

**CPC****COOPERATIVE PATENT CLASSIFICATION****H01R**

**LINE CONNECTORS; CURRENT COLLECTORS** ( switches, fuses [H01H](#); coupling devices of the waveguide type [H01P 5/00](#); switching arrangements for the supply or distribution of electric power [H02B](#); installations of electric lines, cables or auxiliary apparatus [H02G](#); printed means for providing electric connections to or between printed circuits [H05K](#) )

**NOTE**

This subclass covers:

- all kinds of contact-making disconnectible and non-disconnectible electric line connectors, coupling devices, lamp or similar holders or current collectors for all kinds of electric lines, cables or apparatus;
- non-printed means for electric connections to or between printed circuits.

This subclass does not cover mounting of connections in or specified apparatus. Such mounting is covered by the relevant subclass for such apparatus, e.g. mounting in junction or distribution boxes is covered by subclass [H02B](#) or [H02G](#), high-temperature connections for heating elements is covered by group [H05B 3/08](#). Structural association of one part of a two-part coupling device with specific electric apparatus is classified with the apparatus e.g. association of cap with incandescent lamp is covered by subclass [H01K](#).

In this subclass, a contact in a coupling device is only regarded as an additional earth contact if this contact is clearly designed for that purpose.

General details are classified in groups [H01R 4/00](#), [H01R 9/00](#), [H01R 11/00](#).

**H01R 3/00**

**Electrically-conductive connections not otherwise provided for**

**H01R 3/08**

- for making connection to a liquid ({ slip rings with liquid contacts [H01R 39/30](#); [H01R 39/646](#) }; electrodes for batteries or accumulators [H01M](#) )

**H01R 4/00**

**Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact** ( details of disengageable contacts of two-part coupling devices [H01R 13/00](#); two-part coupling devices [H01R 12/70](#), [H01R 24/00](#) - [H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#); non rotary current collectors [H01R 41/00](#) )

**H01R 4/01**

- Connections using shape memory materials, e.g. shape memory metal

**H01R 4/02**

- Soldered or welded connections ({ [H01R 4/625](#), [H01R 4/723](#), [H01R 12/59](#) take precedence })

**H01R 4/021**

- · { between two or more cables or wires }

**H01R 4/022**

- · · { comprising preapplied solder }

**H01R 4/023**

- · { between cables or wires and terminals }

**H01R 4/024**

- · · { comprising preapplied solder }

- H01R 4/025      ..      { with built-in heat generating elements }
- H01R 4/026      ..      { comprising means for eliminating an insulative layer prior to soldering or welding }
- H01R 4/027      ..      { comprising means for positioning or holding the parts to be soldered or welded }
- H01R 4/028      ..      { comprising means for preventing flowing or wicking of solder or flux in parts not desired }
- H01R 4/029      ..      { Welded connections ( [H01R 4/021](#) to [H01R 4/028](#) take precedence ) }
- H01R 4/04      .      using electrically conductive adhesives
- H01R 4/06      .      Riveted connections ( by explosion [H01R 4/08](#) )
- H01R 4/08      .      effected by an explosion
- H01R 4/10      .      effected solely by twisting, wrapping, bending, crimping, or other permanent deformation
- H01R 4/12      ..      by twisting
- H01R 4/14      ..      by wrapping
- H01R 4/16      ..      by bending
- H01R 4/18      ..      by crimping { ( [H01R 4/01](#), [H01R 4/2495](#) take precedence; for coaxial cables [H01R 9/0518](#) ) }
- H01R 4/182      ...      { for flat conductive elements, e.g. flat cables ( [H01R 4/01](#) takes precedence ) }
- H01R 4/183      ...      { for cylindrical elongated bodies, e.g. cables having circular cross-section ( [H01R 4/01](#) takes precedence ) }
- H01R 4/184      ....      { comprising a U-shaped wire-receiving portion }
- H01R 4/185      .....      { combined with a U-shaped insulation-receiving portion }
- H01R 4/186      ....      { using a body comprising a plurality of cable-accommodating recesses or bores }
- H01R 4/187      ...      { combined with soldering or welding }
- H01R 4/188      ...      { having an uneven wire-receiving surface to improve the contact }
- H01R 4/20      ...      using a crimping sleeve { ( [H01R 4/01](#) takes precedence ) }
- H01R 4/203      ....      { having an uneven wire-receiving surface to improve the contact }
- H01R 4/206      .....      { with transversal grooves or threads }
- H01R 4/22      .      End caps, i.e. of insulating or conductive material for covering or maintaining connections between wires entering the cap from the same end
- H01R 4/24      .      Needle-point, slotted plate, or analogous contact members penetrating insulation or cable strands { ( for multiphase cables [H01R 9/031](#); for coaxial cables [H01R 9/053](#); for flat cables [H01R 12/67](#) ) }
- H01R 4/2404      ..      { having at least one tooth, prong, pin or needle penetrating the insulation ( penetration into a wire end in axial direction [H01R 4/5033](#) ) }
- H01R 4/2408      ...      { actuated by means of at least one clamping screw ( clamped connection using a screw [H01R 4/30](#) ) }
- H01R 4/2412      ...      { actuated by means of an insulating cam or wedge }
- H01R 4/2416      ..      { having insulation cutting edges e.g. tuning fork type, slotted plate type, wire type }
- H01R 4/242      ...      { the contact member being a single slotted plate }
- H01R 4/2425      ....      { flat plate; multi-layered flat plate }

H01R 4/2429	.....	{ mounted in an insulating base }
H01R 4/2433	.....	{ one part of the base being movable to push the cable into the slot }
H01R 4/2437	....	{ curved plate }
H01R 4/2441	.....	{ being tube-shaped with a single slot }
H01R 4/2445	...	{ the contact member being provided with additional means acting on the wire e.g. a second insulation penetrating means, strain relief means, wire cutting knife }
H01R 4/245	....	{ with at least two slotted flat portions }
H01R 4/2454	.....	{ being linked in such a way as to form a U-shape, the branches of which are slotted }
H01R 4/2458	....	{ the contact member having a slotted tubular configuration, e.g. slotted tube-end }
H01R 4/2462	....	{ the contact member having a slotted bent configuration, e.g. slotted bight }
H01R 4/2466	....	{ the contact member having a channel-shaped part, the opposite sidewalls of which comprise insulation cutting means }
H01R 4/247	..	{ penetrating insulation by means of a spring, e.g. a coil spring }
H01R 4/2475	..	{ penetrating insulation by means of screw, nut or bolt }
H01R 4/2479	...	{ penetrating area under the head of the screw }
H01R 4/2483	...	{ penetrating area under the tip of the screw }
H01R 4/2487	...	{ penetrating by means of the thread of the screw }
H01R 4/2491	..	{ penetrating insulation by means of a conductive cam or wedge }
H01R 4/2495	..	{ Insulation penetration combined with permanent deformation of contact member, e.g. crimping }
H01R 4/26	.	Connections in which at least one of the connecting parts has projections which bite into or engage the other connecting part in order to improve the contact ( { <a href="#">H01R 4/188</a> , <a href="#">H01R 4/203</a> , <a href="#">H01R 4/5075</a> take precedence }; using shape memory materials <a href="#">H01R 4/01</a> )
H01R 4/28	.	Clamped connections, spring connections ( made by means of terminals specially adapted for contact with, or insertion into, printed circuits <a href="#">H01R 12/00</a> )
H01R 4/30	..	utilising a screw or nut clamping member ( <a href="#">H01R 4/50</a> takes precedence; utilising a clamping member acted on by screw or nut <a href="#">H01R 4/38</a> ; { for coaxial cables <a href="#">H01R 9/0521</a> } )
H01R 4/301	...	{ having means for preventing complete unscrewing of screw or nut ( measures against loss of bolt or nut in general <a href="#">F16B 41/002</a> ) }
H01R 4/302	...	{ having means for preventing loosening of screw or nut, e.g. vibration-proof connection ( locking of screw or nut in general <a href="#">F16B 39/00</a> and subgroups ) }
H01R 4/304	...	{ having means for improving contact }
H01R 4/305	...	{ having means for facilitating engagement of conductive member or for holding it in position }
H01R 4/307	...	{ characterised by the thread of the screw or nut ( shapes of thread, special thread forms <a href="#">F16B 33/02</a> ) }
H01R 4/308	...	{ Conductive members located parallel to axis of screw }
H01R 4/32	...	Conductive members located in slot or hole in screw
H01R 4/34	...	Conductive members located under head of screw
H01R 4/36	...	Conductive members located under tip of screw
H01R 4/363	.....	{ with intermediate part between tip and conductive member }

- H01R 4/366 . . . . . { intermediate part attached to the tip of the screw }
- H01R 4/38 . . . utilising a clamping member acted on by screw or nut ( [H01R 4/50](#) takes precedence )
- H01R 4/40 . . . . . Pivotal clamping member
- H01R 4/42 . . . . . Clamping area to one side of screw only
- H01R 4/44 . . . . . Clamping areas on both sides of screw
- H01R 4/46 . . . . . Clamping area between two screws placed side by side
- H01R 4/48 . . . utilising a spring, clip, or other resilient member ( [H01R 4/52](#) takes precedence )
- H01R 4/4809 . . . . . { using a leaf spring }
- H01R 4/4818 . . . . . { adapted for axial insertion of a wire end }
- H01R 4/4827 . . . . . { with an opening in the housing for insertion of a release tool }
- H01R 4/4836 . . . . . { with integral release means }
- H01R 4/4845 . . . . . { insertion of a wire only possible by pressing on the spring }
- H01R 4/4854 . . . . . { using a wire spring }
- H01R 4/4863 . . . . . { Coil spring }
- H01R 4/4872 . . . . . { axially compressed to retain wire end }
- H01R 4/4881 . . . . . { using a louver type spring }
- H01R 4/489 . . . . . { spring force increased by screw, cam, wedge, or other fastening means }
- H01R 4/50 . . . utilising a cam, wedge, cone or ball { also combined with a screw }
- H01R 4/5008 . . . . . { using rotatable cam }
- H01R 4/5016 . . . . . { using a cone }
- H01R 4/5025 . . . . . { combined with a threaded ferrule operating in a direction parallel to the conductor }
- H01R 4/5033 . . . . . { using wedge or pin penetrating into the end of a wire in axial direction of the wire }
- H01R 4/5041 . . . . . { using a tapered groove }
- H01R 4/505 . . . . . { using an excentric element }
- H01R 4/5058 . . . . . { using a ball }
- H01R 4/5066 . . . . . { mounted in an insulating housing having a cover providing clamping force }
- H01R 4/5075 . . . . . { having an uneven wire receiving surface to improve the contact }
- H01R 4/5083 . . . . . { using a wedge }
- H01R 4/5091 . . . . . { combined with a screw }
- H01R 4/52 . . . . . which is spring loaded
- H01R 4/54 . . . . . Bayonet or keyhole
- H01R 4/56 . . . . . One conductor screwing into another
- H01R 4/58 . . . . . characterised by the form or material of the contacting members ( [H01R 4/01](#) takes precedence )
- H01R 4/60 . . . . . Connections between or with tubular conductors ( [H01R 4/56](#) takes precedence )
- H01R 4/62 . . . . . Connections between conductors of different materials; Connections between or with aluminium or steel-core aluminium conductors ( [H01R 4/68](#) takes precedence )
- H01R 4/625 . . . . . { Soldered or welded connections }

