

Description

This invention relates to electrical connectors.

The invention relates especially, but not exclusively, to electrical connectors of the coaxial type in which an electrical connection is made between the central conductor of an incoming coaxial cable and contact means of the connector without the need for crimping and/or other tools.

A connector is known from USA Patent Specification number 3761870 in which, a cylindrical connector body is provided with a contact having one end in the form of a collet like clamp. A resilient clamping element which has a through bore slides over the collet and is compressible onto the collet to effect clamping of a conductor by rotation of a hexagonally headed male threaded component which cooperates with a female thread in the cylindrical body to urge a clamping member to compress the resilient clamping element onto the collet. In order to effect clamping two hands are required in order to hold the body and rotate the nut and there is uncertainty about the degree of clamping which results as pressure is gradually applied during the screwing action.

Another connector is known from USA Patent Specification Number 3847463 which has a two part cylindrical housing the parts being threadingly engageable and housing a collet having a conical end which cooperates with a collet closer having a conical through bore which is urged onto the conical end by the screwing together of the housing parts to close the collet and clamp a conductor therein. This construction again relies on the screw action of the housing parts to effect clamping with the requirement for two handed operation and uncertainty as to the degree of clamping that results.

The present invention seeks to provide an improved connector the previously mentioned disadvantages are overcome.

According to the present invention there is provided an electrical connector comprising a tubular body having an axially extending bore therein for receiving an incoming cable and for accommodating electrically-conductive contact-making means located within the tubular body and electrically coupled with contact means (e.g. pin contact) of the connector, and axially displaceable means at least partly received by and axially displaceable within the tubular body and effective to cause the contact making means to make good electrical contact with a conductor of an incoming cable in response to a predetermined axial displacement of the displaceable means, characterised in that in the assembled state of the connector the displaceable means has a preclamping position relative to the tubular body at which it acts to retain the contact making means relative to the body to permit insertion of the conductor, which displaceable means is accessible from outside the tubular body to permit axial de-

pression thereby to effect displacement to a clamping position which establishes good electrical contact between the contact making means and the conductor.

The provision of a displaceable means which is accessible from outside the tubular body and actuable by depression considerably simplifies the operation of clamping as it does not require the rotation of housing parts and may be effected by depression with one hand.

The preclamping position of the displaceable means advantageously provides for security against loss of internal connector parts during handling, transport and/or delivery of the connector.

The displaceable means may be secured in one or each of said preclamping and clamping positions by latching.

The latching may be effected by co-operating projection(s) and groove(s) formed in the axially displaceable means and a cooperating latching element to effect snap engagement with each other in the latched position. The axially displaceable means may be arranged to exert a radially inward force on a contact-making element of the contact-making means to make good electrical contact with the conductor of the cable in response to the aforesaid predetermined axial displacement of the axially displaceable means.

The contact-making element may comprise a compressible clamping element adapted to fit over a bared part of the conductor within the tubular body structure of the connector and electrically coupled with the contact means (e.g. pin contact) of the connector. The axially displaceable means in response to movement thereof exerts a radially-inward compressive force on the clamping element to cause it to clamp down on to the conductor.

The compressible clamping element may comprise a split tubular metal part into one end of which the bared part of the conductor extends and this clamping element may be formed integrally with the contact means (e.g. pin contact) of the connector.

To positively ensure good electrical contact between the compressible clamping element and the bared conductor the actual conductor clamping region of the element may be screw-threaded or otherwise configured to bite into the outer surface of the conductor as clamping takes place.

The compressible clamping element may, for example, be provided with radial slots which have a width less than the diameter of the central diameter and which present at the periphery of a central passage in the element for slidably receiving the conductor, sharp edges to bite into the outer surface of the conductor to make good contact therewith when the clamping element is compressed. Four such radial slots may be provided to afford a passageway of cruciform configuration. A six slot construction of clamping element is also especially contemplated.

The compressible clamping element may be

stepped on its inner surface in order to accommodate conductors of different diameters.

The axially displaceable means for exerting the radial compressive force on the clamping element may include a resilient sleeve member which initially progressively envelops the split clamping element compressing it radially inwards in response to axial displacement of the displaceable means towards the rear of the connector from the preclamping position of the displaceable means. The resilient sleeve member may be provided by a split metal ring or by forming the sleeve of inherent resilient material (e.g. plastics material). The resilient sleeve may be engaged by, attached to, or formed integrally with a tubular insulating member which is slidably mounted in the bore of the tubular body structure at the contact end of the connector. The contact means may be coupled to a relatively large diameter clamping element by a split frusto-conical section which facilitates smooth and easy transition of the resilient sleeve member from the cone surface on to the outer periphery of the clamping element in order to compress the element radially inwards when the front end of the tubular insulating member is displaced axially towards the rear end of the connector. Displacement of the tubular insulating member may, for example, be arrested once the resilient sleeve member is positioned over the clamping element, as by the abutment of the rear end portion of the member with shoulder means of a cup-shaped insulating stop member located within the bore of the tubular member and having a tapered opening therethrough for the passage of the conductor of the cable.

