

SBEE CABLES (INDIA) LIMITED

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CABLE GLOSSARY

| A | B |
|--|--|
| <p>Ampacity: Current carrying capacity of a cable is known as its ampacity.</p> <p>This property is unique for each wire/ cable & is influenced by</p> <ul style="list-style-type: none"> • Conductor material, number of conductors & cross- sectional area • Thermal conductivity & Thickness of insulation • Ambient temperature • Ability of construction to dissipate heat after installation <p>Armouring (Or Armour): A metal covering usually applied in the form of tape or wire, intended to protect a cable from mechanical damage.</p> | <p>Bobbins: Metal spools used for taking up drawn wire and subsequently used for payoff packages in cabling and stranding equipment</p> <p>Braid : A fibrous or metallic group of filaments interwoven in cylindrical form to form a covering over one or more wires.</p> <p>Braider: a machine used to apply a woven fibrous or metallic braid over a cable.</p> <p>Braiding: The plaited protective covering of a cable.</p> <p>Barrier Joint: A cable joint between two mass-impregnated cables in which the impregnating compound in each cable is separated from that in the other.</p> <p>Bedding (of an armoured cable): A layer or layers of material applied to a cable beneath the armour.</p> <p>Bunched Stranding : A term applied to a number of wires twisted together in one direction in one operation without any regard to their geometric arrangement.</p> |
| C | D |
| <p>Cable: An assembly of one or more conductors, either solid or stranded, each covered with a layer of insulating material throughout its length, the whole being provided with a common protective covering.</p> <p>Cable Filler : A material used in a multiple-core conductor cable to occupy space and thus round up the cable, sometimes used to accomplish conductor spacing.</p> <p>Cable Terminal Box: A box fitted at the end of a cable in order to facilitate the connection, and sometimes the quick disconnection of other conductors.</p> | <p>Direction of Lay: Defined as "right-hand" or "Left-hand" these terms have the same meaning as specified for screw threads. It is said to be "right-handed" if, when assembled with a fixed mating thread and twisted in a clockwise direction, it moves away from the operator; and "left-handed" if, when assembled with a fixed mating thread and twisted in a clockwise direction, it approaches the operator. The right-hand lay is also know as Z-lay and left hand lay as S-Lay.</p> <p>Distributor: The portion of any underground cable with which a service line is, or is intended to be, immediately connected.</p> <p>Dividing Box: A box fitted to one end of a two,</p> |

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Calculated Effective Sectional Area: The area of a solid conductor of the same resistivity and having the same resistance as that of any equal length of the conductor. In the case of a split conductor cable, the calculated effective area is the sum of the cross sections of each of the two or more sections into which the conductor is divided.

Compacting : Compact stranding, are conductor constructions that can add little more ampacity into a tight space.

Conductor: A body or substance, which offers a low resistance to the passage of an electric current.

Continuous Vulcanisation (CV) : A continuous, in-line process whereby a wire has an extruded covering applied, is then passed through a tube containing such temperature and pressures as are necessary to complete vulcanisation.

Control Cable : A multi-conductor cable made for operating in control or signal circuits, usually flexible, relatively small in size, and with relatively small current rating.

Core: Assembly comprising a conductor and its own insulation.

Corona Discharge: A phenomenon called corona discharge may occur in high voltage transmission line, resulting in formation of ozone, a highly reactive form of oxygen, and in ionisation of oxygen in the surrounding air. The insulation may be attacked by ozone and by corona

Corona partial discharge may also occur in a void within insulation system where the voltage gradient is sufficiently high.

Cross-Sectional Area: The sum of the cross-sectional area of the component wires of the conductor of a cable, the cross sectional area of each wire being measured perpendicular to

three, four core or multicore cable for termination.

Dielectric : A material with good electric insulating characteristics, insulating medium.

Dielectric Constant : A term used to define the degree of insulating characteristics possessed by a dielectric.

Typical Values of Dielectric Constant

| Material | Dielectric Constant |
|----------|---------------------|
| PVC | 3.4 - 8.0 |
| EPR | 2.5 - 3.5 |
| PE | 2.5 - 2.6 |
| XLPE | 2.3 - 6.0 |

Drain wires : A number of small gauge bare wires applied concentrically about the insulation shield of a high voltage cable for the purpose of a fault current return path.

Drawing : The process of reducing a cylindrical rod or wire to a desired diameter by pulling the wire through a die or series of dies thus stretching the wire.