- H01R 4/64 .. Connections between or with conductive parts having primarily a non-electric function, e.g. frame, casing, rail
- H01R 4/643 ... { for rigid cylindrical bodies }
- H01R 4/646 ... { for cables or flexible cylindrical bodies }
- H01R 4/66 .. Connections with the terrestrial mass, e.g. earth plate, earth pin
- H01R 4/68 .. Connections to or between superconductive connectors
  
- H01R 4/70 . Insulation of connections ( end caps [H01R 4/22](#) )
- H01R 4/72 .. using a heat shrinking insulating sleeve ( heat recoverable plastics [B29C 61/00](#) )
- H01R 4/723 ... { Making a soldered electrical connection simultaneously with the heat shrinking }
- H01R 4/726 ... { Making a non-soldered electrical connection simultaneously with the heat shrinking }
  
- H01R 9/00** **Connectors and connecting arrangements providing a plurality of mutually insulated connections; Terminals or binding posts mounted upon a base or in a case; Terminal strips; Terminal blocks** ( details of direct connections or connections using contact members penetrating insulation [H01R 4/00](#); { individual connecting parts [H01R 11/00](#); } specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures [H01R 12/00](#); coupling devices [H01R 12/70](#), [H01R 24/00](#)-[H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#) )
  
- H01R 9/03 . Connectors arranged to contact a plurality of the conductors of a multiconductor cable, { e.g. tapping connections }
- H01R 9/031 .. { for multiphase cables, e.g. with contact members penetrating insulation of a plurality of conductors ( insulation penetrating contact members in general [H01R 4/24](#) ) }
- H01R 9/032 .. { for shielded multiconductor cable ( coaxial cables with one conductor surrounded by shield [H01R 9/05](#); flat shielded cables [H01R 12/594](#) ) }
  
- WARNING**
- This group and its subgroups are no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 13/658](#) and its subgroups
  
- H01R 9/034 ... { connection of the shield to an additional grounding conductor }
- H01R 9/035 ... { twisted pair surrounded by shield }
- H01R 9/037 ... { connection to shield by action of a resilient member }
- H01R 9/038 ... { each conductor being individually surrounded by shield }
- H01R 9/05 .. for coaxial cables
- H01R 9/0503 ... { Connection between two cable ends }
- H01R 9/0506 ... { Connection between three or more cable ends }
- H01R 9/0509 ... { Tapping connections }
- H01R 9/0512 ... { Connections to an additional grounding conductor }
- H01R 9/0515 ... { Connection to a rigid planar substrate, e.g. printed circuit board }
- H01R 9/0518 ... { Connection to outer conductor by crimping or by crimping ferrule ( in general [H01R 4/18](#) ) }

- H01R 9/0521 . . . { Connection to outer conductor by action of a nut ( in general [H01R 4/30](#) )}
- H01R 9/0524 . . . { Connection to outer conductor by action of a clamping member, e.g. screw fastening means ( [H01R 9/0515](#) takes precedence; in general [H01R 4/38](#) )}
- H01R 9/0527 . . . { Connection to outer conductor by action of a resilient member, e.g. spring ( in general [H01R 4/48](#) )}
- H01R 9/053 . . . using contact members penetrating insulation
- H01R 9/07 . . for flat or ribbon cables { or flexible printed circuits }

### **WARNING**

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- H01R 9/0707 . . . { with exposed conductor portions for connection }
- H01R 9/0714 . . . . { to another flat or ribbon cable or flexible printed circuit, e.g. by pressing contact areas against each other }
- H01R 9/0721 . . . . . { by means of interconnecting elements }
- H01R 9/0728 . . . . { to a cable of another type, e.g. round section cable }
- H01R 9/0735 . . . . { to conductive elements on a rigid planar substrate, e.g. to a printed circuit board }
- H01R 9/0742 . . . . { to contact elements }
- H01R 9/075 . . . { with contacts penetrating cable insulation for making contact with conductors, e.g. needle points ( in general [H01R 4/24](#) )}
- H01R 9/0757 . . . . { with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables ( in general [H01R 4/2416](#) )}
- H01R 9/0764 . . . . . { to another flat or ribbon cable or flexible printed circuit, e.g. tapping connection }
- H01R 9/0771 . . . . { with permanent deformation of contacts, e.g. crimping contacts for rectangular conductor flat cables ( in general [H01R 4/2495](#) )}
- H01R 9/0778 . . . { for shielded flat cable }
- H01R 9/0785 . . . . { connection of the shield to an additional grounding conductor }
- H01R 9/0792 . . . . { each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure }

- H01R 9/09 . . Connectors for printed circuits ( [printed connections to or between printed circuits H05K](#) ); { Terminals, terminal strips, terminal blocks or bases for printed circuits }

### **WARNING**

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- H01R 9/091 . . { terminals for or connections to a printed circuit board ( [H01R 9/0515](#) takes precedence )}
- H01R 9/092 . . . { Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board }
- H01R 9/093 . . . { Terminal blocks providing connections to wires or cables }

- H01R 9/095 . . . { Connections on the surface of the printed circuit }
- H01R 9/096 . . { Connections between two or more printed circuits }
- H01R 9/097 . . . { by an interconnection through aligned holes in the boards or multilayer board }
- H01R 9/098 . . . { the printed circuits being on the same board ( with plated through holes [H05K 3/42](#) ) }
  
- H01R 9/11 . End pieces for multiconductor cables supported by the cable and for facilitating connections to other conductive members, { e.g. for liquid cooled welding cables }
  
- H01R 9/15 . Connectors for wire wrapping
  
- H01R 9/16 . Fastening of connecting parts to base or case; Insulating connecting parts from base or case ( lead-through insulators [H01B 17/26](#) )
- H01R 9/18 . . Fastening by means of screw or nut
- H01R 9/20 . . Fastening by means of rivet or eyelet
  
- H01R 9/22 . Bases, e.g. strip, block, panel {( for printed circuits [H01R 12/50](#) ) }
- H01R 9/223 . . { Insulating enclosures for terminals ( for switches [H01H 9/0264](#) ) }
- H01R 9/226 . . { comprising a plurality of conductive flat strips providing connection between wires or components ( [H01R 9/2425](#) takes precedence ) }
- H01R 9/24 . . Terminal blocks
- H01R 9/2408 . . . { Modular blocks ( [H01R 9/26](#) takes precedence ) }
- H01R 9/2416 . . . { Means for guiding or retaining wires or cables connected to terminal blocks }
- H01R 9/2425 . . . { Structural association with built-in components ( for coupling parts [H01R 13/66](#) ) }
- H01R 9/2433 . . . . { with built-in switch }
- H01R 9/2441 . . . . { with built-in overvoltage protection }
- H01R 9/245 . . . . { with built-in fuse }
- H01R 9/2458 . . . { Electrical interconnections between terminal blocks }
- H01R 9/2466 . . . . { using a planar conductive structure, e.g. printed circuit board }
- H01R 9/2475 . . . { Means facilitating correct wiring, e.g. marking plates, identification tags }
- H01R 9/2483 . . . { specially adapted for ground connection }
- H01R 9/2491 . . . { Terminal blocks structurally associated with plugs or sockets }
- H01R 9/26 . . . Clip-on terminal blocks for side-by-side rail- or strip-mounting
- H01R 9/2608 . . . . { Fastening means for mounting on support rail or strip ( [H01R 9/2691](#) takes precedence; for switch or other electrical device [H02B 1/042](#) ) }
- H01R 9/2616 . . . . { End clamping members }
- H01R 9/2625 . . . . { with built-in electrical component }
- H01R 9/2633 . . . . . { with built-in switch }
- H01R 9/2641 . . . . . { with built-in overvoltage protection }
- H01R 9/265 . . . . . { with built-in fuse }
- H01R 9/2658 . . . . . { with built-in data-bus connection }
- H01R 9/2666 . . . . . { with built-in test-points }
- H01R 9/2675 . . . . { Electrical interconnections between two blocks, e.g. by means of busbars }
- H01R 9/2683 . . . . { Marking plates or tabs }



