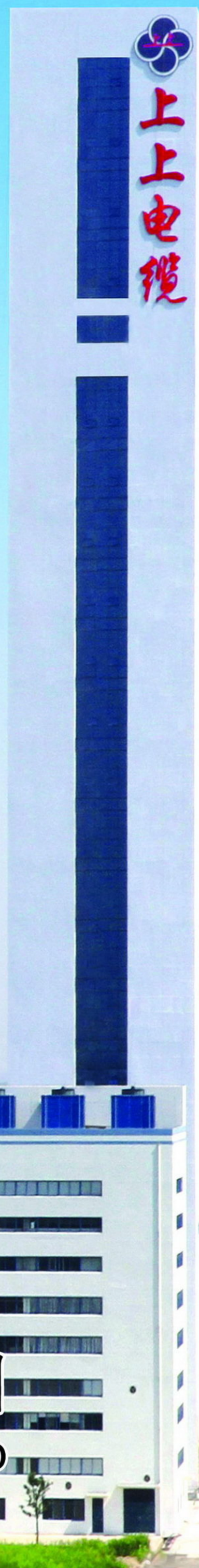
高压、超高压
交联聚乙烯绝缘电缆

High voltage and Extra high voltage
XLPE insulation power cable



江苏上上电缆集团
Jiangsu Shangshang Cable Group

商标含义
追求卓越 永不满足

上上使命
光明永远伴随你上上

上上愿景
行业状元、百年老店，成为全球电缆制造业的引领者

核心价值观
人诚、品优、开拓、创新

Trademark definition
Unwavering Pursuit of Excellence

Shangshang’s Mission
Enlightening your journey with Shangshang

Shangshang’s Vision
To build an everlasting legacy and to become the global leading manufacturer of the cable industry

Core Value
Honesty, Quality, Pioneering, Innovation

PROLOGUE

序言

上上电缆走过了四十多个春秋，踏着一路风雨，上上电缆走到了中国电缆行业的最前列，步入了新世纪的发展征程；面对全球一体化的经济浪潮，面对世界各个角落都孕育着发展的机遇和变革的挑战，我们满怀信心。

我们坚信，创新是一个品牌的生命源泉，“上上”品牌是上上人用智慧和汗水铸就，我们将继续加倍呵护，并不断充实、提升品牌价值，每天都有新作为、每天都有新提高、每天都有新进步、每天都有新成功！

我们坚信，客户是我们的衣食父母，市场是我们赖以生存发展的根本。正因为如此，我们始终着眼于市场，您的需要是对我们的支持，您的发展就是我们的希望！您的辉煌才是我们的成功！

我们坚信，只有从成就中看到差距，从现实中把握未来，企业才有希望。我们始终不渝地瞄准国际先进水平，拓展优势、创造特色，不断超越自我，追求卓越！

人诚品优是我们的生命，永不满足是我们的精神，不求最大，但求最佳是我们的理念！我们坚信：“上上”更上上！

江苏上上电缆集团董事长　丁山华

2016年5月

Jiangsu Shangshang Cable Group has passed by more than 40 years. Stepping on a trials and hardship all the way, the group has been in the front row of China electric wires & cables industry and stepped into the development journey of the new century. In face of economic globalization tide, in face of the opportunity of development and the challenges of reform gestated at every corner of the world, we are fully confident.

We firmly believe, it is the life source of a brand to innovate. Shangshang employees cast "Shangshang" brand with intelligence and diligence. We will continue taking good care of it. Besides, we should substantiate and upgrade brand value constantly, with new conducts every day, new improvements every day, new progresses every day, and new succeesses every day!

We firmly believe, customers are our parents of basic necessities of life, and market is the base of our survival and development. Just because of this, we have been focusing on the market all the time. Your need is our support! Your development is our hope! Your brilliance is our success!

We firmly believe, only finding disparity from achievements, and seizing future in reality, enterprises are hopeful. We aim at the international advanced level consistently, expanding advantages, creating characteristics, surmounting ourselves, and pursuing excellency!

“Honesty and quality” is our life, "Never be satisfied" is our spirit, and "Not the Largest in Scale, But the Best in Quality" is our idea! We believe that “Shangshang” will be better.

Jiangsu Shangshang Cable Group : Ding Shanhua,Chairman

May.2016

今日上上
SHANGSHANG TODAY

江苏上上电缆集团是一家集科、工、贸为一体的省级企业集团，拥有国家博士后科研工作站和国家级企业技术中心。核心企业江苏上上电缆集团有限公司为国家大型企业、国家重点高新技术企业。集团资产总额近50亿元，占地面积62万平方米，电线电缆年生产能力达180亿元。多年来，企业坚持技术进步，强化内部管理，以“专而精”为发展方向，不断实施“精、专、特、外”战略，整体素质得到快速提升，2011-2015年，集团连续五年实现电缆销售超百亿元，世界线缆企业规模排名中国第一，全球第九；2014年荣获江苏省政府最高质量荣誉“江苏省质量奖”；2016年获得“中国质量奖”提名奖，集团董事长丁山华荣获“2015中国十大经济年度人物”。

“上上”牌电线电缆产品涵盖超高压、高压、中压、低压电缆，是一家专业生产500kV及以下电线电缆产品的企业。企业生产装备精良，高压、超高压电缆生产用拉丝韧炼设备、框绞设备、盘绞设备、绝缘线芯生产线、挤铝设备及护套挤出机均采用引进，具有国际先进水平，其中，从芬兰诺基亚公司引进可生产110kV及以上电压等级绝缘线芯的生产线5条，每条生产线均配有在线自动测偏仪（瑞士仲巴赫公司），最高电压等级500kV，最大导体截面达到3500mm^2；VCV生产线安装在高度为148米的立塔内部，采用世界最大的一塔四线设计，采用高洁净等级要求的主机室和100级净化水平的绝缘加料室，全车间采用现代集成制造管理系统，具有世界先进水平。

“上上”以优质品牌形象闻名于客户、以优秀的企业管理著称于行业。“上上牌”电线电缆被认定为“国家免检”、“中国名牌”。“上上”品牌当选为“中国机械工业最具影响力品牌”、“中国电器工业最具影响力品牌”。集团先后被评为“装备中国功勋企业”、“中国质量诚信企业”、“中国工业示范单位”、“中国机械工业核心竞争力100强企业”、“中国企业信息化500强企业”、“全国守合同重信用企业”、“全国质量管理先进企业”、“中国大企业竞争力500强”等荣誉称号。

“上上”人精益求精、坚持技术进步求发展，不断超越自我、追求卓越，服务中国与世界。

世界线缆企业规模排名中国第一，全球第九

The No. 9 in the world and No.1 in China in the global cable enterprise scale

Jiangsu Shangshang Cable Group is a Provincial Enterprise with the characters of integrating scientific research, industry and trade, equipped with National Postdoc–toral Scientific Research Station and National Technical Centre. The core Enterprise, Jiangsu Shangshang Cable Group Co., Ltd. is a National Large–scale Enterprise, National Key High–Tech Enterprise. The Group has total assets of nearly RMB 5 billion. It covers a land of 620,000 square meters, and the production capacity is RMB 18 billion. For the recent years, we insist in technology development and strengthen the internal management. With the "Specialization & Exact" as the development orientation, we continuously perform "Quality Precision, Professional Expertise,Product Specialization, Market Internationalization" Stratagem, the overall quality has been rapidly improved.In 2011–2015, the sales amount of the group has reached more than ten billion RMB yuan for five consecutive years, Shangshang ranked the No. 9 in the world and No.1 in China in the global cable enterprise scale. In 2014, Shangshang was awarded the highest quality honor of Jiangsu province government ––-"Jiangsu Province Quality Award of Honor" ,the nomination of "China Quality Prize" in 2016. Mr. Ding Shanhua, the Chairman won " China TOP 10 Economic Per–sonages of The Year 2015".

"Shangshang" brand wires & cables products cover high voltage, middle voltage and low voltage cable. Shangshang cable group is a professional manufacture en–terprise of wires & cables with rated voltage up to 500kV. Manufacturing equipments are excellent, such as drawing equipments, case type strander, drum twister type ca–bling machine, insulation extruder, aluminum extruder and sheath extruder. Thereinto 5 lines for 110kV insulated core manufacturing imported from Nokia in Finland, each line is matched with a set of on–line automatic eccentricity tester imported from Zumbach company in Switzerland, max. voltage rating 500kV, max. cross section of con–ductor is 3500mm^2. Shangshang's VCV manufacturing line is installed inside the tower of height 148m, worldwide largest design with one tower and four manufacturing lines are used. High cleanliness of main control room and insulation feeding room of purity level (grade 100) are adopted as well. The whole plant adopts modern inte–grated manufacturing management system, which reaches world advanced level in deed.

"Shangshang" is well known by the customers and in the Cable industry with his high–quality brand visualization and excellent Enterprise management, "Shang–shang Brand" Wires & Cables were awarded with the title of "Nation Free–Inspection Products", "China Top Brand", "Shangshang" brand has been elected "Most Influential Brand of China Mechanical Industry", "Most Influential Brand of China Electrical Industry", and "Shangshang" has been awarded successively with the title of "Meritorious Enterprise of Chinese Equipment Industry", "China Quality Integrity and credibility Enterprise"、"China 100 Strongest Competitive Abil–ity Mechanical Industry Enterprise", "China 500 Strongest Informationization Enterprise", "National Enterprise of keeping Promise and Honoring Contracts", "Na–tional Quality Management Advanced Enterprise", "China 500 strongest Competence Great Enterprise" etc.

