

**CPC****COOPERATIVE PATENT CLASSIFICATION****H01B**

**CABLES; CONDUCTORS; INSULATORS; SELECTION OF MATERIALS FOR THEIR CONDUCTIVE, INSULATING OR DIELECTRIC PROPERTIES** (selection for magnetic properties [H01F 1/00](#); waveguides [H01P](#); installations of cables or lines [H02G](#); {printed circuits [H05K](#)})

**NOTE**

Group [H01B 12/00](#) takes precedence over groups [H01B 5/00](#) to [H01B 11/00](#).

**H01B 1/00**

**Conductors or conductive bodies characterised by the conductive materials; Selection of materials as conductors** (resistors [H01C](#); selection of materials for superconductivity [H01L 39/00](#))

**NOTE**

Groups [H01B 1/14](#) to [H01B 1/24](#) take precedence over groups [H01B 1/02](#) to [H01B 1/12](#)

- [H01B 1/02](#) . mainly consisting of metals or alloys
- [H01B 1/023](#) . . {Alloys based on aluminium}
- [H01B 1/026](#) . . {Alloys based on copper}
- [H01B 1/04](#) . mainly consisting of carbon-silicon compounds, carbon or silicon
- [H01B 1/06](#) . mainly consisting of other non-metallic substances
- [H01B 1/08](#) . . oxides
- [H01B 1/10](#) . . sulfides
- [H01B 1/12](#) . . Organic substances {(organic macromolecular compounds or compositions [C08](#))}
- [H01B 1/121](#) . . . {Charge-transfer complexes}
- [H01B 1/122](#) . . . {Ionic conductors}
- [H01B 1/124](#) . . . {Intrinsically conductive polymers}
- [H01B 1/125](#) . . . . {comprising aliphatic main chains, e.g. polyacetylenes}
- [H01B 1/127](#) . . . . {comprising five-membered aromatic rings in the main chain, e.g. polypyrroles, polythiophenes}
- [H01B 1/128](#) . . . . {comprising six-membered aromatic rings in the main chain, e.g. polyanilines, polyphenylenes}
- [H01B 1/14](#) . Conductive material dispersed in non-conductive inorganic material
- [H01B 1/16](#) . . the conductive material comprising metals or alloys
- [H01B 1/18](#) . . the conductive material comprising carbon-silicon compounds, carbon or silicon
- [H01B 1/20](#) . Conductive material dispersed in non-conductive organic material {(organic macromolecular compounds or compositions [C08](#))}
- [H01B 1/22](#) . . the conductive material comprising metals or alloys
- [H01B 1/24](#) . . the conductive material comprising carbon-silicon compounds, carbon or silicon

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| <b>H01B 3/00</b> | <b>Insulators or insulating bodies characterised by the insulating materials; Selection of materials for their insulating or dielectric properties</b> (selection of piezo-electric or electrostrictive materials <a href="#">H01L 41/00</a> ) |
| H01B 3/002       | . {Inhomogeneous material in general}  |
| H01B 3/004       | . . {with conductive additives or conductive layers}   |
| H01B 3/006       | . . {Other inhomogeneous material}   |
| H01B 3/008       | . {Other insulating material}  |
| H01B 3/02        | . mainly consisting of inorganic substances  |
| H01B 3/025       | . . {Other inorganic material}   |
| H01B 3/04        | . . mica   |
| H01B 3/06        | . . asbestos   |
| H01B 3/065       | . . . {Wires with asbestos}  |
| H01B 3/08        | . . quartz; glass; glass wool; slag wool; vitreous enamels   |
| H01B 3/081       | . . . {Wires with vitreous enamels}  |
| H01B 3/082       | . . . {Wires with glass or glass wool}   |
| H01B 3/084       | . . . {Glass or glass wool in binder}  |
| H01B 3/085       | . . . {Particles bound with glass}   |
| H01B 3/087       | . . . {Chemical composition of glass}  |
| H01B 3/088       | . . . {Shaping of glass or deposition of glass}  |
| H01B 3/10        | . . Metallic oxides (ceramics <a href="#">H01B 3/12</a> )  |
| H01B 3/105       | . . . {Wires with oxides}  |
| H01B 3/12        | . . ceramics   |
| H01B 3/14        | . . cements  |
| H01B 3/16        | . . gases  |
| H01B 3/18        | . mainly consisting of organic substances {(organic macromolecular compounds or compositions <a href="#">C08</a> )}  |
| H01B 3/185       | . . {Substances or derivatives of cellulose}   |
| H01B 3/20        | . . Liquids, e.g. oils (silicone oils <a href="#">H01B 3/46</a> )  |
| H01B 3/22        | . . . hydrocarbons   |
| H01B 3/24        | . . . containing halogen in the molecules, e.g. halogenated oils   |
| H01B 3/26        | . . asphalts; bitumens; pitches  |
| H01B 3/28        | . . natural or synthetic rubber  |
| H01B 3/30        | . . plastics; resins; waxes  |

**NOTE**

Group [H01B 3/47](#) takes precedence over groups [H01B 3/32](#) to [H01B 3/46](#)

