

# STUDY OF TOOLS & ACCESSORIES

# Tools

## 1) Screw Driver



- ✓ used for tightening or loosening the screw
- ✓ three parts; handle, blade and working edge
- ✓ working edge is tempered
- ✓ size is specified based on its blade length (in mm/inch) – 2" to 12"

## 2) Ball Peen Hammer



- ✓ size of the hammer is indicated by its weight (0.12kg, 0.25kg, 0.50kg, 0.75kg, 1kg etc.)
- ✓ ball peen hammer is mainly used in electrical trades
- ✓ three parts: wooden handle, face and ball

## 3) Side Cutting Plier



- ✓ size is given according to its length (in mm/inch) – 150mm, 200mm etc.
- ✓ has a cutter on its side
- ✓ used for cutting wires and nipping the insulation from the wire

## 4) Electrician's Knife



- ✓ used for removing the insulation from the wire
- ✓ two folding blades → for removing and cleaning the wire
- ✓ size is measured by the length of the cutting blade (50mm)

## 5) Hack Saw



- ✓ used for cutting conduit pipes, GI pipes, and small pieces of iron
- ✓ two types → fixed and adjustable
- ✓ in adjustable hack saw, different length of blades can be used
- ✓ main parts → frame, blade, handle and fly nut
- ✓ size is indicated by the length of the blade (200mm, 250mm, 300mm)

## 6) Bradawl Square Pointed Pocker



- ✓ long sharp tool
- ✓ two main parts → wooden handle and pointed square blade
- ✓ size is indicated by mentioning the size of the blade (150mm x 6mm)
- ✓ used for making pilot holes in wood before fixing and tightening of screws

## 7) Pincer



- ✓ used for removing nails from the wood
- ✓ two parts → jaw and leg
- ✓ size is measured by the overall length (100mm, 150mm, 200mm etc)

## 8) Spanner Set



- ✓ used for loosening and tightening nuts and bolts
- ✓ made of cast steel
- ✓ size is indicated so as to fit on the nuts (10-11 mm, 12-13 mm, 20-22mm)
- ✓ adjustable spanner is also available

## 9) Nose Plier



- ✓ used for holding work
- ✓ two types → flat and round
- ✓ flat is used for holding flat objects like hexagonal nuts etc.
- ✓ round is used for making hooks and loops of thin wires
- ✓ size depends upon the length (100mm, 150mm, 200mm)

# Lighting Accessories

## 1) Conduit



- ✓ used for making electrical piping system to protect and route the wiring
- ✓ made up of plastic, metal, fibre etc.
- ✓ size is measured by the diameter in inch (1/2" through 6")

## 2) Wiring Cable



- ✓ PVC insulated copper wires are used for household applications
- ✓ size is mentioned by no. of strands in one wire and dimension of one strand (14/0.3mm, 7/2.14mm etc.)
- ✓ current carrying capacity of a conductor depends on cross sectional area

## 3) Standard Wire Gauge



- ✓ the diameter of the strand can be found from this
- ✓ consists of Standard Wire Gauge numbers and each number represents a particular strand diameter (12 → 2.61mm)

#### 4) PVC Elbow



- ✓ used to take the wiring through a curved path
- ✓ size is mentioned same as that of conduits
- ✓ size of the conduit and joint should match

#### 5) PVC Tee Joint



- ✓ used to take the wiring towards different directions
- ✓ towards the switch and appliance
- ✓ size is mentioned same as that of conduits
- ✓ size of the conduit and joint should match

#### 6) PVC Clamp



- ✓ used for fixing the conduit on the building surface
- ✓ screws are used to fix clamp on the surface
- ✓ size is mentioned same as that of conduits
- ✓ size of the conduit and joint should match

#### 7) Screws



- ✓ two parts → head and body
- ✓ size is mentioned by the length of the body (15mm, 30mm, 35mm etc.)
- ✓ used for fixing the clamps, ceiling roses etc.

## 8) Tester



- ✓ used for checking any electrical part is live or not
- ✓ light indication is provided
- ✓ keep it on the electrical part and keep our finger on the back side metal part
- ✓ if it's live, the light will glow

## 9) Pendant Lamp Holder



- ✓ used for holding the lamp required for lighting purposes
- ✓ has porcelain interior with a solid or spring plunger and easily wired terminals
- ✓ lamp shade can be fixed to the lamp holder

## 10) Ceiling Rose



- ✓ situated at the termination of the fixed wiring
- ✓ consists of brass terminals mounted on or in an insulating base, provided with an insulated cover and incorporating a grip for flexible cord
- ✓ can be arranged for mounting direct on building surfaces
- ✓ size is mentioned in electrical terms (by specifying the current and voltage ratings (250 V, 5 A))

## 11) Gang Box



- ✓ used for holding the switches at particular position
- ✓ multiple gang boxes are used to install several wiring installations in a single location
- ✓ dimension depends on no. of switches and plugs
- ✓ rating is specified in voltage (250v)

## 12) Junction Box



- ✓ consists of brass terminals fixed in boxes of molded insulating material and provided with lids
- ✓ may contain 3, 4, 5, or 6 terminals
- ✓ rating depends on the current and voltage and no. of connections

## 13) Switch



- ✓ used for opening or closing a circuit or part of a circuit
- ✓ conducting portions are terminals and contact surfaces which are mounted on insulating material.
- ✓ SPST- one way switch has two terminals whereas SPST-two way switch has three terminals
- ✓ ratings depends upon the voltage and current ratings; and also type of wiring

## 14) Plug



- ✓ device installed on the portable cord to enable connection between the cord and receptacle(socket) for getting the power supply
- ✓ two type configuration → with or without Earth pin
- ✓ Earth pin will be larger than the other two in order to ensure proper Earthing before the other two touches the live part
- ✓ ratings depends upon the voltage and current ratings

## 15) Receptacle (Socket)



- ✓ equipped with no. of slots , namely, Earth, Phase and Neutral
- ✓ configuration depends on the no. of phases used, the available voltage and the amperage

## 16) Incandescent Lamp



- ✓ works on the principle of Incandescence
- ✓ electric current passes through the filament, heats up, emits light
- ✓ tungsten wire as filament (2000 k to 3300 k)
- ✓ bulb is filled with inert gases to reduce evaporation of the filament
- ✓ energy waste due to heat
- ✓ rating depends on its wattage (40w, 60w,100w etc.)

## 17) Fluorescent Lamp



- ✓ works on the principle of Fluorescence
- ✓ one type of gas discharge lamp, electric current excites the mercury vapor, which produces mercury atoms with ultraviolet light
- ✓ UV rays causes Phosphor to emit visible light
- ✓ needs ballasts for making proper power flow
- ✓ more efficient than incandescent lamp

## 18) Compact Fluorescent Lamp (CFL)



- ✓ compact version of Fluorescent lamp
- ✓ can be fit into incandescent lamp holders
- ✓ ballast is of electronic type → makes it compact
- ✓ more life span than incandescent lamp (6000 to 15000 hrs)

## 19) Sodium Vapor Lamp



- ✓ gas discharge lamp, uses sodium in an excited state to produce light
- ✓ ballast is used for making the input current constant
- ✓ used for street lighting
- ✓ ratings depends on its wattage (125w, 250w etc.)