

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](#)})

Definition statement

This place covers:

- Electrical conductors or cables characterised by their conductive material or form including power cables, communication cables or conductors, and superconductors or hyperconductive conductors, cables or transmission lines.
- Electrical insulators or insulating bodies characterised by their insulating or dielectric material or form, including capacitor-type insulators.
- Apparatus or processes specially adapted for manufacturing conductors or cables.
- Apparatus or process specially adapted for manufacturing insulators or insulating bodies.
- Apparatus or process for salvaging material from cables.

Relationships with other classification places

Electrical conductors or cables characterised by their conductive material or form including power cables, communication cables or conductors, and superconductors or hyper-conductive conductors, cables or transmission lines are classified in [H01B 1/00](#) - [H01B 1/24](#)

Insulators based on inorganic materials are classified in [H01B 3/02](#) - [H01B 3/16](#); Insulators based on fibrous materials (e.g. fabric, paper) are classified in [H01B 3/48](#) - [H01B 3/545](#); Insulators based on gases are classified in [H01B 3/56](#)

Non-insulated conductors or conductive bodies characterized by their form can be found in [H01B 5/00](#) - [H01B 5/16](#)

Insulated conductors or cables characterized by their form are classified in [H01B 7/00](#) - [H01B 7/428](#)

Power Cables are classified in [H01B 9/00](#) - [H01B 9/0694](#)

Communication Cables are classified in [H01B 11/00](#) - [H01B 11/22](#)

Superconductive or hyper-conductive conductors, cables or transmission lines are classified in [H01B 12/00](#) - [H01B 12/16](#)

Apparatus or processes specially adapted for manufacturing conductors or cables are classified in [H01B 13/00](#) - [H01B 13/348](#)

Apparatus or process for salvaging material from cables are classified in [H01B 15/00](#) - [H01B 15/008](#)

Insulators or insulating bodies characterised by their form are classified in [H01B 17/00](#) - [H01B 17/66](#)

Apparatus or processes specially adapted for manufacturing insulators or insulating bodies are classified in [H01B 19/00](#) - [H01B 19/04](#)

| | |
|---------------------------|----------------------|
| Resistors | H01C |
| Inductances; Transformers | H01F |
| Capacitors | H01G |
| Electric switches; Relays | H01H |
| Electric discharge lamps | H01J |

| | |
|--|----------------------|
| Electric incandescent lamps | H01K |
| Semiconductor devices | H01L |
| Batteries, electrodes for batteries | H01M |
| Electrical cables or conductors of the waveguide type | H01P |
| Cables used as aerials | H01Q |
| Electrically-conductive connections; Structural associations of a plurality of mutually-insulated electrical connecting elements; Coupling devices | H01R |
| Devices using stimulated emission | H01S |
| Spark gaps | H01T |

References

Limiting references

This place does not cover:

| | |
|--|----------------------------------|
| Superconductors characterized by a ceramic forming technique or ceramic composition | C04B 35/00 |
| Conductive paints | C09D 5/24 |
| Insulating paper | D21H27/12 |
| Light guides; Structural details of arrangements comprising light guides and other optical elements, e.g. coupling | G02B 6/00 |
| Selection of magnetic properties | H01F 1/00 |
| Piezo-electric or electrostrictive materials | H01L 41/00 |
| Transmission lines of the waveguide type, disclosing typical HF-features, e.g. propagation of non-TEM modes, multimodes or particular dimension adapted for HF-propagation | H01P 3/00 |
| Coaxial cables functioning as an antenna | H01Q 13/00 |
| Wire processing before connecting to contact members | H01R 43/28 |
| Cables with separate protective tubings or conduits | H02G 3/04 |
| Printed circuits | H05K |

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|---|------------------------------|
| Cables or wires comprising electrodes, or feed-throughs for implantation or insertion into the body | A61N 1/00 |
| Cables especially adapted for vehicles | B60R 16/0215 |
| Storing or paying-out lengths of conductors or cables | B65H 75/34 |
| Insulating rail joints | E01B 11/54 |
| Sensing cables for alarm systems | G08B 13/00 |
| Passages or insulators for monitoring in nuclear reactors | G21C 17/116 |
| Resistors | H01C |
| Details of transformers or inductances | H01F 27/00 |