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|------------|---|
| H01B 3/301 | . . . {Macromolecular compounds obtained by reactions forming a linkage containing sulfur with or without nitrogen, oxygen or carbon in the main chain of the macromolecule, not provided for in group <a href="#">H01B 3/302</a> } |
| H01B 3/302 | . . . {Polyurethanes or polythiourethanes; Polyurea or polythiourea}  |

|            |   |
|------------|---|
| H01B 3/303 | . . . {Macromolecular compounds obtained by reactions forming a linkage containing nitrogen with or without oxygen or carbon in the main chain of the macromolecule, not provided for in groups <a href="#">H01B 3/38</a> or <a href="#">H01B 3/302</a> } |
| H01B 3/305 | . . . . {Polyamides or polyesteramides}   |
| H01B 3/306 | . . . . {Polyimides or polyesterimides}   |
| H01B 3/307 | . . . {Other macromolecular compounds}  |
| H01B 3/308 | . . . {Wires with resins}   |
| H01B 3/32  | . . . natural resins  |
| H01B 3/34  | . . . Waxes ( <a href="#">silicone waxes H01B 3/46</a> )  |
| H01B 3/36  | . . . condensation products of phenols with aldehydes or ketones  |
| H01B 3/38  | . . . condensation products of aldehydes with amines or amides  |
| H01B 3/40  | . . . epoxy resins  |
| H01B 3/42  | . . . polyesters; polyethers; polyacetals   |
| H01B 3/421 | . . . . {Polyesters}  |
| H01B 3/422 | . . . . . {Linear saturated polyesters derived from dicarboxylic acids and dihydroxy compounds}   |
| H01B 3/423 | . . . . . {Linear aromatic polyesters}  |
| H01B 3/425 | . . . . . {Non-saturated polyesters derived from polycarboxylic acids and polyhydroxy compounds, in which at least one of the two components contains aliphatic unsaturation}   |
| H01B 3/426 | . . . . . {Polycarbonates}  |
| H01B 3/427 | . . . . {Polyethers}  |
| H01B 3/428 | . . . . {Polyacetals}   |
| H01B 3/44  | . . . Vinyl resins; Acrylic resins ( <a href="#">silicones H01B 3/46</a> )  |
| H01B 3/441 | . . . . {from alkenes}  |
| H01B 3/442 | . . . . {from aromatic vinyl compounds}   |
| H01B 3/443 | . . . . {from vinylhalogenides or other halogenoethylenic compounds}  |
| H01B 3/445 | . . . . . {from vinylfluorides or other fluoroethylenic compounds}  |
| H01B 3/446 | . . . . {from vinylacetals}   |
| H01B 3/447 | . . . . {from acrylic compounds}  |
| H01B 3/448 | . . . . {from other vinyl compounds}  |
| H01B 3/46  | . . . silicones   |
| H01B 3/465 | . . . . {Silicone oils}   |
| H01B 3/47  | . . . fibre-reinforced plastics, e.g. glass-reinforced plastics   |
| H01B 3/48  | . . fibrous materials ( <a href="#">fibre-reinforced plastics H01B 3/47</a> )   |
| H01B 3/485 | . . . {Other fibrous materials fabric}  |
| H01B 3/50  | . . . fabric  |
| H01B 3/52  | . . . wood; paper; press board  |
| H01B 3/54  | . . . hard paper; hard fabrics  |
| H01B 3/545 | . . . . {Hard fabrics}  |
| H01B 3/56  | . . gases   |

**H01B 5/00****Non-insulated conductors or conductive bodies characterised by their form**

- H01B 5/002 . {Auxiliary arrangements}
- H01B 5/004 . . {for protection against corona}
- H01B 5/006 . . {for protection against vibrations}
- H01B 5/008 . {Fence-wire not otherwise provided for ([wire fencing E04H 17/02](#))}
- H01B 5/02 . Single bars, rods, wires, or strips
- H01B 5/04 . . wound or coiled
- H01B 5/06 . Single tubes
- H01B 5/08 . Several wires or the like stranded in the form of a rope
- H01B 5/10 . . stranded around a space, insulating material, or dissimilar conducting material
- H01B 5/101 . . . {stranded around a space}
- H01B 5/102 . . . {stranded around a high tensile strength core}
- H01B 5/104 . . . . {composed of metallic wires, e.g. steel wires}
- H01B 5/105 . . . . {composed of synthetic filaments, e.g. glass-fibres}
- H01B 5/107 . . . {stranded around a core supporting radial stresses, e.g. a tube, a wire helix}
- H01B 5/108 . . . {stranded around communication or control conductors}
- H01B 5/12 . Braided wires or the like
- H01B 5/14 . comprising conductive layers or films on insulating-supports ([insulating-layers or insulating-films on metal bodies H01B 17/62](#))
- H01B 5/16 . Comprising conductive material in insulating or poorly conductive material, e.g. conductive rubber ([H01B 1/14](#), [H01B 1/20](#) take precedence; [insulating bodies with conductive admixtures H01B 17/64](#); [conductive paints C09D 5/24](#))

**H01B 7/00****Insulated conductors or cables characterised by their form**

- H01B 7/0009 . {Details relating to the conductive cores}
- H01B 7/0018 . . {Strip or foil conductors ([H01B 7/08](#) takes precedence)}
- H01B 7/0027 . . {Liquid conductors}
- H01B 7/0036 . . {Alkali metal conductors}
- H01B 7/0045 . {Cable-harnesses}
- H01B 7/0054 . {Cables with incorporated electric resistances}
- H01B 7/0063 . {Ignition cables}
- H01B 7/0072 . {Electrical cables comprising fluid supply conductors}
- H01B 7/0081 . {Cables of rigid construction ([rigid-tube cables H01B 7/16](#))}
- H01B 7/009 . {Cables with built-in connecting points or with predetermined areas for making deviations}
- H01B 7/02 . Disposition of insulation ([materials H01B 3/00](#); [insulators H01B 17/00](#))
- H01B 7/0208 . . {Cables with several layers of insulating material}
- H01B 7/0216 . . . {Two layers}
- H01B 7/0225 . . . {Three or more layers}