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| <p>its individual axis.</p> <p>Current Carrying Capacity: The current a conductor of a given size is capable of carrying safely without exceeding its own temperature limitations, at a defined set of conditions.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-------|------|----|--|--------|----|----|--------------------------------|--------|-----|-----|------------------------|-----|------|------|------------------|---|-----|-----|------------------|---|------|------|---|
| E | F | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>EPR : Ethylene Propylene Rubber</p> <p>Extrusion : The application of a semi-solid plastic or rubber material by forcing it on a wire passing through the extruder in a continuous fashion.</p> | <p>Feeder: A line, which supplies a point of distribution network without being tapped at any intermediate point.</p> <p>Fillers (of a cable): The material used to fill the interstices between the cores of a two-, three- four-core or multicore cable.</p> <p>Fully-impregnated Insulation: Mass-impregnated insulation where no attempt has been made to remove free compound after impregnation.</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| G | I | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Galvanisation : A coating of some metal part (usually steel or iron) with zinc by dipping or electroplating.</p> | <p>Insulation : A non-conductive material usually surrounding or separating two or more conductive materials.</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| J | L | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Jacket : A covering put around an insulated conductor for the purpose of protection and/or resistance.</p> <p>Properties of Jacketing Material</p> <table border="1" data-bbox="167 1367 794 1707"> <thead> <tr> <th></th> <th>Units</th> <th>PVC</th> <th>PE</th> </tr> </thead> <tbody> <tr> <td>Continuous Service Temperature of conductors</td> <td>deg. C</td> <td>70</td> <td>75</td> </tr> <tr> <td>Installation Temperature (min)</td> <td>deg. C</td> <td>-10</td> <td>-40</td> </tr> <tr> <td>Tensile Strength (min)</td> <td>PSI</td> <td>1500</td> <td>1400</td> </tr> <tr> <td>Elongation (min)</td> <td>%</td> <td>100</td> <td>350</td> </tr> <tr> <td>Specific Gravity</td> <td>-</td> <td>1.43</td> <td>0.93</td> </tr> </tbody> </table> <p>Joint Box: A box to protect the insulation of a cable from air or moisture at a cable joint.</p> | | Units | PVC | PE | Continuous Service Temperature of conductors | deg. C | 70 | 75 | Installation Temperature (min) | deg. C | -10 | -40 | Tensile Strength (min) | PSI | 1500 | 1400 | Elongation (min) | % | 100 | 350 | Specific Gravity | - | 1.43 | 0.93 | <p>Lay : The distance taken to complete one revolution of helically laid strand of wire around a central core.</p> <p>Lay Direction : A simple means of determining the direction of lay is that- when looking along a strand, the individual wires disappear in the forward direction to the left, the strand is said to left handed and if to the right, right handed.</p> <p>Lay Ratio: The ratio of the axial length of complete turn of the helix formed by the core of a cable or the wire of a stranded conductor, to the mean diameter of the helix.</p> <p>Length of lay(LAY): The axial length of one complete turn of the helix formed by the core in the case of a cable, or of the wire in the case of a stranded conductor.</p> |
| | Units | PVC | PE | | | | | | | | | | | | | | | | | | | | | | |
| Continuous Service Temperature of conductors | deg. C | 70 | 75 | | | | | | | | | | | | | | | | | | | | | | |
| Installation Temperature (min) | deg. C | -10 | -40 | | | | | | | | | | | | | | | | | | | | | | |
| Tensile Strength (min) | PSI | 1500 | 1400 | | | | | | | | | | | | | | | | | | | | | | |
| Elongation (min) | % | 100 | 350 | | | | | | | | | | | | | | | | | | | | | | |
| Specific Gravity | - | 1.43 | 0.93 | | | | | | | | | | | | | | | | | | | | | | |

