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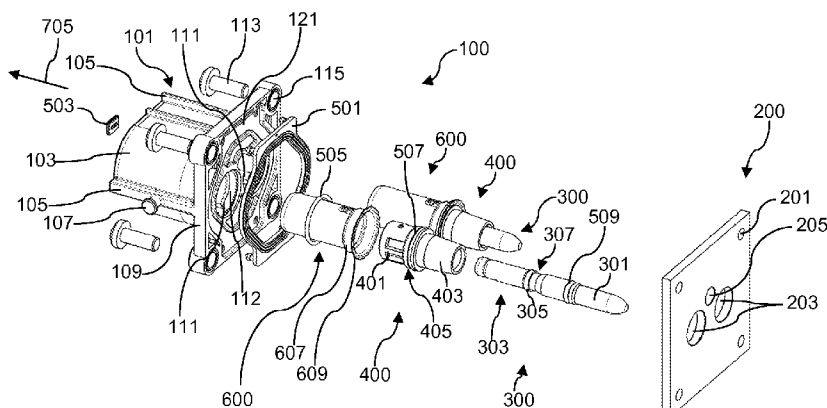


Fig. 1

(57) Abstract: The present invention relates to an electrical high power connector assembly (100), suitable to be mated to an electrical device (200), comprising - a connector housing (101), suitable to be mechanically connectable to the electrical device (200), - a power contact terminal (300) received in an opening (111) of the connector housing (101), suitable to be electrically connectable to a corresponding counter terminal of the electrical device (200), and - a shielding (600) received by the opening (111) of the connector housing (101), comprising a shielding body arranged around at least a portion of the power contact terminal (300) to provide an electromagnetic shielding for at least said portion. The shielding body (603) comprises a flange portion (609) suitable to mechanically and electrically contact a contact surface of the electrical device (200), when the connector housing (101) is connected to the electrical device (200).

Electrical high power connector assembly.

5 The present invention relates to an electrical high power connector assembly with a shielding, in particular to be used in the field of electric or hybrid vehicles.

10 In the field of hybrid or electric vehicles, high power requirements result in large electrical currents and high electrical voltages transmitted by the electrical conductors. These large electrical currents and high electrical voltages create electromagnetic fields of high strength which can interfere with other electrical applications, such as navigation systems or radios. Those electromagnetic interferences are disturbing for users and can even lead to damages in the electronics.

15 In order to prevent such electromagnetic interferences, usually shielded cables and connectors are used and the electrical devices, such as electrical batteries, are provided with suitable electromagnetic shieldings.

20 For example, electric batteries for high power applications can be arranged within a shielding casing, i.e. for example a suitable box of aluminum.

25 To provide shielding continuity throughout the corresponding electrical high power system, parts of this system need to be provided within corresponding electrical connectors which connect the cable shielding to the connector shielding and the connector shielding to the shielding of the electrical devices.

30 Such parts need to function reliably and, at the same time, should be efficiently and inexpensively producible.

Thus, it is desirable that such parts are non-complex and can be produced with few production steps within a mass production

procedure while, at the same time, they still fulfill high quality requirements.

5 An example of a prior art shielded connector assembly is described in document EP 0 817 316 A1. According to this document, an inner tubular member made of insulating material is inserted at a cut portion of a coaxial cable around an inner insulation and underneath a dismantled shielding braid of the cable. Additionally, an outer tubular member made of conductive material is provided around the
10 dismantled shielding braid, such that the cable shielding is squeezed in between the inner tubular member and outer tubular member. To establish an electrical connection between the cable shielding and a conductive housing of an electrical device, a conductive spring is arranged around the outer tubular member and held by a flange
15 portion of the outer tubular member, to electrically contact an inner surface of the conductive housing.