It is also contemplated that the axially displaceable means may include a rigid or non-resilient sleeve member which may be engaged by, or attached to, a tubular insulating member slidably mounted in the bore of the tubular body structure at the contact end of the connector and which moves over resilient contact-making means in order to exert thereon an inward pressure to cause the resilient contact-making means to make pressure engagement with the conductor of the cable.

In the case of a resilient sleeve member or a non-resilient sleeve member, the sleeve member and the contact-making means co-operate when the sleeve member is fully positioned thereon to provide ongoing pressure engagement between the contact-making means and the conductor of the cable without the need for a continuing applied axial force on the sleeve member of the axially displaceable means.

The connector construction of the present invention is especially applicable to co-axial connectors for clamping down on to the central conductor of a co-axial cable but it should be understood that it could be used for making connections to the conductor or conductors of other cables by way of single or multi-way non-coaxial connectors.

For the purpose of gripping the incoming cable (e.g. coaxial cable) at the end of the connector where the cable enters a suitable strain-relief arrangement may be provided.

By way of example the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows an exploded view of a coaxial cable connector according to the present invention;

Figure 1a shows an enlarged detail of Figure 1; Figure 2 shows a longitudinal cross-sectional view of an assembled coaxial cable connector substantially as shown in exploded form in Figure 1;

Figures 3a, 3b and 3c show different steps in the connection of an incoming cable to the connector of Figure and,

Figure 4 shows a longitudinal cross-sectional view of another coaxial cable connector similar to that of Figure 2 but having a different cable strain relief arrangement.

Referring to Figure 1 of the drawings, the embodiment depicted therein in exploded form comprises a coaxial connector facilitating a pre-conductor clamping assembled state.

The tubular body structure of the connector comprises two generally cylindrical metal parts 22 and 23, the body part 22 having an externally-threaded portion 24 which, as facilitated by the integral nut head 25, can be screwed into an internally-threaded portion (not shown) of the body part 23. The body part 22 includes a cylindrical cavity 26 which slidably receives a hollow cylindrical latching member 27 of electrically insulating material. The end of the latching member 27 which engages the base of the cavity 26 is provided with a conical recess 28 against the surface of which the end of the dielectric layer of an incoming coaxial cable to the connector will abut, as will later be apparent. The right-hand end of the latching member 27 is provided with a radially inwardly extending lip or projection 29 and, although in the present embodiment the latching member 27 is rendered radially resilient by the provision of slots 30, it should be understood that this may not be necessary, as will hereinafter become apparent.

The latching member 27 is adapted to receive the end of a split radially compressible metal clamping collet 31 which, in the present embodiment is formed integrally with a contact 32 (e.g. pin contact) of the connector connected to the collet 31 by a split conical section 33. The internal periphery of the clamping collet may be threaded or provided with serrations or surface irregularities or otherwise configured in order to bite into the outer surface of the single or stranded central conductor of the coaxial cable during a conductor clamping operation. In the present embodiment the metal clamping collet 31, as can best be

seen from Figure 1a of the drawings, is split axially by means of four radial slots 34 which define a cruciform passageway extending axially through the collet and providing four axially extending sharp corners or edges 34a towards the centre of the passageway where clamping of central conductor 44 takes place. The width of the radial slots 34 will be less than the diameter of the central conductor but the central passage or region of the cruciform passageway will be sufficiently large to slidably receive the central conductor 44 before radial compression of the collet 31 takes place to effect clamping of the conductor. During such conductor clamping the axially extending sharp edges 34a of the collet 31 will bite into the conductor 44 in order to ensure good electrical contact therewith. As will readily be apparent, other multi-slot collet constructions could alternatively be provided to achieve a similar result. A six slot collet construction is also especially contemplated.

