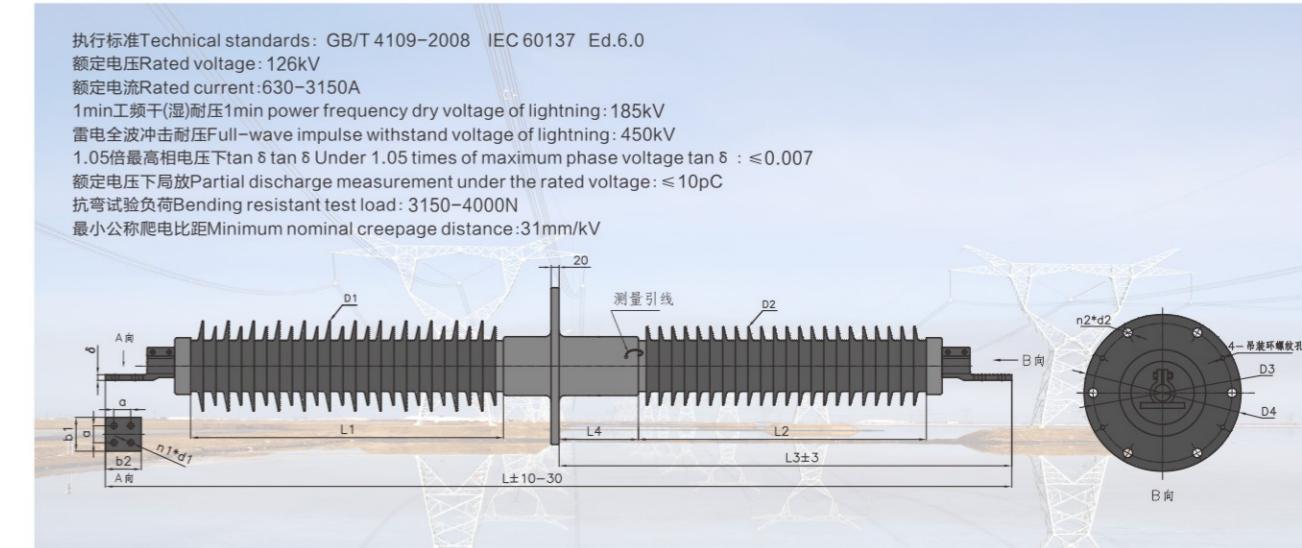
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Product appearance size is recommended in the table size, the key installation dimension can be designed according to user requirements, the final size will be subject to both parties determine the drawings.

Superscript in the list only a CT length, The user can make CT length according to the product requirements, As the change of CT length, at the same time introduced oiled section presidents (L2) cable length (L4) and length (L) relative changes

126kV玻璃钢干式复合电容型穿墙套管 FRP dry compound capacitance type casing wall

● 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	套管 总长 Total length of casing	户外端 Outdoor part			户外端 Indoor part		
			绝缘 距离 insulation distance	公称爬 电距离 Nominal creepage distance	最大 伞径 Maximum diameter of shed	绝缘 距离 insulation distance	户内 总长 Indoor lengtg	接地部 份长度 Grounding lead length
L	L1	S	D1	L2	L3	L4	S	D2
FCRGW-126/630-800-4		2780	1140	3910	226	950	1320	200
FCRGW-126/630-800-4		2980	1140	3910	226	950	1520	400
FCRGW-126/1000-1250-4		2850	1140	3910	226	950	1355	200
FCRGW-126/1000-1250-4		3050	1140	3910	226	950	1555	400
FCRGW-126/1600-2000-4		2890	1140	3910	226	950	1375	200
FCRGW-126/1600-2000-4		3140	1140	3910	226	950	1625	450
FCRGW-126/2500-4		2890	1140	3910	226	950	1375	200
FCRGW-126/2500-4		3190	1140	3910	226	950	1675	500
FCRGW-126/3150-4		2980	1140	3910	226	950	1420	200
FCRGW-126/3150-4		3480	1140	3910	226	950	1920	700

型号 Type	主要尺寸(mm) Main dimension	接线端子 terminal				法兰 Flange		
		孔数 孔径 Hole number and diameter	孔 距 Pitch of holes	板面 board	板 厚 Thickness	法兰盘 外径 Outer diameter of flange plate	安装孔 中心距 Center distance of insulation hole	孔数 孔径 Hole number and diameter
n1*d	a1	b1*b2	δ	d7	a2	m*d2		
FCRGW-126/630-800-4		4*14	30	63*63	11	400	350	6*24
FCRGW-126/630-800-4		4*14	30	63*63	11	400	350	6*24
FCRGW-126/1000-1250-4		4*18	50	100*100	13	400	350	6*24
FCRGW-126/1000-1250-4		4*18	50	100*100	13	400	350	6*24
FCRGW-126/1600-2000-4		4*18	50	100*100	16	400	350	6*24
FCRGW-126/1600-2000-4		4*18	50	100*100	16	400	350	6*24
FCRGW-126/2500-4		4*18	50	100*100	20	400	350	6*24
FCRGW-126/2500-4		4*18	50	100*100	20	400	350	6*24
FCRGW-126/3150-4		4*18	60	125*125	20	400	350	6*24
FCRGW-126/3150-4		4*18	60	125*125	20	400	350	6*24