| | |
|---|----------------------------|
| Insulating of windings for manufacturing coils | H01F 41/12 |
| Capacitors | H01G |
| Devices using superconductivity or hyperconductivity | H01L 39/00 |
| Coaxial lines for handling frequencies considerably beyond the audio range | H01P 3/06 |
| Bus-bar layouts | H02B 1/20 |
| Installations of electric cables or lines, or of combined optical and electric cables or lines | H02G |
| Details of windings of dynamo-electric machines characterized by the conductor or insulating material | H02K 3/00 |
| Communication line transmission systems | H04B 3/00 |
| Heating elements | H05B |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|-----------------------------|
| Processes for applying liquids or other fluent materials to surfaces to obtain a coating with specific electrical properties | B05D 5/12 |
| Suspension insulators for trolley lines | B60M 1/16 |
| Optical cables; Structural details of arrangements comprising light guides and other optical elements, e.g. coupling | G02B 6/00 |
| Passages or insulators for nuclear reactors, e.g. for electric cables | G21C 17/116 |
| Cable insulation removal methods and apparatus | H02G 1/12 |
| Arrangements leading cables or lines through walls | H02G 3/22 |
| Bus-bars | H02G 5/00 |
| Junction boxes | H02G 15/10 |
| Circuit arrangements or systems for supplying of distributing electric power | H02J |
| Wire processing for making windings for dynamo-electric machines | H02K 3/04 |
| Screening of apparatus or components against electric or magnetic fields | H05K 9/00 |

Special rules of classification

Group [H01B 12/00](#) takes precedence over groups [H01B 5/00](#), [H01B 7/00](#), [H01B 9/00](#), and [H01B 11/00](#).

Cables including at least one electrical conductor together with optical fibers are classified in group [H01B 11/22](#).

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

[H01B 7/17](#) - [H01B 7/295](#) covered by [H01B 7/18](#) - [H01B 7/2813](#), **H01B7/34** .

Device aspects of an invention are to be classified in [H01B 5/00](#), [H01B 7/00](#), [H01B 9/00](#), [H01B 11/00](#), [H01B 12/00](#) and [H01B 17/00](#), method aspects of an invention are to be classified in [H01B 13/00](#). Therefore, there are corresponding subgroups, see table below:

| Description | Device subgroup / Process subgroup |
|--|--|
| Stranded conductors | H01B 5/08 / H01B 13/02 |
| Cable harnesses | H01B 7/0045 / H01B 13/012 |
| Disposition of insulation | H01B 7/02 / H01B 13/06 |
| Wrapped layers of insulation | H01B 7/0241 / H01B 13/08 |
| Cables with gas dielectric | H01B 7/0233 / H01B 13/142 |
| Longitudinal lapped insulation | H01B 7/0258 / H01B 13/10 |
| Extruded layers of insulation | H01B 7/0275 / H01B 13/14 |
| Extensible conductors | H01B 7/06 / H01B 13/008 |
| Rigid-tube cables | H01B 7/16 / H01B 13/004 |
| Protection against damage | H01B 7/18 / H01B 13/22 |
| Internal space filling-up means | H01B 7/1895 / H01B 13/221 |
| Extruded metal tubes | H01B 7/201 / H01B 13/245 |
| Protection against moisture, chemical attack or weather | H01B 7/28 / H01B 13/32 |
| Transposed conductors | H01B 7/306 / H01B 13/0278 |
| Distinguishing marks | H01B 7/36 / H01B 13/34 |
| Indices being imposed on the insulation | H01B 7/365 / H01B 13/345 / H01B 13/348 |
| Mark being a tape, thread or wire | H01B 7/366 / H01B 13/342 |
| Mark being a sleeve, tag or clip | H01B 7/368 / H01B 13/344 |
| Concentric cables | H01B 9/04 / H01B 13/20 |
| Pair constructions | H01B 11/002 / H01B 13/02 |
| Quad constructions | H01B 11/005 / H01B 13/02 |
| Cables with twisted pairs or quads | H01B 11/02 / H01B 13/02 |
| Pairs or quads mutually positioned to reduce crosstalk | H01B 11/04 / H01B 13/04 |
| Coaxial cables | H01B 11/18 / H01B 13/016 |
| Coaxial cables, construction of conductors, e.g. inner and outer conductor | H01B 11/1808 / H01B 13/225 // H01B 13/0162 |
| Coaxial cables, construction of the insulation between conductors | H01B 11/1834 / H01B 13/067 |
| Coaxial cables, insulators of cellular structure | H01B 11/1839 / H01B 13/142 |
| Coaxial cables, outer layers | H01B 11/1869 / H01B 13/0165 |

Within each main group of this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.