"Shangshang" staff seek constant perfection, insist in the technology improvement and development, surpass selves and pursue super–excellence continuously. Serve China and the World.

精良装备 精益品质

SUPERIOR EQUIPMENTS & EXCELLENT PRODUCTS QUALITY

公司拥有从德国尼霍夫引进拉丝设备、从法国POURTIER引进91盘框绞设备及Φ3600盘绞设备、从芬兰麦拉菲尔公司引进VCV生产线、从德国TROESTER引进护套挤塑机等，为500kV及以下高压、超高压电力电缆的开发和生产奠定了坚实基础。

Shangshang’s manufacturing equipments for power cables up to 500kV include drawing equipments imported from Nyhoff in Germany, case type strander(91drums) and drum twister type cabling machine (Φ3600) imported from POURTIER in France, VCV lines imported from Maillefer in Finland， imported sheath extruder from TROESTER in Germany, all the equipments establish a stable foundation for the development and manufacture of high voltage and extra high voltage power cable up to 500kV.

引进芬兰麦拉菲尔500kV VCV生产线
500kV VCV line imported from Maillefer of Finland

引进德国尼霍夫MSM85型双头大拉机
Type MSM 85 double-head coarse wire drawing machine imported from NIEHOFF Company of Germany

引进法国波迪亚91盘框绞机
91-bobbin frame-type strander impoorted from POURTIER of France

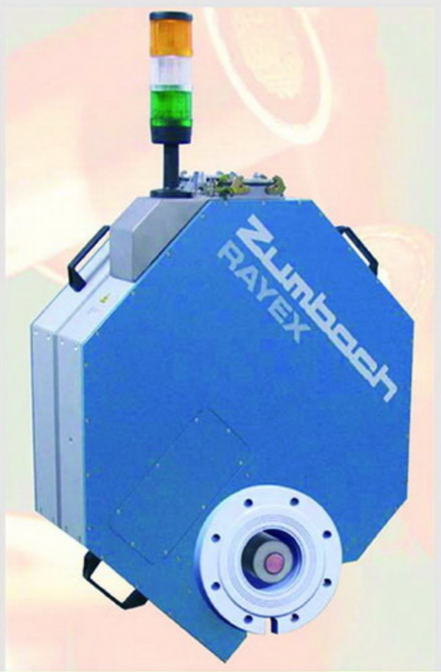
引进法国波迪亚φ3600盘绞机
φ3600mm Drum twister type cabling machine imported from POURTIER of France

先进的试验设备

ADVANCED TESTING DEVICE

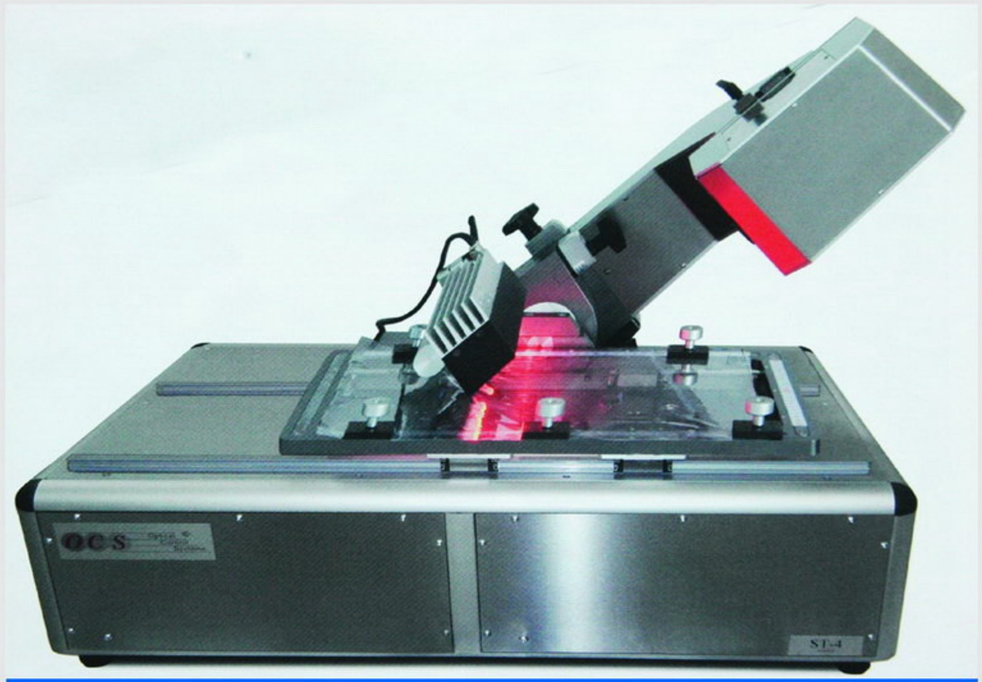
公司拥有从德国哈克公司引进的材料硫变仪、从德国OCS引进的杂质检测仪、从瑞士Zumbach引进的在线测偏仪、从瑞士哈弗莱公司引进700kV局放耐压试验设备及3000kV冲击电压试验等一系列国际先进试验设备，并配备了光谱分析仪、熔体流动速率仪、投影仪及热循环试验等设备，确保了500kV及以下高压、超高压电力电缆的试验及技术研究的需求。

Shangshang has many international advanced testing devices, such as material rheometer from Haake in Germany, insulation impurity tester imported from OCS in Germany, on–line eccentricity from Zumbach in Switzerland, 700kV partial discharge testing equipment from HAEFELY Company of Switzerland and impact voltage(3000kV) tester. We have spectrum analyzer, melt flow speed indicator, projector instrument, heat circle testing equipment, meeting the requirements of technical research and test of high voltage and extra voltage power cable up to 500kV.



引进瑞士仲巴赫在线测偏仪

On–line eccentricity imported from Zumbach in Switzerland



引进德国OCS杂质检测仪

Impurity tester imported from OCS in Germany

引进瑞士哈弗莱公司700kV局放耐压试验系统

Partial discharge and voltage withstand test system of 700kV imported from HAEFELY Company of Switzerland

超高压CIMS集控中心

Extra–high Voltage Cable CIMS Control Center

110kV交联聚乙烯绝缘电力电缆

110 kV XLPE insulation power cable

一、适用范围 (Application)

110kV交联聚乙烯绝缘电力电缆适用于工频额定电压64/110KV输配电线路，该产品具有传输容量大，电气性能优异，安装敷设方便等特点。

XLPE insulation power cable with rated voltage 110 kV is suitable for power transmission and distribution system of rated voltage 64/110 kV. The Product has large transmission capacity， excellent electrical property，and convenient installation and so on.

二、执行标准 (Standard)

GB/T 11017-2014《额定电压110kV交联聚乙烯绝缘电力电缆及其附件》

GB/T 11017- 2014《XLPE insulation power cables with rated voltage 110 kV and their accessories》

三、使用特性(Operating characteristics)

1、系统额定电压Uo/U：64kV/110kV； System rated voltage Uo/U：64kV/110kV

2、最高工作电压Um：126kV；Maximum operating voltage Um：126kV

3、电缆正常运行时导体允许长期工作温度为：90℃；

Max. permissible continuous operating temperature of conductor：90℃

4、短路时（最长持续时间不超过5秒），电缆导体允许的最高温度为：250℃；

Conductor short circuit temperature ≤250℃, continuous duration ≤5s

5、电缆安装时允许的最小弯曲半径为电缆直径的20倍，电缆运行时允许的最小弯曲半径为电缆直径的15倍；

Min. permissible bending radius of cable during installation is 20D， while min. permissible bending radius of cable during operation is 15D。

6、电缆敷设环境温度大于等于0℃，在低于0℃条件下应先预热；

Ambient temperature during cable installation ≥0℃, preheated if less than 0℃;

7、导体允许最大牵引强度：铜70N/mm²，铝40N/mm²；

Max. permissible pulling strength of conductor:70N/mm² for copper, 40N/mm² for aluminum;

四、产品型号及名称（Type and description）

型号 Types		电 缆 名 称 Cable description	使 用 范 围 Service range
铜芯 copper conductor	铝芯 Aluminum conductor		
YJLW02	YJLLW02	交联聚乙烯绝缘皱纹铝套聚氯乙烯护套电力电缆 XLPE insulation corrugated aluminum armored PVC sheathed power cable	电缆可敷设在隧道或管道中，并能承受一定的压力，电缆具有良好的径向防水性能。 For laying indoors, in tunnels and direct in ground , able to bear external mechanical forces, good performance of radial waterproof
YJLW03	YJLLW03	交联聚乙烯绝缘皱纹铝套聚乙烯护套电力电缆 XLPE insulation corrugated aluminum armored PE sheathed power cable	
YJLW02-Z	YJLLW02-Z	交联聚乙烯绝缘皱纹铝套聚氯乙烯护套纵向阻水电力电缆 XLPE insulation corrugated aluminum armored PVC sheathed longitudinal waterproof power cable	电缆可敷设在隧道或管道中，并能承受一定的压力，电缆具有良好的径向和纵向防水性能。 For laying indoors, in tunnels and direct in ground , able to bear external mechanical forces, goof performance of radial and longitudinal waterproof
YJLW03-Z	YJLLW03-Z	交联聚乙烯绝缘皱纹铝套聚乙烯护套纵向阻水电力电缆 XLPE insulation corrugated aluminum armored PE sheathed longitudinal waterproof power cable	

