

**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](#).

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[H01B 7/17](#) to [H01B 7/295](#) covered by [H01B 7/18](#) to [H01B 7/2813](#), [H01B7/34](#) to [H01B7/34B3](#)

**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. polyactylenes}
- [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 <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 <a href="#">H05B</a> )
H01B 7/17	. Protection against damage caused by external factors, e.g. sheaths or armouring (power cables with screens <a href="#">H01B 9/02</a> ; communication cables with screens <a href="#">H01B 11/06</a> ; {continuously-loaded cables <a href="#">H01B 11/14</a> ;} installation of conduits <a href="#">H02G</a> )
H01B 7/18	.. {Protection against damage caused} by wear, mechanical force or pressure; {Sheaths; Armouring}
H01B 7/1805	... {Protections not provided for in groups <a href="#">H01B 7/182</a> to <a href="#">H01B 7/26</a> }
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 ( <a href="#">H01B 7/185</a> 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**

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 . . Stranded or braided wires
- H01B 12/10 . . Multi-filaments embedded in normal conductors
- H01B 12/12 . . Hollow conductors
- H01B 12/14 . characterised by the disposition of thermal insulation
- H01B 12/16 . characterised by cooling

**H01B 13/00****Apparatus or processes specially adapted for manufacturing conductors or cables**

- H01B 13/0003 . {for feeding conductors or cables}
- H01B 13/0006 . {for reducing the size of conductors or cables}
- H01B 13/0009 . {for forming corrugations on conductors or cables}
- H01B 13/0013 . {for embedding wires in plastic layers}
- H01B 13/0016 . {for heat treatment}
- H01B 13/002 .. {for heat extraction}
- H01B 13/0023 . {for welding together plastic insulated wires side-by-side}
- H01B 13/0026 . {Apparatus for manufacturing conducting or semi-conducting layers, e.g. deposition of metal}
- H01B 13/003 . {using irradiation}
- H01B 13/0033 . {by electrostatic coating}
- H01B 13/0036 . {Details}
- H01B 13/004 . for manufacturing rigid-tube cables
- H01B 13/008 . for manufacturing extensible conductors or cables
- H01B 13/012 . for manufacturing wire harnesses
- H01B 13/01209 .. {Details}
- H01B 13/01218 .. {the wires being disposed by hand}
- H01B 13/01227 ... {using a layout board}
- H01B 13/01236 .. {the wires being disposed by machine}
- H01B 13/01245 ... {using a layout board}
- H01B 13/01254 .. {Flat-harness manufacturing}
- H01B 13/01263 .. {Tying, wrapping, binding, lacing, strapping or sheathing harnesses}
- H01B 13/01272 ... {Harness tying apparatus}
- H01B 13/01281 ... {Harness wrapping apparatus}
- H01B 13/0129 ... {Sheathing harnesses with foil material}
- H01B 13/016 . for manufacturing co-axial cables ([applying discontinuous insulation H01B 13/20](#))
- H01B 13/0162 .. {of the central conductor}
- H01B 13/0165 .. {of the layers outside the outer conductor}
- H01B 13/0167 .. {After-treatment}
- H01B 13/02 . Stranding-up ([stranding-up ropes D07B](#))
- H01B 13/0207 .. {Details; Auxiliary devices}
- H01B 13/0214 .. {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 ( <a href="#">H01B 13/0242 takes precedence</a> )}
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 ( <a href="#">H01B 13/32 takes precedence</a> )
H01B 13/062	..	{by pulling on an insulating sleeve}
H01B 13/065	..	{Insulating conductors with lacquers or enamels}
H01B 13/067	..	{Insulating coaxial cables ( <a href="#">H01B 13/20 takes precedence</a> )}
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 <a href="#">B29C 47/00</a> )}
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 ( <a href="#">measuring thickness G01B</a> ; <a href="#">testing during manufacturing 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 ([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. diabolos, bobbins
- 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