- H01B 7/0233 . . {Cables with a predominant gas dielectric}
- H01B 7/0241 . . {comprising one or more helical wrapped layers of insulation}
- H01B 7/025 . . . {comprising in addition one or more other layers of non-helical wrapped insulation}
- H01B 7/0258 . . {comprising one or more longitudinal lapped layers of insulation}
- H01B 7/0266 . . {comprising one or more braided layers of insulation}
- H01B 7/0275 . . {comprising one or more extruded layers of insulation}
- H01B 7/0283 . . . {comprising in addition one or more other layers of non-extruded insulation}
- H01B 7/0291 . . {comprising two or more layers of insulation having different electrical properties}
- H01B 7/04 . Flexible cables, conductors, or cords, e.g. trailing cables
- H01B 7/041 . . {attached to mobile objects, e.g. portable tools, elevators, mining equipment, hoisting cables}
- H01B 7/043 . . {attached to flying objects, e.g. aircraft towline, cables connecting an aerodyne to the ground}
- H01B 7/045 . . {attached to marine objects, e.g. buoys, diving equipment, aquatic probes, marine towline}
- H01B 7/046 . . {attached to objects sunk in bore holes, e.g. well drilling means, well pumps}
- H01B 7/048 . . {for implantation into a human or animal body, e.g. pacemaker leads}
- H01B 7/06 . Extensible conductors or cables, e.g. self-coiling cords ([arrangements for storing and repeatedly paying-out and re-storing lengths of conductors or cables B65H 75/34](#))
- H01B 7/065 . . {having the shape of an helix}
- H01B 7/08 . Flat or ribbon cables
- H01B 7/0807 . . {Twin conductor or cable}
- H01B 7/0815 . . {covered with gluten for wall-fixing}
- H01B 7/0823 . . {Parallel wires, incorporated in a flat insulating profile}
- H01B 7/083 . . {Parallel wires, incorporated in a fabric}
- H01B 7/0838 . . {Parallel wires, sandwiched between two insulating layers}
- H01B 7/0846 . . {Parallel wires, fixed upon a support layer}
- H01B 7/0853 . . {Juxtaposed parallel wires, fixed to each other without a support layer}
- H01B 7/0861 . . {comprising one or more screens}
- H01B 7/0869 . . {comprising one or more armouring, tensile- or compression-resistant elements}
- H01B 7/0876 . . {comprising twisted pairs}
- H01B 7/0884 . . {comprising connection wire loops}
- H01B 7/0892 . . {incorporated in a cable of non-flat configuration}
- H01B 7/10 . Contact cables, i.e. having conductors which may be brought into contact by distortion of the cable
- H01B 7/102 . . {responsive to heat}
- H01B 7/104 . . {responsive to pressure}
- H01B 7/106 . . . {comprising concentric conductors}

- H01B 7/108 . . . {comprising parallel conductors}
- H01B 7/12 . Floating cables (installations of cables supported on or from floats [H02G 9/12](#))
- H01B 7/14 . Submarine cables
- H01B 7/145 . . {associated with hydrodynamic bodies}
- H01B 7/16 . Rigid-tube cables (heating elements of similar construction [H05B](#))
- H01B 7/17 . Protection against damage caused by external factors, e.g. sheaths or armouring (power cables with screens [H01B 9/02](#); communication cables with screens [H01B 11/06](#); {continuously-loaded cables [H01B 11/14](#);} installation of conduits [H02G](#))
- H01B 7/18 . . {Protection against damage caused} by wear, mechanical force or pressure; {Sheaths; Armouring}
- H01B 7/1805 . . . {Protections not provided for in groups [H01B 7/182](#) to [H01B 7/26](#)}
- H01B 7/181 . . . . {composed of beads or rings}
- H01B 7/1815 . . . . {composed of longitudinal inserts}
- H01B 7/182 . . . {comprising synthetic filaments}
- H01B 7/1825 . . . . {forming part of a high tensile strength core}
- H01B 7/183 . . . . {forming part of an outer sheath}
- H01B 7/1835 . . . {Sheaths comprising abrasive charges}
- H01B 7/184 . . . {Sheaths comprising grooves, ribs or other projections}
- H01B 7/1845 . . . {Sheaths comprising perforations}
- H01B 7/185 . . . {Sheaths comprising internal cavities or channels}
- H01B 7/1855 . . . {Sheaths comprising helical wrapped non-metallic layers}
- H01B 7/186 . . . {Sheaths comprising longitudinal lapped non-metallic layers}
- H01B 7/1865 . . . {Sheaths comprising braided non-metallic layers}
- H01B 7/187 . . . {Sheaths comprising extruded non-metallic layers}
- H01B 7/1875 . . . {Multi-layer sheaths}
- H01B 7/188 . . . . {Inter-layer adherence promoting means}
- H01B 7/1885 . . . . {Inter-layer adherence preventing means}
- H01B 7/189 . . . {Radial force absorbing layers providing a cushioning effect ([H01B 7/185](#) takes precedence)}
- H01B 7/1895 . . . {Internal space filling-up means}
- H01B 7/20 . . . Metal tubes, e.g. lead sheaths
- H01B 7/201 . . . . {Extruded metal tubes}
- H01B 7/202 . . . . {Longitudinal lapped metal tubes}
- H01B 7/204 . . . . {composed of lead}
- H01B 7/205 . . . . {composed of aluminium}
- H01B 7/207 . . . . {composed of iron or steel}
- H01B 7/208 . . . . {composed of composite laminated metals}
- H01B 7/22 . . . Metal wires or tapes, e.g. made of steel
- H01B 7/221 . . . . {Longitudinally placed metal wires or tapes}
- H01B 7/223 . . . . . {forming part of a high tensile strength core}

