

**AEIC CS8:** Specification for extruded dielectric shielded power cables rated 5 through 46kV

**AIA:** Aluminum Interlock Armor

**aluminum:** A silvery white, soft, ductile metal, with low density and with ability to resist corrosion

**American Society for Testing and Materials (ASTM):** A non-profit industry-wide organization which publishes standards, methods of test, recommended practices, definitions and other related material

**American Wire Gauge (AWG):** A standardized wire gauge system for the diameters of round, solid, nonferrous, electrically conducting wire

**Amp:** See "ampere"

**ampere (Amp):** A measure of the amount of electric charge passing a point in an electric circuit per unit time

**ASTM:** See "American Society for Testing and Materials"

**ASTM B231:** A standard specification for concentric lay stranded aluminum 1,350 conductors

**ASTM B33:** A standard specification for tin-coated soft or annealed copper wire for electrical purposes

**ASTM B3:** A standard specification for soft or annealed copper wire

**ASTM B787:** A standard specification for 19 wire combination unilay stranded copper conductors for subsequent insulation

**ASTM B800:** A standard specification for 8000 series aluminum wire for electrical purposes, annealed and intermediate tempers

**ASTM B801:** A standard specification for concentric lay stranded conductors of 8000 series aluminum alloy for subsequent covering or insulation

**ASTM B8:** A standard specification for concentric-lay stranded copper conductors, hard, medium-hard or soft

**AWG:** See "American Wire Gauge"

**cable:** Two or more wires running side by side and bonded, twisted or braided together to form a single assembly

**certified test report (CTR):** A report providing actual test data on a cable; tests are normally run by a Quality Control Department, which shows that the product being shipped conforms to test specifications

**color code:** A color system for circuit identification by use of solid colors, contrasting stripes, tracers, braids, surface marking, etc.

**compound:** A term used to designate an insulating or jacketing material made by mixing two or more ingredients

**conductor:** A material which contains movable electric charges; in metallic conductors such as copper or aluminum, the movable charged particles are electrons

**control cable:** A multi conductor cable designed to operate in industrial power or station control circuits

**copper:** A ductile metal with very high thermal and electrical conductivity

**cross linked:** A term for intermolecular bonds that link one polymer chain to another; cross links can be formed by chemical reactions that are initiated by heat, pressure, change in pH, or radiation

**CSA FT4:** Flame test rating per the Canadian Standards Association. Similar to the UL-1685 Vertical Tray Flame Test, but more severe

**CTR:** See "certified test report"

**CTS:** Copper tape shield

**dielectric:** An insulating material that prevents electrostatic attraction and repulsion between electrical conductors

**DIR BUR:** see "direct burial"

**direct burial:** A cable suited for installation directly in the ground without the need of conduit; cable that passed the crushing tests per UL

**drain wire:** An uninsulated wire that can be bare or tinned copper, which is in contact with an electrostatic shield throughout its length

**EPR:** A mixture of ethylene propylene base resin and selected ingredients

**filler:** A material used between multi-conductor cables to occupy large interstices and obtain a circular cross section

**flame resistant:** A material designed to inhibit or resist the spread of fire

**gauge:** A term for specifying the thickness (diameter) of a cable

**I.L.:** see "insulation level"

**ICEA:** See " Insulated Cable Engineers Association"

**ICEA S-58-679:** Standard for control, instrumentation and thermocouple extension conductor identification

**ICEA S-73-532:** A standard specification for control, thermocouple extension, and instrumentation cables

**ICEA S-82-552:** A standard specification for instrumentation cables and thermocouple wire

**ICEA S-93-639:** A standard for 5 through 46 kV shielded power cables for use in the transmission and distribution of electric energy

**ICEA S-94-649:** A standard for concentric neutral cables rated 5 through 46 kV

**ICEA S-95-658:** A standard specification for power cables rated 2,000 volts or less for the distribution of electrical energy