注：表中产品外形尺寸为推荐尺寸，关键安装配合尺寸都可以根据用户要求设计，最终尺寸以双方确定图纸尺寸为准。
上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长（L2）、电缆引入长度（L4）和总长（L）相对变化。
Product appearance size is recommended in the table size, the key installation dimension can be designed according to user requirements, the final size will be subject to both parties determine the drawings.
Superscript in the list only a CT length, The user can make CT length according to the product requirements, As the change of CT length, at the same time introduced oiled section presidents (L2) cable length (L4) and length (L) relative changes

North Pacific Ocean **UNITED STATES** **North Atlantic Ocean**

中国·中瑞电气有限公司
CHINA ZHEJIANG ZHONGRUI ELECTRIC CO., LTD.

ZONRI 制造 行业 品牌

玻璃钢干式电容型大电流套管(复合套) GFRP dry type large current bushing

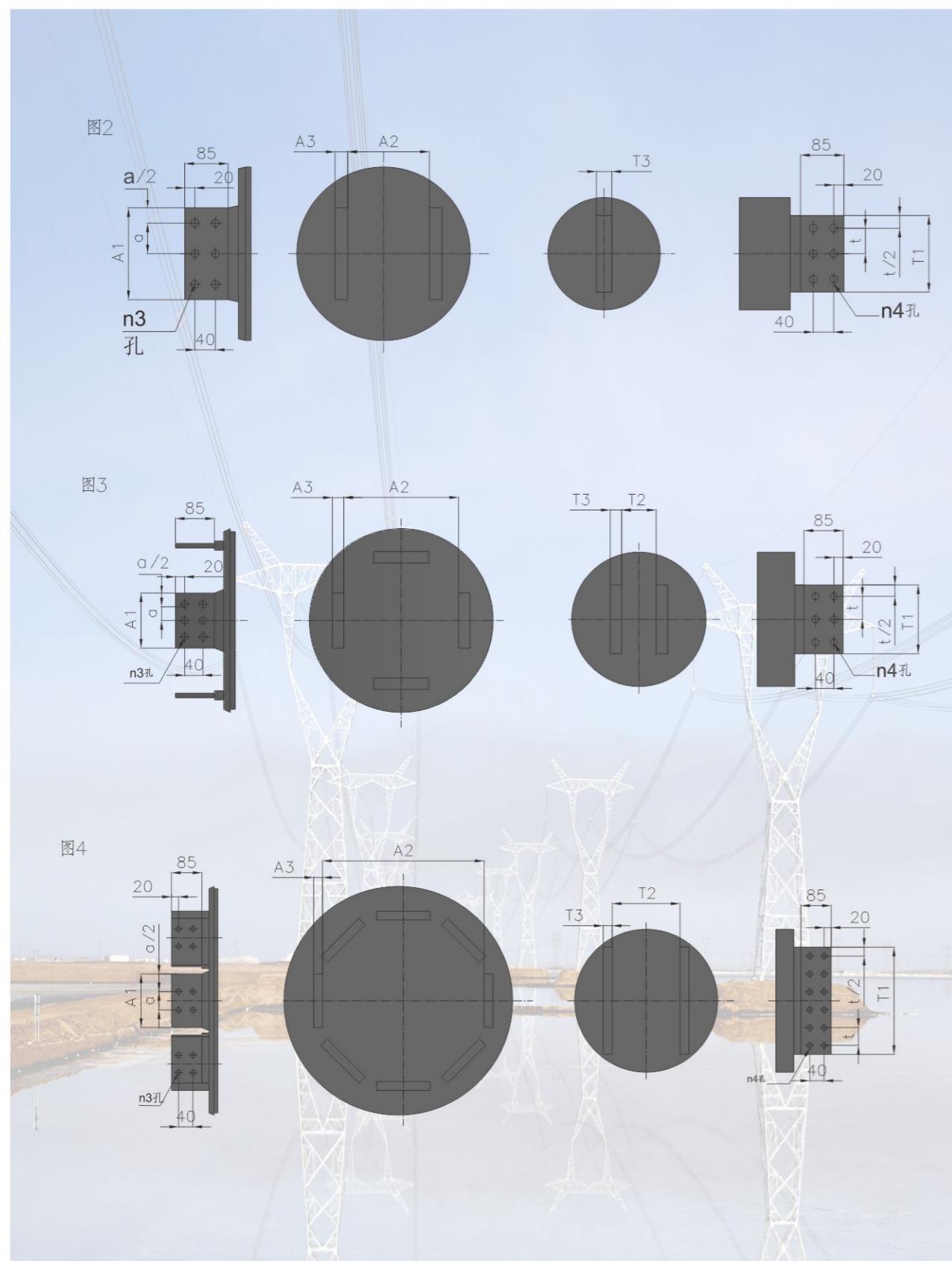
外形及安装尺寸 Outlinge and installing dimension

