

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 7/28D](#),
[H01B 7/34](#) to [H01B 7/34B3](#)

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. 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

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 ([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