**ICEA S-97-682:** A standard for utility shielded power cables rated 5 through 46 kV

**ICEA T-29-520:** A standard specification for vertical cable tray flame tests at 210,000 BTU

**IEEE 1202:** Standard for flame testing of cables for use in cable tray

**IEEE 383:** A standard specification for type test of Class 1E electrical cables, field splices and connections for nuclear power generation stations

**IEEE:** See "Institute of Electrical and Electronics Engineers"

**Institute of Electrical and Electronics Engineers (IEEE):** One of the world's largest technical professional societies; a leading authority on areas ranging from aerospace, computers and telecommunications to biomedicine, electric power and consumer electronics

**instrumentation cable:** A cable designed to operate in control systems, audio, intercom, alarm circuits and energy management

**Insulated Cable Engineers Association (ICEA):** A professional organization dedicated to developing cable standards for the electric power, control and telecommunications industries

**insulation:** A material that does not respond to an electric field and completely resists the flow of electric charge

**Insulation level:** A thickness rating for power cable insulation. Circuits having fault detectors that interrupt fault currents within one minute are rated 100% level, within one hour are rated 133% level and over one hour are rated 173% level

**International Organization for Standardization (ISO):** A voluntary, non-treaty organization chartered by the United Nations to define international standards

**IS/OS:** Individually shielded and overall shielded; typically used in instrumentation cables with pair or triad configurations

**ISO:** See "International Organization for Standardization"

**ITC:** Instrumentation tray cable; per UL 2250

**jacket:** The protective and insulating outer sheath of a cable

**laminated shield:** A tape with a combination of two or more layers of different materials bonded together

**Linear low-density polyethylene:** A thermoplastic compound used for jacketing. It has high tensile strength and high impact and puncture resistance, it is very flexible and elongates under stress.

**LLDPE:** see "Linear low-density polyethylene"

## Glossary of Terms

**maximum conductor temperature - continuous operation:** The highest conductor temperature attained by any part of the cable under operating current load

**maximum conductor temperature - emergency overload:** The highest conductor temperature attained by any part of the cable during emergency overload of specified time, magnitude and frequency of application

**maximum conductor temperature - short circuit:** The highest conductor temperature attained by any part of the cable during a short circuit of specified time and magnitude

**MIL:** A unit used in measuring diameter of a wire or thickness over a conductor; 1/1,000 of an inch or 0.001"

**MV-105:** Medium voltages cables rated at 105°C, meeting UL 1072 requirements

**MV-90:** Medium voltages cables rated at 90°C, meeting UL 1072 requirements

**MV:** Medium Voltage cables, rated at 5kV through 15kV

**National Electrical Code (NEC):**

A nationally recognized safety standard for the design, construction and maintenance of electrical circuits

**National Electrical Manufacturers Association (NEMA):** A trade association that develops and promotes positions on standards and government regulations

**NEC:** See "National Electrical Code"

**NEMA:** See "National Electrical Manufacturers Association"

**NPLF:** Non-Power Limited Fire alarm circuit cable

**nylon:** A synthetic polymer, thermoplastic, silky material; nylon is available in glass-filled variants which increase structural and impact strength and rigidity, and molybdenum sulfide-filled variants which increase lubricity

**Occupational Safety and Health**

**Administration (OSHA):** The main federal agency charged with the enforcement of safety and health legislation

**Ohm:** The practical unit of resistance; the resistance that will allow one ampere of current to pass at the electrical potential of one volt

**OSHA:** See "Occupational Safety and Health Administration"

**pair:** Two insulated wires twisted together forming a single circuit

**PE:** See "polyethylene"

**PLTC:** Power Limited Tray cable; per UL 13

**Polyethylene (PE):** A thermoplastic compound used for insulation and jacketing

**Polyvinyl chloride (PVC):** A thermoplastic compound used on Low Voltage conductors for insulation and jacketing

**power cables:** Cables which are used for the transmission and distribution of electrical energy for normal conditions of installation and service, either indoors, outdoors, aerial, underground, or submarine