主要尺寸(mm) Main dimension 型号 (Type)	法兰 Flange								变压器端 Transformer end		
	L4	D4	D3	孔数孔距 Center distance of insulation hole	n*d	D2	L7	L1	L6	D1	
FBRGD17.5/6300-4	80	385	340	12x15	250	20	290	165	220		
FBRGD17.5/8000-4	90	450	400	12x20	300	20	290	165	290		
FBRGD17.5/10000-4	90	485	435	12x20	340	20	290	165	330		
FBRGD17.5/12500-4	90	600	550	12x20	410	20	310	185	400		
FBRGD17.5/16000-4	100	640	590	16x22	465	20	310	185	430		
FBRGD17.5/20000-4	100	720	660	16x22	560	20	310	185	550		
FBRGD24/6300-4	80	540	480	12x24	285	20	305	165	247		
FBRGD24/8000-4	90	450	400	12x20	300	20	305	165	290		
FBRGD24/10000-4	90	540	480	12x20	340	20	305	165	330		
FBRGD24/12500-4	90	600	550	12x20	410	20	340	185	400		
FBRGD24/16000-4	100	640	590	16x22	465	20	325	185	430		
FBRGD24/20000-4	100	720	660	16x22	560	20	325	185	550		
FBRGD40.5/6300-4	80	540	480	12x24	250	20	320	165	220		
FBRGD40.5/8000-4	90	450	400	12x20	300	20	320	165	290		
FBRGD40.5/10000-4	100	430	380	12x20	280	25	385	240	280		
FBRGD40.5/12500-4	90	600	550	12x20	410	20	340	185	400		
FBRGD40.5/16000-4	95	650	500	12x20	340	25	385	225	340		
FBRGD40.5/20000-4	100	720	660	16x22	560	20	340	185	550		
FBRGD40.5/25000-4	100	600	560	12x20	455	25	420	220	455		
FBRGD40.5/31500-4	100	720	680	16x20	570	25	420	220	455		

主要尺寸(mm) Main dimension 型号 (Type)	瓷套 Porcelain bushing								
	套管总长 Total length (mm)	空气端 Air end 长度 Length	空气端 Air end 带电长度 Charred length	瓷套 Porcelain bushing 顶盘直径 Diameter of top tray	最大直径 Maximum diameter	绝缘距离 Insulation distance	最小爬电距离 Minimum creepage distance	保护爬距 Protected creep distance	间隙长度 Gap length
FBRGD17.5/6300-4	665	375	130	300	445	165	430	160	205
FBRGD17.5/8000-4	675	385	130	350	500	165	430	160	205
FBRGD17.5/10000-4	675	385	130	395	545	165	430	160	205
FBRGD17.5/12500-4	695	385	130	470	610	165	430	160	205
FBRGD17.5/16000-4	705	395	130	535	662	165	430	160	205
FBRGD17.5/20000-4	705	395	130	630	780	165	430	160	205
FBRGD24/6300-4	785	480	153	310	396	246	1020	1020	
FBRGD24/8000-4	775	470	130	350	500	250	750	240	290
FBRGD24/10000-4	775	470	130	395	545	250	750	240	290
FBRGD24/12500-4	810	470	130	470	610	250	750	240	290
FBRGD24/16000-4	805	480	130	535	662	250	750	240	290
FBRGD24/20000-4	805	480	130	630	780	250	750	240	290
FBRGD40.5/6300-4	865	545	130	300	445	335	870	320	375
FBRGD40.5/8000-4	875	555	130	350	500	335	870	320	375
FBRGD40.5/10000-4	1110	725	110	280	385	500	1420	320	375
FBRGD40.5/12500-4	895	555	130	470	610	335	870	320	375
FBRGD40.5/16000-4	1130	745	125	340	450	500	1420	490	375
FBRGD40.5/20000-4	935	595	160	630	780	335	1170	490	375
FBRGD40.5/25000-4	1160	740	125	500	560	500	1420	490	375
FBRGD40.5/31500-4	1170	750	125	580	680	500	1420	490	375

玻璃钢干式电容型大电流套管(复合套) GFRP dry type large current bushing

外形及安装尺寸 Outlinge and installing dimension



主要尺寸(mm) Main dimension 型号 (Type)	方式 Mode	接线端子 Wiring terminal						变压器端 Transformer end									
		空气端 Air end				变压器端 Transformer end				宽度 Width		间距 Spacing		厚度 Thickness		孔间距 Pitch of holes	
L	A1	A2	A3	a	n3	T1	T2	T3	T	n4							
FBRGD17.5/6300	2	180	160	25	60	6	150		30	40	6						
FBRGD17.5/8000	3	120	250	25	60	4	120	75	25	60	4						
FBRGD17.5/10000		150	290	25	50	6	150	100	25	50	6						
FBRGD17.5/12500		200	340	25	50	8	200	120	25	50	8						
FBRGD17.5/16000	4	120	430	25	60	4	300	140	25	50	12						
FBRGD17.5/20000	4	150	530	25	50	6	350	190	25	50	14						
FBRGD24/6300	2	180	160	25	60	6	150		30	40	6						
FBRGD24/8000	3	120	250	25	60	4	120	75	25	60	4						
FBRGD24/10000	3	150	290	25	50	6	150	100	25	50	6						
FBRGD24/12500	3	150	250	20	50	6	150	70	25	50	6						
FBRGD24/16000	4	120	265	20	40	6	150	60	25	50	6						
FBRGD24/20000	4	150	530	25	50		350	190	25	50	14						
FBRGD40.5/6300	2	180	160	25	60		150		30	50	6						
FBRGD40.5/8000	3	120	250	25	60		120	75	25	60	4						
FBCRGD40.5/10000	3	120	190	25	40	6	100	45	20	50	6						
FBRGD40.5/12500	3	200	340	25	50		200	120	25	50	8						
FBRGD40.5/16000	4	120	430	25	60		300	140	25	50	12						
FBRGD40.5/20000	4	120	380	20	40	6	200	150	25	50	8						
FBRGD40.5/25000	4	140	380	20	50	6	230	110	30	45	10						
FBRGD40.5/31500	4	170	425	20	40	8	320	150	30	45	14						