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](#))

Definition statement

This place covers:

- Conductors or conductive bodies characterised by the conductive materials; Selection of materials as conductors

References

Limiting references

This place does not cover:

| | |
|--|----------------------------|
| Organic macromolecular compounds or compositions | C08 |
| Resistors | H01C |
| Selection of materials for superconductivity | H01L 39/00 |

Special rules of classification

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

H01B 1/12

organic substances {(organic macromolecular compounds or compositions [C08](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|---------------------|
| Organic macromolecular compounds or compositions | C08 |
|--|---------------------|

H01B 1/20

Conductive material dispersed in non-conductive organic material {(organic macromolecular compounds or compositions [C08](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|---------------------|
| Organic macromolecular compounds or compositions | C08 |
|--|---------------------|

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](#))

Definition statement

This place covers:

- Insulators or insulating bodies characterised by the insulating materials
- Selection of materials for their insulating or dielectric properties

References

Limiting references

This place does not cover:

| | |
|---|----------------------------|
| Selection of piezo-electric or electrostrictive materials | H01L 41/00 |
|---|----------------------------|

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| Superconductors characterized by a ceramic forming technique or ceramic composition | C04B 35/00 |
|---|----------------------------|

H01B 3/10

metallic oxides (ceramics [H01B 3/12](#))

References

Limiting references

This place does not cover:

| | |
|----------|---------------------------|
| Ceramics | H01B 3/12 |
|----------|---------------------------|

H01B 3/18

mainly consisting of organic substances {(organic macromolecular compounds or compositions [C08](#))}

Definition statement

This place covers:

- Electrical insulators or insulating bodies characterised by their insulating or dielectric material or form, including capacitor-type insulators.
- Insulating materials based on organic substances including cellulose and derivatives, organic liquids, asphalt- and bitumen-based materials, natural and synthetic rubber, polymeric materials including resins and waxes.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|-----------------------------|
| Macromolecular compounds obtained only by reactions involving unsaturated carbon-to-carbon bonds | C08F |
| Macromolecular compounds obtained otherwise than by reactions only involving unsaturated carbon-to-carbon bonds | C08G |
| Additives for polymer compositions in general | C08K |
| Polymer Compositions | C08L |
| Hydrocarbon and fatty acid compositions | C10M 1/00 |
| Insulating paper | D21H7/12 |
| Passages or insulators for nuclear reactors, e.g. for electric cables | G21C 17/116 |

Special rules of classification

For applications which deal with polymer compositions comprising inorganic additives, where it is not apparent, whether the invention resides in the polymeric or the inorganic component, the application should be classified in the relevant subgroups of both the inorganic additive and the polymeric component.

Insulating materials comprising compositions of different organic insulating materials are classified in each relevant subgroup (e.g. an insulating layer comprising a polyethylene and a polystyrene is classified in both [H01B 3/441](#) and [H01B 3/442](#)).

Groups [H01B 3/18](#), [H01B 3/30](#), [H01B 3/42](#), [H01B 3/44](#) are only used when no relevant subgroup is available

The group [H01B 3/30](#) is used for insulating materials characterized by predominantly by physical properties

No new documents are classified in [H01B 3/308](#).

In [H01B 3/47](#) the plastic is also classified in the relevant groups above

H01B 3/20

liquids, e.g. oils (silicone oils [H01B 3/46](#))

References

Limiting references

This place does not cover:

| | |
|---------------|----------------------------|
| Silicone oils | H01B 3/465 |
|---------------|----------------------------|

H01B 3/30

plastics; resins; waxes

Special rules of classification

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

H01B 3/34**Waxes (silicone waxes [H01B 3/46](#))****References****Limiting references***This place does not cover:*

| | |
|----------------|---------------------------|
| Silicone waxes | H01B 3/46 |
|----------------|---------------------------|

H01B 3/44**vinyl resins; acrylic resins (silicones [H01B 3/46](#))****References****Limiting references***This place does not cover:*

| | |
|-----------|----------------------------|
| Silicones | H01B 3/465 |
|-----------|----------------------------|

H01B 3/48**fibrous materials (fibre-reinforced plastics [H01B 3/47](#))****Definition statement***This place covers:*

Insulators or insulating bodies characterised by the insulating materials comprising fibrous materials like fabric, wood, paper, press board

References**Limiting references***This place does not cover:*

| | |
|---------------------------|---------------------------|
| Fibre-reinforced plastics | H01B 3/47 |
|---------------------------|---------------------------|

H01B 5/00**Non-insulated conductors or conductive bodies characterised by their form****Definition statement***This place covers:*

Non-insulated electrical conductors or cables by their type; constructional details of non-insulated electrical conductors or cables.