H01R 9/2691	.... { with ground wire connection to the rail ( in general <a href="#">H01R 4/64</a> ) }
H01R 9/28	.. Terminal boards
<b>H01R 11/00</b>	<b>Connectors providing two or more spaced connecting locations for conductive members which are thereby interconnected; End pieces for wires or cables, supported by the wire or cable and for facilitating electrical connection to some other wire, terminal, or conductive member ( connections between members in direct contact <a href="#">H01R 4/00</a> ; structural associations of a plurality of mutually-insulated electrical connecting elements <a href="#">H01R 9/00</a> ; coupling devices <a href="#">H01R 12/70</a>, <a href="#">H01R 24/00-H01R 29/00</a>, <a href="#">H01R 33/00</a> ; flexible or turnable line connectors <a href="#">H01R 35/00</a> )</b>
H01R 11/01	. characterised by the form or arrangement of the conductive interconnection between the connecting locations
H01R 11/03	. characterised by the relationship between the connecting locations ( <a href="#">H01R 11/11</a> takes precedence )
H01R 11/05	.. the connecting locations having different types of direct connections
H01R 11/07	.. the connecting locations being of the same type but different sizes
H01R 11/09	.. the connecting locations being identical
H01R 11/11	. End pieces or tapping pieces for wires, supported by the wire and for facilitating electrical connection to some other wire, terminal or conductive member ( <a href="#">H01R 11/01</a> takes precedence; for multiconductor cables <a href="#">H01R 9/11</a> )
H01R 11/12	.. End pieces terminating in an eye, hook, or fork
H01R 11/14	... the hook being adapted for hanging on overhead or other suspended lines, e.g. hot line clamp
H01R 11/15	.... Hook in the form of a screw clamp
H01R 11/16	.. End pieces terminating in a soldering tip or socket
H01R 11/18	.. End pieces terminating in a probe
H01R 11/20	.. End pieces terminating in a needle point or analogous contact for penetrating insulation or cable strands
H01R 11/22	.. End pieces terminating in a spring clip
H01R 11/24	... with gripping jaws, e.g. crocodile clip
H01R 11/26	.. End pieces terminating in a screw clamp, screw or nut
H01R 11/28	.. End pieces consisting of a ferrule or sleeve
H01R 11/281	... { for connections to batteries }
H01R 11/282	.... { comprising means for facilitating engagement or disengagement, e.g. quick release terminal }
H01R 11/283	.... { Bolt, screw or threaded ferrule parallel to the battery post }
H01R 11/284	.... { comprising means for preventing corrosion, e.g. covers, enclosures filled with gel }
H01R 11/285	.... { Battery post and cable secured by the same locking means }
H01R 11/286	.... { having means for improving contact between battery post and clamping member, e.g. uneven interior surface }
H01R 11/287	.... { Intermediate parts between battery post and cable end piece }
H01R 11/288	.... { Interconnections between batteries }
H01R 11/289	.... { characterised by the shape or the structure of the battery post }
H01R 11/30	.. End pieces held in contact by a magnet



H01R 11/32 . . . End pieces with two or more terminations

**H01R 12/00** **Structural associations of a plurality of mutually-insulated electrical connecting elements, specially adapted for printed circuits, e.g. printed circuit boards [PCBs], flat or ribbon cables, or like generally planar structures, e.g. terminal strips, terminal blocks; Coupling devices specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures; Terminals specially adapted for contact with, or insertion into, printed circuits, flat or ribbon cables, or like generally planar structures ( printed connections to, or between, printed circuits [H05K 1/11](#) )**

**WARNING**

Not complete pending completion of a reclassification; see also groups [H01R 9/07](#), [H01R 9/09](#), [H01R 23/66](#), [H01R 23/68](#), [H01R 23/70](#), [H01R 23/72](#) and their respective subgroups

H01R 12/50 . Fixed connections

**WARNING**

This group and its subgroups are not complete pending completion of a reclassification; see also groups [H01R 9/07](#), [H01R 9/09](#) and their respective subgroups

- H01R 12/51 . . . for rigid printed circuits or like structures
- H01R 12/515 . . . { Terminal blocks providing connections to wires or cables }
- H01R 12/52 . . . connecting to other rigid printed circuits or like structures
- H01R 12/523 . . . . { by an interconnection through aligned holes in the boards or multilayer board }
- H01R 12/526 . . . . { the printed circuits being on the same board ( with plated through holes [H05K 3/42](#) ) }
- H01R 12/53 . . . connecting to cables except for flat or ribbon cables
- H01R 12/55 . . . characterized by the terminals
- H01R 12/57 . . . . surface mounting terminals
- H01R 12/58 . . . . terminals for insertion into holes
- H01R 12/585 . . . . . { Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board }
- H01R 12/59 . . . for flexible printed circuits, flat or ribbon cables or like structures
- H01R 12/592 . . . { connections to contact elements }
- H01R 12/594 . . . { for shielded flat cable }
- H01R 12/596 . . . . { Connection of the shield to an additional grounding conductor, e.g. drain wire }
- H01R 12/598 . . . . { Each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure }
- H01R 12/61 . . . connecting to flexible printed circuits, flat or ribbon cables or like structures
- H01R 12/613 . . . . { by means of interconnecting elements }
- H01R 12/616 . . . . . { having contacts penetrating insulation for making contact with conductors, e.g. needle points ( in general [H01R 4/24](#) ) }

H01R 12/62	...	connecting to rigid printed circuits or like structures
H01R 12/63	...	connecting to another shape cable
H01R 12/65	...	characterized by the terminal
H01R 12/67	....	insulation penetrating terminals
H01R 12/675	.....	{ with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables ( in general <a href="#">H01R 4/2416</a> ) }
H01R 12/68	.....	comprising deformable portions
H01R 12/69	....	deformable terminals e.g. crimping terminals
H01R 12/70	.	Coupling devices

### **WARNING**

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H01R 12/7005	..	{ Guiding, mounting, polarizing or locking means; Extractors ( for printed circuit boards <a href="#">H05K</a> ) }
H01R 12/7011	...	{ Locking or fixing a connector to a PCB }
H01R 12/7017	....	{ Snap means }
H01R 12/7023	.....	{ integral with the coupling device }
H01R 12/7029	.....	{ not integral with the coupling device }
H01R 12/7035	....	{ involving non-elastic deformation, e.g. plastic deformation, melting ( <a href="#">H01R 12/7064</a> takes precedence ) }
H01R 12/7041	....	{ Gluing or taping }
H01R 12/7047	....	{ with a fastener through a screw hole in the coupling device }
H01R 12/7052	....	{ characterised by the locating members }
H01R 12/7058	....	{ characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB }
H01R 12/7064	....	{ Press fitting }
H01R 12/707	....	{ Soldering or welding }
H01R 12/7076	..	{ for connection between PCB and component, e.g. display ( plugging components in general <a href="#">H05K 7/10</a> ) }
H01R 12/7082	..	{ Coupling device supported only by cooperation with PCB }
H01R 12/7088	..	{ Arrangements for power supply }
H01R 12/7094	..	{ with switch operated by engagement of PCB }
H01R 12/71	..	for rigid printing circuits or like structures
H01R 12/712	...	{ co-operating with the surface of the printed circuit or with a coupling device exclusively provided on the surface of the printed circuit ( <a href="#">H01R 12/72</a> takes precedence ) }
H01R 12/714	....	{ with contacts abutting directly the printed circuit; Button contacts therefore provided on the printed circuit }
H01R 12/716	....	{ Coupling device provided on the PCB }
H01R 12/718	.....	{ Contact members provided on the PCB without an insulating housing ( contacts for abutting <a href="#">H01R 12/714</a> ) }
H01R 12/72	...	coupling with the edge of the rigid printed circuits or like structures

H01R 12/721	....	{ cooperating directly with the edge of the rigid printed circuits }
H01R 12/722	....	{ coupling devices mounted on the edge of the printed circuits }
H01R 12/724	.....	{ containing contact members forming a right angle }
H01R 12/725	.....	{ containing contact members presenting a contact carrying strip, e.g. edge-like strip }
H01R 12/727	.....	{ Coupling devices presenting arrays of contacts }
H01R 12/728	.....	{ Coupling devices without an insulating housing provided on the edge of the PCB }
H01R 12/73	....	connecting to other rigid printed circuits or like structures
H01R 12/732	.....	{ Printed circuits being in the same plane }
H01R 12/735	.....	{ Printed circuits including an angle between each other }
H01R 12/737	.....	{ Printed circuits being substantially perpendicular to each other ( for printed connections <a href="#">H05K 3/366</a> takes precedence ) }
H01R 12/75	...	connecting to cables except for flat or ribbon cables
H01R 12/77	..	for flexible printed circuits, flat or ribbon cables or like structures
H01R 12/771	...	{ Details }
H01R 12/772	....	{ Strain relieving means }
H01R 12/774	....	{ Retainers }
H01R 12/775	....	{ Ground or shield arrangements ( in general <a href="#">H01R 13/658</a> ) }
H01R 12/777	...	{ Coupling parts carrying pins, blades or analogous contacts ( <a href="#">H01R 12/78</a> , <a href="#">H01R 12/79</a> take precedence ) }
H01R 12/778	...	{ Coupling parts carrying sockets, clips or analogous counter-contacts ( <a href="#">H01R 12/78</a> , <a href="#">H01R 12/79</a> take precedence ) }
H01R 12/78	...	connecting to other flexible printed circuits, flat or ribbon cables or like structures
H01R 12/79	...	connecting to rigid printed circuits or like structures
H01R 12/81	...	connecting to another cable except for flat or ribbon cable
H01R 12/82	..	connected with low or zero insertion force
H01R 12/83	...	connected with pivoting of printed circuits or like after insertion
H01R 12/85	...	contact pressure producing means, contacts activated after insertion of printed circuits or like structures
H01R 12/853	....	{ Fluid activated }
H01R 12/856	....	{ activated by shape memory material }
H01R 12/87	....	acting automatically by insertion of rigid printed or like structures
H01R 12/88	....	acting manually by rotating or pivoting connector housing parts
H01R 12/89	....	acting manually by moving connector housing parts linearly e.g. slider
H01R 12/91	..	allowing relative movement between coupling parts e.g. floating or self aligning ( for coupling devices not specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures, <a href="#">H01R 13/6315</a> takes precedence )
<b>H01R 13/00</b>		<b>Details of coupling devices of the kinds covered by groups <a href="#">H01R 12/70</a> or <a href="#">H01R 24/00-H01R 33/00</a> {( electro-optical connectors <a href="#">G02B 6/24</a> ) }</b>
H01R 13/005	.	{ Electrical coupling combined with fluidic coupling }
H01R 13/02	.	Contact members