**PVC:** See "Polyvinyl chloride"

**RFH-2:** NEC type letters for thermoset insulation (XLPE) fixture wire rated 600V in 75°C dry locations. Covers 18 AWG and 16 AWG

**rip cord:** A cord placed directly under the jacket of a cable in order to facilitate stripping (removal) of the jacket

**RoHS (Restriction of Hazardous Substances)**

**Directive:** A European Union directive that restricts the use of certain hazardous substances in new electrical and electronic equipment

**RoHS-compliant/RoHS 2-compliant:** Describes an electrical or electronic component that complies with the RoHS Directive

**sunlight resistant:** An optional UL listing that may be obtained for an insulation or jacket compound involving exposure to direct rays of the sun; a cable that passes the UL testing of exposure to 720 hours using carbon-arc or xenon-arc

**TC-ER:** Tray Cable, Exposed Run; a finished cable that passed the UL impact tests

**TC:** See "tray cable"

**temperature rating:** The maximum temperature at which the insulating material may be used in continuous operation without loss of its basic properties

**TFN:** Thermoplastic insulation (PVC), fixture wire, 90°C rating dry locations, nylon jacket

**thermoplastic:** A polymer (such as PE or PVC) that turns to a liquid when heated and freezes to a very glassy state when cooled sufficiently

**thermoset:** A polymer material (such as XLPE) that irreversibly cures; the cure may be done through heat (generally above 200°C), through a chemical reaction (e.g., two-part epoxy) or irradiation (such as electron beam processing)

**THHN:** Term for a cable with the following properties: thermoplastic insulation (PVC), high heat resistant, 90°C rating, suitable for wet or dry locations and nylon jacket

**THWN:** Term for a cable with the following properties: thermoplastic insulation (PVC), high heat resistant, 75°C rating, suitable for wet locations and a nylon Jacket

**tinned copper:** Tin coating added to copper to aid in soldering and inhibit corrosion

**tray cable (TC):** Used as an alternative to open wiring or electrical conduit systems; commonly used for cable management in commercial and industrial construction

**treeing:** An electrical pre-breakdown phenomenon which causes insulation damage by progressing through a dielectric section under electrical stress so that, if visible, appears something like a tree without leaves

**triad:** Three insulated wires twisted together forming a single circuit

**Type MC:** Metal-Clad, cables that pass the UL 1569 requirements

**UD:** Underground distribution, cables for underground primary power applications

**UL 1072:** A standard specification for Medium-Voltage Power Cables

**UL 1277:** A standard specification for electrical power and control tray cables with optional optical fiber members

**UL 13:** A standard specification for power-limited circuit cables

**UL 1569:** A standard specification for Metal-Clad Cables

**UL 1685:** Vertical-tray fire propagation and smoke-release for electrical and optical-fiber cables

**UL 2250:** A standard specification for instrumentation tray cables

**UL 44:** A standard specification for rubber-insulated wires and cables

**UL 66:** A standard specification for flexible cord and fixture wire

**UL 83:** A standard specification for thermoplastic-insulated wires and cables

**UL:** See "Underwriters Laboratories"

**Underwriters Laboratories (UL):** A privately owned company that charges manufacturers a fee to make sure their products meet various safety standards, some of which UL itself develops

**V:** See "volt"

**volt (V):** The unit of measurement of electrical force; voltage is always expressed as the potential difference in available energy between two points; one volt is the force required to produce a current of one ampere through a resistance or impedance of one Ohm

**wire:** A bare or insulated conductor

**wire drawing:** A process used to reduce the cross-section of a wire by pulling the wire through a single or series of drawing dies

**XHHW-2:** Term for a cable with the following properties: cross linked polyethylene insulation (XLPE), high heat-resistant, 90°C rating and suitable for wet and dry locations

**XLPE:** The term used for cross-linked polyethylene insulation; a popular polymeric type of insulation with outstanding electrical, moisture and physical properties