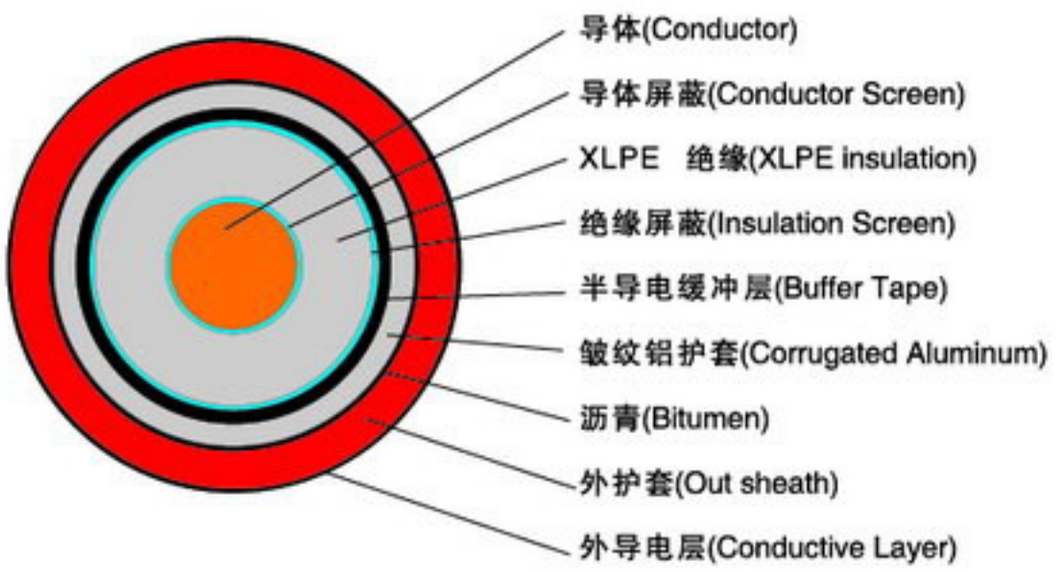
注：本公司根据用户要求，可生产低烟低卤、低烟无卤、防白蚁型电缆。
Note： low smoke and low halogen，low smoke and halogen free， anti-termite cable may be manufactured according to the request of clients。

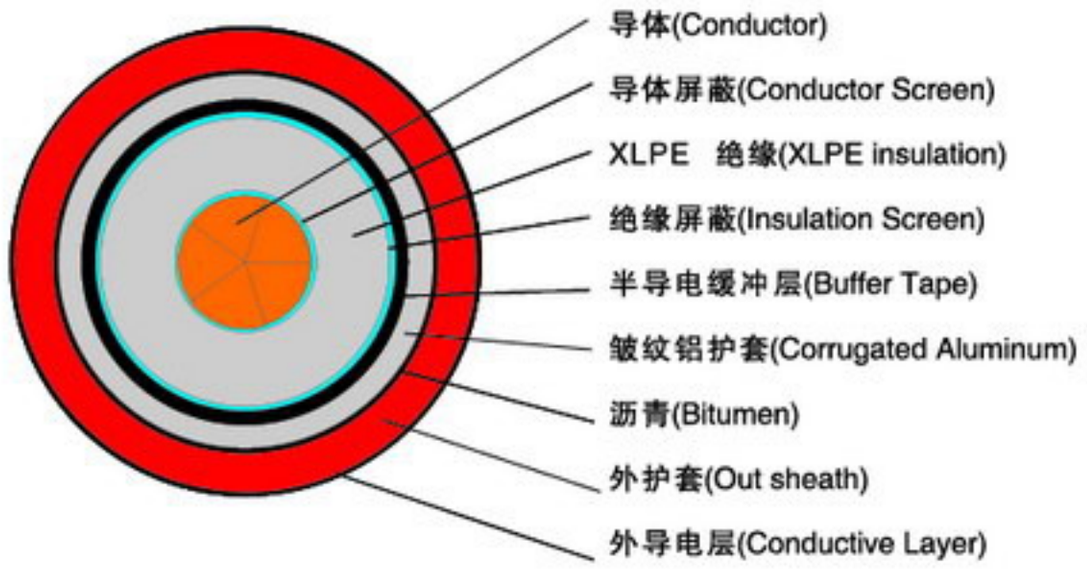
五、产品型号及规格（Type and specification）

型号 Types	芯数 Cores	额定电压等级（kV） Rated voltage	标称截面(mm^2) Nominal cross section
YJLW02、YJLLW02 YJLW03、YJLLW03 YJLW02-Z、YJLLW02-Z YJLW03-Z、YJLLW03-Z	1芯	64/110（Um=126）	240、300、400、500、 630、800、1000*、 1200*、1400*、1600*

注：带*者为分割导体。Note: * means segmental conductor
800mm^2导体根据用户要求可采用圆形紧压结构或分割导体结构。
The conductors with cross section 800mm^2 can be circular compact construction or milliken construction as required by customers.

六、结构示意图(Structure profile)





七、产品主要技术性能（product Main performance）

序号 No	项　目 Item	技 术 指 标 Technical Index
1	局部放电 partial discharge test	1.5Uo（96kV）电压，被试电缆无可检测出的放电（灵敏度优于或等于2pC） 1.5Uo（96kV），no discharge detected. (sensitivity is 2pC or better.)
2	工频耐压试验 power frequency voltage test	施加2.5Uo（160kV）电压，持续30min绝缘不击穿。 keep 160kV for 30min and cable insulation is not breakdown
3	导体20℃直流电阻 d.c. resistance of conductor at20℃	符合GB/T 3956-2008标准规定要求 According to GB/T 3956-2008 Standard
4	tgδ（95℃~100℃、1Uo电压）	$\leqslant 4 \times 10^{-4}$
5	冲击电压（95℃~100℃，±10次） impulse voltage test	550kV，不击穿 550kV, not breakdown
6	外护层电性能试验 electrical properties of outer sheath	直流耐压25 kV/1min，不击穿 DC withstand voltage 25 kV/1min, not breakdown
7	绝缘微孔、杂质试验 insulation voids, impurities test 大于0.05mm的微孔 voids larger than 0.05mm 0.025mm~0.05mm的微孔 voids between 0.025mm~0.05mm 大于0.125mm的不透明杂质 opaque impurities larger than 0125mm 0.05mm~0.125mm的不透明杂质 opaque impurities between 0.05mm~0.125mm 大于0.25mm的半透明棕色物 semitransparent brown impurities larger than 0.25mm	 无 no $\leqslant 8/16.4cm^3$ 无 no $\leqslant 3/16.4cm^3$ 无 no
8	半导电屏蔽层与绝缘层界面的微孔与突起试验 voids and protrudent on semi conductive screen and insulation interface 大于0.05mm的微孔 voids larger than 0.05mm 导体屏蔽和绝缘层界面上大于0.125mm的突起 protrudent larger than 0.125mm on conductor screen interface and insulation interface 绝缘屏蔽和绝缘层界面上大于0.125mm的突起 protrudent larger than 0.125mm on insulation screen interface and insulation interface	 无 no 无 no 无 no
9	绝缘偏心度 insulation eccentricity	$(t_{max}-t_{min})/t_{max} \leqslant 5\%$（圆形circular） $(t_{max}-t_{min})/t_{max} \leqslant 6\%$（分割segmentation）
10	绝缘的热收缩（130℃，6h） heat shrinkage of insulation	≤4%
11	绝缘热延伸试验 Hot set test of insulation	负载下最大伸长率≤100%，冷却后永久伸长率≤ 5% Maximum elongation under load ≤100%, Maximum permanent elongation after cooling≤ 5%

八、产品结构尺寸及性能参数
（Product constructional dimensions and performances）

规格 specification (mm²)	导体参考外径 Reference conductor diameter (mm)	内屏标称厚度 Nominal thickness of inner screen (mm)	绝缘标称厚度 Nominal thickness of insulation (mm)	外屏标称厚度 Nominal thickness of outer screen (mm)	皱纹铝护套标称厚度 Nominal thickness of corrugated Aluminum armor (mm)	外护套标称厚度 nominal thickness of outer sheath (mm)	成品参考外径 Reference Overall Diameter of completed Cable (mm)	电缆近似重量（kg/km） Approx. weight of cable			
								铜芯 Copper conductor		铝芯 Aluminum conductor	
								PVC 护套 PVC sheath	PE 护套 PE sheath	PVC 护套 PVC sheath	PE 护套 PE sheath
1*240	18.4	1.5	19.0	1.0	2.0	4.0	92	8494	7983	7009	6498
1*300	20.6	1.5	18.5	1.0	2.0	4.0	93	9150	8628	7293	6771
1*400	23.2	1.5	17.5	1.0	2.0	4.0	96	10013	9470	7644	7101
1*500	26.6	1.5	17.0	1.0	2.0	4.0	97	11089	10546	8040	7497
1*630	30.0	1.5	16.5	1.0	2.0	4.5	101	12719	12085	8878	8244
1*800	34.0	1.5	16.0	1.0	2.0	4.5	105	14617	13951	9739	9073
1*1000	39.0	1.8	16.0	1.0	2.3	4.5	109	17054	16369	11000	10315
1*1200	43.0	1.8	16.0	1.0	2.3	5.0	116	19549	18750	12284	11486
1*1400	46.5	1.8	16.0	1.0	2.3	5.0	120	21761	20927	13285	12452
1*1600	49.5	1.8	16.0	1.0	2.3	5.0	125	24067	23183	14381	13497