H01R 13/025	..	{ formed by the conductors of a cable end }
H01R 13/03	..	characterised by the material, e.g. plating, or coating materials
H01R 13/035	...	{ Plated dielectric material }
H01R 13/04	..	Pins or blades for co-operation with sockets
H01R 13/05	...	Resilient pins or blades ( carrying separate resilient parts <a href="#">H01R 13/15</a> )
H01R 13/052	....	{ co-operating with sockets having a circular transverse section }
H01R 13/055	....	{ co-operating with sockets having a rectangular transverse section }
H01R 13/057	....	{ co-operating with sockets having a square transverse section }
H01R 13/08	...	Resiliently-mounted rigid pins or blades
H01R 13/10	..	Sockets for co-operation with pins or blades
H01R 13/11	...	Resilient sockets ( carrying separate resilient parts <a href="#">H01R 13/15</a> )
H01R 13/111	....	{ co-operating with pins having a circular transverse section }
H01R 13/112	....	{ forked sockets having two legs }
H01R 13/113	....	{ co-operating with pins or blades having a rectangular transverse section }
H01R 13/114	....	{ co-operating with pins or blades having a square transverse section }
H01R 13/115	....	U-shaped sockets having inwardly bent legs, e.g. spade type
H01R 13/14	...	Resiliently-mounted rigid sockets
H01R 13/15	..	Pins, blades or sockets having separate spring member for producing or increasing contact pressure
H01R 13/17	...	with spring member on the pin
H01R 13/18	...	with the spring member surrounding the socket
H01R 13/187	...	with spring member in the socket
H01R 13/193	..	Means for increasing contact pressure at the end of engagement of coupling part, { e.g. zero insertion force or no friction ( combined with printed circuit boards <a href="#">H01R 23/6813</a> ) }
H01R 13/20	..	Pins, blades, or sockets shaped, or provided with separate member, to retain co-operating parts together
H01R 13/207	...	by screw-in connection
H01R 13/213	...	by bayonet connection
H01R 13/22	..	Contacts for co-operating by abutting
H01R 13/24	...	resilient; resiliently-mounted
H01R 13/2407	....	{ characterized by the resilient means }
H01R 13/2414	.....	{ conductive elastomers }
H01R 13/2421	.....	{ using coil springs }
H01R 13/2428	.....	{ using meander springs }
H01R 13/2435	....	{ with opposite contact points, e.g. C beam }
H01R 13/2442	....	{ with a single cantilevered beam }
H01R 13/245	....	{ by stamped-out resilient contact arm }
H01R 13/2457	....	{ consisting of at least two resilient arms contacting the same counterpart }
H01R 13/2464	....	{ characterized by the contact point }
H01R 13/2471	.....	{ pin shaped }
H01R 13/2478	.....	{ spherical }
H01R 13/2485	.....	{ for contacting a ball }

- H01R 13/2492 . . . . . { multiple contact points }
- H01R 13/26 . . Pin or blade contacts for sliding co-operation on one side only {( for modular jack type connectors [H01R 24/62](#) )}
- H01R 13/28 . . Contacts for sliding cooperation with identically-shaped contact, e.g. for hermaphroditic coupling devices {( [H01R 24/84](#) takes precedence )}
- H01R 13/33 . . Contact members made of resilient wire
- H01R 13/35 . . for non-simultaneous co-operation with different types of contact member, e.g. socket co-operation with either round or flat pin {( [H01R 27/00](#) takes precedence )}
  
- H01R 13/40 . Securing contact members in or to a base or case; Insulating of contact members
- H01R 13/405 . . Securing in non-demountable manner, e.g. moulding, riveting
- H01R 13/41 . . . by frictional grip in grommet, panel or base
- H01R 13/415 . . . by permanent deformation of contact member
- H01R 13/42 . . Securing in a demountable manner
- H01R 13/422 . . . Securing in resilient one-piece base or case, { e.g. by friction }; One-piece base or case formed with resilient locking means
- H01R 13/4223 . . . . { comprising integral flexible contact retaining fingers }
- H01R 13/4226 . . . . . { comprising two or more integral flexible retaining fingers acting on a single contact }
- H01R 13/424 . . . Securing in base or case composed of a plurality of insulating parts having at least one resilient insulating part
- H01R 13/426 . . . Securing by a separate resilient retaining piece supported by base or case, e.g. collar { or metal contact-retention clip }
- H01R 13/428 . . . by resilient locking means on the contact members; by locking means on resilient contact members
- H01R 13/432 . . . . by stamped-out resilient tongue snapping behind shoulder in base or case
- H01R 13/434 . . . . by separate resilient locking means on contact member, e.g. retainer collar or ring around contact member
- H01R 13/436 . . . Securing a plurality of contact members by one locking piece { or operation }
- H01R 13/4361 . . . . { Insertion of locking piece perpendicular to direction of contact insertion }
- H01R 13/4362 . . . . . { comprising a temporary and a final locking position }
- H01R 13/4364 . . . . { Insertion of locking piece from the front }
- H01R 13/4365 . . . . . { comprising a temporary and a final locking position }
- H01R 13/4367 . . . . { Insertion of locking piece from the rear }
- H01R 13/4368 . . . . . { comprising a temporary and a final locking position }
  
- H01R 13/44 . Means for preventing access to live contacts {( making use of a switch actuated by engagement of counterpart [H01R 13/7036](#) )}
- H01R 13/443 . . Dummy Plugs
- H01R 13/447 . . Shutter or cover plate
- H01R 13/453 . . . Shutter or cover plate opened by engagement of counterpart
- H01R 13/4532 . . . . { Rotating shutter }
- H01R 13/4534 . . . . { Laterally sliding shutter }
- H01R 13/4536 . . . . { Inwardly pivoting shutter }
- H01R 13/4538 . . . . { Covers sliding or withdrawing in the direction of engagement }
  
- H01R 13/46 . Bases; Cases

- H01R 13/465 .. { Identification means, e.g. labels, tags, markings ( [H01R 9/2475](#), [H01R 9/2683](#) take precedence ) }
- H01R 13/50 .. formed as an integral body ( [H01R 13/514](#) takes precedence )
- H01R 13/501 ... { comprising an integral hinge or a frangible part }
- H01R 13/502 .. composed of different pieces ( [H01R 13/514](#) takes precedence )
- H01R 13/5025 ... { one or more pieces being of resilient material }
- H01R 13/504 ... different pieces being moulded, cemented, welded, e.g. ultrasonic, or swaged together
- H01R 13/5045 .... { different pieces being assembled by press-fit }
- H01R 13/506 ... assembled by snap action of the parts
- H01R 13/508 ... assembled by { a separate } clip or spring
- H01R 13/512 ... assembled by screw or screws
- H01R 13/514 .. composed as a modular blocks or assembly, i.e. composed of co-operating parts provided with contact members or holding contact members between them
- H01R 13/516 .. Means for holding or embracing insulating body, e.g. casing, { hoods }
- H01R 13/518 ... for holding or embracing several coupling parts, e.g. frames
- H01R 13/52 .. Dustproof, splashproof, drip-proof, waterproof, or flameproof cases
- H01R 13/5202 ... { Sealing means between parts of housing or between housing part and a wall, e.g. sealing rings }
- H01R 13/5205 ... { Sealing means between cable and housing, e.g. grommet ( [H01R 13/5221](#) takes precedence ) }
- H01R 13/5208 .... { having at least two cable receiving openings }
- H01R 13/521 ... { Sealing between contact members and housing, e.g. sealing insert }
- H01R 13/5213 ... { Covers }
- H01R 13/5216 ... { characterised by the sealing material, e.g. gels or resins }
- H01R 13/5219 ... { Sealing means between coupling parts, e.g. interfacial seal }
- H01R 13/5221 .... { having cable sealing means }
- H01R 13/5224 ... { for medical use }
- H01R 13/5227 ... { with evacuation of penetrating liquids }
- H01R 13/523 ... for use under water
- H01R 13/527 ... Flameproof cases ( [H01R 13/70](#) takes precedence )
- H01R 13/53 .. Bases or cases for heavy duty; Bases or cases { for high voltage } with means for preventing corona or arcing
- H01R 13/533 .. Bases, cases made for use in extreme conditions, e.g. high temperature, radiation, vibration, corrosive environment, pressure ( [H01R 13/52](#) takes precedence )
- H01R 13/56 . Means for preventing chafing or fracture of flexible leads at outlet from coupling part
- H01R 13/562 .. { Bending-relieving }
- H01R 13/565 .. { Torsion-relieving }
- H01R 13/567 .. { Traverse cable outlet or wire connection }
- H01R 13/58 . Means for relieving strain on wire connection, e.g. cord grip, { for avoiding loosening of connections between wires and terminals within a coupling device terminating a cable ( for flat or ribbon cables [H01R 12/771](#); for distribution boxes [H02G 3/0616](#) ) }
- H01R 13/5804 .. { comprising a separate cable clamping part ( [H01R 13/5841](#) takes precedence ) }
- H01R 13/5808 ... { formed by a metallic element crimped around the cable ( [H01R 4/185](#) takes

- precedence }}
- H01R 13/5812 ... { the cable clamping being achieved by mounting the separate part on the housing of the coupling device }
- H01R 13/5816 ... { for cables passing through an aperture in a housing wall, the separate part being captured between cable and contour of aperture ( [in general H01B 17/586](#) ) }
- H01R 13/582 .. { the cable being clamped between assembled parts of the housing }
- H01R 13/5825 ... { the means comprising additional parts captured between housing parts and cable }
- H01R 13/5829 ... { the clamping part being flexibly or hingedly connected to the housing }
- H01R 13/5833 .. { the cable being forced in a tortuous or curved path, e.g. knots in cable ( [H01R 13/582](#) takes precedence ) }
- H01R 13/5837 .. { specially adapted for accommodating various sized cables ( [H01R 13/5825](#) takes precedence ) }
- H01R 13/5841 .. { allowing different orientations of the cable with respect to the coupling direction }
- H01R 13/5845 .. { the strain relief being achieved by molding parts around cable and connections }
- H01R 13/585 .. Grip increasing with strain force
- H01R 13/59 .. Threaded ferrule or bolt operating in a direction parallel to the cable or wire
- H01R 13/595 .. Bolts operating in a direction transverse to the cable or wire
- H01R 13/60 . Means for supporting coupling part when not engaged
- H01R 13/62 . Means for facilitating engagement or disengagement of coupling parts or for holding them in engagement
- H01R 13/6205 .. { Two-part coupling devices held in engagement by a magnet }
- H01R 13/621 .. Bolt, set screw or screw clamp
- H01R 13/6215 ... { using one or more bolts }
- H01R 13/622 .. Screw-ring or screw-casing ( [H01R 13/623](#) takes precedence )
- H01R 13/623 .. Casing or ring with helicoidal groove
- H01R 13/625 .. Casing or ring with bayonet engagement
- H01R 13/627 .. Snap or like fastening
- H01R 13/6271 ... { Latching means integral with the housing ( [H01R 13/6276](#), [H01R 13/6277](#), [H01R 13/6278](#) take precedence ) }
- H01R 13/6272 .... { comprising a single latching arm }
- H01R 13/6273 .... { comprising two latching arms }
- H01R 13/6275 ... { Latching arms not integral with the housing ( [H01R 13/6276](#), [H01R 13/6277](#), [H01R 13/6278](#) take precedence ) }
- H01R 13/6276 ... { comprising one or more balls engaging in a hole or a groove }
- H01R 13/6277 ... { comprising annular latching means, e.g. ring snapping in an annular groove }
- H01R 13/6278 ... { comprising a pin snapping into a recess }
- H01R 13/629 .. Additional means for facilitating engagement or disengagement of coupling parts, e.g. aligning or guiding means, levers, gas pressure { [electrical locking indicators](#), [manufacturing tolerances](#) ( [separate tools or apparatus H01R 43/26](#) ) }
- H01R 13/62905 ... { comprising a camming member ( [H01R 13/62933](#) and [H01R 13/641](#) take precedence ) }
- H01R 13/62911 .... { U-shaped sliding element }