玻璃钢干式电容型油/FS 套管 变压器/气体绝缘开关连接用套管

72.5kV-252kV玻璃钢干式电容型油/油套管

● 外形及安装尺寸 Outlinge and installing dimension

主要尺寸(mm) Main dimension	套管总长 Total length of casing (mm)	Sf6端 part										
		L	L1	L3	D	D1	D2	D3	D4	D5	L4	L5
YQRG-72.5/630-1250	1140	330	250	120	99	118	315	285	70	150	30	8*16
YQRG-126/630-1250	1850	520	420	150	99	128	335	305	70	180	32	8*16
YQRG-252/630	2360	770	670	278	139	168	565	535	110	220	33	16*16
YORG-252/630-2000	2360	770	670	280	139	186	565	535	110	220	32	16*16

主要尺寸(mm) Main dimension	油端 Oil part													
	L2	E	L6	D6	D7	D8	Z	m2*d2	a	a1	a2	a3	b	m3*d3
型号 (Type)														
YQRG-72.5/630-1250	660	200	20	335	290	220	200	12*16	65	15	30	40	2*14	
YQRG-126/630-1250	1120	400	22	335	290	220	200	12*20	65	15	30	40	2*14	
YQRG-252/630	1370	400	26	500	450	260	250	12*22	65	15	30	40	2*14	
YORG-252/630-2000	1370	400	26	500	450	260	250	12*22	90	20	45	65	2*14	

注：上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长(L2)、电缆引入长度(L4)和总长(L)相对变化。

Superscript in the list only a CT length, The user can make CT length according to the product requirements, As the change of CT length, at the same time introduced oiled section presidents (L2) cable length (L4) and length (L) relative changes

● 外形及安装尺寸 Outlinge and installing dimension

主要尺寸(mm) Main dimension	套管总长 Total length of casing (mm)	油端 Oil part				变压器端 Transformer					法兰 Flange					
		L	L1	L3	D	L3	L4	L5	E	D	L6	L7	D1	D2	n*d	α
型号 (Type)																
YYRG-72.5/630-1250	1290	300	430	120	500	630	700	200	120	90	75	250	290	8*16	22.	
YYRG-126/630-1250	1800	440	570	150	840	970	1780	400	150	100	90	290	335	12*20	15	
YYRG-252/630-1250	2680	800	955	280	1200	1355	1450	400	280	180	150	500	550	12*24	15	
YYRG-252/1600	2680	800	955	280	1200	1355	1450	400	280	180	150	500	550	12*24	15	

主要尺寸(mm) Main dimension	均压球 Equipotential shielding for HV bushing			接线端子 terminal					
	D3	D4	Z	a	b	a1	a2	a3	n1*d1
型号 (Type)									
YYRG-72.5/630-1250	220	140	200	65	40	15	30		2*14
YYRG-126/630-1250	220	140	200	65	40	15	30		2*14
YYRG-252/630-1250	260	185	250	65	40	15	30		2*14
YYRG-252/1600	260	185	250	90	65	20	45		2*14

注：上表中只列出一种CT长度，用户可根据产品要求制定CT长度。随着CT长度的变化，同时浸油部分总长（L2）、电缆引入长度（L4）和总长（L）相对变化。

Superscript in the list only a CT length, The user can make CT length according to the product requirements, As the change of CT length, at the same time introduced oiled section presidents (L2) cable length (L4) and length (L) relative changes



玻璃钢增强干式电容型套管

产品概述 Introduction

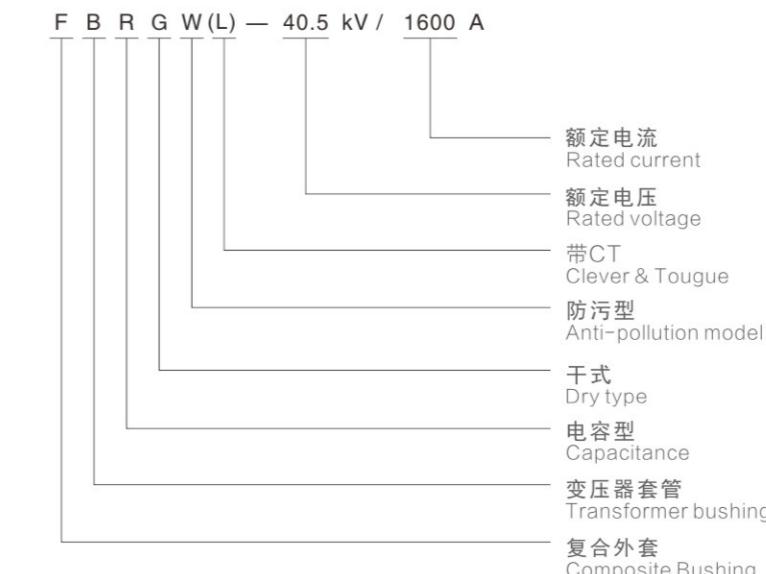
玻璃钢干式电容型套管的主要绝缘是电容芯子，电容芯子是用高绝缘性能玻璃纤维浸以超低粘度耐高温环氧树脂，用微机控制缠绕设备按测地缠绕交叉叠加构成绝缘层，采用半导体适形材料制成电容屏，绝缘层与电容屏交替缠绕间隔设置经高温固化制得纯固体电容芯子；联结法兰由高强度铝合金制成，与电容芯子胶装成一体；增爬伞裙采用硅橡胶一次注射成型在电容芯子表面，与电容芯子形成有机整体。该产品除满足GB/T4109-2008、IEC60137-Ed.6.0还具有以下显著优点：