References

Limiting references

This place does not cover:

| | |
|--|----------------------------|
| Conductors or conductive bodies characterised by the conductive material | H01B 1/00 |
| Apparatus or processes for stranding-up | H01B 13/02 |

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|--|----------------------------|
| Features peculiar to electrified wire fencing | A01K 3/005 |
| Metal cables or ropes not for conducting electricity | D07B 1/00 |
| Wire fencing | E04H 17/02 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|------|--------------------------------------|
| ACSR | Aluminium conductor steel reinforced |
| ACSS | Aluminium conductor steel supported |
| ACCC | Aluminium conductor composite core |

H01B 5/008

{Fence-wire not otherwise provided for (wire fencing [E04H 17/02](#))}

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|--------------|----------------------------|
| Wire fencing | E04H 17/02 |
|--------------|----------------------------|

H01B 5/08

Several wires or the like stranded in the form of a rope

Definition statement

This place covers:

Overhead lines for high voltage power distribution, including overhead lines comprising thin protective layers, e.g. against corrosion or weather attack. Such thin protective layers are not considered as conductor insulation.

H01B 5/14

comprising conductive layers or films on insulating-supports (insulating-layers or insulating-films on metal bodies [H01B 17/62](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| 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](#))

References

Limiting references

This place does not cover:

| | |
|--|----------------------------|
| Conductive material dispersed in non-conductive inorganic material | H01B 1/14 |
| Conductive material dispersed in non-conductive organic material | H01B 1/20 |
| Insulating bodies with conductive admixtures | H01B 17/64 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-------------------|---------------------------|
| Conductive paints | C09D 5/24 |
|-------------------|---------------------------|

H01B 7/00

Insulated conductors or cables characterised by their form

Definition statement

This place covers:

Insulated electrical conductors or cables by their type; constructional details of insulated electrical conductors or cables.

References

Limiting references

This place does not cover:

| | |
|---|----------------------------|
| Insulation characterised by the insulating materials | H01B 3/00 |
| Power cables with voltage ratings above about 1 KV, also welding cables, e.g. with current ratings above about 50 A | H01B 9/00 |
| Insulators or insulating bodies | H01B 17/00 |

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|--|-----------------------------|
| Cables or wires comprising electrodes for implantation into the human body, e.g. heart electrode | A61N 1/05 |
| Cable systems in drilling arrangements | E21B 17/206 |
| Seismic cables | G01V 1/201 |
| Non-integral, removable labels for electric cables | G09F 3/205 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------------|
| Arrangements for storing and repeatedly paying-out and re-storing lengths of conductors or cables | B65H57/34 |
| Code or colour marking of optical cables | G02B 6/4482 |

Special rules of classification

This group is subdivided either into insulated conductors or cables by their type, e.g.:

[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)

[H01B 7/009](#) (cables with build-in connection points or with predetermined areas for making deviations)

[H01B 7/04](#) (flexible insulated cables, conductors or cords)

[H01B 7/06](#) (extensible conductors or cables)

[H01B 7/08](#) (flat or ribbon cables)

[H01B 7/10](#) (contact cables)

[H01B 7/12](#) (floating cables)

[H01B 7/14](#) (submarine cables)

[H01B 7/16](#) (rigid-tube cables)

or by general constructional details of insulated conductors or cables, e.g.:

[H01B 7/0009](#) (details relating to the conductive cores)

[H01B 7/02](#) (disposition of insulation)

[H01B 7/17](#) (protection against damage caused by external factors)

[H01B 7/30](#) (with arrangements for reducing conductor losses when carrying AC)

[H01B 7/32](#) (with arrangements for indicating defects)

[H01B 7/36](#) (with distinguishing or length marks)

[H01B 7/38](#) (with arrangements for facilitating removal of insulation)

[H01B 7/40](#) (with arrangements for facilitating mounting and securing)

[H01B 7/42](#) (with arrangements for heat dissipation or conduction)

H01B 7/0018

{Strip or foil conductors ([H01B 7/08](#) takes precedence)}

References

Limiting references

This place does not cover:

| | |
|-----------------------|---------------------------|
| Flat or ribbon cables | H01B 7/08 |
|-----------------------|---------------------------|

H01B 7/0081

{Cables of rigid construction (rigid-tube cables [H01B 7/16](#))}

References

Limiting references

This place does not cover:

| | |
|-------------------|---------------------------|
| Rigid-tube cables | H01B 7/16 |
|-------------------|---------------------------|

H01B 7/02

Disposition of insulation (materials [H01B 3/00](#); insulators [H01B 17/00](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------|----------------------------|
| Insulation materials | H01B 3/00 |
| Insulators | H01B 17/00 |