H01R 13/62916	....	{ Single camming plate }
H01R 13/62922	....	{ Pair of camming plates }
H01R 13/62927	....	{ Comprising supplementary or additional locking means }
H01R 13/62933	...	{ Comprising exclusively pivoting lever }
H01R 13/62938	....	{ Pivoting lever comprising own camming means }
H01R 13/62944	....	{ Pivoting lever comprising gear teeth }
H01R 13/6295	....	{ Pivoting lever comprising means indicating incorrect coupling of mating connectors }
H01R 13/62955	....	{ Pivoting lever comprising supplementary/additional locking means }
H01R 13/62961	....	{ Pivoting lever having extendable handle }
H01R 13/62966	....	{ Comprising two pivoting levers }
H01R 13/62972	.....	{ Wherein the pivoting levers are two lever plates }
H01R 13/62977	...	{ Pivoting levers actuating linearly camming means }
H01R 13/62983	...	{ Linear camming means or pivoting lever for connectors for flexible or rigid printed circuit boards, flat or ribbon cables }
H01R 13/62988	....	{ Lever acting directly on flexible or rigid printed circuit boards, flat or ribbon cables, e.g. recess provided to this purpose on the surface or edge of the flexible or rigid printed circuit boards, flat or ribbon cables }
H01R 13/62994	....	{ Lever acting on a connector mounted onto the flexible or rigid printed circuit boards, flat or ribbon cables }
H01R 13/631	...	for engagement only
H01R 13/6315	....	{ allowing relative movement between coupling parts, e.g. floating connection ( for coupling devices specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures, <a href="#">H01R 12/91</a> takes precedence ) }
H01R 13/633	...	for disengagement only { ( in combination with safety switch <a href="#">H01R 13/7132</a> ) }
H01R 13/6335	....	{ comprising a handle }
H01R 13/635	....	by mechanical pressure, e.g. spring force
H01R 13/637	....	by fluid pressure, e.g. explosion
H01R 13/639	..	Additional means for holding or locking coupling parts together, after engagement, { e.g. separate keylock, retainer strap }
H01R 13/6392	...	{ for extension cord }
H01R 13/6395	...	{ for wall or panel outlets }
H01R 13/6397	...	{ with means for preventing unauthorised use }
H01R 13/64	.	Means for preventing incorrect coupling
H01R 13/641	..	by indicating incorrect coupling; by indicating correct or full engagement
H01R 13/642	..	by position or shape of contact members
H01R 13/645	..	by exchangeable elements on case or base
H01R 13/6453	...	{ comprising pin-shaped elements, capable of being orientated in different angular positions around their own longitudinal axes, e.g. pins with hexagonal base }
H01R 13/6456	...	{ comprising keying elements at different positions along the periphery of the connector }
H01R 13/646	.	Specially adapted for high-frequency, e.g. structures providing an impedance match or phase match ( non-coaxed protective earth or shield arrangements <a href="#">H01R 13/648</a> - <a href="#">H01R 13/6599</a> ; coaxed connectors specifically adapted for high frequency

[24/40- H01R 24/56 \)](#)

### **WARNING**

This group and its subgroups are not complete pending completion of a reclassification, see also [H01R 9/035](#), [H01R 13/6658](#), [H01R 17/12H2](#), [H01R 23/00B](#), [H01R 23/68D](#), [H01R 23/688](#)

- H01R 13/6461 .. Means for preventing cross-talk
- H01R 13/6463 ... using twisted pairs of wires
- H01R 13/6464 ... by adding capacitive elements
- H01R 13/6466 .... on substrates, e.g. PCBs [Printed Circuit Boards]
- H01R 13/6467 ... by cross-over of signal conductors
- H01R 13/6469 .... on substrates
- H01R 13/6471 ... by special arrangement of ground and signal conductors, e.g. GSGS [Ground-Signal-Ground-Signal]
- H01R 13/6473 .. Impedance matching
- H01R 13/6474 ... by variation of conductive properties, e.g. by dimension variations
- H01R 13/6476 .... by making an aperture, e.g. a hole
- H01R 13/6477 ... by variation of dielectric properties
- H01R 13/648 . Protective earth or shield arrangements on coupling devices ( coaxially arranged shields [H01R 24/38](#) ) { e.g. anti-static shielding }
- H01R 13/6485 .. { Electrostatic discharge protection ( in general [H05F 1/00](#), for electric apparatus [H05K 9/0067](#) ) }
- H01R 13/652 .. with earth pin, blade or socket
- H01R 13/655 .. with earth brace
- H01R 13/658 .. High frequency shielding arrangements, e.g. against EMI [Electro-Magnetic Interference] or EMP [Electro-Magnetic Pulse] {( coaxial coupling devices specially adapted for high frequency [H01R 24/40](#); for flat or ribbon cable connectors [H01R 12/774](#); for coaxial cable [H01R 9/05](#) ) }

### **WARNING**

This group is not complete pending reclassification, see also [H01R 9/03S](#), [H01R 13/658](#), [H01R 23/6873](#) and their respective subgroups

- H01R 13/65802 ... { with resilient grounding means }

### **WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6582](#) and [H01R 13/6583](#)

- H01R 13/65805 ... { using dielectric material made conductive, e.g. plastics material coated with metal }

### **WARNING**

This group is no longer used for the classification of new documents as

from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6599](#)

H01R 13/65807 ... { and comprising shielding between neighboring signal paths }

### **WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6585](#) and [H01R 13/6586](#)

- H01R 13/6581 ... Shield structure
- H01R 13/6582 .... with resilient means for engaging mating connector
- H01R 13/6583 ..... with separate conductive resilient members between mating shield members
- H01R 13/6584 ..... formed by conductive elastomeric members, e.g. flat gaskets or O-rings
- H01R 13/6585 .... Shielding material individually surrounding or interposed between mutually spaced contacts
- H01R 13/6586 ..... for separating multiple connector modules
- H01R 13/6587 ..... for mounting on PCBs
- H01R 13/6588 .... with through openings for individual contacts
- H01R 13/6589 ..... with wires separated by conductive housing parts
- H01R 13/659 .... with plural ports for distinct connectors
- H01R 13/6591 ... Specific features or arrangements of connection of shield to conductive members
- H01R 13/6592 .... the conductive member being a shielded cable
- H01R 13/6593 ..... the shield being composed of different pieces
- H01R 13/6594 .... the shield being mounted on a PCB and connected to conductive members
- H01R 13/6595 ..... with separate members fixing the shield to the PCB
- H01R 13/6596 .... the conductive member being a metal grounding panel
- H01R 13/6597 .... the conductive member being a contact of the connector
- H01R 13/6598 ... Shield material
- H01R 13/6599 .... Dielectric material made conductive, e.g. plastic material coated with metal
- H01R 13/66 . Structural association with built-in electrical component ( [Coupling devices having concentrically or coaxially-arranged contacts H01R 24/38-24/56](#) )
- H01R 13/6608 .. { with built-in single component ( [H01R 13/68](#), [H01R 13/70](#) take precedence ) }
- H01R 13/6616 ... { with resistor }
- H01R 13/6625 ... { with capacitive component }
- H01R 13/6633 ... { with inductive component, e.g. transformer }
- H01R 13/6641 ... { with diode ( with LED [H01R 13/717L](#) ) }
- H01R 13/665 .. { with built-in electronic circuit ( [H01R 13/70](#), [H01R 13/719](#) take precedence ) }
- H01R 13/6658 ... { on printed circuit board ( [H01R 13/6666](#) to [H01R 13/6691](#) take precedence ) }

### **WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6466](#) and [H01R 13/6469](#)

<a href="#">H01R 13/6666</a>	...	{ with built-in overvoltage protection }
<a href="#">H01R 13/6675</a>	...	{ with built-in power supply }
<a href="#">H01R 13/6683</a>	...	{ with built-in sensor }
<a href="#">H01R 13/6691</a>	...	{ with built-in signalling means ( <a href="#">H01R 13/717</a> takes precedence ) }
<a href="#">H01R 13/68</a>	..	with built-in fuse

### **WARNING**

The subgroups of [H01R 13/68](#) are not complete pending completion of a reclassification, see also this group