规格 specification (mm²)	20℃导体直流电阻(Ω/km) d.c. resistance at 20℃≤		90℃交流电阻（Ω/km）计算值 a.c. resistance at 90℃				导体允许最大短路电流(kA) Max. Permissible short circuit current of conductor (RA)	
	铜芯 Copper conductor	铝芯 Aluminum conductor	平行敷设 parallel installation		三角形敷设 triangle installation		铜芯 Copper conductor	铝芯 Aluminum conductor
			铜芯 Copper conductor	铝芯 Aluminum conductor	铜芯 Copper conductor	铝芯 Aluminum conductor		
1*240	0.0754	0.125	0.0970	0.1614	0.0971	0.1615	34.3	22.7
1*300	0.0601	0.100	0.0777	0.1294	0.0779	0.1295	42.9	28.3
1*400	0.0470	0.0778	0.0613	0.1010	0.0616	0.1012	57.2	37.8
1*500	0.0366	0.0605	0.0485	0.0790	0.0489	0.0793	71.5	47.2
1*630	0.0283	0.0469	0.0384	0.0618	0.0390	0.0622	90.1	59.5
1*800	0.0221	0.0367	0.0310	0.0490	0.0319	0.0497	114.5	75.6
1*1000	0.0176	0.0291	0.0232	0.0379	0.0234	0.0380	143.1	94.5
1*1200	0.0151	0.0247	0.0201	0.0323	0.0204	0.0325	171.7	113.4
1*1400	0.0129	0.0212	0.0174	0.0279	0.0178	0.0281	200.3	132.3
1*1600	0.0113	0.0186	0.0155	0.0246	0.0159	0.0249	228.9	151.2

注：导体最大允许短路电流计算根据IEC60949（绝热条件下）计算，短路起始温度90℃，短路最终温度250℃，持续时间1秒。

Note:Short Circuit Current Calculated according to IEC 60949 based on thermal insulation,initial temperature 90℃,final temperature 250℃, duration:1s.

规格 specification (mm²)	电感计算值 inductance calculated (mH/km)		电容计算值 capacitance calculated (μF/km)	充电电流计算值 Current charge calculated (A/km)	绝缘损耗计算值 Loss of insulation calculated (W/m)	最大允许侧压力 permissible pressure from side (N/m)	最大允许拉力 Max. permissible Pulling strength (kN)	
	平行敷设 parallel installation	三角形敷设 triangle installation					铜芯 Copper conductor	铝芯 Aluminum conductor
1*240	0.8953	0.5061	0.137	2.7	0.1720	5000	17	10
1*300	0.8727	0.4857	0.149	2.9	0.1864	5000	21	12
1*400	0.8464	0.4616	0.165	3.3	0.2090	5000	28	16
1*500	0.8216	0.4411	0.183	3.6	0.2323	5000	35	20
1*630	0.7969	0.4247	0.202	4.0	0.2571	5000	44	25
1*800	0.7725	0.4084	0.224(圆)/0.232(分割)	4.6	0.2946	5000	56	32
1*1000	0.7513	0.3967	0.252	5.0	0.3196	5000	70	40
1*1200	0.7288	0.3834	0.270	5.4	0.3453	5000	84	48
1*1400	0.7120	0.3736	0.285	5.7	0.3664	5000	98	56
1*1600	0.6994	0.3661	0.299	6.0	0.3835	5000	112	64

九、64/110kV 电缆参考载流量（Current–carrying capacity of cable with rated voltage 64/110kV）

1、空气中敷设（Installed in air）

规格 Specification (mm^2)	空气中敷设 Installed in air (A)							
	平行敷设 Parallel installation				三角形敷设 Triangle installation			
	一端接地 One end earthed		两端接地 Two ends earthed		一端接地 One end earthed		两端接地 Two ends earthed	
	铜 Copper	铝 Aluminum	铜 Copper	铝 Aluminum	铜 Copper	铝 Aluminum	铜 Copper	铝 Aluminum
1*240	710	560	649	520	648	510	627	480
1*300	815	635	728	589	735	575	706	565
1*400	945	758	830	685	857	680	804	650
1*500	1100	860	920	768	969	775	908	735
1*630	1250	1024	1027	875	1116	895	1030	840
1*800	1500	1190	1164	1005	1310	1060	1137	945
1*1000	1700	1342	1295	1120	1460	1185	1237	1050
1*1200	1860	1480	1375	1210	1585	1306	1325	1128
1*1400	2005	1600	1459	1310	1720	1415	1406	1220
1*1600	2160	1760	1535	1380	1815	1525	1474	1285

2、土壤中敷设（Installed in ground）

规格 Specification (mm^2)	土壤中敷设Installed in ground (A)							
	平行敷设 Parallel installation				三角形敷设 Triangle installation			
	一端接地 One end earthed		两端接地 Two ends earthed		一端接地 One end earthed		两端接地 Two ends earthed	
	铜 Copper	铝 Aluminum	铜 Copper	铝 Aluminum	铜 Copper	铝 Aluminum	铜 Copper	铝 Aluminum
1*240	556	428	478	395	520	410	487	395
1*300	627	495	525	435	576	450	530	437
1*400	720	560	576	480	650	523	590	492
1*500	815	640	628	535	728	591	652	553
1*630	935	742	683	580	820	660	718	612
1*800	1085	846	728	642	945	756	776	678
1*1000	1200	935	792	706	1020	842	825	723
1*1200	1275	1045	845	745	1100	928	853	764
1*1400	1385	1124	881	780	1150	1002	889	802
1*1600	1450	1190	911	832	1225	1045	918	845

3、不同环境温度下载流量修正系数
correction coefficient of current–carrying capacity under different amb–ient temperature

导体工作温度（℃）Operating temperature of conductor	环境温度（℃）（空气中）Ambient temperature(in air)								
	10	15	20	25	30	35	40	45	50
60	1.58	1.50	1.41	1.32	1.22	1.11	1.00	0.86	0.73
65	1.48	1.41	1.34	1.26	1.18	1.09	1.00	0.89	0.77
70	1.41	1.35	1.29	1.22	1.15	1.08	1.00	0.91	0.81
80	1.32	1.27	1.22	1.17	1.11	1.06	1.00	0.93	0.86
90	1.26	1.22	1.18	1.14	1.09	1.04	1.00	0.94	0.89

4、不同环境温度下载流量修正系数
correction coefficient of current–carrying capacity under differenct amb–ient temperature

导体工作温度（℃）Operating temperature of conductor	环境温度（℃）（土壤中）Ambient temperature(in soil)					
	10	15	20	25	30	35
60	1.20	1.13	1.07	1.00	0.93	0.85
65	1.17	1.12	1.06	1.00	0.94	0.87
70	1.15	1.11	1.05	1.00	0.94	0.88
80	1.13	1.09	1.04	1.00	0.95	0.90
90	1.11	1.07	1.04	1.00	0.96	0.92

5、不同土壤热阻系数的载流量修正系数
correction coefficient of current–carrying capacity for specific thermal resistivity of ground

土壤热阻系数 Specific thermal resistivity of ground	0.8	1.0	1.2	1.5	2.0
修正系数 Correction coefficient	1.06	1	0.94	0.83	0.80

电缆参考载流量计算说明：

Calculation of referenced cable current carrying capacity

1、单回路，平行敷设时，线芯间距离S=250mm；三角形敷设时，线芯中心间距离S=D（D：成品电缆参考外径）；

For single circuit, space between cores is 250mm in parallel installation (S=250mm), while space between cores is referenced overall diameter of finished cable in triangle installation (S=D)

2、导体工作温度：90℃；

Working temperature of conductor: 90℃

3、空气中，环境温度40℃，不受日光直射；土壤中，土壤温度25℃，土壤热阻系数1.0 K·m/w，埋设深度1m；

In ambient temperature 40℃, there is no direct sunlight; In soil temperature 25℃, thermal resistivity of soil is 1.0 K·m/w, burial depth 1m.

220kV交联聚乙烯绝缘电力电缆
220 kV XLPE insulation power cable

一、适用范围 (Application)

220kV交联聚乙烯绝缘电力电缆适用于工频额定电压127/220kV输配电线路，该产品具有传输容量大，电气性能优异，安装敷设方便等特点。

XLPE insulation power cable with rated voltage 220 kV is suitable for power transmission and distribution system of rated voltage 127/220 kV. The Product has large transmission capacity, excellent electrical property, and convenient installation and so on .

二、执行标准 (Standard)

GB/Z 18890–2015《额定电压220kV（Um＝252kV）交联聚乙烯绝缘电力电缆及其附件》

GB/Z 18890–2015《XLPE insulation power cables with rated voltage220kV（Um＝252kV）and their accessories》

三、使用特性 (operating characteristics)

1、系统额定电压Uo/U：127kV/220kV；System rated voltage Uo/U：127kV/220kV

2、最高工作电压Um：252kV；Maximum operating voltage Um：252kV

3、电缆正常运行时导体允许长期工作温度为：90℃；

Max. permissible continuous operating temperature of conductor: 90℃

4、短路时（最长持续时间不超过5秒），电缆导体允许的最高温度为250℃；

Conductor short circuit temperature ≤250℃, continuous duration ≤5s

5、电缆安装时允许的最小弯曲半径为电缆直径的20倍，电缆运行时允许的最小弯曲半径为电缆直径的18倍；

Min. permissible bending radius of cable during installation is 20D , while min. permissible bending radius of cable during operation is 18D.