A resilient split metal ring 35 is provided for cooperating with the collet 31 to effect radial compression thereof to effect clamping engagement with the central conductor 44 (Figure 1a). To achieve such compression, a tubular axially-displaceable member 36 of insulating material is provided. The ring 35 and member 36 together form axially displaceable means for effecting clamping as will be described. The displaceable member 36 is slidably received in a through bore 37 of the connector body part 23 and when the two body parts 22 and 23 are secured together with the collet 31 and the co-operating split clamping ring 35 located within the internal cylindrical cavity of the body structure, the member 36 can readily be displaced axially simply by exerting pressure on the right-hand end thereof, as viewed in the drawing, so that the radially flexible slotted end of the member 36 defined by slots 38 first makes snap engagement with the tubular latching member 27 by the engagement of the lip or projection 29 on the member 27 with an external circumferential groove 39 in the slotted end of the displaceable member 36. It will be appreciated that with the latching member 27 slotted, as shown, the slots 38 in the member 36 could be dispensed with. As will readily be appreciated from Figure 2 of the drawings which shows a connector very similar to the exploded connector of Figure 1 but in an assembled state prior to clamping of the central cable conductor, component parts of the connector are securely held in situ by the initial latching arrangement provided between the members 27 and 36. Such an arrangement importantly enables connectors to be handled and/or transported/delivered in readiness for cable connection and conductor clamping without the risk of connector parts becoming detached or lost.

In order to connect the assembled connector to a coaxial cable, as shown at 40 in Figure 3a of the drawings, the usual outer insulation sleeve 41 will be cut back, as shown, to expose a suitable length of an un-

derlying metal braided screen 42. The metal braid will then be stripped back, as shown, over a requisite length to leave a length of extruded dielectric insulation 43 exposed. This dielectric will then be cut back to leave a length of bared central conductor 44. The cable end will then be inserted through a metal crimping ferrule, shown at 45 in Figures 1 and 3b, and then into the cable receiving end of the body part 22 which is already screwed to the body part 23 in the pre-conductor clamping assembled state of the connector. The body part 22 has a tubular extension 46 which may have circumferential ridges 47 so that as the cable moves into the interior of the connector the ridged extension 46 will be urged between the dielectric layer 43 and the metal braiding sleeve 42 of the cable, as shown in Figure 3b, whilst the bared end 44 of the central conductor will move into and along the central passage of the clamping collet 31 as indicated in Figure 1a of the drawings, until the forward end of the exposed dielectric material 43 abuts against the conical surface of the recess 28 provided in the latching member 27.

To effect clamping of the collet 21 to the central conductor 44 of the incoming cable 40, the axially displaceable member 36 is simply pressed from its initial pre-clamping latched position further into the bore 37, as a result of which the split clamping ring 35 will be forced by the displacement member 36 over the cylindrical surface of the split collet 31 which is accordingly compressed radially inwards so that the inner axially extending sharp edges 34a, as shown in Figure 1a, bite into the outer surface of the single or stranded central conductor in order to make good electrical contact therewith. When sufficient clamping force has been exerted on the collet 31 by movement of the clamping ring 35, the displaceable member 36 makes a second and final snap engagement with the latching member 27 by the engagement of a second circumferential groove 48 in the member 36 with the intumed lip or projection 29 on the latching member 27. In this position of the displaceable member 36 the components of the connector are in the conductor clamped assembled state and the resilient split clamping ring 35 co-operates with the collet 31 to provide an ongoing pressure engagement between the collet and the central conductor 44 without the need for a continuing axially applied force to the ring 35. In this state of the connector the cable may be pulled to carry out a tensile test for ensuring that effective clamping of the central conductor has been achieved.

It is contemplated that the members 27 and 36 could be composed of a transparent insulating material which would enable a conductor clamp connection to be viewed after unscrewing the two body parts 22 and 23.

Although in the embodiments described with reference to Figures 1 to 4 the sleeve member 35 com-

prises a resilient split ring 35 which co-operates with the clamping element 31 to provide ongoing pressure engagement with the central conductor 44 it will be appreciated, as already mentioned, that the resilient sleeve member 35 could be replaced by a non-resilient sleeve member which co-operates with resilient contact-making means over which the sleeve member fits to provide the ongoing pressure engagement between the contact-making means and the central conductor of the coaxial cable.

As will be apparent, once the resilient or non-resilient sleeve member has been moved over the contact-making means the insulating displacement member and other parts of the connector could be removed without unclamping of the central conductor.

In order to complete the strain relief connection between the incoming cable 40 and the connector, the metal ferrule 45 may be positioned over the metal braiding overlying the tubular ridged extension 46, as can be seen in Figure 1 of the drawings, and then crimped down on to the braiding, as shown in Figure 3c.

To enable the connector to be panel mounted, a radially collapsible ring 49 may be fitted in a groove of the body part 23. The configuration of the ring allows the contact end of the connector to be inserted into a panel aperture after which the ring restores to hold the connector in position.

Referring finally to Figure 4 of the drawings this shows a coaxial cable connector which is identical to that shown in Figure 3 apart from the cable strain relief arrangement.