<a href="#">H01R 13/684</a>	...	the fuse being removable
<a href="#">H01R 13/688</a>	....	with housing part adapted for accessing the fuse
<a href="#">H01R 13/692</a>	.....	Turnable housing part
<a href="#">H01R 13/696</a>	...	the fuse being integral with the terminal, e.g. pin or socket
<a href="#">H01R 13/70</a>	..	with built-in switch
<a href="#">H01R 13/701</a>	...	{ the switch being actuated by an accessory, e.g. cover, locking member }
<a href="#">H01R 13/703</a>	...	operated by engagement or disengagement of coupling parts, { e.g. dual-continuity coupling part } ( <a href="#">H01R 13/71</a> takes precedence )
<a href="#">H01R 13/7031</a>	....	{ Shorting, shunting or bussing of different terminals interrupted or effected on engagement of coupling part, e.g. for ESD protection, line continuity }
<a href="#">H01R 13/7032</a>	.....	{ making use of a separate bridging element directly cooperating with the terminals }
<a href="#">H01R 13/7033</a>	.....	{ making use of elastic extensions of the terminals }
<a href="#">H01R 13/7034</a>	.....	{ the terminals being in direct electric contact separated by double sided connecting element ( for printed circuit boards <a href="#">H01R 12/7094</a> ) }
<a href="#">H01R 13/7035</a>	....	{ comprising a separated limit switch }
<a href="#">H01R 13/7036</a>	....	{ the switch being in series with coupling part, e.g. dead coupling, explosion proof coupling }
<a href="#">H01R 13/7037</a>	.....	{ making use of a magnetically operated switch }
<a href="#">H01R 13/7038</a>	.....	{ making use of a remote controlled switch, e.g. relais, solid state switch activated by the engagement of the coupling parts }
<a href="#">H01R 13/7039</a>	....	{ the coupling part with coding means activating the switch to establish different circuits }
<a href="#">H01R 13/707</a>	...	interlocked with contact members or counterpart
<a href="#">H01R 13/71</a>	...	Contact members of coupling parts operating as switch, { e.g. linear or rotational movement required after mechanical engagement of coupling part to establish electrical connection }
<a href="#">H01R 13/713</a>	...	the switch being a safety switch
<a href="#">H01R 13/7132</a>	....	{ having ejecting mechanisms }
<a href="#">H01R 13/7135</a>	....	{ with ground fault protector ( <a href="#">H01R 13/7132</a> takes precedence ) }
<a href="#">H01R 13/7137</a>	....	{ with thermal interrupter ( <a href="#">H01R 13/7132</a> takes precedence ) }

- H01R 13/717 . . with built-in light source
- H01R 13/7172 . . . { Conduits for light transmission }
- H01R 13/7175 . . . { Light emitting diodes (LEDs) }
- H01R 13/7177 . . . { filament or neon bulb }
- H01R 13/719 . . specially adapted for high frequency, e.g. with filters

### **WARNING**

The subgroups of [H01R 13/719](#) are not complete pending completion of a reclassification, see also [H01R 13/646](#) and the respective subgroups

- H01R 13/7193 . . . with ferrite filters
- H01R 13/7195 . . . with planar filters with openings for contacts
- H01R 13/7197 . . . with filters integral with or fitted onto contacts, e.g. tubular filters

- H01R 13/72 . Means for accommodating flexible lead within the holder

- H01R 13/73 . Means for mounting coupling parts to apparatus or structures, e.g. to a wall
- H01R 13/74 . . Means for mounting coupling parts in openings of a panel
- H01R 13/741 . . . { using snap fastening means }
- H01R 13/743 . . . . { integral with the housing }
- H01R 13/745 . . . . { separate from the housing }
- H01R 13/746 . . . { using a screw ring }
- H01R 13/748 . . . { using one or more screws ( [H01R 13/746](#) takes precedence ) }

- H01R 23/00** **Two-part coupling devices having four or more poles, with or without additional protective earth connection; Separate parts thereof**

### **WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 24/00](#) and its subgroups. See also [H01R 107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.

- H01R 23/005 . { comprising means for reducing cross-talk, e.g. special layout of conductors between input and output pins ( by shielding of neighboring signal paths [H01R 13/65807](#), [H01R 23/688](#); twisted pair cables [H01B 11/02](#); in line transmission systems [H04B 3/32](#); ground circuit layout on printed circuit boards [H05K 9/0039](#) ) }

### **WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6461](#), [H01R 13/6473](#) and their respective subgroups

- H01R 23/02 . having parallelly-arranged contacts for sliding engagement with their counter-contacts

**WARNING**

This group and its subgroups is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 24/00](#) and its subgroups. See also [H01R 107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.

- H01R 23/025      ..      { sliding engagement on one side only, e.g. modular jack type }
- H01R 23/10      ..      wherein one coupling part is secured to wire or cable and the other part is secured to apparatus or structure
- H01R 23/26      .      having concentrically or coaxially arranged contacts

**WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 24/38](#) and its subgroups. See also [H01R 107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.

- H01R 23/27      .      Hermaphroditic coupling devices { ( hermaphroditic contact members [H01R 13/28](#) ) }

**WARNING**

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 24/84](#)

- H01R 23/66      .      for connection to or between flat or ribbon cables

**WARNING**

This group and its subgroups is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/70](#) and their respective subgroups.

- H01R 23/661      ..      { Details, e.g. strain relieving means, retainers }
- H01R 23/662      ...      { Earth or shield arrangements ( in general [H01R 13/648](#) ) }
- H01R 23/664      ..      { Coupling parts carrying pins, blades or analogous contacts ( [H01R 23/667](#), [H01R 23/668](#) take precedence ) }
- H01R 23/665      ..      { Coupling parts carrying sockets, clips or analogous countercontacts ( [H01R 23/667](#), [H01R 23/668](#) take precedence ) }
- H01R 23/667      ..      { for connection of flat or ribbon cables between each other, e.g. adaptors }
- H01R 23/668      ..      { for connection of flat or ribbon cables to a printed circuit board }
- H01R 23/68      .      for connection to or between printed circuits; { Non printed connecting arrangements of printed circuit boards ( PCB's ) ( [H01R 23/668](#) takes precedence ) }

**WARNING**

This group and its subgroups is no longer used for the classification of new documents

as from January 01, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/70](#) and their respective subgroups.

- H01R 23/6806 .. { for connection between PCB and component, e.g. display ( [plugging components in general H05K 7/10](#) ) }
- H01R 23/6813 .. { with low or zero insertion force }
- H01R 23/682 ... { and with pivoting of PCB after insertion }
- H01R 23/6826 ... { Contact pressure producing means activated after insertion of PCB }
- H01R 23/6833 .... { acting linearly ( [H01R 23/6846](#), [H01R 23/6853](#) and [H01R 23/686](#) take precedence ) }
- H01R 23/684 .... { acting by rotation or by pivoting ( [H01R 23/6846](#), [H01R 23/6853](#) and [H01R 23/686](#) take precedence ) }
- H01R 23/6846 .... { acting automatically by insertion of PCB }
- H01R 23/6853 .... { fluid activated }
- H01R 23/686 .... { activated by shape memory material }
- H01R 23/6866 .. { Arrangements for power supply bus-bars }
- H01R 23/6873 .. { adapted for high frequency }

#### **WARNING**

This group and its subgroups are no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and its subgroups is being continuously reclassified to [H01R 13/646](#), [H01R 13/658](#) and their respective subgroups

- H01R 23/688 ... { and comprising shielding between neighboring signal paths }
- H01R 23/6886 .. { Coupling parts supported only by cooperation with PCB }
- H01R 23/6893 .. { Connectors for contacting one or more arrays of pins or sockets mounted on a PCB ( [counterparts presenting such arrays H01R 23/7073](#) ) }
- H01R 23/70 .. co-operating with the edge of the printed circuit or with a counterpart provided on the edge of the printed circuit { ( [H01R 23/6813](#) takes precedence ) ; Counterparts therefor; Special features of the edge of the board }
- H01R 23/7005 ... { Guiding, mounting, polarizing or locking means; Extractors ( [for printed circuit boards H05K](#) ) }
- H01R 23/701 .... { locking or fixing a connector to a PCB }
- H01R 23/7015 ..... { Snap means }
- H01R 23/7021 ..... { integral with the coupling device }
- H01R 23/7026 ..... { not integral with the coupling device }
- H01R 23/7031 ..... { involving non-elastic deformation, e.g. plastic deformation, melting ( [H01R 23/7057](#) takes precedence ) }
- H01R 23/7036 ..... { Gluing or taping }
- H01R 23/7042 ..... { with a fastener through a screw hole in the coupling device }
- H01R 23/7047 ..... { characterised by the locating members }
- H01R 23/7052 ..... { characterised by the movement, e.g. pivoting, camming or translating parallel to the PCB }
- H01R 23/7057 ..... { Press fitting }



H01R 23/7063	.....	{ Soldering or welding }
H01R 23/7068	...	{ cooperating directly with the edge of the PCB }
H01R 23/7073	...	{ Counterparts, e.g. containing pins forming a right angle, mounted on the edge of the PCB }
H01R 23/7078	....	{ Counterparts presenting a contact carrying strip, e.g. edge-like strip }
H01R 23/7084	....	{ Counterparts presenting arrays of sockets }
H01R 23/7089	....	{ Contact members without an insulating housing provided on the edge of the PCB }
H01R 23/7094	...	{ with switch operated by engagement of PCB }
H01R 23/72	..	co-operating with the surface of the printed circuit or with a counterpart provided on the surface of the printed circuit ( { <a href="#">H01R 23/6813</a> }, <a href="#">H01R 23/70</a> take precedence )
H01R 23/722	...	{ with contacts abutting directly the printed circuit; Button contacts therefor provided on the printed circuit }
H01R 23/725	...	{ Counterparts provided on the PCB }
H01R 23/727	....	{ Contact members provided on the PCB without an insulating housing ( contacts for abutting <a href="#">H01R 23/722</a> ) }

**H01R 24/00**      **Two-part coupling devices, or either of their cooperating parts, characterised by their overall structure** ( specially adapted for printed circuits, flat or ribbon cables, or like structures [H01R 12/00](#); specially adapted for supporting apparatus [H01R 33/00](#) )

#### **NOTE**

In this group, it is desirable to add the indexing codes of groups [H01R 101/00](#) to [H01R 107/00](#)

#### **WARNING**

This group and its subgroups are not complete pending reclassification; see also groups [H01R 15/00](#), [H01R 2201/16](#), [H01R 19/00](#), [H01R 2201/16](#), [H01R 21/02](#) and their respective subgroups, and [H01R 23/00](#), [H01R 23/26](#), [H01R 23/27](#)