6、电缆敷设环境温度大于等于0℃，在低于0℃条件下应先预热；

Ambient temperature during cable installation ≥0℃, preheated if less than 0℃;

7、导体允许最大牵引强度：铜70N/mm^2，铝40N/mm^2；

Max. permissible pulling strength of conductor:70N/mm^2 for copper, 40N/mm^2 for aluminum

四、产品型号及名称(Type and description)

型号 Types	电缆名称 Cable description	使用范围 service range
YJLW02	铜芯交联聚乙烯绝缘皱纹铝套聚氯乙烯护套电力电缆 Copper conductor XLPE insulated corrugated aluminum armored PVC sheathed power cable	电缆可敷设在隧道或管道中，并能承受一定的压力，电缆具有良好的径向防水性能。 For laying indoors, in tunnels and direct in ground , able to bear external mechanical forces, good performance of radial waterproof
YJLW03	铜芯交联聚乙烯绝缘皱纹铝套聚乙烯护套电力电缆 Copper conductor XLPE insulation corrugated aluminum armored PE sheathed power cable	
YJLW02–Z	铜芯交联聚乙烯绝缘皱纹铝套聚氯乙烯护套纵向阻水电力电缆 Copper conductor XLPE insulation corrugated aluminum armored PVC sheathed longitudinal waterproof power cable	电缆可敷设在隧道或管道中，并能承受一定的压力，电缆具有良好的径向和纵向防水性能。 For laying indoors, in tunnels and direct in ground , able to bear external mechanical forces, goof performance of radial and longitudinal waterproof
YJLW03–Z	铜芯交联聚乙烯绝缘皱纹铝套聚乙烯护套纵向阻水电力电缆 Copper conductor XLPE insulation corrugated aluminum armored PE sheathed longitudinal waterproof power cable	

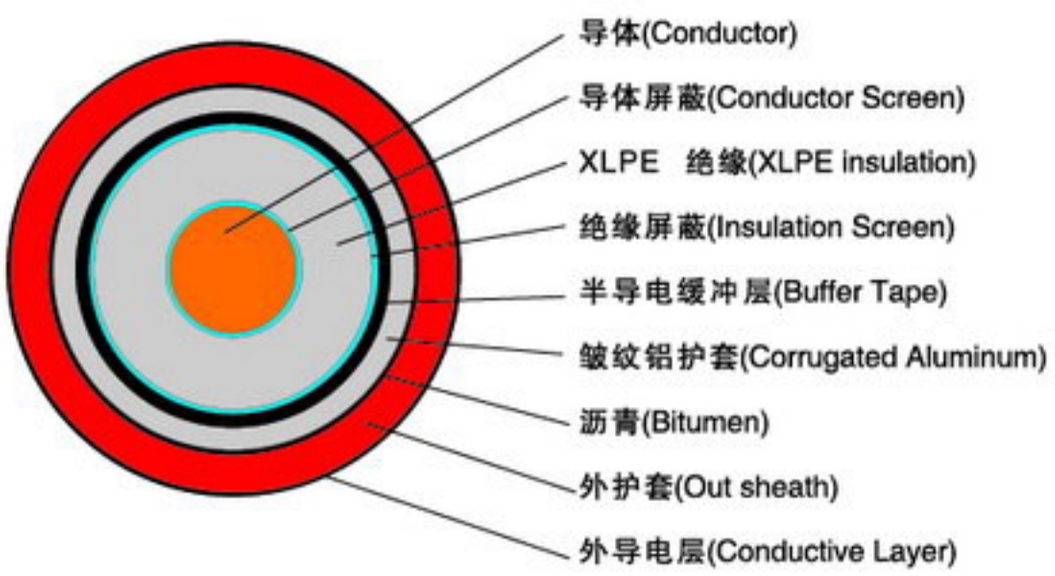
注：本公司根据用户要求，可生产低烟低卤、低烟无卤、防白蚁型电缆。
Note: low smoke and low halogen, low smoke and halogen free, or anti–termite cable may be manufactured according to the request of clients.

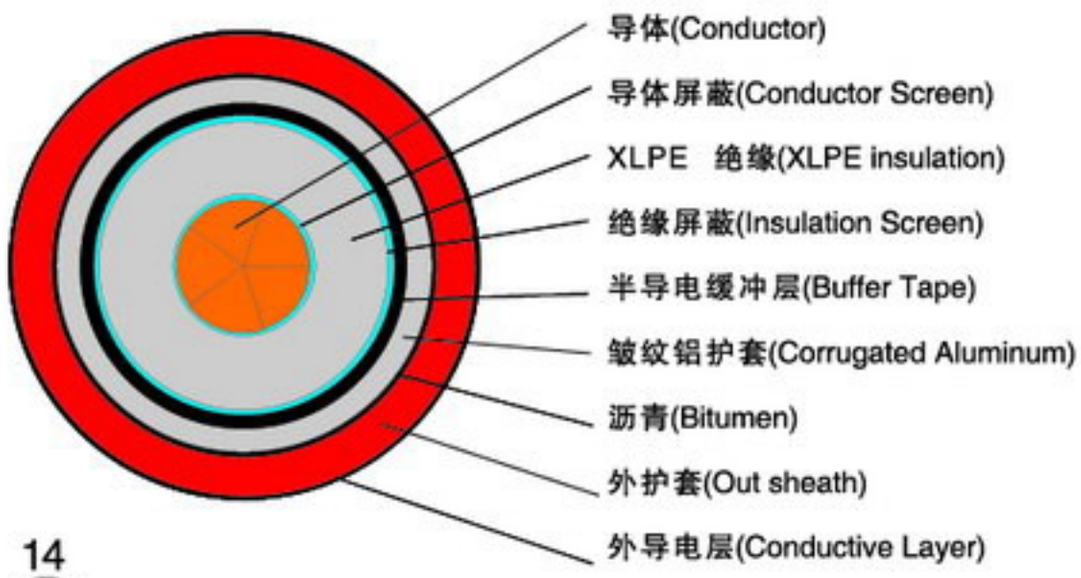
五、产品型号及规格（Type and specification）

型号 Types	芯 数 cores	额定电压等级（kV） rated voltage	标称截面 nominal cross section
YJLW02、YJLW03、YJLW02–Z、YJLW03–Z	1芯	127/220（Um=252）	400、500、630、800、1000*、1200*、1400*、1600*、1800*、2000*、2200*、2500*

注：带*者为分割导体。 Note: * means segmental conductor
800mm^{2}导体根据用户要求可采用圆形紧压结构或分割导体结构。
The conductors with cross section 800mm^2 can be circular compact construction or milliken construction as required by customers.

六、结构示意图（Structure profile）





七、产品主要技术性能(Product main performance)

序号 No	项　目 Item	技 术 指 标 Technical Index
1	局部放电 partial discharge test	1.5Uo（190kV）电压，被试电缆无可检测出的放电（灵敏度优于或等于2pC） 1.5Uo（190kV），no discharge detected. (sensitivity is 2pC or better.)
2	工频耐压试验 power frequency voltage test	施加2.5Uo（318kV）电压，持续30min绝缘不击穿。 keep 318kV for 30min and cable insulation is not breakdown
3	导体20℃直流电阻 d.c. resistance of conductor at20℃	符合GB/T 3956-2008标准规定要求 According to GB/T 3956-2008 Standard
4	tg δ（95℃～100℃、1Uo电压）	$\leqslant 4\times10^{-4}$
5	冲击电压（95℃～100℃，±10次） impulse voltage test	1050kV，不击穿 1050kV, not breakdown
6	外护层电性能试验 electrical properties of outer sheath	直流耐压25 kV/1min，不击穿 DC withstand voltage 25 kV/1min, not breakdown
7	绝缘微孔、杂质试验 insulation voids, impurities test 大于0.05mm的微孔 voids larger than 0.05mm 0.025mm～0.05mm的微孔 voids between 0.025mm～0.05mm 大于0.125mm的不透明杂质 opaque impurities larger than 0.125mm 0.05mm～0.125mm的不透明杂质 opaque impurities between 0.05mm～0.125mm 大于0.16mm的半透明棕色物 semitransparent brown impurities larger than 0.16mm	 无 no $\leqslant 6$ /10cm^3 无 no $\leqslant$2/10cm^3 无 no
8	半导电屏蔽层与绝缘层界面的微孔与突起试验 voids and protrudent on semi conductive screen and insulation interface 大于0.05mm的微孔 voids larger than 0.05mm 导体屏蔽和绝缘层界面上大于0.08mm的突起 protrudent larger than 0.08mm on conductor screen interface and insulation interface 绝缘屏蔽和绝缘层界面上大于0.08mm的突起 protrudent larger than 0.08mm on insulation screen interface and insulation interface	无 no 无 no 无 no
9	绝缘偏心度 insulation eccentricity	（$t_{max}-t_{min}$）/$t_{max}\leqslant$5%（圆形circular） （$t_{max}-t_{min}$）/$t_{max}\leqslant$6%（分割segmentation）
10	绝缘的热收缩（130℃，6h） heat shrinkage of insulation	$\leqslant$4%
11	绝缘热延伸试验 Hot set test of insulation	负载下最大伸长率≤100%，冷却后永久伸长率≤ 5% Maximum elongation under load ≤100%, Maximum permanent elongation after cooling≤ 5%