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| M | N |
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| <p>Mass-impregnated and Drained Insulation: Mass-impregnated insulation from which free impregnation compound is removed by draining at a temperature in excess of the maximum working temperature.</p> <p>Mass-impregnated Insulation: Insulation in which the paper tapes are applied un-impregnated, the complete insulation being subsequently dried and impregnated with compound as a whole.</p> <p>Mass-impregnated Non-Draining Insulation- Insulation in which the impregnating compound has a sufficiently high viscosity at maximum working temperature to preclude migration of compound or the draining of compound under service conditions.</p> <p>Mean Diameter of a wire: The mean of two measurements taken at right angles at the same cross sections.</p> <p>Mains, Underground: All underground cables used for the transmission and distribution of electrical energy and includes feeders, distributors and pilot cables.</p> <p>Messenger : A bare cable used for its strength characteristics to support power conductors and insulated power cables. A messenger can be used as a conductor, partial conductor, or non-conductor.</p> <p>Milliken conductors : With alternating current there is a tendency for more of the current to be carried on the outside of the conductor than in the centre (skin effect), and to overcome this problem the larger sizes of conductor are frequently of Milliken construction. Such conductors are formed from several individual sector shapes (usually four for power cables). A thin paper or other suitable insulation is applied over alternate sectors. There is insufficient economic advantage to use this construction below 1000 mm²</p> | <p>Neutral Conductor : In multiphase circuits the conductor used to carry unbalanced current and in single phase systems the conductor used for a return current path.</p> |

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| <p>but Milliken design may also be used to obtain increased conductor flexibility.</p> | |
| <p>O</p> | <p>P</p> |
| <p>Oxygen Index : It is the minimum of oxygen in an oxygen -nitrogen mixture in which the material will burn (air contains 21 % oxygen) .</p> <p>In the oxygen index test, temperature is approximately maintained at room temperature.</p> <p>In actual practice during fire the extent of burning may be significantly influenced by the actual temperature involved. In order to overcome this, the oxygen index is measured over a range of temperature. From the results, a temperature index is obtained by extrapolation. As the relationship is non-linear, extrapolation results are not accurate.</p> <p>A more valid method is maintaining the oxygen concentration at 21% and varying the temperature, the temperature index being recorded as the minimum temperature at which a material will support combustion following its burning.</p> | <p>Pay-off : The process of feeding a cable or wire from a bobbin, reel, or other packages. Also a device used for paying out wire or cable into a piece of equipment or machinery.</p> <p>Pitch Circle Diameter : The diameter of a circle passing through the centre of the conductors in any layer of a multi-conductor cable.</p> <p>Proofed Tape : A tape applied to the insulation of rubber insulated cables and composed of cotton cloth coated with the rubber compound.</p> <p>Polyvinyl Chloride (PVC) Sheathing: A sheathing of PVC compound Used on an insulated cable or flexible cord to form an outer protective covering so as to make the cable or cord reasonably resistant to decay, mechanical abrasion, acids, alkalies and other corrosive materials.</p> |
| <p>R</p> | <p>S</p> |
| <p>Resistance : The property of an electric circuit which determines, for a given current, the rate at which electric energy is converted into heat and has a value such that the current squared, multiplied by the resistance gives the power</p> <p>Rated Voltage : The voltage at which the cable is designed to operate. In the case of ac system, the rated voltage means the voltage between phases.</p> <p>Reinforcement (Against Internal Pressure): A covering consisting of metal tapes or strips or wires used to enable the cable to withstand internal pressure.</p> | <p>Sealing, End (Sealing Box or Sealing Chamber) A box fitted to one end of a single core cable to protect its insulation from air or moisture at the point where connection is made with another conductor.</p> <p>Service Line : A line connecting the consumer's installation to the distributor.</p> <p>Service of an armoured or metal sheathed cable: A layer or layers of material applied as a final covering to the outside of a cable to protect it.</p> <p>Sheath (of a Cable) : A uniform and continuous covering used to protect the insulation, especially against moisture, or to protect an inner metallic sheath or armour against corrosion.</p> <p>Stop Joint: A cable joint between two pressure cables in which the fluid in each cable is separated from that in the other cable by pressured</p> |

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| | <p>resisting barrier.</p> <p>Straight through joint: A cable joint connecting two cable together end to end.</p> <p>Short Circuit Rating : It is required to determine cross sectional areas of conductor and screen in respect of short circuit current</p> |
| T | W |
| <p>Tee-Joint: A cable where a branch connection is made to a main cable.</p> <p>Tough Rubber Sheathing: A sheathing used on an insulated cable to form an outer protective covering of tough rubber. It is composed of rubber mixed with hardening substances and suitably vulcanized to make it waterproof and reasonably resistant to decay, mechanical abrasion, acids, alkalies and other corrosive materials.</p> <p>Trifurcating Joint: A box connecting a three core cable to three single core cables.</p> <p>Temperature Index: Temperature index is the temperature at which oxygen index becomes 21.</p> | <p>Waterproof Servicing: A layer or waterproof material applied to the exterior of an armoured or lead sheathed cable.</p> <p>Wire: Composed of a conducting material, uniform in diameter and circular in cross section.</p> |