- H01B 7/225 . . . . . {forming part of an outer sheath}
- H01B 7/226 . . . . . {Helicoidally wound metal wires or tapes}
- H01B 7/228 . . . . . {Metal braid}
- H01B 7/24 . . . . . Devices affording localised protection against mechanical force or pressure
- H01B 7/26 . . . . . Reduction of losses in sheaths or armouring
- H01B 7/28 . . . . . {Protection against damage caused} by moisture, corrosion, chemical attack or weather {(sheaths, armouring [H01B 7/18](#))}
- H01B 7/2806 . . . . . {Protection against damage caused by corrosion}
- H01B 7/2813 . . . . . {Protection against damage caused by electrical, chemical or water tree deterioration}
- H01B 7/282 . . . . . Preventing penetration of fluid {, e.g. water or humidity,} into conductor or cable (insulators or insulating bodies with surfaces specially treated for preserving insulating properties, e.g. for protection against moisture, dirt, or the like, [H01B 17/50](#))
- H01B 7/2825 . . . . . {using a water impermeable sheath}
- H01B 7/285 . . . . . by completely or partially filling interstices in the cable
- H01B 7/2855 . . . . . {using foamed plastic}
- H01B 7/288 . . . . . using hygroscopic material or material swelling in the presence of liquid
- H01B 7/29 . . . . . Protection against damage caused by extremes of temperature or by flame {(heat dissipation or conduction [H01B 7/42](#))}
- H01B 7/292 . . . . . {using material resistant to heat}
- H01B 7/295 . . . . . using material resistant to flame
- H01B 7/30 . . . . . with arrangements for reducing conductor losses when carrying alternating current, e.g. due to skin effect
- H01B 7/303 . . . . . {Conductors comprising interwire insulation}
- H01B 7/306 . . . . . {Transposed conductors}
- H01B 7/32 . . . . . with arrangements for indicating defects, e.g. breaks, leaks, (locating defects by measuring [G01](#))
- H01B 7/322 . . . . . {comprising humidity sensing means}
- H01B 7/324 . . . . . {comprising temperature sensing means}
- H01B 7/326 . . . . . {comprising pressure sensing means}
- H01B 7/328 . . . . . {comprising violation sensing means}
- H01B 7/36 . . . . . with distinguishing or length marks
- H01B 7/361 . . . . . {being the colour of the insulation or conductor}
- H01B 7/363 . . . . . {being the form of the insulation or conductor}
- H01B 7/365 . . . . . {being indicia imposed on the insulation or conductor}
- H01B 7/366 . . . . . {being a tape, thread or wire extending the full length of the conductor or cable}
- H01B 7/368 . . . . . {being a sleeve, ferrule, tag, clip, label or short length strip}
- H01B 7/38 . . . . . with arrangements for facilitating removal of insulation
- H01B 7/385 . . . . . {comprising a rip cord or wire}



- H01B 7/40 . with arrangements for facilitating mounting or securing
- H01B 7/42 . with arrangements for heat dissipation or conduction ([insulators or insulating bodies having heating or cooling devices H01B 17/54](#))
- H01B 7/421 . . {for heat dissipation}
- H01B 7/423 . . . {using a cooling fluid}
- H01B 7/425 . . . . {the construction being bendable}
- H01B 7/426 . . . {using cooling fins, ribs}
- H01B 7/428 . . {Heat conduction}

**H01B 9/00****Power cables**

- H01B 9/001 . {Power supply cables for the electrodes of electric-welding apparatus or electric-arc furnaces}
- H01B 9/003 . {including electrical control or communication wires}
- H01B 9/005 . {including optical transmission elements}
- H01B 9/006 . {Constructional features relating to the conductors}
- H01B 9/008 . {for overhead application}
- H01B 9/02 . with screens or conductive layers, e.g. for avoiding large potential gradients
- H01B 9/021 . . {Features relating to screening tape per se}
- H01B 9/022 . . {composed of longitudinal lapped tape-conductors}
- H01B 9/023 . . {composed of helicoidally wound tape-conductors}
- H01B 9/024 . . {composed of braided metal wire}
- H01B 9/025 . . {composed of helicoidally wound wire-conductors}
- H01B 9/026 . . {composed of longitudinally posed wire-conductors}
- H01B 9/027 . . {composed of semi-conducting layers}
- H01B 9/028 . . {with screen grounding means, e.g. drain wires}
- H01B 9/029 . . {Screen interconnecting circuits}
- H01B 9/04 . Concentric cables
- H01B 9/06 . Gas-pressure cables; Oil-pressure cables; Cables for use in conduits under fluid pressure
- H01B 9/0605 . . {Gas-pressure cables with enclosed conduits}
- H01B 9/0611 . . {Oil-pressure cables}
- H01B 9/0616 . . {Oil-pressure cables with enclosed conduits}
- H01B 9/0622 . . {Cables for use in conduits under gas-pressure}
- H01B 9/0627 . . {Cables for use in conduits under oil-pressure}
- H01B 9/0633 . . {Expansion-absorbing apparatus, enclosed within the cable}
- H01B 9/0638 . . {Features relating to the conductors of gas-pressure cables}
- H01B 9/0644 . . {Features relating to the dielectric of gas-pressure cables}
- H01B 9/065 . . . {Tubular insulation}
- H01B 9/0655 . . . {Helically wrapped insulation}
- H01B 9/0661 . . . {Longitudinally wrapped insulation}
- H01B 9/0666 . . . {Discontinuous insulation}



- H01B 9/0672 . . . . {having the shape of a disc}
- H01B 9/0677 . . {Features relating to the enclosing sheath of gas-pressure cables}
- H01B 9/0683 . . {Features relating to the conductors of oil-pressure cables}
- H01B 9/0688 . . {Features relating to the dielectric of oil-pressure cables}
- H01B 9/0694 . . {Features relating to the enclosing sheath of oil-pressure cables}
  