八、产品结构尺寸及性能参数
cable constructional dimensions and performances

规格 specification (mm^2)	导体参考外径 Reference conductor diameter (mm)	内屏标称厚度 Nominal thickness of inner screen (mm)	绝缘标称厚度 Nominal thickness of insulation (mm)	外屏标称厚度 Nominal thickness of outer screen (mm)	皱纹铝护套标称厚度 Nominal thickness of corrugated Aluminum armor (mm)	外护套标称厚度 Nominal thickness of outer sheath (mm)	成品参考外径 Reference overall diameter of completed cable (mm)	电缆近似重量 (kg/km) Approx. weight of cable	
								PVC护套 PVC sheath	PE护套 PE sheath
1*400	23.2	2.0	27.0	1.0	2.4	5.0	115	13856	13010
1*500	26.6	2.0	27.0	1.0	2.4	5.0	119	15273	14405
1*630	30.0	2.0	26.0	1.0	2.4	5.0	120	16579	15698
1*800	34.0	2.0	25.0	1.0	2.4	5.0	122	18182	17289
1*1000	39.0	2.0	24.0	1.0	2.6	5.0	124	20414	19505
1*1200	43.0	2.5	24.0	1.0	2.6	5.0	129	22948	22001
1*1400	46.5	2.5	24.0	1.0	2.6	5.0	133	25190	24218
1*1600	49.5	2.5	24.0	1.0	2.6	5.0	136	27366	26372
1*1800	52.1	2.5	24.0	1.0	2.8	5.0	139	29714	28699
1*2000	55.2	2.5	24.0	1.0	2.8	5.0	142	31868	30833
1*2200	57.4	2.5	24.0	1.0	2.8	5.0	144	34008	32954
1*2500	61.5	2.5	24.0	1.0	2.8	5.0	149	37306	36423

规格 specification (mm^2)	20℃导体直流电阻 d.c. resistance at 20℃ (Ω/km)	90℃交流电阻计算值 (Ω/km) a.c. resistance at 90℃		导体允许最大短路电流(kA) Max. Permissible short circuit current of conductor (RA)
		平行敷设 parallel installation	三角形敷设 triangle installation	
1*400	0.0470	0.0613	0.0615	57.2
1*500	0.0366	0.0485	0.0487	71.5
1*630	0.0283	0.0384	0.0388	90.1
1*800	0.0221	0.0310	0.0315	114.5
1*1000	0.0176	0.0232	0.0233	143.1
1*1200	0.0151	0.0201	0.0203	171.7
1*1400	0.0129	0.0174	0.0177	200.3
1*1600	0.0113	0.0155	0.0158	228.9
1*1800	0.0101	0.0141	0.0144	258.3
1*2000	0.0090	0.0129	0.0132	287.0
1*2200	0.0083	0.0121	0.0124	315.7
1*2500	0.0072	0.0109	0.0112	358.7

注：导体最大允许短路电流计算根据IEC60949 (绝热条件下) 计算，短路起始温度90℃，短路最终温度250℃，持续时间1秒。
Note:Short Circuit Current Calculated according to IEC 60949 based on thermal insulation,initial temperature 90℃, final temperature 250℃, duration:1s.

规格 Specification (mm^2)	电感 Inductance（mH/km）		电容计算值 Capacitance calculated （μF/km）	充电电流 计算值 Current charge calculated A/km	绝缘损耗 计算值 Loss of insulation calculated W/m	最大允许 侧压力 Max. permissible pressure from side N/m	最大允许拉力 Max. permissible Pulling strength kN
	平行敷设 Parallel installation	三角形敷设 Triangle installation					
1*400	0.707	0.507	0.127	5.1	0.643	5000	28
1*500	0.684	0.490	0.137	5.5	0.693	5000	35
1*630	0.652	0.462	0.153	6.1	0.777	5000	44
1*800	0.634	0.445	0.166(圆)/0.173(分割)	6.6	0.841	5000	56
1*1000	0.604	0.423	0.190	7.6	0.923	5000	70
1*1200	0.589	0.413	0.200	8.0	0.875	5000	84
1*1400	0.573	0.402	0.210	8.4	0.965	5000	98
1*1600	0.560	0.394	0.220	8.8	1.012	5000	112
1*1800	0.549	0.388	0.228	9.1	1.066	5000	126
1*2000	0.537	0.380	0.237	9.5	1.113	5000	140
1*2200	0.532	0.377	0.241	9.6	1.155	5000	154
1*2500	0.515	0.367	0.256	10.2	1.202	5000	175

九、127/220kV电缆参考载流量(current–carrying capacity of cable)

规格 Specification (mm^2)	空气中敷设 Installed in air (A)				土壤中敷设 Installed in ground (A)			
	平行敷设 Parallel installation		三角形敷设 Triangle installation		平行敷设 Parallel installation		三角形敷设 Triangle installation	
	一端接地 One end earthed	两端接地 Two ends earthed	一端接地 One end earthed	两端接地 Two ends earthed	一端接地 One end earthed	两端接地 Two ends earthed	一端接地 One end earthed	两端接地 Two ends earthed
1*400	876	821	817	786	678	583	628	582
1*500	1022	918	925	865	772	645	715	642
1*630	1176	1044	1042	987	875	695	798	698
1*800	1390	1213	1245	1121	1012	768	912	760
1*1000	1587	1342	1396	1220	1118	832	995	823
1*1200	1733	1423	1510	1310	1203	865	1075	852
1*1400	1895	1514	1621	1398	1298	903	1125	898
1*1600	2011	1618	1712	1487	1317	942	1186	927
1*1800	2126	1697	1813	1535	1405	980	1216	965
1*2000	2235	1782	1918	1605	1435	1012	1267	1002
1*2200	2310	1820	1934	1665	1486	1026	1280	1029
1*2500	2426	1915	2065	1724	1517	1067	1320	1058

不同环境温度下载流量修正系数
correction coefficient of current–carrying capacity under different ambient temperature

导体工作温度 Operating temperature of conductor（℃）	环境温度（℃）（空气中）Ambient temperature(in air)								
	10	15	20	25	30	35	40	45	50
60	1.58	1.50	1.41	1.32	1.22	1.11	1.00	0.86	0.73
65	1.48	1.41	1.34	1.26	1.18	1.09	1.00	0.89	0.77
70	1.41	1.35	1.29	1.22	1.15	1.08	1.00	0.91	0.81
80	1.32	1.27	1.22	1.17	1.11	1.06	1.00	0.93	0.86
90	1.26	1.22	1.18	1.14	1.09	1.04	1.00	0.94	0.89

不同环境温度下载流量修正系数
correction coefficient of current–carrying capacity under different ambient temperature

导体工作温度 Operating temperature of conductor（℃）	环境温度（℃）（土壤中）Ambient temperature(in soil)					
	10	15	20	25	30	35
60	1.20	1.13	1.07	1.00	0.93	0.85
65	1.17	1.12	1.06	1.00	0.94	0.87
70	1.15	1.11	1.05	1.00	0.94	0.88
80	1.13	1.09	1.04	1.00	0.95	0.90
90	1.11	1.07	1.04	1.00	0.96	0.92

不同土壤热阻系数的载流量修正系数
Correction coefficient of current–carrying capacity for specific thermal resistivity of ground

土壤热阻系数（K·m/w） Specific thermal resistivity of ground	0.8	1.0	1.2	1.5	2.0
修正系数 Correction coefficient	1.06	1	0.94	0.83	0.80

电缆参考载流量计算说明：

Calculation of referenced cable current carrying capacity

1、单回路，平行敷设时，线芯间距离S=250mm；三角形敷设时，线芯中心间距离S=D（D：成品电缆参考外径）；

For single circuit, space between cores is 250mm in parallel installation (S=250mm), while space between cores is referenced overall diameter of finished cable in triangle installation (S=D)

2、导体工作温度：90℃；

Working temperature of conductor: 90℃

3、空气中，环境温度40℃，不受日光直射；土壤中，土壤温度25℃，土壤热阻系数1.0 K·m/w，埋设深度1m；

In ambient temperature 40℃, there is no direct sunlight; In soil temperature 25℃, thermal resistivity of soil is 1.0 K·m/w, burial depth 1m.

500kV交联聚乙烯绝缘电力电缆

XLPE insulation power cable with rated voltage 500kV

一、适用范围（Application）

500kV 交联聚乙烯绝缘电力电缆用于工频额定电压 290/500KV 及以下输配电线路配送电能。该产品具有传输容量大，电气性能优异，安装敷设方便等优点。

XLPE insulation power cable with rated voltage 500 kV is suitable for power supply and distribution system of rated voltage 290/500 kV。 The Product has large transmission capacity, excellent electrical property, and convenient installation and so on。

二、执行标准（Standard）

GB/T 22078–2008《额定电压 500kV（Um＝550kV）交联聚乙烯绝缘电力电缆及其附件》

GB/T 22078–2008《XLPE insulation power cables with rated voltage500kV（Um＝550kV） and their accessories》

三、使用特性（Operating characteristics）

1、系统额定电压 Uo/U：290kV/500kV；

System rated voltage Uo/U：290kV/500kV

2、最高工作电压 Um：550kV；

Maximum operating voltage Um：550kV

3、电缆正常运行时导体允许长期工作温度为：90℃；

Max. permissible continuous operating temperature of conductor: 90℃

4、短路时（最长持续时间不超过 5 秒），电缆导体允许的最高温度为 250℃；

Conductor short circuit temperature ≤250℃, continuous duration≤5s

5、电缆安装时允许的最小弯曲半径为电缆直径的 20 倍（20D），电缆运行时允许的最小弯曲半径为电缆直径的 15 倍（15D）；

Min. permissible bending radius of cable during installation is 20D, while min. permissible bending radius of cable during operation is 15D.