After suitable stripping back of the outer insulation sleeve 41 and braiding 42 of the cable 40, as shown the stepped tubular extension 46 will be forced between and effect separation of the inner dielectric layer 43 from the braiding 42 so that the separated outer layers of the cable extend over the extension 46. A stepped clamping bush 50 which has radial slots 51 defining resilient arms 52 is then pressed over the extension 46 so that latches 53 at the ends of the arms 52 make snap engagement with an internal groove 54 provided in the nut 25. In this position of the clamping bush 50, the incoming cable is firmly clamped relative to the connector body structure to prevent straining of the central conductor 44 which is clamped to the clamping element/contact 32,33.

Although the invention has been specifically described as applied to a coaxial connector it will readily be apparent that it could be applied to single or multi-way non-coaxial connectors.

Claims

1. An electrical connector comprising a tubular body (22, 23) having an axially extending bore (26) therein for receiving an incoming cable (40) and

for accommodating electrically-conductive contact-making means (31) located within the tubular body and electrically coupled with contact means (32) (e.g. pin contact) of the connector, and axially displaceable means (35, 36) at least partly received by and axially displaceable within the tubular body (22, 23) and effective to cause the contact making means (34) to make good electrical contact with a conductor (44) of an incoming cable (40) in response to a predetermined axial displacement of the displaceable means (35, 36), characterised in that in the assembled state of the connector the displaceable means (35, 36) has a preclamping position relative to the tubular body (22, 23) at which it acts to retain the contact making means (32) relative to the body to permit insertion of the conductor (44), which displaceable means is accessible from outside the tubular body to permit axial depression thereby to effect displacement to a clamping position which establishes good electrical contact between the contact making means (32) and the conductor (44).

2. A connector as claimed in claim 1, characterised in that the displaceable means (35, 36) is secured in one or each of said-preclamping and clamping positions by latching.
3. A connector as claimed in claim 2, characterised in that latching is effected by cooperating projection(s) (29) and groove(s) (39,48) formed in the axially displaceable means (35,36) and a cooperating latching element (27) to effect snap engagement with one another in the latched position.
4. A connector as claimed in claim 3, characterised in that cooperating latching element (27) is tubular and is accommodated in the bore (26) of the tubular body (22, 23)
5. A connector as claimed in claim 4, characterised in that the latching element (27) is slotted (30) to provide a plurality of radially deflectable arms having a groove or projection (29) thereon for making snap engagement with spaced projections or grooves (39, 48) on the axially displaceable means (35, 36).
6. A connector as claimed in any preceding claim, characterised in that the axially displaceable means (35, 36) is arranged to exert a radially inward force on a contact-making element (34a) of the contact-making means (31) to make good electrical contact with the conductor of the cable in response to the aforesaid predetermined axial displacement of the axially displaceable means



prises a resilient split ring 35 which co-operates with the clamping element 31 to provide ongoing pressure engagement with the central conductor 44 it will be appreciated, as already mentioned, that the resilient sleeve member 35 could be replaced by a non-resilient sleeve member which co-operates with resilient contact-making means over which the sleeve member fits to provide the ongoing pressure engagement between the contact-making means and the central conductor of the coaxial cable.

As will be apparent, once the resilient or non-resilient sleeve member has been moved over the contact-making means the insulating displacement member and other parts of the connector could be removed without unclamping of the central conductor.

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Although the invention has been specifically described as applied to a coaxial connector it will readily be apparent that it could be applied to single or multi-way non-coaxial connectors.

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1. An electrical connector comprising a tubular body (22, 23) having an axially extending bore (26) therein for receiving an incoming cable (40) and

for accommodating electrically-conductive contact-making means (31) located within the tubular body and electrically coupled with contact means (32) (e.g. pin contact) of the connector, and axially displaceable means (35, 36) at least partly received by and axially displaceable within the tubular body (22, 23) and effective to cause the contact making means (34) to make good electrical contact with a conductor (44) of an incoming cable (40) in response to a predetermined axial displacement of the displaceable means (35, 36), characterised in that in the assembled state of the connector the displaceable means (35, 36) has a preclamping position relative to the tubular body (22, 23) at which it acts to retain the contact making means (32) relative to the body to permit insertion of the conductor (44), which displaceable means is accessible from outside the tubular body to permit axial depression thereby to effect displacement to a clamping position which establishes good electrical contact between the contact making means (32) and the conductor (44).