- 1、本产品属无油、纯固体主绝缘结构产品，因此无需专门的维修保养；
- 2、套管的绝缘设计裕度大，以半导体材料为电容屏，大大提高了套管的局放起始电压；
- 3、阻燃绝缘材料，无分解，电气性能稳定，无燃烧及爆炸危险；
- 4、结构紧凑、体积小、重量轻、便于运输，可任意角度安装；
- 5、玻璃纤维增强缠绕、优化力学铺层设计，抗弯强度高，机械性能优异，尤其适用于重震地区的使用；
- 6、极佳的耐高低温性能，最高耐温+155℃，最低耐温-200℃；
- 7、采用硅橡胶复合外套时防污性能优异，可用于重污秽地区；
- 8、使用寿命长，长期运行成本低。
- 9、产品生产周期短，可根据用户要求进行特殊设计；
- 10、还可以提供高强瓷增爬伞裙供用户选择；
- 11、可满足智能电网要求，套管可以加装智能装置，可实现对套管的绝缘状态进行在线监测。

The major insulation of fiberglass dry-type capacitance transformer bushings is capacitor core. Pure solid capacitor core is made by solidifying alternatively wound and interval arranged insulating layer(made by winding, intersecting and superimposing high-insulation fiberglass immersed in ultra-low-viscosity high-temperature-resistant epoxy resin by microcomputer control winding equipment according to geodesic) and capacitor screen (made of semiconductor adaptive materials) in high temperature. Coupling flange is made of high-strength aluminum alloy, which is cemented with capacitor core as a whole. Creepage extenders are injected and shaped with silicon rubber noce on the surface of capacitor core, to be an organic integrity with the capacitor core.

- 1、It is unnecessary to adopt special repair and maintenance for the products as they belong to the oil-free and pure-solid major insulation structure products;
- 2、The partial discharge starting voltage has been improved greatly due to the large insulation design margin and semiconducting materials as the capacitor screen;
- 3、Inflaming retarding insulating materials with stable electrical performance and without decomposition, without combustion and explosion hazard;
- 4、Compact structure, small volume, light weight, convenient for transportation, may be installed at any angle;
- 5、The products are especially suitable for the heavy earthquake regions for their reinforced fiberglass winding, optimized dynamic laying design, high bending strength and excellent mechanical performance;
- 6、Perfect high and low temperature resistant performance, ranging from +155℃, to -200℃;
- 7、The products with silicon rubber compound shell may be used to the heavy polluted area for their excellent anti-fouling property;
- 8、Long performance life and low long time running cost;
- 9、Production period is short; the product may be designed specially according to the users' requirements;
- 10、High-strength enamel creepage extenders may also be available for the customer;
- 11、Bushing may be equipped with intelligent devices that are used for the on-line inspection of bushing insulation state, so as to meet the requirements of smart power grid.

型号说明 Model and Meaning



玻璃钢干式电容型变压器套管电气性能表 GFRP dry capacitor transformer bushing Electrical Performance

系统标称电压 Un kV nominal system voltage		35	66	110	132	150~154	220
额定电压 Ur kV Rated voltage(kV)		40.5	72.5	126	145	170	252
设备最高工作相电压 Ur/ kV highest operating voltage		23.5	42	73	84	98.5	146
60S工频耐受电压 60s power frequency withstand voltage peak (kv)	干kV(r.m.s)dry	95	165	255	305	355	505
	湿kV(r.m.s)wet	80	147	230	275	340	460
雷电冲击耐受电压 Lightning impulse withstand voltage peak (kv)	全波kV(peak)full wave	200	325	550	650	750	1050
	截波kV(peak)chopped wave			635	750	865	1210
操作冲击耐受电压(干或湿)kV (peak) rated operating impulse withstand voltage						850	
介质损耗角正切% tangent of dielectric loss(%)	峰值peak value 不大于no more than					1.05Ur/ $\sqrt{3}$ ~Ur:0.1	
	最大值max value 不大于no more than	40.5kV~550kV				1.05Ur/ $\sqrt{3}$ 下测量:0.6	
Ur下局部放电量 (不大于no more than) magnitude of partial discharge under Ur						10pC	

