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CNAS
中国认可
国际互认
检测
TESTING
CNAS L6771

No: 2211113

检 验 报 告

TEST REPORT

Copper core crosslinked polyethylene insulated steel strip armored PVC sheath, flame retardant class A power cable

产品名称
Product Name

Henan Huadong Cable Co., LTD

受检单位
Inspected Body

Type test

检验类别
Kind of Test

国家特种电线电缆产品质量检验检测中心(安徽)
National Special Wire and Cable Product Quality Inspection and Testing Center(Anhui)

安徽宇测线缆质检技术有限公司
Anhui Yuce Cable Quality Inspection Technology Co., Ltd.

National Special Wire and Cable Product Quality Inspection Center (Anhui)

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CNAS 中国认可 国际互认 检测 TESTING CNAS L6771

Inspection Report

Type of test	Type test	Report number	2211113
Sample name	Copper core crosslinked polyethylene insulated steel strip armored PVC sheath,flame retardant class A power cable		
Type specifications	ZA-YJV22 8.7/15kV 3×400	Trade marks	/
Name of entrusting organization	Henan Huadong Cable Co.,LTD		
Name of production organization	Henan Huadong Cable Co.,LTD		

The way to sample	Sample delivery	Acceptance status	Normal	Sample arrival date	November 22,2022
Inspection standard	GB/T 12706.2-2020 Power cables with extruded insulation and their accessories for rated voltages from1 kV (Um=1.2 kV) up to 35 kV (Um=40.5 kV)Part 2: Cables for rated voltages from 6 kV(Um=7.2 kV) up to 30 kV(U=36 kV)				
Conclusion	The sample was tested for all items required by the GB/T 12706.2-2020 standard and was tested for conforming to the GB/T 12706.2-2020 standard.				
Remarks	The name and model specification of the sample shall be provided by the Client.				

Principal inspector	Signature date	Xu Deying December 29, 2022	Audit	Signature date	Tian Zhaojun December 29, 2022	Ratification	Signature date	Li Zongyu December 29, 2022

Sample models and specifications	ZA-YJV22 8.7/15kV 3×400	Inspection number	2211113

Serial number	Inspection items	Unit	Standard requirements	Test results			single judge-ment
	Marks of insulation cores of cables to be inspected			Red	Yellow	Green	—
1	Structural dimensions						
1.1	Conductor material		Copper	Copper	Copper	Copper	√
	Number of single conductor		Aminimum of 53	60	60	60	√
1.2	Averaged insulation thickness	mm		4.5	4.5	4.5	—
	Thickness of the thinest point of the insulation	mm	Aminimum of 3.95	4.39	4.38	4.37	√
	Insulation eccentricity $(t_{max}-t_{min})/t_{max}$	%	Amaximum of 15	5	6	6	√
1.3	Metallic screen			Copper belt shielding			—
	Copper strip shielding cover rate	%	Aminimum of 5	15	15	15	√
	Copper belt thickness	mm	Aminimum of 0.09	0.10	0.10	0.10	√
1.4	Averaged thickness of the isolation sleeve			2.3			—
	The thickness of the thinnest point of the isolation sleeve	mm	Aminimum of 1.48	1.95			√
1.5	Metal-clading			Galvanized steel strip			
	Number of plies	layer	2	2			√
	Metal thickness	mm	Aminimum of 0.72	0.80			√
	Metal width	mm		60			—
	Inner steel strip clearance rate	%	Amaximum of 50	45			√
	Outer steel strip clearance rate	%	Amaximum of 50	43			√
1.6	Average thickness of sheath	mm		4.3			—
	Thickness of the thinnest point of the sheath	mm	Aminimum of 2.92	3.98			√
1.7	Outside diameter of cable	mm		93.1			—
2	Finished product cable surface marks						

Note: meaning of "single judgment" symbols: "√" means that the project is qualified, "×" means that the project is not qualified, "—" means that the project does not require judgment.

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Serial number	Inspection items	Unit	Standard requirements	Test results			single judge -ment
2.1	Marks content		There shall be a continuous mark of the manufacturer name, product model and rated voltage	Pass			√
2.2	Marks clarity		The handwriting should be clear and easily legible	Pass			√
2.3	Signature of wipe resistance		Wipe 10 times, still clear	Still clear			√
2.4	Distance between marks	mm	Amaximum of 500	225			√
3	Electric performance						
3.1	Conductor DC resistance (20℃)	Ω /km	Amaximum of 0.0470	0.0452	0.0450	0.0450	√
3.2	Bend test Bending diameter:15(D+d) (1+5%), forward and back bending three times)			Pass	Pass	Pass	√
	Subsequent local discharge tests -Discharge quantity (at 1.73 Uo)		With a sensitivity equal to or better than 5 pC, no detectable discharge is expected	(Sensitivity: 1.5 pC)			
3.3	Tanδ measure (At 95℃ ~100℃ 2kV)		Amaximum of 0.0040	0.0005	0.0005	0.0005	√
3.4	Heating cycle test (20 cycles)						