2. A connector as claimed in claim 1, characterised in that the displaceable means (35, 36) is secured in one or each of said-preclamping and clamping positions by latching.
3. A connector as claimed in claim 2, characterised in that latching is effected by cooperating projection(s) (29) and groove(s) (39,48) formed in the axially displaceable means (35,36) and a cooperating latching element (27) to effect snap engagement with one another in the latched position.
4. A connector as claimed in claim 3, characterised in that cooperating latching element (27) is tubular and is accommodated in the bore (26) of the tubular body (22, 23)
5. A connector as claimed in claim 4, characterised in that the latching element (27) is slotted (30) to provide a plurality of radially deflectable arms having a groove or projection (29) thereon for making snap engagement with spaced projections or grooves (39, 48) on the axially displaceable means (35, 36).
6. A connector as claimed in any preceding claim, characterised in that the axially displaceable means (35, 36) is arranged to exert a radially inward force on a contact-making element (34a) of the contact-making means (31) to make good electrical contact with the conductor of the cable in response to the aforesaid predetermined axial displacement of the axially displaceable means



(35, 36).

7. A connector as claimed in any preceding claim, characterised in that the contact-making means (31) comprises a compressible clamping element adapted to fit over a bared part of the conductor within the tubular body structure of the connector and electrically coupled with the contact means (32) of the connector, the axially displaceable means (35, 36) in response to predetermined movement thereof exerting a radially-inward compressive force on the clamping element to cause it to clamp down on to the conductor. 5
8. A connector as claimed in claim 7, characterised in that the compressible clamping element (31) comprises a split tubular metal part into one end of which the bared part of the conductor extends. 10
9. A connector as claimed in claim 8, characterised in that the clamping element (31) is formed integrally with the contact means (32) (e.g. pin contact) of the connector. 15
10. A connector as claimed in claim 7, 8 or 9, characterised in that the actual conductor clamping region (34a) of the compressible clamping element (31) is screw-threaded or otherwise configured to bite into the outer surface of the conductor as clamping takes place. 20
11. A connector as claimed in any of claims 7 to 10, characterised in that the compressible clamping element (31) is provided with radial slots (34) (e.g. four or six) which have a width less than the diameter of the conductor and which present at the periphery of a central passage in the element for slidingly receiving the conductor, sharp edges (34a) to bite into the outer surface of the conductor when the clamping element is compressed. 25
12. A connector as claimed in claim 7, characterised in that the compressible clamping element (31) is stepped on its inner surface to accommodate conductors of different diameters. 30
13. A connector as claimed in any one of claims 7 to 12, characterised in that the displaceable means (35, 36) includes a resilient sleeve member (35) which initially progressively envelops a split clamping element (31) compressing it radially inwards in response to axial displacement of the displaceable means (35, 36) towards the rear of the connector from the preclamping position of the displaceable means. 35
14. A connector as claimed in claim 13, characterised in that the resilient sleeve member (35) is provided by a split metal ring or a sleeve of resilient material (e.g. plastics material). 40

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15. A connector as claimed in claim 14, characterised in that the resilient sleeve member (35) is engaged by, or attached to, a tubular insulating member (36) of the displaceable means which is slidably mounted in the bore (37) of the tubular body structure (22, 23) at the contact end of the connector. 45
16. A connector as claimed in any one of claims 7 to 12, characterised in that the axially displaceable means (35, 36) includes a rigid or non-resilient sleeve member (35) which is engaged by, or attached to, a tubular insulating member (36) slidably mounted in the bore (37) of the tubular body structure (22, 23) at the contact end of the connector and which moves over resilient contact-making means (31) in order to exert thereon an inward pressure to cause the resilient contact-making means to make continuing pressure engagement with the conductor of the cable. 50
17. A coaxial connector constructed in accordance with any preceding claim, characterised in that the conductor with which the contact-making means makes good electrical contact is the central conductor of an incoming coaxial cable. 55

Patentansprüche

1. Ein elektrischer Steckverbinder, der einen Rohrkörper (22,23) enthält, welcher eine sich axial erstreckende Bohrung (26) zur Aufnahme eines eingehenden Kabels (40) und einer elektrisch leitfähigen Kontakteinrichtung (31) besitzt, die sich im Rohrkörper befindet und mit der Kontakteinrichtung (32) (z.B. Stiftkontakt) des Steckverbinders elektrisch verbunden ist, sowie eine axial verschiebbare Einrichtung (35,36), die zumindest teilweise vom Rohrkörper (22,23) aufgenommen und in diesem axial verschoben werden kann, und die Kontakteinrichtung (34) dazu veranlassen kann, mit einem Leiter (44) eines eingehenden Kabels (40) auf eine vorbestimmte axiale Verschiebung der verschiebbaren Einrichtung (35,36) hin einen guten elektrischen Kontakt herzustellen, dadurch gekennzeichnet, daß die verschiebbare Einrichtung (35,36) im zusammengebauten Zustand des Steckverbinders eine Vorklemmstellung im Verhältnis zum Rohrkörper (22,23) hat, in welcher sie wirkt, um die Kontakteinrichtung (32) im Verhältnis zum Körper festzu halten, um so das Einführen des Leiters (44) zu ermöglichen, wobei die verschiebbare Einrichtung von außerhalb des Rohrkörpers 6



erreicht werden kann, um dadurch einen axialen Druck zu ermöglichen, so daß die Verschiebung auf eine Klemmstellung hin bewirkt wird, die einen guten elektrischen Kontakt zwischen der Kontakteinrichtung (32) und dem Leiter (44) herstellt.