6、电缆敷设环境温度大于等于 0℃，在低于 0℃条件下应先预热；

Installation temperature of cable ≥0℃, preheated if below 0℃

7、导体允许最大牵引强度：铜 70N/mm^2，铝 40N/mm^2；

Max. permissible pulling strength of conductor:70N/mm^2 for copper, 40N/mm^2 for aluminum

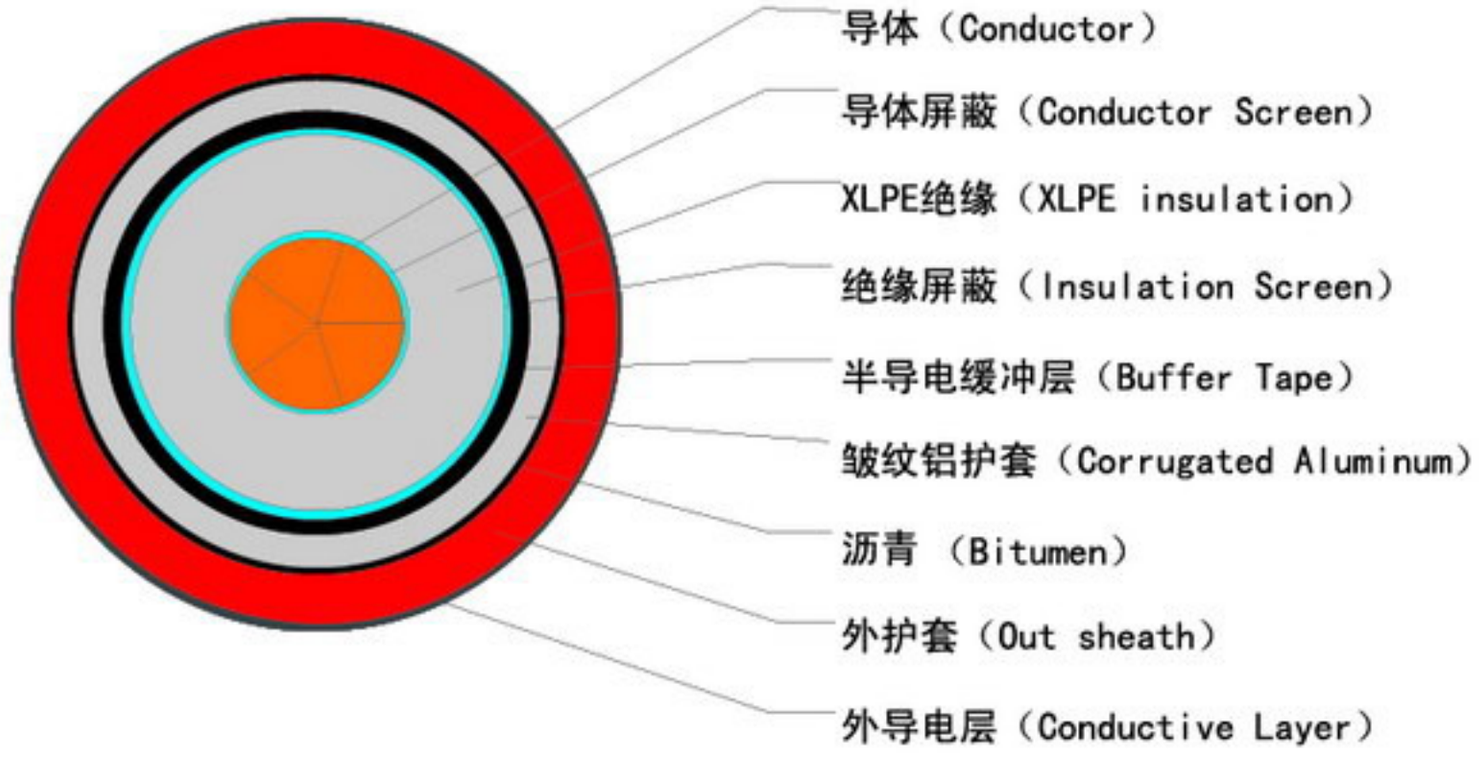
四、产品型号、名称（Typeanddescription）

型号 Type	电缆名称 Cable description	使用范围 Service range
YJLW02	铜芯交联聚乙烯绝缘皱纹铝套聚氯乙烯护套电力电缆 Copper conductor XLPE insulated corrugated aluminum sheathed PVC sheathed power cable	电缆可敷设在隧道或管道中，并能承受一定的压力，电缆具有良好的径向防水性能。 For laying indoors, in tunnels and direct in ground , able to bear external mechanical forces, good performance of radial waterproof
YJLW03	铜芯交联聚乙烯绝缘皱纹铝套聚乙烯护套电力电缆 Copper conductor XLPE insulated corrugated aluminum sheathed PE sheathed power cable	
YJLW02-Z	铜芯交联聚乙烯绝缘皱纹铝套聚氯乙烯护套纵向阻水电力电缆 Copper conductor XLPE insulated corrugated aluminum sheathed PVC sheathed longitudinal waterproof power cable	电缆可敷设在隧道或管道中，并能承受一定的压力，电缆具有良好的径向和纵向防水性能。 For laying indoors, in tunnels and direct in ground , able to bear external mechanical forces, good performance of radial and longitudinal waterproof
YJLW03-Z	铜芯交联聚乙烯绝缘皱纹铝套聚乙烯护套纵向阻水电力电缆 Copper conductor XLPE insulated corrugated aluminum sheathed PE sheathed longitudinal waterproof power cable	
注：本公司根据用户要求，可生产低烟低卤、低烟无卤、防白蚁型电缆。 Note： low smoke and low halogen， low smoke and halogen free， or anti-termite cable may be manufactured according to the request of clients。		

五、产品型号、规格 Producttypeandspecification

型号 Type	芯数 No. of cores	额定电压等级（kV） Rated voltage	标称截面 Nominal cross section
YJLW02、YJLW03、 YJLW02-Z、YJLW03-Z	1芯 Single core	290/500（Um=550）	800、1000、1200、（1400）、1600、 （1800）、2000、（2200）、2500
注：括号内为非优选导体截面 Note: Brackets for non-preferred conductor cross section.			

六、结构示意图（Structureprofile）



七、产品主要技术性能（Product Main performance）

序号 No.	项　　目 Items	技 术 指 标 Requirements
1	例行局部放电试验 partial discharge test (routine test)	1.5Uo（435kV）电压，被试电缆无可检测出的放电（灵敏度优于或等于 2pC） With voltage 1.5Uo （ 435kV ） , no discharge detected .（sensitivity is 2pC or better.）
2	例行工频耐压试验 power frequency voltage test (rountine test)	施加 2.0Uo（580kV）电压，持续 60min 绝缘不击穿。 Apply 580kV for 60min and cable insulation is not breakdown
3	导体 20℃直流电阻 D.C. resistance of conductor at 20℃	符合 GB/T 22078-2008 标准规定要求 According to GB/T 22078-2008 Standard
4	tgδ（95℃～100℃、1Uo 电压）	≤8×10^{-4}
5	冲击电压（95℃～100℃，±10 次） impulse voltage test	1550kV，不击穿 1550kV，not breakdown
6	外护层电性能试验 electrical properties of outer sheath	直流耐压 25 kV/1min，不击穿 DC withstand voltage 25 kV/1min , not breakdown
7	绝缘微孔、杂质试验 insulation voids, impurities test 大于 0.02mm 的微孔 voids larger than 0.02mm 大于 0.075mm 的不透明杂质 opaque impurities larger than 0.075mm	 无 no 无 no
8	半导电屏蔽层与绝缘层界面的微孔与突起试验 voids and protrusion on semi conductive screen and insulation interface 大于 0.02mm 的微孔 voids larger than 0.02mm 导体屏蔽界面大于 0.05mm 的突起 protrusion larger than 0.05mm on conductor screen interface 绝缘屏蔽界面大于 0.05mm 的突起 protrusion larger than 0.05mm on insulation screen interface	 无 no 无 no 无 no
9	绝缘偏心度 insulation eccentricity	（tmax-tmin）/tmax≤5%
10	绝缘热延伸试验 Hot set test of insulation	负载下最大伸长率≤100%，冷却后永久伸长率≤ 5% Maximum elongation under load ≤100%， Maximum permanent elongation after cooling ≤ 5%