H01R 24/005	.	{ requiring successive relative motions to complete the coupling, e.g. bayonet type }
H01R 24/20	.	Coupling parts carrying sockets, clips or analogous contacts and secured only to wire or cable
H01R 24/22	..	with additional earth or shield contacts
H01R 24/28	.	Coupling parts carrying pins, blades or analogous contacts and secured only to wire or cable
H01R 24/30	..	with additional earth or shield contacts
H01R 24/38	.	having concentrically or coaxially arranged contacts
H01R 24/40	..	specially adapted for high frequency
H01R 24/42	...	comprising impedance matching means or electrical components, e.g. filters or switches
H01R 24/44	....	comprising impedance matching means
H01R 24/46	....	comprising switches
H01R 24/48	....	comprising protection devices, e.g. overvoltage protection

- H01R 24/50 . . . mounted on a PCB [Printed Circuit Board]
- H01R 24/52 . . . mounted in or to a panel or structure
- H01R 24/525 . . . . { Outlets }
- H01R 24/54 . . . Intermediate parts, e.g. adapters, splitters or elbows
- H01R 24/542 . . . . { Adapters }
- H01R 24/545 . . . . { Elbows }
- H01R 24/547 . . . . { Splitters }
- H01R 24/56 . . . specially adapted to a specific shape of cables, e.g. corrugated cables, twisted pair cables, cables with two screens or hollow cables
- H01R 24/562 . . . . { Cables with two screens }
- H01R 24/564 . . . . { Corrugated cables }
- H01R 24/566 . . . . { Hollow cables }
- H01R 24/568 . . . . { Twisted pair cables }
  
- H01R 24/58 . . . Contacts spaced along longitudinal axis of engagement
  
- H01R 24/60 . . . Contacts spaced along planar side wall transverse to longitudinal axis of engagement
- H01R 24/62 . . . Sliding engagements with one side only, e.g. modular jack coupling devices
- H01R 24/64 . . . for high frequency, e.g. RJ 45
  
- H01R 24/66 . . . with pins, blades or analogous contacts and secured to apparatus or structure, e.g. to a wall
- H01R 24/68 . . . mounted on directly pluggable apparatus
- H01R 24/70 . . . with additional earth or shield contacts
  
- H01R 24/76 . . . with sockets, clips or analogous contacts and secured to apparatus or structure, e.g. to a wall
- H01R 24/78 . . . with additional earth or shield contacts
  
- H01R 24/84 . . . Hermaphroditic coupling devices
  
- H01R 24/86 . . . Parallel contacts arranged about a common axis
  
- H01R 25/00** **Coupling parts adapted for simultaneous co-operation with two or more identical counterparts, e.g. for distributing energy to two or more circuits ( supported only by co-operation with a counterpart [H01R 31/00](#); with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/88](#) )**
  
- H01R 25/003 . . . { the coupling part being secured only to wires or cables }
  
- H01R 25/006 . . . { the coupling part being secured to apparatus or structure, e.g. duplex wall receptacle }
  
- H01R 25/14 . . . Rails or bus-bars constructed so that the counterparts can be connected thereto at any point along their length, { e.g. [track lighting systems](#) } ( [installation of bus bars H02G 5/00](#) )
- H01R 25/142 . . . { Their counterparts }
- H01R 25/145 . . . { Details, e.g. end pieces or joints ( [H01R 25/147](#) takes precedence ) }

- H01R 25/147 .. { Low voltage devices, i.e. safe to touch live conductors }
- H01R 25/16 . Rails or bus-bars provided with a plurality of discrete connecting locations for counterparts ( { protective tubings or conduits [H02G 3/00](#); installations of bus-bars [H02G 5/00](#) } )
- H01R 25/161 .. { Details }
- H01R 25/162 ... { Electrical connections between or with rails or bus-bars ( rails having primarily a non electrical function [H01R 4/64](#) ) }
- H01R 25/164 .. { Connecting locations formed by flush mounted apparatus }
- H01R 25/165 .. { Connecting locations formed by surface mounted apparatus }
- H01R 25/167 .. { Connecting locations formed by staggering mounted apparatus }
- H01R 25/168 .. { the connecting locations being situated away from the rail or bus-bar }
  
- H01R 27/00** **Coupling parts adapted for co-operation with two or more dissimilar counterparts** ( { for dissimilar contact members [H01R 13/35](#) }; supported only by co-operation with a counterpart [H01R 31/00](#); with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/90](#) )
  
- H01R 27/02 . for simultaneous co-operation with two or more { dissimilar } counterparts
  
- H01R 29/00** **Coupling parts for selective co-operation with a counterpart in different ways to establish different circuits, e.g. for voltage selection, for series-parallel selection, { programmable connectors }**
  
- H01R 31/00** **Coupling parts supported only by co-operation with counterpart**
  
- H01R 31/005 . { Intermediate parts for distributing signals }
- H01R 31/02 . Intermediate parts for distributing energy to two or more circuits in parallel, e.g. splitter ( for linking coupling parts that cannot co-operated [H01R 31/06](#); with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/92](#) )
- H01R 31/06 . Intermediate parts for linking two coupling parts, e.g. adapter ( with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/94](#) )
- H01R 31/065 .. { with built-in electric apparatus }
- H01R 31/08 . Short circuiting members for bridging contacts in a counterpart ( insulating members for separating contacts in a counterpart [H01H 27/04](#) )
- H01R 31/085 .. { Short circuiting bus-strips }
  
- H01R 33/00** **Coupling devices in which a holder is adapted for supporting apparatus to which its counterpart is attached; Separate parts thereof ( structural association of counterpart with specific apparatus, see the relevant subclass for the apparatus )**
  
- H01R 33/02 . Single-pole devices, e.g. holder for supporting one end of a tubular incandescent or neon lamp
- H01R 33/05 . Two-pole devices
- H01R 33/06 .. with two current-carrying pins, blades or analogous contacts, having their axes

- parallel to each other
- H01R 33/065 ... { for supporting starter switches }
- H01R 33/08 ... for supporting tubular fluorescent lamp
- H01R 33/0809 .... { having contacts on one side only }
- H01R 33/0818 .... { for a plurality of lamps }
- H01R 33/0827 .... { characterised by the contacts }
- H01R 33/0836 .... { characterised by the lamp holding means }
- H01R 33/0845 ..... { with axially resilient member }
- H01R 33/0854 ..... { with lamp rotating means }
- H01R 33/0863 .... { characterised by the mounting means }
- H01R 33/0872 ..... { for mounting in an opening of a structure }
- H01R 33/0881 .... { composed of different pieces }
- H01R 33/089 .... { integral with starter holding structure ( [H01R 33/065](#) for starters only ) }
- H01R 33/09 ... for baseless lamp bulb
- H01R 33/18 .. having only abutting contacts
- H01R 33/20 .. having concentrically or coaxially arranged contacts
- H01R 33/205 ... { secured to structure or printed circuit board }
- H01R 33/22 .. for screw type base, e.g. for lamp
- H01R 33/225 ... { secured to structure or printed circuit board }
- H01R 33/46 .. for bayonet type base
- H01R 33/465 ... { secured to structure or printed circuit board }
- H01R 33/72 . Three-pole devices
- H01R 33/74 . Devices having four or more poles, { e.g. holders for compact fluorescent lamps }
- H01R 33/76 .. Holders with sockets, clips, or analogous contacts adapted for axially-sliding engagement with parallelly-arranged pins, blades, or analogous contacts on counterpart, e.g. electronic tube socket
- H01R 33/7607 ... { the parallel terminal pins having a circular disposition }
- H01R 33/7614 .... { the terminals being connected to individual wires }
- H01R 33/7621 ..... { the wires being connected using screw, clamp, wrap or spring connection }
- H01R 33/7628 ..... { the wires being connected using solder }
- H01R 33/7635 .... { the terminals being collectively connected, e.g. to a PCB }
- H01R 33/7642 ..... { socket snap fastened in an opening of a PCB }
- H01R 33/765 ... { the terminal pins having a non-circular disposition }
- H01R 33/7657 ... { characterised by keying or marking means }
- H01R 33/7664 ... { having additional guiding, adapting, shielding, anti-vibration or mounting means }
- H01R 33/7671 ... { having multiple positions or sockets, e.g. stacked sockets while mounting }
- H01R 33/7678 ... { having a separated part for spark preventing means }
- H01R 33/7685 ... { having internal socket contact by abutting }
- H01R 33/7692 ... { for supporting a tubular fluorescent lamp ( for two-pole devices [H01R 33/06](#) ) }
- H01R 33/88 . adapted for simultaneous co-operation with two or more identical counterparts

- H01R 33/90 . adapted for co-operation with two or more dissimilar counterparts
- H01R 33/92 . Holders formed as intermediate parts for distributing energy in parallel through two or more counterparts at least one of which is attached to apparatus to be held
- H01R 33/94 . Holders formed as intermediate parts for linking a counter-part to a coupling part
- H01R 33/942 . . { for tubular fluorescent lamps }
- H01R 33/945 . Holders with built-in electrical component
- H01R 33/9453 . . { for screw type coupling devices }
- H01R 33/9456 . . { for bayonet type coupling devices }
- H01R 33/95 . . with fuse; with thermal switch
- H01R 33/955 . . with switch operated manually and independent of engagement or disengagement of coupling
- H01R 33/9555 . . . { for screw type coupling devices }
- H01R 33/96 . . with switch operated by engagement or disengagement of coupling
- H01R 33/962 . . . { for screw type coupling devices }
- H01R 33/965 . Dustproof, splashproof, drip-proof, waterproof, or flameproof holders
- H01R 33/9651 . . { for screw type coupling devices }
- H01R 33/9653 . . . { neither pole becoming electrically connected until the coupling parts are substantially engaged }
- H01R 33/9655 . . { for bayonet type coupling devices }
- H01R 33/9656 . . . { neither pole becoming electrically connected until the coupling parts are substantially engaged }
- H01R 33/9658 . . { for tubular fluorescent lamps }
- H01R 33/97 . Holders with separate means to prevent loosening of the coupling or unauthorized removal of apparatus held
- H01R 33/971 . . { for screw type coupling devices }
- H01R 33/973 . . { for bayonet type coupling devices }
- H01R 33/975 . Holders with resilient means for protecting apparatus against vibrations or shocks
- H01R 33/9753 . . { for screw type coupling devices }
- H01R 33/9756 . . { for bayonet type coupling devices }
- H01R 35/00** **Flexible or turnable line connectors, { i.e. the rotation angle being limited } ( rotary current collectors, distributors [H01R 39/00](#); { arrangement of these connectors in vehicle steering wheels [B60R 16/027](#); arrangements of electric cables or lines between relatively movable parts [H02G 11/00](#) } )**
- H01R 35/02 . Flexible line connectors { without frictional contact members }
- H01R 35/025 . . { having a flexible conductor wound around a rotation axis }
- H01R 35/04 . Turnable line connectors with limited rotation angle { with frictional contact members }
- H01R 39/00** **Rotary current collectors, distributors, or interrupters ( cam-operated switches [H01H 19/00](#); structural association with dynamo-electric machine [H02K 13/00](#) )**