2. Steckverbinder nach Anspruch 1, dadurch gekennzeichnet,
daß die verschiebbare Einrichtung (35,36) in einer oder jeder der genannten Vorklemm- und Klemmstellung durch Einrasten gesichert ist.
3. Steckverbinder nach Anspruch 2, dadurch gekennzeichnet,
daß das Einrasten durch ein oder mehrere zusammenwirkende Vorsprünge (29) und Nuten (39,48) bewirkt wird, die in der axial verschiebbaren Einrichtung (35,36) und einem zusammenwirkenden Einrastelement (27) ausgebildet sind, um das gegenseitige Einschnappen in der Einraststellung zu bewirken.
4. Steckverbinder nach Anspruch 3, dadurch gekennzeichnet,
daß das zusammenwirkende Einrastelement (27) röhrenförmig ist und sich in der Bohrung (26) des Rohrkörpers (22,23) befindet.
5. Steckverbinder nach Anspruch 4, dadurch gekennzeichnet,
daß das Einrastelement (27) mit Spalten (30) versehen ist, um mehrere radial biegsame Arme mit einer Nut oder einem Vorsprung (29) zur Verfügung zu stellen, um ein Einschnappen mit den auseinanderliegenden Vorsprüngen bzw. Nuten (39,48) an der axial verschiebbaren Einrichtung (35,36) zu ermöglichen.
6. Steckverbinder nach einem vorangegangenen Ansprüche, dadurch gekennzeichnet,
daß die axial verschiebbare Einrichtung (35,36) so angeordnet ist, daß sie eine radial nach innen wirkende Kraft auf ein Kontaktelement (34a) der Kontakteinrichtung (31) ausübt, um mit dem Leiter des Kabels als Reaktion auf die genannte vorbestimmte Axialverschiebung der axial verschiebbaren Einrichtung (35,36) einen guten elektrischen Kontakt herzustellen.
7. Steckverbinder nach einem vorangegangenen Ansprüche, dadurch gekennzeichnet,
daß die Kontakteinrichtung (31) ein komprimierbares Klemmelement enthält, das so ausgebildet ist, daß es innerhalb der Rohrkörperkonstruktion des Steckverbinders über einen blanken Teil des Leiters paßt und elektrisch mit der Kontakteinrichtung (32) des Steckverbinders verbunden ist,

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wobei die axial verschiebbare Einrichtung (35,36) auf ihre vorbestimmte Bewegung hin eine radial nach innen wirkende Kompressionskraft auf das Klemmelement ausübt, damit das Klemmelement sich auf den Leiter festklemmt.

8. Steckverbinder nach Anspruch 7, dadurch gekennzeichnet,
daß das komprimierbare Klemmelement (31) ein gespaltenes Metallrohrteil hat, in dessen eines Ende das blanke Teil des Leiters sich erstreckt.
9. Steckverbinder nach Anspruch 8, dadurch gekennzeichnet,
daß das Klemmelement (31) integriert mit der Kontakteinrichtung (32) (z.B. Stiftkontakt) des Steckverbinders ausgebildet ist.
10. Steckverbinder nach Anspruch 7, 8 oder 9, dadurch gekennzeichnet,
daß die tatsächliche Leiter-Klemmregion (34a) des komprimierbaren Klemmelements (31) ein Schraubgewinde hat bzw. anderweitig so ausgebildet ist, daß sie beim Klemmen in die Außenfläche des Leiters eingreift.
11. Steckverbinder nach einem der Ansprüche 7 bis 10, dadurch gekennzeichnet,
daß das komprimierbare Klemmelement (31) über radiale Spalte (34) (z.B. vier oder sechs) verfügt, die eine Breite haben, die kleiner als der Durchmesser des Leiters ist, und an der Peripherie eines mittigen Durchgangs im Element, der dazu dient, den Leiter gleitend aufzunehmen, scharfe Kanten (34a) darstellen, die in die Außenfläche des Leiters greifen sollen, wenn das Klemmelement zusammengedrückt ist.
12. Steckverbinder nach Anspruch 7, dadurch gekennzeichnet,
daß das komprimierbare Klemmelement (31) abgestuft ist, um an seiner Innenfläche Leiter mit unterschiedlichen Durchmessern aufzunehmen.
13. Steckverbinder nach einem der Ansprüche 7 bis 12, dadurch gekennzeichnet,
daß die verschiebbare Einrichtung (35,36) ein elastisches Muffenelement (35) hat, das anfänglich progressiv ein gespaltenes Klemmelement (31) einhüllt und es - als Reaktion auf die axiale Verschiebung der verschiebbaren Einrichtung (35,36) gegen die Rückseite des Steckverbinders von der Vorklemmstellung der verschiebbaren Einrichtung - radial nach innen zusammendrückt.
14. Steckverbinder nach Anspruch 13, dadurch gekennzeichnet,
daß das elastische Muffenelement (35) aus ei-