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Serial number	Inspection items	Unit	Standard requirements	Test results			single judge-ment
	Subsequent local discharge tests		At sensitivity equal or better than 5 pc, no detectable discharge	Pass	Pass	Pass	√
	-Discharge quantity (at 1.73 Uo)			(Sensitivity: 1.5 pC)			
3.5	impulse voltage test (95℃ ~100℃, 95kV, 10 positive and negative polarity)		Don't break through	Not breakdown	Not breakdown	Not breakdown	√
	Subsequent AC voltage test (Room temperature, 30.5kV, 15min)		Don't break through	Not breakdown	Not breakdown	Not breakdown	√
3.6	A 4-h voltage test ($4U_0$)		Don't break through	Not breakdown	Not breakdown	Not breakdown	√
3.7	Semiconductor shielding resistivity（90℃）						
	Before aging						
	--Conductor shield resistivity	Ω•m	Amaximum of 1000	61.27	60.12	60.09	√
	--Resistivity of the insulation shield	Ω•m	Amaximum of 500	6.33	6.37	6.38	√
	Aging test of the finished cable section Post-hoc (100℃, 168h)						
	--Conductor shield resistivity	Ω•m	Amaximum of 1000	113.5	113.5	113.6	√
	--Resistivity of the insulation shield	Ω•m	Amaximum of 500	24.2	24.3	24.8	√
4	Insulation shield stripping force test						
4.1	Before aging						

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Serial number	Inspection items	Unit	Standard requirements	Test results			single judge -ment
	--Divestment force	N	4～45	24-34	24-35	24-36	√
	--Inspection of the insulation surface		There is no damage to the insulation surface, and no semiconductor shielding trace remains on the insulation	Pass	Pass	Pass	√
4.2	After the aging test of the finished cable section (100℃,168h)						
	--Divestment force	N	4-45	20-29	20-29	22-29	√
	--Inspection of the insulation surface		There is no damage to the insulation surface, and no semiconductor shielding trace remains on the insulation	Pass	Pass	Pass	√
5	Physical and mechanical properties of insulation						
5.1	Tensile strength before aging	N/mm^2	Aminimum of 12.5	20.7	21.2	20.4	√
	Elongation at break before aging	%	Aminimum of 200	580	590	580	√
5.2	Aging test of the air oven (135℃,168h)						
	Rate of change in tensile strength before and after aging	%	Amaximum of ± 25	-7	-8	-5	√
	Rate of change of elongation at break before and after aging	%	Amaximum of ± 25	-12	-14	-10	√
5.3	Aging test of the finished cable section (100℃,168h)						

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Sample models and specifications	ZA-YJV22 8.7/15kV 3×400	Inspection number	2211113

Serial number	Inspection items	Unit	Standard requirements	Test results			single judge -ment
	Rate of change in tensile strength before and after aging	%	Amaximum of ± 25	-10	-11	-7	√
	Rate of change of elongation at break before and after aging	%	Amaximum of ± 25	-7	-8	-5	√
5.4	Thermal extension test (200℃, 20N / cm^2)						
	--Elongation rate under the load	%	Amaximum of 175	55	65	55	√
	--Permanent elongation rate after cooling	%	Amaximum of 15	0	0	0	√
5.5	Shrink test (130℃, 1h)						
	--Contraction percentage	%	Amaximum of 4	0	0	0	√
5.6	Insulation water absorption test (85℃,336h)						
	--Weight gain	mg/cm^2	Amaximum of 1	0.10	0.12	0.12	√
6	Physical and mechanical properties of the sheath						
6.1	--Tensile strength before aging	N/mm^2	Aminimum of 12.5		16.5		√
	--Elongation at break before aging	%	Aminimum of 150		300		√
6.2	Aging test of the air oven (100℃,168h)						
	--Tensile strength after aging	N/mm^2	Aminimum of 12.5		15.2		√
	--Elongation at break after aging	%	Aminimum of 150		280		√
	--Rate of change of tensile strength before and after aging	%	Amaximum of ± 25		-8		√
	--Rate of change of elongation at break before and after aging	%	Amaximum of ± 25		-7		√

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Sample models and specifications	ZA-YJV22 8.7/15kV 3×400	Inspection number	2211113

Serial number	Inspection items	Unit	Standard requirements	Test results	single judge -ment
6.3	Aging test of the finished cable section (100℃,168h)				
	--Rate of change of tensile strength before and after aging	%	A maximum of ± 25	-5	√
	--Rate of change of elongation at break before and after aging	%	A maximum of ± 25	-10	√
6.4	Zero-G test（100℃，168h ）				
	--Loss of weight	mg/cm^2	Amaximum of 1.5	0.49	√
6.5	High temperature pressure test (90℃，6h)				
	--Indentation depth / average thickness	%	Amaximum of 50	36	√
6.6	Thermo-shock test （150℃，1h ）		Flawless	Flawless	√
6.7	Low-temperature tensile test (-15℃)				
	--Elongation	%	Aminimum of 20	80	√
6.8	Low-temperature shock test of finished cable (-15℃)		Flawless	Flawless	√
7	Combustion test performance				
7.1	The distance between the lower edge of the upper support and the starting point of the carbonized part of the single vertical combustion test	mm	More than 50	352	√
	The combustion extends downward to the distance from the lower edge of the bracket	mm	Not greater than 540	493	√
	Burn drops		Do not ignite filter paper	Not ignited	√

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Serial number	Inspection items	Unit	Standard requirements	Test results	single judge -ment
7.2	Bam-forming cable combustion test (A class) --The height of the carbonized part reached	m	Amaximum of 2.5	1.06	√
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