- H01B 11/00** **Communication cables or conductors** (waveguides [H01P](#))
- H01B 11/002 . {Pair constructions}
- H01B 11/005 . {Quad constructions}
- H01B 11/007 . {for overhead application}
- H01B 11/02 . Cables with twisted pairs or quads (transposing, crossing or twisting at joints [H04B](#); balancing of earth capacitance [H04B](#))
- H01B 11/04 . . with pairs or quads mutually positioned to reduce cross-talk (balancing by making use of additional capacitors or coils [H04B](#))
- H01B 11/06 . . with means for reducing effects of electromagnetic or electrostatic disturbances, e.g. screen (screening in general [H05K 9/00](#))
- H01B 11/08 . . . Screens specially adapted for reducing cross-talk
- H01B 11/085 . . . . {composed of longitudinal tape conductors}
- H01B 11/10 . . . Screens specially adapted for reducing interference from external sources
- H01B 11/1008 . . . . {Features relating to screening tape per se}
- H01B 11/1016 . . . . {composed of a longitudinal lapped tape-conductor}
- H01B 11/1025 . . . . {composed of a helicoidally wound tape-conductor}
- H01B 11/1033 . . . . {composed of a wire-braided conductor}
- H01B 11/1041 . . . . {composed of a helicoidally wound wire-conductor}
- H01B 11/105 . . . . {composed of a longitudinally posed wire-conductor}
- H01B 11/1058 . . . . {using a coating, e.g. a loaded polymer, ink or print}
- H01B 11/1066 . . . . . {the coating containing conductive or semiconductive material}
- H01B 11/1075 . . . . . {the coating being applied by printing}
- H01B 11/1083 . . . . . {the coating containing magnetic material}
- H01B 11/1091 . . . . {with screen grounding means, e.g. drain wires}
- H01B 11/12 . . Arrangements for exhibiting specific transmission characteristics (loading coils per se [H01F 17/08](#); coil-loaded circuits [H04B](#))
- H01B 11/125 . . . {Specially adapted cable interconnections}
- H01B 11/14 . . . Continuously inductively loaded cables, e.g. Krarup cables
- H01B 11/143 . . . . {using helically wound magnetic tape}
- H01B 11/146 . . . . {using magnetically loaded coatings}
- H01B 11/16 . . . Cables, e.g. submarine cables, with coils or other devices incorporated during cable manufacture (junction boxes for cables [H02G 15/10](#))
- H01B 11/18 . Co-axial cables; Analogous cables having more than one inner conductor within a common outer conductor

**NOTE**

H01B 11/18  
(continued)

If suitable for handling frequencies considerably beyond the audio range and if typical HF-features of coaxial cables are disclosed, e.g. propagation of non-TEM modes, multimoding, oversized coaxial cables, particular cross-section adapted for HF-propagation, classification is made in [H01P 3/06](#)

- H01B 11/1804 . . {Construction of the space inside the hollow inner conductor}
- H01B 11/1808 . . {Construction of the conductors}
- H01B 11/1813 . . . {Co-axial cables with at least one braided conductor}
- H01B 11/1817 . . . {Co-axial cables with at least one metal deposit conductor}
- H01B 11/1821 . . . {Co-axial cables with at least one wire-wound conductor}
- H01B 11/1826 . . . {Co-axial cables with at least one longitudinal lapped tape-conductor}
- H01B 11/183 . . . {Co-axial cables with at least one helicoidally wound tape-conductor}
- H01B 11/1834 . . {Construction of the insulation between the conductors}
- H01B 11/1839 . . . {of cellular structure}
- H01B 11/1843 . . . {of tubular structure}
- H01B 11/1847 . . . {of helical wrapped structure}
- H01B 11/1852 . . . {of longitudinal lapped structure}
- H01B 11/1856 . . . {Discontinuous insulation}
- H01B 11/186 . . . . {having the shape of a disc}
- H01B 11/1865 . . . . {having the shape of a bead}
- H01B 11/1869 . . {Construction of the layers on the outer side of the outer conductor}
- H01B 11/1873 . . {Measures for the conductors, in order to fix the spacers}
- H01B 11/1878 . . {Special measures in order to improve the flexibility}
- H01B 11/1882 . . {Special measures in order to improve the refrigeration}
- H01B 11/1886 . . {Special measures in order to improve the centration of the inner conductor}
- H01B 11/1891 . . {comprising auxiliary conductors}
- H01B 11/1895 . . {Particular features or applications}
- H01B 11/20 . . Cables having a multiplicity of co-axial lines
- H01B 11/203 . . . {forming a flat arrangement}
- H01B 11/206 . . . {Tri-conductor coaxial cables}
- H01B 11/22 . . Cables including at least one electrical conductor together with optical fibres

**H01B 12/00**

**Superconductive or hyperconductive conductors, cables, or transmission lines** (details or devices using superconductivity or hyperconductivity characterised by the material [H01L 39/12](#))

- H01B 12/02 . . characterised by their form

**NOTE**

Group [H01B 12/12](#) takes precedence over groups [H01B 12/04](#) to [H01B 12/10](#).