nem gespaltenen Metallring oder einer Muffe aus einem elastischen Material besteht (z.B. Kunststoff).

15. Steckverbinder nach Anspruch 14, dadurch gekennzeichnet,
daß das elastische Muffenelement (35) mit einem röhrenförmigen Isolierelement (36) der verschiebbaren Einrichtung verhakt ist oder mit diesem verbunden ist, wobei dieses Isolierelement in der Bohrung (37) der Rohrkörperkonstruktion (22,23) am Kontaktende des Steckverbinders gleitend montiert ist. 5
16. Steckverbinder nach einem der Ansprüche 7 bis 12, dadurch gekennzeichnet,
daß die axial verschiebbare Einrichtung (35,36) ein starres bzw. unelastisches Muffenelement (35) hat, das mit einem röhrenförmigen Isolierelement (36) verhakt ist oder mit diesem verbunden ist, wobei dieses Isolierelement in der Bohrung (37) der Rohrkörperkonstruktion (22,23) am Kontaktende des Steckverbinders gleitend montiert ist und sich über die elastische Kontakteinrichtung (31) bewegt, um dort einen Innendruck auszuüben, so daß die elastische Kontakteinrichtung eine andauernde Druckeinwirkung mit dem Leiter des Kabels bewirkt. 10 15 20 25
17. Ein koaxialer Steckverbinder, der nach einem der vorangegangenen Ansprüche konstruiert ist, dadurch gekennzeichnet,
daß derjenige Leiter, mit dem die Kontakteinrichtung einen guten elektrischen Kontakt herstellt, der Mittelleiter eines eingehenden Koaxkabels ist. 30 35

Revendications

1. Connecteur électrique comportant un corps tubulaire (22,23) comportant un perçage axial (26) servant à recevoir un câble d'arrivée (40) et à loger des moyens d'établissement de contact (31) électriquement conducteurs, situés dans le corps tubulaire et couplés électriquement à des moyens de contact (32) (par exemple un contact de broche) du connecteur, et des moyens déplaçables axialement (35,36) au moins logés partiellement et déplaçables axialement dans le corps tubulaire (22,23) et aptes à amener les moyens d'établissement de contact (34) à établir un bon contact électrique avec un conducteur (44) d'un câble d'arrivée (40) en réponse à un déplacement axial prédéterminé des moyens déplaçables (35,36), caractérisé en ce que lorsque le connecteur est à l'état assemblé, les moyens déplaçables (35,36) possèdent une position de pré-serrage par rapport au corps tubulaire (22,23), dans lequel ils agissent de manière à maintenir les moyens d'établissement de contact (32) par rapport au corps de manière à permettre l'insertion du conducteur (44), lesquels moyens déplaçables sont accessibles à partir de l'extérieur du corps tubulaire pour permettre un enfoncement axial, ce qui permet d'exécuter un déplacement jusqu'à une position de serrage qui établit un bon contact électrique entre les moyens d'établissement de contact (32) et le conducteur (44). 40
2. Connecteur selon la revendication 1, caractérisé en ce que les moyens déplaçables (35,36) sont fixés par verrouillage dans une ou chacune des dites positions de pré-serrage et de serrage. 45
3. Connecteur selon la revendication 2, caractérisé en ce que le verrouillage est exécuté par la ou les parties saillantes (29) et la ou les rainures (39,48), qui coopèrent et sont formées dans les moyens déplaçables axialement (35,36), et un élément de verrouillage coopérant (27) pour réaliser un engagement à encliquetage réciproque dans la position verrouillée. 50
4. Connecteur selon la revendication 3, caractérisé en ce que l'élément de verrouillage coopérant (27) est tubulaire et est logé dans le perçage (26) du corps tubulaire (22,23). 55
5. Connecteur selon la revendication 4, caractérisé en ce que l'élément de verrouillage (27) est fendu (30) de manière à former une pluralité de bras pouvant fléchir radialement et présentant une rainure ou une partie saillante (29) pour établir un engagement par encliquetage avec des parties saillantes ou rainures espacées (39,48) prévues sur les moyens déplaçables axialement (35,36). 60
6. Connecteur selon l'une quelconque des revendications précédentes, caractérisé en ce que les moyens déplaçables axialement (35,36) sont agencés de manière à appliquer une force, dirigée radialement vers l'intérieur, à l'élément d'établissement de contact (34a) des moyens d'établissement de contact (31) pour établir un bon contact électrique avec le conducteur du câble en réponse au déplacement axial prédéterminé, mentionné précédemment, des moyens déplaçables axialement (35,36). 65
7. Connecteur selon l'une quelconque des revendications précédentes, caractérisé en ce que les moyens d'établissement de contact (31) comprennent un élément de serrage compressible apte à être monté sur une partie dénudée du conducteur à l'intérieur de la structure formant 70