八、电缆结构尺寸及性能参数
Cable constructional dimensions and performances

规格 specification（mm^2）	导体参考外径 Reference conductor diameter（mm）	内屏标称厚度 Nominal thickness of inner screen（mm）	绝缘标称厚度 Nominal thickness of insulation（mm）	外屏标称厚度 Nominal thickness of outer screen（mm）	皱纹铝护套标称厚度 Nominal thickness of corrugated Aluminum sheath（mm）	外护套标称厚度 nominal thickness of outer sheath（mm）	成品参考外径 Reference Overall Diameter of completed Cable（mm）	电缆近似重量（kg/km） Approx. weight of cable	
								PVC护套 PVC sheath	PE护套 PE sheath
1×800	34.0	2.5	34.0	1.0	2.9	6.0	153	24327	22984
1×1000	39.0	2.5	33.0	1.0	3.0	6.0	157	26878	25498
1×1200	43.0	2.5	33.0	1.0	3.0	6.0	161	29315	27898
1×1400	46.5	2.5	32.0	1.0	3.0	6.0	163	31184	29749
1×1600	49.5	2.5	32.0	1.0	3.1	6.0	167	33736	32264
1×1800	52.1	2.5	31.0	1.0	3.2	6.0	171	35948	34439
1×2000	55.2	2.5	31.0	1.0	3.2	6.0	173	38192	36664
1×2200	57.4	2.5	31.0	1.0	3.2	6.0	176	40410	38855
1×2500	61.5	2.5	31.0	1.0	3.3	6.0	179	43918	42335

标称截面 Nominal cross section（mm^2）	20℃直流电阻（Ω/km） D.C. resistance at 20℃	90℃交流电阻计算值（Ω/km） Calculated a.c. resistance at 90℃		导体允许最大短路电流 (kA) Max. permissible short circuit current of conductor (RA)
		平行敷设 parallel installation	三角形敷设 triangle installation	
1×800	0.0221	0.0310	0.0315	114.5
1×1000	0.0176	0.0232	0.0233	143.1
1×1200	0.0151	0.0201	0.0203	171.7
1×1400	0.0129	0.0174	0.0177	200.3
1×1600	0.0113	0.0155	0.0158	228.9
1×1800	0.0101	0.0141	0.0144	258.3
1×2000	0.0090	0.0129	0.0132	287.0
1×2200	0.0083	0.0121	0.0124	315.7
1×2500	0.0072	0.0109	0.0112	358.7

注：导体最大允许短路电流计算根据 IEC949（绝热条件下）计算，短路起始温度 90℃，短路最终温度 250℃，持续时间 1 秒。

Note：Short Circuit Current Calculation according to IEC 60949 based on thermal insulation, initial temperature 90℃, final temperature 250℃, duration 1s.

标称截面 Nominal cross section（mm^2）	电感计算值（mH/km） Calculated inductance		电容计算值 Calculated capacitance（μF/km）	充电电流计算值 Calculated charge current A/km	绝缘损耗计算值 Calculated loss of insulation W/m	最大允许侧压力 Max. permissible side pressure N/m	最大允许拉力 Max. permissible pulling strength kN
	平行敷设 Parallel installation	三角形敷设 triangle installation					
1×800	0.630	0.487	0.128	11.7	2.714	5000	56
1×1000	0.601	0.463	0.142	12.9	3.003	5000	70
1×1200	0.584	0.450	0.149	13.6	3.158	5000	84
1×1400	0.571	0.440	0.159	14.4	3.351	5000	98
1×1600	0.556	0.430	0.166	15.1	3.504	5000	112
1×1800	0.547	0.425	0.175	15.9	3.693	5000	126
1×2000	0.535	0.416	0.181	16.5	3.832	5000	140
1×2200	0.527	0.411	0.186	17.0	3.935	5000	154
1×2500	0.512	0.400	0.196	17.8	4.139	5000	175

九、290/550kV 电缆参考载流量（reference current-carrying capacity of 290/550kV cable）

规格 specification（mm^2）	空气中敷设 Installed in air				土壤中敷设 Installed in ground			
	平行敷设 parallel installation		三角形敷设 triangle installation		平行敷设 parallel installation		三角形敷设 triangle installation	
	一端接地 One end earthed	两端接地 Two ends earthed	一端接地 One end earthed	两端接地 Two ends earthed	一端接地 One end earthed	两端接地 Two ends earthed	一端接地 One end earthed	两端接地 Two ends earthed
1×800	1376	1280	1255	1165	960	825	890	802
1×1000	1552	1410	1398	1286	1066	880	986	865
1×1200	1692	1510	1506	1367	1134	935	1056	895
1×1400	1845	1625	1640	1474	1203	960	1106	956
1×1600	1960	1715	1732	1546	1265	1020	1155	967
1×1800	2070	1798	1810	1634	1305	1045	1198	1005
1×2000	2160	1890	1890	1702	1355	1088	1245	1055
1×2200	2230	1960	1955	1755	1378	1100	1266	1068
1×2500	2362	2080	2068	1862	1455	1134	1302	1135

不同环境温度下载流量修正系数

Correction coefficient of current-carrying capacity at different ambient temperature

导体工作温度 Operating temperature of conductor（℃）	环境温度（℃）（空气中）Ambient temperature(in air)								
	10	15	20	25	30	35	40	45	50
60	1.58	1.50	1.41	1.32	1.22	1.11	1.00	0.86	0.73
65	1.48	1.41	1.34	1.26	1.18	1.09	1.00	0.89	0.77
70	1.41	1.35	1.29	1.22	1.15	1.08	1.00	0.91	0.81
80	1.32	1.27	1.22	1.17	1.11	1.06	1.00	0.93	0.86
90	1.26	1.22	1.18	1.14	1.09	1.04	1.00	0.94	0.89
105	1.22	1.19	1.15	1.11	1.08	1.04	1.00	0.95	0.91

不同环境温度下载流量修正系数

Correction coefficient of current-carrying capacity at different ambient temperature

导体工作温度 Operating temperature of conductor（℃）	环境温度（℃）（土壤中）Ambient temperature(in soil)					
	10	15	20	25	30	35
60	1.20	1.13	1.07	1.00	0.93	0.85
65	1.17	1.12	1.06	1.00	0.94	0.87
70	1.15	1.11	1.05	1.00	0.94	0.88
80	1.13	1.09	1.04	1.00	0.95	0.90
90	1.11	1.07	1.04	1.00	0.96	0.92

不同土壤热阻系数的载流量修正系数

Correction coefficient of current-carrying capacity for different specific thermal resistivity of ground

土壤热阻系数（K·m/w） Specific thermal resistivity of ground	0.8	1.0	1.2	1.5	2.0
修正系数 Correction coefficient	1.06	1	0.94	0.83	0.80

电缆参考载流量计算说明：

Calculation of referenced cable current carrying capacity:

1、单回路，平行敷设时，线芯间距离 S=250mm；三角形敷设时，线芯间距离 S=D（D：成品电缆参考外径）；

For single circuit, space between cores is 250mm in parallel installation（S=250mm）, while space between cores is equal to referenced overall diameter of finished cable in triangle installation（S=D）

2、导体工作温度：90℃；

Working temperature of conductor: 90℃

3、空气中，环境温度 40℃，不受日光直射；土壤中，土壤温度 25℃，土壤热阻系数 1.0 K·m/w，埋设深度 1m；

At ambient temperature 40℃ in air ,there is no direct sunlight; in soil, temperature 25℃,thermal resistivity of soil is 1.0 K·m/w，burial depth 1m.

编号：04-029-03-155

中国名牌

CHINA TOP BRAND

2004.9-2007.9

中国名牌产品证书

根据中国名牌战略推进委员会评价结果，特授予　江苏上上电缆集团　生产的上上牌交联聚乙烯电力电缆为：

中国名牌产品

国家质量监督检验检疫总局

二〇〇四年九月

中国质量奖

CHINA QUALITY AWARD

中国质量奖提名奖

证　书

为表彰第二届中国质量奖获奖者，特颁发此证书。

获奖内容：以“四个人人”为核心的全员绩效体验模式

获 奖 者：江苏上上电缆集团有限公司

第二届中国质量奖评选表彰委员会

2016 年 02 月 14 日

证书号：2016-ZGZLJ-02-T-Z10

CIQA

诚信为本 质量第一

根据全国检验检疫协会对进出口企业审核结果，特授予江苏上上电缆集团有限公司：

中国质量诚信企业

中国出入境检验检疫协会

二〇一二年一月

国家火炬计划重点高新技术企业

证　书

经评选，江苏上上电缆集团有限公司

为国家火炬计划重点高新技术企业

批准文号：国科火字〔2013〕258号

No.GZ20133200012

科技部火炬高技术产业开发中心

二〇一三年十月

有效期三年

全国守合同重信用企业

NATIONAL ENTERPRISE OF “KEEPING PROMISE & HONOURING CONTRACTS”

中华人民共和国国家工商行政管理总局

STATE ADMINISTRATION FOR INDUSTRY AND COMMERCE OF THE PEOPLE'S REPUBLIC OF CHINA

江苏上上电缆集团

JIANGSU SHANGSHANG CABLE GROUP

地址：江苏省溧阳市昆仑经济开发区上上路68号　邮编：213300

总机：(86)519-8730 8866

传真: (86)519-8730 8808/8730 8811

网址: www.shangshang.com

电子邮箱: shangshang@shangshang.com

Add: No.68 Shangshang Road, Kunlun Economy Development Zone,

Liyang City, Jiangsu Province, China　P.C. :213300

Switchboard：(86)519-8730 8866

Fax:(86)519-8730 8808/8730 8811

Website: www.shangshang.com

E-mail: shangshang@shangshang.com