- H01B 12/04 . . Single wire
- H01B 12/06 . . Films or wires on bases or cores

|                   |  |
|-------------------|--|
| H01B 12/08        | <ul style="list-style-type: none"> <li>• . Stranded or braided wires</li> </ul>  |
| H01B 12/10        | <ul style="list-style-type: none"> <li>• . Multi-filaments embedded in normal conductors</li> </ul>  |
| H01B 12/12        | <ul style="list-style-type: none"> <li>• . Hollow conductors</li> </ul>  |
| H01B 12/14        | <ul style="list-style-type: none"> <li>• characterised by the disposition of thermal insulation</li> </ul>   |
| H01B 12/16        | <ul style="list-style-type: none"> <li>• characterised by cooling</li> </ul>   |
| <b>H01B 13/00</b> | <b>Apparatus or processes specially adapted for manufacturing conductors or cables</b>   |
| H01B 13/0003      | <ul style="list-style-type: none"> <li>• {for feeding conductors or cables}</li> </ul>   |
| H01B 13/0006      | <ul style="list-style-type: none"> <li>• {for reducing the size of conductors or cables}</li> </ul>  |
| H01B 13/0009      | <ul style="list-style-type: none"> <li>• {for forming corrugations on conductors or cables}</li> </ul>   |
| H01B 13/0013      | <ul style="list-style-type: none"> <li>• {for embedding wires in plastic layers}</li> </ul>  |
| H01B 13/0016      | <ul style="list-style-type: none"> <li>• {for heat treatment}</li> </ul>   |
| H01B 13/002       | <ul style="list-style-type: none"> <li>• . {for heat extraction}</li> </ul>  |
| H01B 13/0023      | <ul style="list-style-type: none"> <li>• {for welding together plastic insulated wires side-by-side}</li> </ul>                                      |
| H01B 13/0026      | <ul style="list-style-type: none"> <li>• {Apparatus for manufacturing conducting or semi-conducting layers, e.g. deposition of metal}</li> </ul>     |
| H01B 13/003       | <ul style="list-style-type: none"> <li>• {using irradiation}</li> </ul>  |
| H01B 13/0033      | <ul style="list-style-type: none"> <li>• {by electrostatic coating}</li> </ul>   |
| H01B 13/0036      | <ul style="list-style-type: none"> <li>• {Details}</li> </ul>  |
| H01B 13/004       | <ul style="list-style-type: none"> <li>• for manufacturing rigid-tube cables</li> </ul>  |
| H01B 13/008       | <ul style="list-style-type: none"> <li>• for manufacturing extensible conductors or cables</li> </ul>  |
| H01B 13/012       | <ul style="list-style-type: none"> <li>• for manufacturing wire harnesses</li> </ul>   |
| H01B 13/01209     | <ul style="list-style-type: none"> <li>• . {Details}</li> </ul>  |
| H01B 13/01218     | <ul style="list-style-type: none"> <li>• . {the wires being disposed by hand}</li> </ul>   |
| H01B 13/01227     | <ul style="list-style-type: none"> <li>• . . {using a layout board}</li> </ul>   |
| H01B 13/01236     | <ul style="list-style-type: none"> <li>• . {the wires being disposed by machine}</li> </ul>  |
| H01B 13/01245     | <ul style="list-style-type: none"> <li>• . . {using a layout board}</li> </ul>   |
| H01B 13/01254     | <ul style="list-style-type: none"> <li>• . {Flat-harness manufacturing}</li> </ul>   |
| H01B 13/01263     | <ul style="list-style-type: none"> <li>• . {Tying, wrapping, binding, lacing, strapping or sheathing harnesses}</li> </ul>                           |
| H01B 13/01272     | <ul style="list-style-type: none"> <li>• . . {Harness tying apparatus}</li> </ul>  |
| H01B 13/01281     | <ul style="list-style-type: none"> <li>• . . {Harness wrapping apparatus}</li> </ul>   |
| H01B 13/0129      | <ul style="list-style-type: none"> <li>• . . {Sheathing harnesses with foil material}</li> </ul>   |
| H01B 13/016       | <ul style="list-style-type: none"> <li>• for manufacturing co-axial cables (<a href="#">applying discontinuous insulation H01B 13/20</a>)</li> </ul> |
| H01B 13/0162      | <ul style="list-style-type: none"> <li>• . {of the central conductor}</li> </ul>   |
| H01B 13/0165      | <ul style="list-style-type: none"> <li>• . {of the layers outside the outer conductor}</li> </ul>  |
| H01B 13/0167      | <ul style="list-style-type: none"> <li>• . {After-treatment}</li> </ul>  |
| H01B 13/02        | <ul style="list-style-type: none"> <li>• Stranding-up (<a href="#">stranding-up ropes D07B</a>)</li> </ul>   |
| H01B 13/0207      | <ul style="list-style-type: none"> <li>• . {Details; Auxiliary devices}</li> </ul>   |
| H01B 13/0214      | <ul style="list-style-type: none"> <li>• . {by a twisting pay-off device}</li> </ul>   |