- corps tubulaire du connecteur et à être couplé électriquement aux moyens de contact (32) du connecteur, les moyens déplaçables axialement (35,36) amenant l'élément de serrage à serrer le conducteur en réponse à un déplacement prédéterminé des moyens déplaçables, qui appliquent une force de compression, dirigée radialement vers l'intérieur, à cet élément de serrage.
8. Connecteur selon la revendication 7, caractérisé en ce que l'élément de serrage compressible (31) comprend une partie métallique tubulaire fendue dans une extrémité duquel s'étend la partie dénudée du conducteur.
9. Connecteur selon la revendication 8, caractérisé en ce que l'élément de serrage (31) est formé d'un seul tenant avec les moyens de contact (32) (par exemple un contact de broche du connecteur).
10. Connecteur selon la revendication 7, 8 ou 9, caractérisé en ce que la partie (34a) de serrage effectif du conducteur de l'élément de serrage compressible (31) est filetée à la manière d'une vis ou est conformée d'une autre manière pour mordre dans la surface extérieure du conducteur lorsque le serrage se produit.
11. Connecteur selon l'une quelconque des revendications 7 à 10 caractérisé en ce que l'élément de serrage compressible (31) comporte des fentes radiales (34) (par exemple quatre ou six), qui possèdent une largeur inférieure au diamètre du conducteur et qui, sur la périphérie d'un passage central aménagé d'un élément pour recevoir avec possibilité de glissement le conducteur, présentent des arêtes vives (34a) destinées à mordre dans la surface extérieure du conducteur lorsque l'élément de serrage est comprimé.
12. Connecteur selon la revendication 7, caractérisé en ce que l'élément de serrage compressible (31) possède une partie étagée sur sa surface intérieure de manière à recevoir des conducteurs ayant des diamètres différents.
13. Connecteur selon l'une quelconque des revendications 7 à 12, caractérisé en ce que les moyens déplaçables (35,36) comprennent un élément en forme de manchon élastique (35), qui initialement enveloppe progressivement un élément de serrage fendu (31) en le comprimant radialement vers l'intérieur en réponse à un déplacement axial des moyens déplaçables (35,36) depuis la position de pré-serrage de ces moyens déplaçables en direction de l'arrière du connecteur.
14. Connecteur selon la revendication 13, caractérisé en ce que l'élément en forme de manchon élastique (35) est formé par une bague métallique fendue ou un manchon en matériau élastique (par exemple une matière plastique).
15. Connecteur selon la revendication 14, caractérisé en ce que l'élément en forme de manchon élastique (35) engrène avec ou est fixé à un élément tubulaire isolant (36) des moyens déplaçables, qui est monté avec possibilité de glissement dans le perçage (37) de la structure formant corps tubulaire (22,23) au niveau de l'extrémité de contact du connecteur.
16. Connecteur selon l'une quelconque des revendications 7 à 12, caractérisé en ce que les moyens déplaçables axialement (35,36) comprennent un élément en forme de manchon rigide ou non élastique (35) qui engrène avec ou est fixé à un élément tubulaire isolant (36) monté avec possibilité de glissement dans le perçage (37) de la structure formant corps tubulaire (22,23) au niveau de l'extrémité de contact du connecteur et qui se déplace pardessus des moyens élastiques d'établissement de contact (31) de manière à appliquer à ces derniers une pression intérieure pour amener les moyens élastiques d'établissement de contact à s'appliquer sous une pression permanente contre le conducteur du câble.
17. Connecteur agencé selon l'une quelconque des revendications précédentes, caractérisé en ce que le conducteur, avec lequel les moyens d'établissement de contact établissent un bon contact électrique, est le conducteur central d'un câble coaxial d'arrivée.