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](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| Arrangements for storing and repeatedly paying-out and re-storing lengths of conductors or cables | B65H 75/34 |
|---|----------------------------|

H01B 7/12

Floating cables (installations of cables supported on or from floats [H02G 9/12](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---------------------------|
| Installations of cables supported on or from floats | H02G 9/12 |
|---|---------------------------|

H01B 7/16

Rigid-tube cables (heating elements of similar construction [H05B](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------|
| 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](#))

References

Limiting references

This place does not cover:

| | |
|-----------------------------------|----------------------------|
| Power cables with screens | H01B 9/02 |
| Communication cables with screens | H01B 11/06 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------------|----------------------------|
| Continuously-loaded cables | H01B 11/14 |
| Installation of conduits | H02G |

H01B 7/1805

{Protections not provided for in groups [H01B 7/182](#) - [H01B 7/26](#)}

References**Limiting references**

This place does not cover:

| | |
|-------------|--|
| Residual to | H01B 7/182 - H01B 7/26 |
|-------------|--|

H01B 7/189

{Radial force absorbing layers providing a cushioning effect ([H01B 7/185](#) takes precedence)}

References**Limiting references**

This place does not cover:

| | |
|--|----------------------------|
| Sheaths comprising internal cavities or channels | H01B 7/185 |
|--|----------------------------|

H01B 7/28

{Protection against damage caused} by moisture, corrosion, chemical attack or weather {(sheaths, armoring [H01B 7/18](#))}

Definition statement

This place covers:

Insulated conductors or cables characterised by their form: Protection against damage caused by moisture, corrosion, chemical attack or weather

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|-------------------|---------------------------|
| Sheaths, armoring | H01B 7/18 |
|-------------------|---------------------------|

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](#))

References

Limiting references

This place does not cover:

| | |
|--|----------------------------|
| Insulators or insulating bodies with surfaces specially treated for preserving insulating properties, e.g. for protection against moisture, dirt | H01B 17/50 |
|--|----------------------------|

H01B 7/29

Protection against damage caused by extremes of temperature or by flame {(heat dissipation or conduction [H01B 7/42](#))}

Definition statement

This place covers:

Protection of cables against damage caused by extremes of temperature or by flame

References

Limiting references

This place does not cover:

| | |
|--------------------------------|---------------------------|
| Sheaths, amouring | H01B 7/18 |
| Heat dissipation or conduction | H01B 7/42 |

H01B 7/32

with arrangements for indicating defects, e.g. breaks, leaks, (locating defects by measuring [G01](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-------------------------------|---------------------|
| Locating defects by measuring | G01 |
|-------------------------------|---------------------|

H01B 7/42

with arrangements for heat dissipation or conduction (insulators or insulating bodies having heating or cooling devices [H01B 17/54](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------------|
| Insulators or insulating bodies characterised by their form having heating or cooling devices | H01B 17/54 |
|---|----------------------------|

H01B 9/00

Power cables

Definition statement

This place covers:

Electrical power cables by their type, wherein voltage ratings are typical above about 1 KV and/or current ratings are typical above about 50 A; constructional details of power cables.

References

Limiting references

This place does not cover:

| | |
|---|---------------------------|
| Flexible power cables for e.g. portable tools, mobile objects and machinery | H01B 7/04 |
|---|---------------------------|

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|---|-----------------------------|
| Cables comprising optical elements and electrical power conductors, where the optical aspect is of interest | G02B 6/4416 |
| Bus-bars | H02G 5/00 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------------------|---------------------------|
| Arc welding, accessories | B23K 9/32 |
|--------------------------|---------------------------|

Special rules of classification

This group is subdivided either into power cables by their type, e.g.:

[H01B 9/001](#) (welding cables)

[H01B 9/008](#) (for overhead application)

[H01B 9/04](#) (concentric cables)

[H01B 9/06](#) (gas-pressure, oil-pressure cables or cables for use in conduits under pressure)

or by general constructional details of power cables, e.g.:

[H01B 9/006](#) (constructional features relating to the conductors)

[H01B 9/003](#) (including electrical control or communication wires)

[H01B 9/005](#) (including optical transmission elements)

[H01B 9/02](#) (with screens or conductive layers)

H01B 11/00

Communication cables or conductors (waveguides [H01P](#))

Definition statement

This place covers:

Electrical communication cables carrying telecommunication or data signals in a frequency range less than the microwave range (less than several hundred MHz).