中国·中瑞电气有限公司

产品型号含义 Product Model And Implication

① GIS套管 型号说明 Demonstration of the type



② 变压器套管 型号说明 Demonstration of the type



③ 穿墙套管 型号说明 Demonstration of the type



④ 低压大电流套管 型号说明 Demonstration of the type

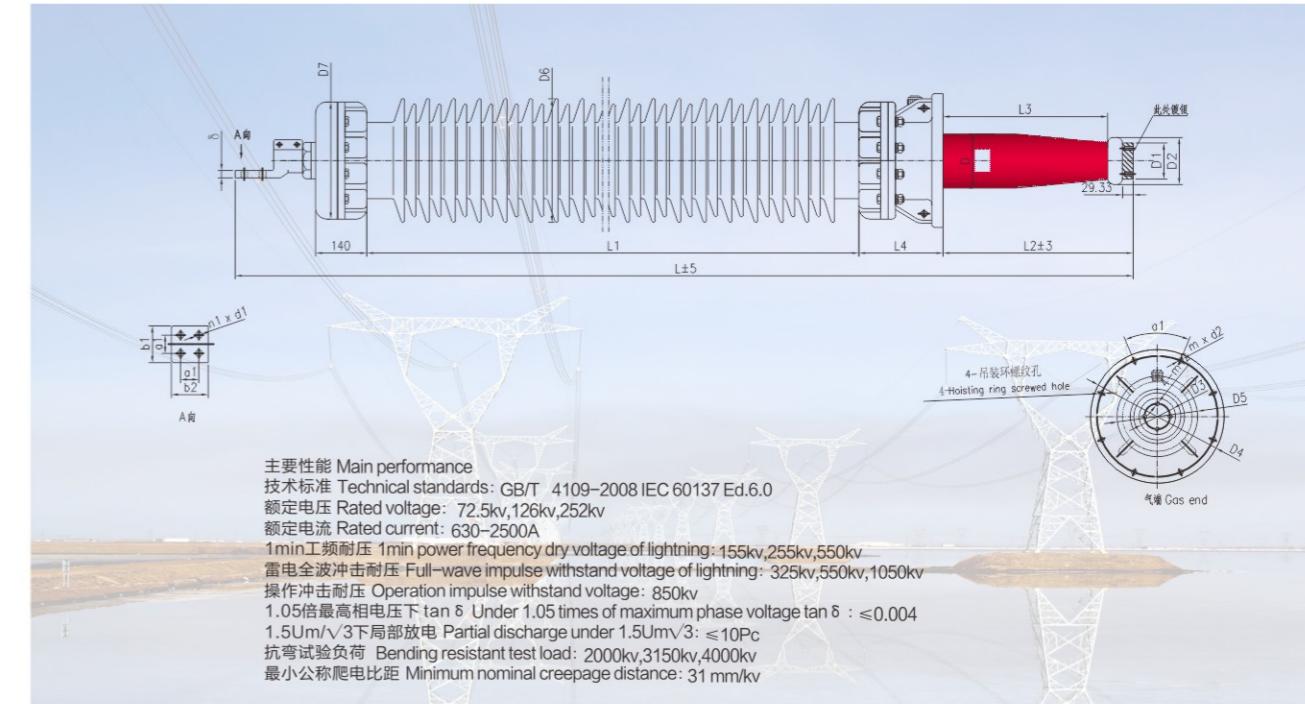


⑤ 油-气（油）套管 型号说明 Demonstration of the type



玻璃钢干式电容型套管 FRP dry type capacitive bushing

① 外形及安装尺寸 Outlinge and installing dimension



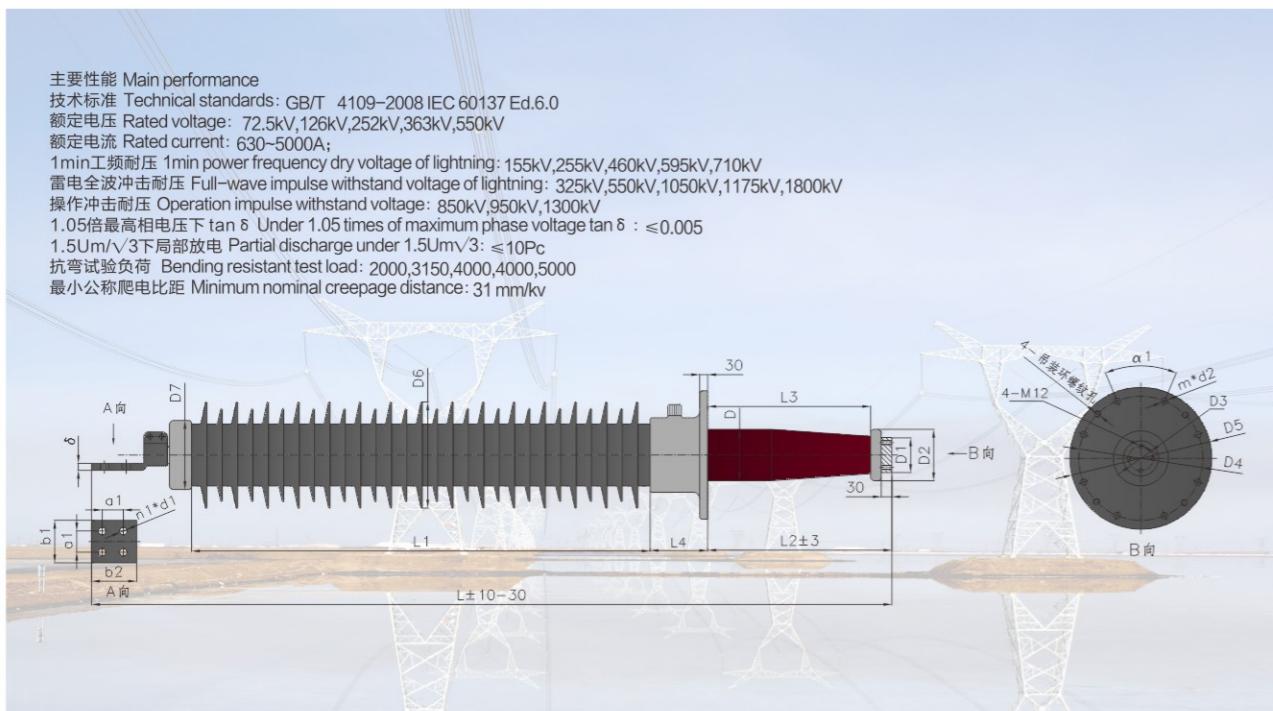
主要尺寸 Main dimension (mm) / 型号 (Type)	套管总长 Total length of casing / L			空气端 Air end				
	nxd1	a1	b1xb2	δ	L1	D6	D7	
CGRG72.5/630	1425	4x14	40	80x80	10	740	232	138
CGRG72.5/1250	1430	4x18	50	100x100	13	740	232	138
CGRG72.5/1600-2000	1450	4x18	50	100x100	16	740	232	138
CGRG72.5/2500	1450	4x18	50	100x100	20	740	232	138
CGRG126/630	2025	4x14	40	80x80	10	1150	240	158
CGRG126/1250	2030	4x18	50	100x100	13	1150	240	158
CGRG126/1600-2000	2050	4x18	50	100x100	13	1150	240	158
CGRG126/2500	2050	4x18	50	100x100	13	1150	240	158
