THE OKONITE COMPANY
Ramsey, New Jersey 07446

ROCKWELL/AUTOMATION

SINGLE CONDUCTOR NON-SHIELDED POWER CABLE
RATED 5kV, 8kV and 15kV

SCOPE:

This specification covers single conductor non shielded power cable insulated with an ozone and discharge resistant, flexible, rubber-like thermosetting dielectric. This cable construction is intended for use where shields cannot be grounded or where space is inadequate for stress cone type termination.

The application is for factory installed wiring in equipment, dry locations only.

The cable shall be rated 90°C for normal operation, 130°C for emergency over-load operation and 250°C for short circuit conditions.

Medium voltage non-shielded cables discharge normally in service. Cables are to be installed with adequate separation between conductors and all other grounded surfaces.

OPERATING EXPERIENCE:

The medium voltage insulation system shall have a performance record demonstrating a minimum of (40) years successful operating experience in utility and industrial power cable applications.

BASIC CONSTRUCTION:

1/C Class B stranded uncoated compressed round copper conductor, extruded semiconducting ethylene-propylene rubber strand screen - insulation - and a thermoset chlorosolfunated polyethylene jacket overall or chlorinated polyethylene.

INDUSTRY STANDARDS:

Cable shall meet or exceed the latest editions of the following industry specifications:

ICEA S-96-659/NEMA-WC71 **UL-2460 (5 and 8kV Only)**
ASTM B8

1.0 CONDUCTOR

1.1 Uncoated soft copper, Class B, stranded, compressed concentric round. Copper per ASTM B-8. Note compact round conductors are not acceptable.

1.2 Conductors shall meet the electrical resistance requirements of ICEA.

2.0 CONDUCTOR SCREEN

2.1 Extruded layer of semiconducting EPR thermosetting compound with a volume resistivity not in excess of 10 ohm meters at 90EC shall be applied over the conductor. The compound shall have a minimum elongation after an air oven test at 121°C for 168 hours of 100% and a brittleness temperature not warmer than -50°C.

2.2 The screen shall be clean stripping from the conductor and inseparably bonded to the overlying insulation.

3.0 INSULATION

3.1 The insulation shall be a red colored flexible thermosetting dielectric based ethylene-propylene elastomer. It shall meet the electrical and physical characteristics shown in Appendix A. The ethylene content of the elastomer used in the insulation compound shall not exceed 72% by weight of ethylene nor shall the insulation compound contain any polyethylene, both features to limit the degree of susceptibility to treeing experienced by highly crystalline materials. The insulation shall be formulated and compounded by the cable manufacturer in its own facility using a closed system to insure maximum cleanliness. All ingredients will be mixed, screened and then treated with the accelerator or cross linking agent in one operation. This procedure will insure complete blending and uniformity of the final compound.

3.2 See Table I for cable sizes.

3.3 The insulation shall be triple-tandem extruded with the conductor screen and the jacket to prevent interface contamination. The extrusion operation shall be performed by three separate in line extruder heads thereby permitting the measurement and accurate control of the diameter of each layer of compound as the cable is being manufactured.

TABLE I

Conductor Size	Minimum Average Thickness		Voltage Withstand 6 hr water tank test 5 min.
AWG/kcmil	Insulation	Jacket	ac
	5 kV Voltage Rating		
8 - 2/0	125	80	25
3/0 - 4/0	125	95	25
213 - 500	140	110	28
501 - 1000	155	125	31
	8 kV Voltage Rating		
8 - 6	180	80	36
4 - 2/0	180	95	36
3/0 - 4/0	180	110	36
213 - 500	210	110	42
501 - 750	235	125	47
751 - 1000	250	140	50
	15 kV Voltage Rating		
#2	215	95	43
4/0	215	65	43
350	220	110	44

4.0 JACKET

4.1 The overall jacket shall be a thermosetting chlorosulfonated polyethylene (CSPE) or chlorinated polyethylene compound meeting the physical requirements as shown in Appendix B and C. The jacket shall be firmly bonded to the underlying insulation.

4.2 The jacket shall be surface printed as follows:

Okonite (A)(B) Cu 90C Dry locations only
Nonshielded (C) (Yr) (Seq #)

A = Plant number
B = Conductor Size,awg/kcmil
C = 5kV, 8kV, or 15kV

5.0 QUALITY ASSURANCE

The Non-Shielded Cable shall be manufactured and tested under the control of a Quality Assurance program which meets the requirements of Section 10CFR50, Appendix B, of the Federal Register as defined in ANSI N45.2.

The Quality Assurance program shall demonstrate compliance with the above referenced criteria by having passed yearly quality audits conducted by outside independent organizations.

6.0 QUALIFICATION TESTS

6.1 Single conductor 5kV non-shielded power cables sizes 1/0 AWG and larger shall also meet the vertical tray flame test requirements of IEEE 383-1974.

6.2 Single conductor non-shielded cables shall comply with UL 1072 Paragraph 49, U-Bend Discharge Test, for dry location cable.

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