References

Limiting references

This place does not cover:

| | |
|--|-----------------------------|
| Communication cables inside power cables | H01B 9/003 |
| Coaxial cables being a waveguide handling frequencies in the several hundred MHz range (e.g. microwaves) | H01P 3/06 |
| Coaxial cables functioning as an antenna | H01Q 13/203 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|-----------------------------|
| Internal space filling-up means, e.g. splines | H01B 7/1895 |
|---|-----------------------------|

Special rules of classification

This group is subdivided either into communication cables by their type, e.g.:

[H01B 11/02](#) (communication cables with twisted pairs or quads)

[H01B 11/18](#) (coaxial cables)

[H01B 11/22](#) (communication cables including at least one electrical conductor together with optical fibres)

or by general constructional details of communication cables, e.g.:

[H01B 11/002](#) (pair constructions)

[H01B 11/005](#) (quad constructions)

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| | |
|-------|---------------------------|
| ANEXT | alien near end cross talk |
|-------|---------------------------|

H01B 11/02

Cables with twisted pairs or quads (transposing, crossing or twisting at joints [H04B](#); balancing of earth capacitance [H04B](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------|
| 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](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|----------------------|
| 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](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------|---------------------------|
| Screening in general | H05K 9/00 |
|----------------------|---------------------------|

H01B 11/12

Arrangements for exhibiting specific transmission characteristics (loading coils per se [H01F 17/08](#); coil-loaded circuits [H04B](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------|----------------------------|
| Loading coils per se | H01F 17/08 |
| Coil-loaded circuits | H04B |

H01B 11/16

Cables, e.g. submarine cables, with coils or other devices incorporated during cable manufacture (junction boxes for cables [H02G 15/10](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------------|----------------------------|
| Junction boxes for cables | H02G 15/10 |
|---------------------------|----------------------------|

H01B 11/18

Coaxial cables; Analogous cables having more than one inner conductor within a common outer conductor

Special rules of classification

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 12/00

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

Definition statement

This place covers:

- Superconductive conductors, cables or transmission lines characterised by their form;
- Processes specially adapted for manufacturing superconductive conductors, cables or transmission lines.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|-----------------------------|
| Superconducting coils | H01F 6/06 |
| Details or devices using superconductivity or hyperconductivity characterised by the material | H01L 39/12 |
| Processes peculiar to the manufacture or treatment of filaments of superconductive composite wires | H01L 39/248 |

H01B 12/02

characterised by their form

References

Limiting references

This place does not cover:

The groups [H01B 12/04](#) - [H01B 12/10](#) do not cover:

| | |
|-------------------|----------------------------|
| Hollow conductors | H01B 12/12 |
|-------------------|----------------------------|

Special rules of classification

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

H01B 13/00

Apparatus or processes specially adapted for manufacturing conductors or cables

Definition statement

This place covers:

Apparatus or processes specially adapted for manufacturing non-insulated or insulated electrical conductors, wires or cables.

References

Limiting references

This place does not cover:

| | |
|---|----------------------------|
| Apparatus or processes specially adapted for manufacturing superconductive cables | H01B 12/00 |
|---|----------------------------|

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

| | |
|--|----------------------------|
| Stranding metal cables or ropes not for conducting electricity | D07B 3/00 |
| Wire processing before connecting to contact members | H01R 43/28 |

Special rules of classification

Subgroups comprising apparatus or processes for manufacturing particular types of electrical conductors or cables, e.g.:

[H01B 13/004](#) (manufacturing rigid-tube cables)

[H01B 13/008](#) (manufacturing extensible conductors or cables)

[H01B 13/012](#) (manufacturing wire harnesses)

[H01B 13/016](#) (manufacturing coaxial cables)

Subgroups comprising apparatus or processes for a particular production step for manufacturing electrical conductors or cables, e.g.:

[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 13/0023](#) (for welding together plastic insulated wires side-by-side)

[H01B 13/0026](#) (for manufacturing conducting or semi-conducting layers)

[H01B 13/003](#) (using irradiation)

[H01B 13/0033](#) (electrostatic coating)

[H01B 13/0036](#) (details)

[H01B 13/02](#) (stranding-up)

[H01B 13/06](#) (insulating conductors or cables)

[H01B 13/22](#) (sheeting, armouring, screening or applying other protective layer)

[H01B 13/28](#) (applying continuous inductive loading)

[H01B 13/32](#) (filling or coating with impervious material)

[H01B 13/34](#) (for marking conductors or cables)

H01B 13/016

**for manufacturing co-axial cables (applying discontinuous insulation
[H01B 13/20](#))**

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|-----------------------------------|----------------------------|
| Applying discontinuous insulation | H01B 13/20 |
|-----------------------------------|----------------------------|