- H01B 13/0221 . . {by a twisting take-up device}
- H01B 13/0228 . . {by a twisting pay-off and take-up device}
- H01B 13/0235 . . {by a twisting device situated between a pay-off device and a take-up device}
- H01B 13/0242 . . . {being an accumulator}
- H01B 13/025 . . . . {of tubular construction}
- H01B 13/0257 . . . {being a perforated disc}
- H01B 13/0264 . . . {being rollers, pulleys, drums or belts ([H01B 13/0242 takes precedence](#))}
- H01B 13/0271 . . {Alternate stranding processes}
- H01B 13/0278 . . {Stranding machines comprising a transposing mechanism}
- H01B 13/0285 . . {Pretreatment}
- H01B 13/0292 . . {After-treatment}
- H01B 13/04 . . Mutually positioning pairs or quads to reduce cross-talk
- H01B 13/06 . Insulating conductors or cables ([H01B 13/32 takes precedence](#))
- H01B 13/062 . . {by pulling on an insulating sleeve}
- H01B 13/065 . . {Insulating conductors with lacquers or enamels}
- H01B 13/067 . . {Insulating coaxial cables ([H01B 13/20 takes precedence](#))}
- H01B 13/08 . . by winding
- H01B 13/0808 . . . {Hand-held devices}
- H01B 13/0816 . . . {Apparatus having a coaxial rotation of the supply reels about the conductor or cable}
- H01B 13/0825 . . . {Apparatus having a planetary rotation of the supply reels around the conductor or cable}
- H01B 13/0833 . . . . {the supply reel axis being arranged parallel to the conductor or cable axis}
- H01B 13/0841 . . . . {the supply reel axis being arranged perpendicular to the conductor or cable axis}
- H01B 13/085 . . . {Apparatus having the supply reels in a fixed position, the conductor or cable rotating about its own axis}
- H01B 13/0858 . . . {Details of winding apparatus; Auxiliary devices}
- H01B 13/0866 . . . . {Brakes or tension regulating means}
- H01B 13/0875 . . . . {Detecting breakage or run-out of winding material}
- H01B 13/0883 . . . {Pretreatment}
- H01B 13/0891 . . . {After-treatment}
- H01B 13/10 . . by longitudinal lapping
- H01B 13/103 . . . {combined with pressing of plastic material around the conductors}
- H01B 13/106 . . . {the conductor having a rectangular cross-section}
- H01B 13/12 . . by applying loose fibres
- H01B 13/14 . . by extrusion {(extrusion in general [B29C 47/00](#))}
- H01B 13/141 . . . {of two or more insulating layers}
- H01B 13/142 . . . {of cellular material}
- H01B 13/143 . . . {with a special opening of the extrusion head}

|              |   |
|--------------|---|
| H01B 13/144  | . . . . {Heads for simultaneous extrusion on two or more conductors}  |
| H01B 13/145  | . . . {Pretreatment or after-treatment}   |
| H01B 13/146  | . . . {Controlling the extrusion apparatus dependent on the capacitance or the thickness of the insulating material (measuring thickness <a href="#">G01B</a> ; testing during manufacturing <a href="#">G01R 31/022</a> )} |
| H01B 13/147  | . . . {Feeding of the insulating material}  |
| H01B 13/148  | . . . {Selection of the insulating material therefor}   |
| H01B 13/16   | . . by passing through or dipping in a liquid bath; by spraying   |
| H01B 13/165  | . . . {by spraying}   |
| H01B 13/18   | . . Applying discontinuous insulation, e.g. discs, beads  |
| H01B 13/185  | . . . {by periodically constricting an insulating sleeve}   |
| H01B 13/20   | . . . for concentric or coaxial cables  |
| H01B 13/202  | . . . . {by molding spacers}  |
| H01B 13/204  | . . . . {by punching spacers}   |
| H01B 13/206  | . . . . {by forming a helical web}  |
| H01B 13/208  | . . . . {by mechanically removing parts of a continuous insulation}   |
| H01B 13/22   | . Sheathing; Armouring; Screening; Applying other protective layers ( <a href="#">H01B 13/32</a> takes precedence)  |
| H01B 13/221  | . . {filling-up interstices}  |
| H01B 13/222  | . . {by electro-plating}  |
| H01B 13/224  | . . {by drawing a cable core into an oversized tube by means of a tow line}   |
| H01B 13/225  | . . {Screening coaxial cables}  |
| H01B 13/227  | . . {Pretreatment}  |
| H01B 13/228  | . . {After-treatment}   |
| H01B 13/24   | . . by extrusion {(extrusion of cables with plastic material in general <a href="#">B29C 47/02</a> )}   |
| H01B 13/245  | . . . {of metal layers}   |
| H01B 13/26   | . . by winding, braiding, or longitudinal lapping (winding in general <a href="#">B65H</a> )  |
| H01B 13/2606 | . . . {by braiding}   |
| H01B 13/2613 | . . . {by longitudinal lapping}   |
| H01B 13/262  | . . . . {of an outer metallic screen}   |
| H01B 13/2626 | . . . . {of a coaxial cable outer conductor}  |
| H01B 13/2633 | . . . . {Bending and welding of a metallic screen}  |
| H01B 13/264  | . . . . . {Details of the welding stage}  |
| H01B 13/2646 | . . . . {Bending and soldering of a metallic screen}  |
| H01B 13/2653 | . . . . . {Details of the soldering stage}  |
| H01B 13/266  | . . . . {Bending and adhesively bonding of a metallic screen}   |
| H01B 13/2666 | . . . . . {Details of the bonding stage}  |
| H01B 13/2673 | . . . . {of a compartment separating metallic screen}   |
| H01B 13/268  | . . . . {of a non-metallic sheet}   |
| H01B 13/2686 | . . . . {Pretreatment}  |

- H01B 13/2693 . . . . {After-treatment}
- H01B 13/28 . Applying continuous inductive loading, e.g. Krarup loading
- H01B 13/282 . . {by winding}
- H01B 13/285 . . {by extrusion}
- H01B 13/287 . . {by passing through a coating bath}
- H01B 13/30 . Drying; (in general F26B); Impregnating (H01B 13/32 takes precedence; {impregnating of fibres D06B 3/00, D06B 5/00; H01G 4/00, H01G 4/06; drying and impregnating of wood or the like B27K; impregnation of stones, basic materials therefor C04B 20/10 to C04B 20/12, C04B 41/45 to C04B 41/52})
- H01B 13/32 . Filling or coating with impervious material (for cable installations H02G 15/00)
- H01B 13/321 . . {the material being a powder}
- H01B 13/322 . . {the material being a liquid, jelly-like or viscous substance}
- H01B 13/323 . . . {using a filling or coating head}
- H01B 13/324 . . . . {in combination with a vacuum chamber}
- H01B 13/325 . . . . {in combination with vibration generating means}
- H01B 13/326 . . . . {Material preparing or feeding devices}
- H01B 13/327 . . . {using a filling or coating cone or die}
- H01B 13/328 . . . {using a filling or coating bath}
- H01B 13/329 . . {the material being a foam}
- H01B 13/34 . for marking conductors or cables
- H01B 13/341 . . {using marking wheels, discs, rollers, drums, balls or belts}
- H01B 13/342 . . {by applying marked tape, thread or wire on the full length of the conductor or cable}
- H01B 13/344 . . {by applying sleeves, ferrules, tags, clips, labels or short length strips}
- H01B 13/345 . . {by spraying, ejecting or dispensing marking fluid}
- H01B 13/347 . . . {Electrostatic deflection of the fluid jets}
- H01B 13/348 . . {using radiant energy, e.g. a laser beam}

