

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

H01B 3/00	Insulators or insulating bodies characterised by the insulating materials; Selection of materials for their insulating or dielectric properties (selection of piezo-electric or electrostrictive materials H01L 41/00)
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 H01B 3/12)
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 C08)}
H01B 3/185	. . {Substances or derivatives of cellulose}
H01B 3/20	. . Liquids, e.g. oils (silicone oils H01B 3/46)
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](#)

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 H01B 3/302 }
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 H01B 3/38 or H01B 3/302 }
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 (silicone waxes H01B 3/46)
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 (silicones H01B 3/46)
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 (fibre-reinforced plastics H01B 3/47)
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"> • . Stranded or braided wires
H01B 12/10	<ul style="list-style-type: none"> • . Multi-filaments embedded in normal conductors
H01B 12/12	<ul style="list-style-type: none"> • . Hollow conductors
H01B 12/14	<ul style="list-style-type: none"> • characterised by the disposition of thermal insulation
H01B 12/16	<ul style="list-style-type: none"> • characterised by cooling
H01B 13/00	Apparatus or processes specially adapted for manufacturing conductors or cables
H01B 13/0003	<ul style="list-style-type: none"> • {for feeding conductors or cables}
H01B 13/0006	<ul style="list-style-type: none"> • {for reducing the size of conductors or cables}
H01B 13/0009	<ul style="list-style-type: none"> • {for forming corrugations on conductors or cables}
H01B 13/0013	<ul style="list-style-type: none"> • {for embedding wires in plastic layers}
H01B 13/0016	<ul style="list-style-type: none"> • {for heat treatment}
H01B 13/002	<ul style="list-style-type: none"> • . {for heat extraction}
H01B 13/0023	<ul style="list-style-type: none"> • {for welding together plastic insulated wires side-by-side}
H01B 13/0026	<ul style="list-style-type: none"> • {Apparatus for manufacturing conducting or semi-conducting layers, e.g. deposition of metal}
H01B 13/003	<ul style="list-style-type: none"> • {using irradiation}
H01B 13/0033	<ul style="list-style-type: none"> • {by electrostatic coating}
H01B 13/0036	<ul style="list-style-type: none"> • {Details}
H01B 13/004	<ul style="list-style-type: none"> • for manufacturing rigid-tube cables
H01B 13/008	<ul style="list-style-type: none"> • for manufacturing extensible conductors or cables
H01B 13/012	<ul style="list-style-type: none"> • for manufacturing wire harnesses
H01B 13/01209	<ul style="list-style-type: none"> • . {Details}
H01B 13/01218	<ul style="list-style-type: none"> • . {the wires being disposed by hand}
H01B 13/01227	<ul style="list-style-type: none"> • . . {using a layout board}
H01B 13/01236	<ul style="list-style-type: none"> • . {the wires being disposed by machine}
H01B 13/01245	<ul style="list-style-type: none"> • . . {using a layout board}
H01B 13/01254	<ul style="list-style-type: none"> • . {Flat-harness manufacturing}
H01B 13/01263	<ul style="list-style-type: none"> • . {Tying, wrapping, binding, lacing, strapping or sheathing harnesses}
H01B 13/01272	<ul style="list-style-type: none"> • . . {Harness tying apparatus}
H01B 13/01281	<ul style="list-style-type: none"> • . . {Harness wrapping apparatus}
H01B 13/0129	<ul style="list-style-type: none"> • . . {Sheathing harnesses with foil material}
H01B 13/016	<ul style="list-style-type: none"> • for manufacturing co-axial cables (applying discontinuous insulation H01B 13/20)
H01B 13/0162	<ul style="list-style-type: none"> • . {of the central conductor}
H01B 13/0165	<ul style="list-style-type: none"> • . {of the layers outside the outer conductor}
H01B 13/0167	<ul style="list-style-type: none"> • . {After-treatment}
H01B 13/02	<ul style="list-style-type: none"> • Stranding-up (stranding-up ropes D07B)
H01B 13/0207	<ul style="list-style-type: none"> • . {Details; Auxiliary devices}
H01B 13/0214	<ul style="list-style-type: none"> • . {by a twisting pay-off device}

- 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 G01B ; testing during manufacturing G01R 31/022)}
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 (H01B 13/32 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 B29C 47/02)}
H01B 13/245	. . . {of metal layers}
H01B 13/26	. . by winding, braiding, or longitudinal lapping (winding in general B65H)
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