H01B 13/02**Stranding-up (stranding-up ropes [D07B](#))****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

| | |
|--------------------|----------------------|
| Stranding-up ropes | D07B |
|--------------------|----------------------|

H01B 13/0264**{being rollers, pulleys, drums or belts ([H01B 13/0242](#) takes precedence)}****References*****Limiting references****This place does not cover:*

| | |
|-------------|------------------------------|
| Accumulator | H01B 13/0242 |
|-------------|------------------------------|

H01B 13/06**Insulating conductors or cables ([H01B 13/32](#) takes precedence)****References*****Limiting references****This place does not cover:*

| | |
|---|----------------------------|
| Filling or coating with impervious material | H01B 13/32 |
|---|----------------------------|

H01B 13/067**{Insulating coaxial cables ([H01B 13/20](#) takes precedence)}****References*****Limiting references****This place does not cover:*

| | |
|--|----------------------------|
| Applying discontinuous insulation for concentric or coaxial cables | H01B 13/20 |
|--|----------------------------|

H01B 13/14**by extrusion {(extrusion in general [B29C 47/00](#))}****Definition statement***This place covers:*

Apparatus or processes specially adapted for manufacturing conductors or cables by extrusion

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------------------------|-----------------------------|
| Extrusion in general | B29C 47/00 |
| Measuring thickness | G01B |
| Testing during manufacturing | G01R 31/022 |

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](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------------------------|-----------------------------|
| Measuring thickness | G01B |
| Testing during manufacturing | G01R 31/022 |

H01B 13/22

Sheathing; Armouring; Screening; Applying other protective layers
([H01B 13/32](#) takes precedence)

References

Limiting references

This place does not cover:

| | |
|---|----------------------------|
| Filling or coating with impervious material | H01B 13/32 |
|---|----------------------------|

H01B 13/24

by extrusion {(extrusion of cables with plastic material in general [B29C 47/02](#))}

Definition statement

This place covers:

Apparatus or processes specially adapted for manufacturing conductors or cables by extrusion, wherein the protective layer is produced by extrusion.

References

Limiting references

This place does not cover:

| | |
|---|----------------------------|
| Apparatus or processes specially adapted for manufacturing conductors or cables by extrusion, wherein the insulating layer is produced by extrusion | H01B 13/14 |
|---|----------------------------|

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------------------------|-----------------------------|
| Extrusion in general | B29C 47/00 |
| Measuring thickness | G01B |
| Testing during manufacturing | G01R 31/022 |

H01B 13/26

by winding, braiding, or longitudinal lapping (winding in general [B65H](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------------|----------------------|
| Winding in general | B65H |
|--------------------|----------------------|

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](#) - [C04B 20/12](#), [C04B 41/45](#) - [C04B 41/52](#)})

Definition statement

This place covers:

Apparatus or processes specially adapted for manufacturing conductors or cables by drying

References**Limiting references**

This place does not cover:

| | |
|------------------------|----------------------------|
| Impregnating of cables | H01B 13/32 |
|------------------------|----------------------------|

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---|
| Drying and impregnating of wood or the like | B27K |
| Impregnation of stones, basic materials therefor | C04B 20/10 - C04B 20/12 , C04B 41/45 - C04B 41/52 |
| Impregnating of fibres | D06B 3/00 , D06B 5/00 |
| Drying in general | F26B |
| Fixed capacitors; Processes of their manufacture | H01G 4/00 |
| Fixed capacitors; Processes of their manufacture; Solid dielectrics | H01G 4/06 |

H01B 13/32

Filling or coating with impervious material (for cable installations [H02G 15/00](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------|----------------------------|
| Cable installations | H02G 15/00 |
|---------------------|----------------------------|

H01B 15/00

Apparatus or processes for salvaging material from cables (for removing insulation from conductors [H02G 1/12](#))

Definition statement

This place covers:

Dismantling of electric cables, e.g. for recycling.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|---------------------------|
| Apparatus or processes for removing insulation from conductors | H02G 1/12 |
|--|---------------------------|

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](#))

Definition statement

This place covers:

Electrical insulators being separate basic electric elements; constructional details of electrical insulators.