CGRG252/630	3400	4x14	40	80x80	10	2240	396	285
CGRG252/1250	3405	4x18	50	100x100	13	2240	396	285
CGRG252/1600-2000	3425	4x18	50	100x100	16	2240	396	285
CGRG252/2500	3425	4x18	50	100x100	20	2240	396	285

主要尺寸 Main dimension (mm) / 型号 (Type)	法兰 Flange					SF6 端 / sf6 end					
	D4	D5	L4	mxd2	a1	L2	L3	D	D1	D2	D3
CGRG72.5/630	290	335	150	8x16	45	330	260	116	99	128	70
CGRG72.5/1250	290	335	150	8x16	45	330	260	116	99	128	70
CGRG72.5/1600-2000	290	335	150	8x16	45	330	260	116	99	128	70
CGRG72.5/2500	290	335	150	8x16	45	330	260	116	99	128	70
CGRG126/630	290	335	150	8x16	45	520	450	135	99	128	70
CGRG126/1250	290	335	150	8x16	45	520	450	135	99	128	70
CGRG126/1600-2000	290	335	150	8x16	45	520	450	135	99	128	70
CGRG126/2500	290	335	150	8x16	45	520	450	135	99	128	70
CGRG252/630	500	550	180	12x24	30	770	665	255	139	168	110
CGRG252/1250	500	550	180	12x24	30	770	665	255	139	168	110
CGRG252/1600-2000	500	550	180	12x24	30	770	665	255	139	168	110
CGRG252/2500	500	550	180	12x24	30	770	665	255	139	168	110