**H01B 15/00** **Apparatus or processes for salvaging material from cables** (for removing insulation from conductors H02G 1/12)

- H01B 15/001 . {by cooling down}
- H01B 15/003 . {by heating up}
- H01B 15/005 . {by cutting}
- H01B 15/006 . . {Making a longitudinal cut}
- H01B 15/008 . {by crushing}

**H01B 17/00** **Insulators or insulating bodies characterised by their form** (section insulators for electric traction B60M 1/18; insulating rail-joints E01B 11/54)

- H01B 17/005 . {Insulators structurally associated with built-in electrical equipment}
- H01B 17/02 . Suspension insulators; Strain insulators
- H01B 17/04 . . Chains; Multiple chains
- H01B 17/06 . . Fastening of insulator to support, to conductor, or to adjoining insulator

- H01B 17/08 . . . by cap-and-bolt
- H01B 17/10 . . . by intermediate link
- H01B 17/12 . . Special features of strain insulators (devices for relieving mechanical tension of electric lines or cables [H02G 7/04](#))
- H01B 17/14 . Supporting insulators (pin insulators [H01B 17/20](#); apertured insulators [H01B 17/24](#))
- H01B 17/145 . . {Insulators, poles, handles, or the like in electric fences}
- H01B 17/16 . . Fastening of insulators to support, to conductor, or to adjoining insulator
- H01B 17/18 . . for very heavy conductors, e.g. bus-bars, rails
- H01B 17/20 . Pin insulators
- H01B 17/22 . . Fastening of conductors to insulator
- H01B 17/24 . Insulators apertured for fixing by nail, screw, wire, or bar, e.g. diablo, bobbin
- H01B 17/26 . Lead-in insulators; Lead-through insulators
- H01B 17/265 . . {Fastening of insulators to support ([H01B 17/301](#) takes precedence)}
- H01B 17/28 . . Capacitor type (capacitors [H01G](#))
- H01B 17/30 . . Sealing (packings in general [F16J](#))
- H01B 17/301 . . . {Sealing of insulators to support}
- H01B 17/303 . . . {Sealing of leads to lead-through insulators}
- H01B 17/305 . . . . {by embedding in glass or ceramic material}
- H01B 17/306 . . . . {by embedding in material other than glass or ceramics}
- H01B 17/308 . . . . {by compressing packing material}
- H01B 17/32 . Single insulators consisting of two or more dissimilar insulating bodies
- H01B 17/325 . . {comprising a fibre-reinforced insulating core member}
- H01B 17/34 . Insulators containing liquid, e.g. oil
- H01B 17/36 . Insulators having evacuated or gas-filled spaces
- H01B 17/38 . Fittings, e.g. caps; Fastenings therefor
- H01B 17/40 . . Cementless fittings
- H01B 17/42 . Means for obtaining improved distribution of voltage (capacitor-type lead-through insulators [H01B 17/28](#)); Protection against arc discharges
- H01B 17/44 . . Structural association of insulators with corona rings (corona rings [H01T 19/02](#))
- H01B 17/46 . . Means for providing an external arc-discharge path (spark-gap arresters [H01T](#))
- H01B 17/48 . . over chains or other serially-arranged insulators
- H01B 17/50 . with surfaces specially treated for preserving insulating properties, e.g. for protection against moisture, dirt, or the like
- H01B 17/52 . having cleaning devices ([H01B 17/54](#) takes precedence)
- H01B 17/525 . . {Self-cleaning, e.g. by shape or disposition of screens}
- H01B 17/54 . having heating or cooling devices
- H01B 17/56 . Insulating bodies (insulators [H01B 17/02](#) to [H01B 17/54](#))



- H01B 17/58
  - . Tubes, sleeves, beads, or bobbins through which the conductor passes (protective tubings for the installation of lines or cables in buildings [H02G 3/04](#))
- H01B 17/583
  - . . {Grommets; Bushings}
- H01B 17/586
  - . . . {with strain relief arrangements}
- H01B 17/60
  - . Composite insulating bodies (cables or conductors [H01B 7/00](#), [H01B 9/00](#); resistors [H01C](#); capacitors [H01G](#))
- H01B 17/62
  - . Insulating-layers or insulating films on metal bodies (conductive layers or films on insulating-bodies [H01B 5/14](#))
- H01B 17/64
  - . with conductive admixtures, inserts, or layers (conductive bodies comprising conductive material dispersed in insulating material [H01B 5/16](#))
- H01B 17/66
  - . Joining insulating bodies together, e.g. by bonding
- H01B 19/00**

**Apparatus or processes specially adapted for manufacturing insulators or insulating bodies {(manufacture of porcelain for electric insulation [C04B 33/26](#))}**
- H01B 19/02
  - Drying (in general [F26B](#)); Impregnating
- H01B 19/04
  - Treating the surfaces, e.g. applying coatings