References

Limiting references

This place does not cover:

| | |
|--|----------------------------|
| Apparatus or processes specially adapted for manufacturing insulators or insulating bodies | H01B 19/00 |
|--|----------------------------|

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|-----------------------------|
| Feed-throughs structurally associated with medical devices, e.g. for electrotherapy | A61N 1/3754 |
| Section insulators for electric traction | B60M 1/18 |

| | |
|---|-----------------------------|
| Insulating rail-joints | E01B 11/54 |
| Leading of conductors through casings, structurally associated with transformers or inductances | H01F 27/04 |
| Fixed capacitor being a feed-through capacitor | H01G 4/35 |
| Insulators structurally associated with switchgear | H01H 33/025 |
| Arrangements leading cables or lines through walls | H02G 3/22 |

Special rules of classification

This group is subdivided either into insulators or insulating bodies by their type, e.g.:

[H01B 17/02](#) (suspension insulators)

[H01B 17/14](#) (supporting insulators)

[H01B 17/20](#) (pin insulators)

[H01B 17/24](#) (apertured insulators)

[H01B 17/26](#) (lead-in insulators, lead-through insulators, bushings)

or by general constructional details of insulators or insulating bodies, e.g.:

[H01B 17/005](#) (with build-in electrical equipment)

[H01B 17/32](#) (single insulators consisting of two or more dissimilar insulating bodies)

[H01B 17/34](#) (insulators containing liquid, e.g. oil)

[H01B 17/36](#) (insulators having evacuated or gas-filled spaces)

[H01B 17/38](#) (fittings)

[H01B 17/42](#) (means for obtaining improved distribution of voltage)

[H01B 17/50](#) (with surfaces specially treated for preserving insulating properties)

[H01B 17/52](#) (having cleaning devices)

[H01B 17/54](#) (having heating or cooling devices)

H01B 17/12

Special features of strain insulators (devices for relieving mechanical tension of electric lines or cables [H02G 7/04](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|---------------------------|
| 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](#))

References**Limiting references**

This place does not cover:

| | |
|----------------------|----------------------------|
| Pin insulators | H01B 17/20 |
| Apertured insulators | H01B 17/24 |

H01B 17/265

{Fastening of insulators to support ([H01B 17/301](#) takes precedence)}

References**Limiting references**

This place does not cover:

| | |
|---|-----------------------------|
| Lead-in insulators; lead-through insulators; Sealing of insulators to support | H01B 17/301 |
|---|-----------------------------|

H01B 17/28

Capacitor type (capacitors [H01G](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|------------|----------------------|
| Capacitors | H01G |
|------------|----------------------|

H01B 17/30

Sealing (packings in general [F16J](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------|----------------------|
| Packings in general | F16J |
|---------------------|----------------------|

H01B 17/42

Means for obtaining improved distribution of voltage (capacitor-type lead-through insulators [H01B 17/28](#)); Protection against arc discharges

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|--|----------------------------|
| Capacitor-type lead-through insulators | H01B 17/28 |
|--|----------------------------|

H01B 17/44

Structural association of insulators with corona rings (corona rings [H01T 19/02](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|--------------|----------------------------|
| Corona rings | H01T 19/02 |
|--------------|----------------------------|

H01B 17/46

Means for providing an external arc-discharge path (spark-gap arresters [H01T](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|---------------------|----------------------|
| Spark-gap arresters | H01T |
|---------------------|----------------------|

H01B 17/52

having cleaning devices ([H01B 17/54](#) takes precedence)

References**Limiting references**

This place does not cover:

| | |
|---|----------------------------|
| Insulators or insulating bodies having heating or cooling devices | H01B 17/54 |
|---|----------------------------|

H01B 17/56

Insulating bodies (insulators [H01B 17/02](#) - [H01B 17/54](#))

References

Limiting references

This place does not cover:

| | |
|------------|---|
| Insulators | H01B 17/02 - 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](#))

References

Limiting references

This place does not cover:

| | |
|---|---------------------------|
| Protective tubings for the installation of lines or cables in buildings | H02G 3/04 |
|---|---------------------------|

H01B 17/60

Composite insulating bodies (cables or conductors [H01B 7/00](#), [H01B 9/00](#); resistors [H01C](#); capacitors [H01G](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|----------------------|---|
| 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](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---------------------------|
| 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](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| | |
|---|---------------------------|
| Conductive bodies comprising conductive material dispersed in insulating material | H01B 5/16 |
|---|---------------------------|

H01B 19/00

Apparatus or processes specially adapted for manufacturing insulators or insulating bodies {(manufacture of porcelain for electric insulation [C04B 33/26](#))}

Definition statement

This place covers:

Apparatus or processes specially adapted for manufacturing insulators or insulating bodies

References**Limiting references**

This place does not cover:

| | |
|--|----------------------------|
| Manufacture of porcelain for electric insulation | C04B 33/26 |
|--|----------------------------|