玻璃钢干式复合电容型GIS出线套管

④ 外形及安装尺寸 Outlinge and installing dimension

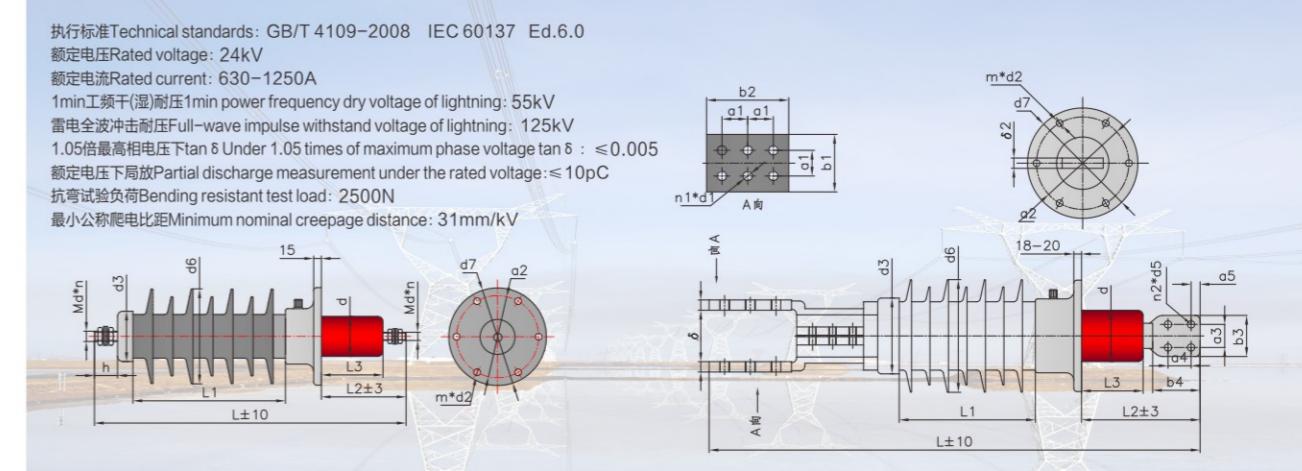


主要尺寸 Main dimension (mm) / 型号 (Type)	套管总长 Total length of casing / L	空气端 Air end						
		nxd1	a1	b1xb2	δ	L1	D6	D7
FGRG-72.5/1250-4	1430	4x18	50	100x100	13	740	232	138
FGRG-72.5/1600-2000-4	1450	4x18	50	100x100	16	740	232	138
FGRG-126/1250-4	2045	4x18	50	100x100	13	1165	268	173
FGRG-126/1600-2000-4	2065	4x18	50	100x100	16	1165	268	173
FGRG-252/1600-2000-4	3425	4x18	50	100x100	16	2240	396	285
FGRG-252/2500-4	3515	6x18	50	180x110	25	2240	396	285

主要尺寸 Main dimension (mm) / 型号 (Type)	法兰 Flange					SF6 端 / sf6 end					
	D4	D5	L4	mxsd2	a1	L2	L3	D	D1	D2	D3
FGRG-72.5/1250-4	290	335	150	8x16	45	330	230	116	99	118	70
FGRG-72.5/1600-2000-4	290	335	150	8x16	45	330	230	116	99	118	70
FGRG-126/1250-4	335	365	150	8x16	45	520	420	148	99	128	70
FGRG-126/1600-2000-4	335	365	150	8x16	45	520	420	148	99	128	70
FGRG-252/1600-2000-4	500	550	180	12x24	30	770	670	255	139	186	110
FGRG-252/2500-4	500	550	180	12x24	30	770	670	255	139	186	110

24kV玻璃钢干式电容型变压器套管 FRP dry type capacitive bushing

④ 外形及安装尺寸 Outlinge and installing dimension



型号 Type	主要尺寸(mm) Main dimension	接线端子 terminal							头部直径 head diameter	引线接头孔径 The pitch of pin connector	复合外绝缘 composite insulation			法兰 Flange		
		套管总长 Total length of casing	螺纹螺距 pitch screw	螺杆长 pitch screw	孔数孔径 Hole number and diameter	孔距 Pitch of holes	板面 board	板厚 Thickness			绝缘距离 Nominal creepage distance	公称爬电比距离 Nominal creepage distance	最大伞径 Maximum diameter of shed			
FBRGW-24/100-315-4	1	605	16*2	45					98	98	295	840	185	190	160	6*14
FBRGW-24/400-500-4	1	625	20*2	55					98	98	295	840	185	190	160	6*14
FBRGW-24/630-800-4	2	770			4*14	30	63*63	11	108	28	290	820	195	190	160	6*14
FBRGW-24/1000-1250-4	2	800			4*14	40	80*80	10	108	32	290	820	195	190	160	6*14
FBRGW-24/630-800-4	3	725			4*14	30	63*63	11	98		295	840	185	190	160	6*14
FBRGW-24/1000-1250-4	3	755			4*14	40	80*80	10	98		295	840	185	190	160	6*14
FBRGW-24/1600-4	3	810			4*18	50	100*100	16	98		295	840	185	190	160	6*14
FBRGW-24/2000-4	4	820			4*18	50	100*100	16	98		295	840	185	190	160	6*14
FBRGW-24/2500-4	4	865			4*18	50	100*100	20	123		285	875	219	235	200	6*16
FBRGW-24/3150-4	4	910			4*18	60	125*125	20	123		285	875	219	235	200	6*16
FBRGW-24/4000-4	4	950			6*18	50	112*160	20	123		285	875	219	235	200	6*16
FBRGW-24/5000-4	5	980			6*18	50	112*160	20	134		275	865	232	235	200	6*16
FBRGW-24/6300-4	5	1060			4*18	60	120*130	20	173		300	945	268	290	250	6*18
FBRGW-24/8000-4	5	1070			6*18	60	180*130	20	173		300	945	268	290	250	6*18

型号 Type	主要尺寸(mm) Main dimension	油中接线端子 In the oil terminal							导电管的内径 The inner diameter of the conductive tube		
		浸油部分总长 Oiled section length	油中主体直径 In the oil body diameter	油端绝缘长度 Oil insulation length	缆线长度 Length of cable	均压球 Equipoential shielding for HV bushing	板面 board	孔距 Pitch of holes		孔数孔径 Hole number and diameter	板厚 Thickness
FBRGW-24/100-315-4	165	78	120								
FBRGW-24/400-500-4	175	78	120								
FBRGW-24/630-800-4	170	88	120	570	50	84	40				
FBRGW-24/1000-1250-4	170	88	120	570	50	84	40				
FBRGW-24/630-800-4	200	78	120								
FBRGW-24/1000-1250-4	200	78	120								
FBRGW-24/1600-4	230	78	120								
FBRGW-24/2000-4	240	78	120								