H01R 39/02	. Details { for dynamo electric machines ( for current collectors not particularly for dynamo electric machines <a href="#">H01R 39/60</a> , <a href="#">H01R 39/64</a> ) }
H01R 39/022	.. { characterised by the materials used, e.g. ceramics }
H01R 39/025	... { Conductive materials }
H01R 39/027	... { Insulating materials }
H01R 39/04	.. Commutators ( wherein the segments are formed by extensions of dynamo-electric machine winding <a href="#">H02K</a> )
H01R 39/045	... { the commutators being made of carbon }
H01R 39/06	... other than with external cylindrical contact surface, e.g. flat commutators
H01R 39/08	.. Slip-rings
H01R 39/085	... { the slip-rings being made of carbon }
H01R 39/10	... other than with external cylindrical contact surface, e.g. flat slip-rings
H01R 39/12	... using bearing or shaft surface as contact surface
H01R 39/14	.. Fastenings of commutators or slip-rings to shafts
H01R 39/16	... by means of moulded or cast material applied during or after assembly
H01R 39/18	.. Contacts for co-operation with commutator or slip-ring, e.g. contact brush
H01R 39/20	... characterised by the material thereof
H01R 39/22	.... incorporating lubricating or polishing ingredient
H01R 39/24	... Laminated contacts; Wire contacts, e.g. metallic brush, carbon fibres
H01R 39/26	... Solid sliding contacts, e.g. carbon brush
H01R 39/27	.... End caps on carbon brushes to transmit spring pressure
H01R 39/28	... Roller contacts; Ball contacts
H01R 39/30	... Liquid contacts
H01R 39/32	.. Connections of conductor to commutator segment
H01R 39/34	.. Connections of conductor to slip-ring
H01R 39/36	.. Connections of cable or wire to brush
H01R 39/38	.. Brush holders
H01R 39/381	... { characterised by the application of pressure to brush }
H01R 39/383	... { characterised by the electrical connection to the brush holder }
H01R 39/385	... { Means for mechanical fixation of the brush holder }
H01R 39/386	.... { Electrically insulated bolts }
H01R 39/388	... { characterised by the material of the brush holder }
H01R 39/39	... wherein the brush is fixedly mounted in the holder
H01R 39/40	... enabling brush movement within holder during current collection
H01R 39/41	... Cartridge type
H01R 39/415	.... with self-recoiling spring
H01R 39/42	.. Devices for lifting brushes
H01R 39/44	.. Devices for shifting brushes
H01R 39/46	.. Auxiliary means for improving current transfer, or for reducing or preventing sparking or arcing
H01R 39/48	... by air blast; by surrounding collector with non-conducting liquid or gas
H01R 39/50	... Barriers placed between brushes

- H01R 39/52 . . . by use of magnets
- H01R 39/54 . . . by use of impedance between brushes or segments
- H01R 39/56 . . Devices for lubricating or polishing slip-rings or commutators during operation of the collector
- H01R 39/58 . . Means structurally associated with the current collector for indicating condition thereof, e.g. for indicating brush wear
- H01R 39/59 . . Means structurally associated with the brushes for interrupting current ( [H01R 39/58](#) takes precedence )
  
- H01R 39/60 . Devices for interrupted current collection, e.g. commutating device, distributor, interrupter ( [self-interrupters H01H](#), e.g. [H01H 51/34](#) )
- H01R 39/62 . . with more than one brush co-operating with the same set of segments
  
- H01R 39/64 . Devices for uninterrupted current collection
- H01R 39/643 . . { through ball or roller bearing }
- H01R 39/646 . . { through an electrical conductive fluid }
  
- H01R 41/00** **Non-rotary current collectors for maintaining contact between moving and stationary parts of an electric circuit ( end pieces terminating in a hook or the like [H01R 11/12](#); current collectors for power supply lines of electrically-propelled vehicles [B60L 5/00](#) )**
  
- H01R 41/02 . Devices for interrupted current collection, e.g. distributor ( [electrically-operated selector switches H01H 67/00](#) )
  
- H01R 43/00** **Apparatus or processes specially adapted for manufacturing, assembling, maintaining, or repairing of line connectors or current connectors or for joining electric conductors ( of trolley lines [B60M 1/28](#); joining cables [H02G 1/14](#) )**
  
- H01R 43/002 . { Maintenance of line connectors, e.g. cleaning }
- H01R 43/005 . { for making dustproof, splashproof, drip-proof, waterproof, or flameproof connection, coupling, or casing }
- H01R 43/007 . { for elastomeric connecting elements }
- H01R 43/01 . for connecting unstripped conductors to contact members having insulation cutting edges
- H01R 43/015 . . { Handtools }
- H01R 43/02 . for soldered or welded connections ( [soldering or welding in general B23K](#) )
- H01R 43/0207 . . { Ultrasonic-, H.F.-, cold- or impact welding }
- H01R 43/0214 . . { Resistance welding ( [H01R 43/0228](#) takes precedence ) }
- H01R 43/0221 . . { Laser welding ( [H01R 43/0228](#) takes precedence ) }
- H01R 43/0228 . . { without preliminary removing of insulation before soldering or welding }
- H01R 43/0235 . . { for applying solder ( [H01R 43/0228](#) takes precedence ) }
- H01R 43/0242 . . { comprising means for controlling the temperature, e.g. making use of the curie point }
- H01R 43/0249 . . { for simultaneous welding or soldering of a plurality of wires to contact elements }



- H01R 43/0256 . . { for soldering or welding connectors to a printed circuit board }
- H01R 43/0263 . . { for positioning or holding parts during soldering or welding process }
- H01R 43/027 . for connecting conductors by clips
- H01R 43/0275 . . { by using explosive force }
- H01R 43/033 . for wrapping or unwrapping wire connections
- H01R 43/0335 . . { for unwrapping }
- H01R 43/04 . for forming connections by deformation, e.g. crimping tool
- H01R 43/042 . . Hand tools for crimping
- H01R 43/0421 . . . { combined with other functions, e.g. cutting }
- H01R 43/0422 . . . { operated by an explosive force }
- H01R 43/0424 . . . { with more than two radially actuated mandrels }
- H01R 43/0425 . . . { with mandrels actuated in axial direction to the wire }
- H01R 43/0427 . . . { fluid actuated hand crimping tools }
- H01R 43/0428 . . . { Power-driven hand crimping tools }
- H01R 43/045 . . . with contact member feeding mechanism
- H01R 43/048 . . Crimping apparatus or processes ( [H01R 43/042](#) takes precedence )
- H01R 43/0482 . . . { combined with contact member manufacturing mechanism }
- H01R 43/0484 . . . { for eyelet contact members }
- H01R 43/0486 . . . { with force measuring means }
- H01R 43/0488 . . . { with crimp height adjusting means }
- H01R 43/05 . . . with wire-insulation stripping
- H01R 43/052 . . . with wire-feeding mechanism
- H01R 43/055 . . . with contact member feeding mechanism
- H01R 43/058 . . Crimping mandrels
- H01R 43/0585 . . . { for crimping apparatus with more than two radially actuated mandrels }
- H01R 43/06 . Manufacture of commutators
- H01R 43/08 . . in which segments are not separated until after assembly
- H01R 43/10 . Manufacture of slip-rings
- H01R 43/12 . Manufacture of brushes
- H01R 43/14 . Maintenance of current collectors, e.g. reshaping of brushes, cleaning of commutators
- H01R 43/16 . for manufacturing contact members, e.g. by punching and by bending
- H01R 43/18 . for manufacturing bases or cases for contact members
- H01R 43/20 . for assembling or disassembling contact members with insulating base, case or sleeve
- H01R 43/205 . . { with a panel or printed circuit board }
- H01R 43/22 . . Hand tools
- H01R 43/24 . . Assembling by moulding on contact members

- H01R 43/26 . for engaging or disengaging the two parts of a coupling device ( [structural association with two-part coupling device H01R 13/629](#) )
- H01R 43/28 . for wire processing before connecting to contact members ( [H01R 43/02 to H01R 43/26 take precedence](#) )
- H01R 2004/00 **Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact** ( [details of disengageable contacts of two-part coupling devices H01R 13/00](#); [two-part coupling devices H01R 12/70, H01R 24/00 - H01R 33/00](#); [flexible or turnable line connectors H01R 35/00](#); [non rotary current collectors H01R 41/00](#) )
- H01R 2004/10 . effected solely by twisting, wrapping, bending, crimping, or other permanent deformation
- H01R 2004/18 . . by crimping ( ( [H01R 4/01, H01R 4/2495 take precedence](#); for coaxial cables [H01R 9/0518](#) ) )
- H01R 2004/181 . . . using memory material
- H01R 2101/00 **One pole**
- H01R 2103/00 **Two poles**
- H01R 2105/00 **Three poles**
- H01R 2107/00 **Four or more poles**
- H01R 2201/00 **Connectors or connections adapted for particular applications**
- H01R 2201/02 . for antennas
- H01R 2201/04 . for network, e.g. LAN connectors
- H01R 2201/06 . for computer periphery
- H01R 2201/08 . for halogen lamps
- H01R 2201/10 . for dynamoelectric machines
- H01R 2201/12 . for medicine and surgery
- H01R 2201/14 . seismic connectors
- H01R 2201/16 . for telephony
- H01R 2201/18 . for television
- H01R 2201/20 . for testing or measuring purposes

[H01R 2201/22](#) . for transformers or coils

[H01R 2201/24](#) . for radio transmission

[H01R 2201/26](#) . for vehicles