

## LV Cables

Cable Engineering comprises of the art and science of selection of a suitable conductor, correct material and method for insulation for sheathing and for mechanical and anti-corrosive protection and finally, extension of design and manufacturing range to cover special field applications.

We have Quality Assurance System certified to ISO:2000-9001. Well defined and documented procedures cover all the stages of manufacturing, right from procuring of raw materials till dispatch of finished products.

Quality checks have been built into the system. Dimensions and Properties are closely monitored and checked at each processing stage as stipulated vide relevant Quality Assurance Plan. Only those products with "OK" status are taken to subsequent process stage. Product with "NOT OK" status are dealt with as per "non conformity handling system".

### 1) Incoming Raw Materials:

Cable comprises of diverse raw materials like electrical grade Copper / Aluminium, XLPE compound, various tapes, steel wires, PVC Compound ingredients etc.

Based on International specifications, customer stipulations and our long experience in the field of Cable Manufacturing, we have designed "Material Specifications" covering all the raw materials. We observe a stringent "Supplier Evaluation and Approval" procedure. Only approved raw materials are purchased from approved suppliers.

Raw materials thus procured are subjected to incoming inspection / tests and scrutiny of supplier's test certificate in line with Quality Assurance Plan(s).

### 2) Wire drawing process:

Aluminium rods are purchased from the market while we have our own copper rod manufacturing plant.

Copper / Aluminium rods of standard diameter are drawn down to requisite diameters.

Depending on conductor type, this may be multi stage process viz. rod break down followed by intermediate drawing followed by fine wire drawing.

### 3) Conductor making process:

Depending on type of cable, conductor can be either Solid circular, Circular stranded (non compacted), Circular Stranded (compacted), Stranded Sector shaped (120/°90°) or Flexible / Extra Flexible.

Wires thus drawn are stranded together in concentric layers / bunched / compacted / shaped to form conductor.

### 4) Insulation:

PVC/XLPE Insulation is applied over conductor through extrusion process. Core identification is done either by colouring of insulation, skin colouring or by printing numbers.

### **5) Compounding:**

We formulate our own recipes of various types of PVC compounds necessary. The plant is fully computerized and automatically monitors quantities / mixing of necessary Ingredients.

### **6) Core Stranding:** (multi core cables)

Required number (4/3/2...) of such cores are stranded together to form a cable assembly.

If necessary to achieve circularity, fillers are provided in central / peripheral interstices as required.

### **7) Inner Sheathing:**

A common covering is applied over stranded cores as above, either by extrusion of PVC Sheath or by lapping of plastic tape(s).

### **8) Armouring:**

Mechanical protection is provided by providing Galvanized Round Steel Wires (SWA). Alternatively, steel tapes may be given (optional)

### **9) Outer Sheathing:**

Over the armour, a PVC outer sheath is extruded. This is normally of black in colour which has best ultra violet resistance properties. Alternatively, other colours may be given as necessary.

Outer sheathing with special properties may also be given as per Customer's requirements.

### **10) Final Testing:**

Routine Tests, Type tests, Acceptance Tests and Optional Tests (if any) are carried out so as to ensure integrity of manufactured cables.

Test certificates are issued as contractually agreed.

### **11) Packing:**

Drums containing cables are packed to obviate possibility of damage during transportation.

### **12) Dispatch:**

Drums duly packed are sent to respective sites as contractually agreed.