Document DE 10 2009 053 779 B3 describes a further prior art of a shielding for an electrical high power connector assembly. According
20 to this document, a sleeve-like shielding is disclosed which, in an assembled condition of the assembly; is arranged around a female contact terminal, being in electrical contact with the shielding of an electrical high power cable, to provide an electrical shielding continuity for the assembly. The shielding is produced by bending and stamping
25 a piece of sheet metal and comprises a polygonal cross-section. Due to the polygonal cross-section, for mounting of the shielding sleeves, a proper orientation is required. Further, for fixing the shielding inside of the assembly, the shielding is provided with latching tongues which are stamped into the shielding. To provide the desired latching
30 function, after stamping, these tongues need to be bent, thereby leaving apertures in the shielding surface. Such apertures are undesirable, since they interrupt the shielding surface of the shielding and thus deteriorate the shielding function.

A further prior art example of an electromagnetic shielding for a high power electrical connector assembly is disclosed in document DE 10 2010 002 681 A1. According to this document, similarly shielding sleeves are described which also have a polygonal cross-section, whereby, in this case, respective coding members are provided on the connector housing and the shielding sleeve to assure a proper orientation of the shielding sleeve upon assembly. The shielding is provided with contact tongues which, upon assembly, need to be inserted into corresponding openings of the housing. Also for this reason, a precise placement and orientation of the shielding are required upon assembly.

In view of this prior art, it is an object of the present invention to provide an electrical high power connector assembly with a shielding which is less complex and therefore allows an easier manufacture, while, at the same time, it offers the same or improved functions as known in the prior art. Further, it is a task of the present invention to provide a shielding which allows an improved shielding function. These and other objects which become apparent upon reading the following description are solved by an electrical high power connector assembly according to claim 1.

According to the invention, an electrical high power connector assembly is provided which is adapted to be mated to an electrical device. For example, such an electrical device can be a high power electrical device of a hybrid or electrical vehicle such as a high power battery or similar components used in this field.

Further, the electrical device can be a counter connector. According to the invention, the electrical high power connector assembly comprises a connector housing, suitable to be mechanically connectable to the electrical device, for example by screwing the connector housing to an

appropriate surface of the electrical device or by similar mechanical connection means as they are known to the skilled artisan.

5 According to the invention, the electrical high power connector assembly comprises a power contact terminal which, in an assembled condition of the electrical high power connector assembly, is received by an opening of the connector housing. Further, the power contact terminal is suitable to be electrically connectable to a corresponding counter terminal of the electrical device.

10

To this end, the power contact terminal can be, for example, provided with a contact pin or can be adapted to receive a respective contact pin of the counter terminal.

15 Preferably, the power contact terminal is adapted to transmit large currents as they are required, for example in the field of electric or hybrid vehicles. Preferably, such currents are as large as at least 5 A, more preferably at least 10 A, even more preferably at least 50 A, yet even more preferably at least 100 A, and most preferably at least 250
20 A.

According to the invention, the electrical high power connector assembly comprises a shielding which, in an assembled condition of the electrical high power connector assembly, is received by the
25 opening of the connector housing.

The shielding comprises an shielding body, preferably a essentially sleeve-like shielding body, which, in an assembled condition, is arranged around at least a portion of the power contact terminal to
30 provide an electromagnetic shielding for at least said portion.

In other words, upon assembly, both the shielding and the power contact terminal are inserted in the opening of the connector housing,

whereby the power contact terminal is arranged at least partially inside of the shielding. Thereby, up to fabrication imperfections, the shielding can have an essentially circular or elliptical cross-section and preferably does not have a polygonal cross-section.

5

Preferably, to provide an optimum shielding function, at least the portion of the shielding which is arranged around at least a portion of the power contact terminal does not comprise interruptions, such as apertures or through holes.

10

According to the invention, the shielding body comprises a flange portion which is suitable to mechanically and electrically contact a contact surface of the electrical device, when the connector housing is connected or assembled to the electrical device.

15

Thereby, the flange portion can be an external or internal rim at an end of the shielding, i.e. a material portion which surrounds the end of the shielding, or is provided inside of the end of the shielding.

20

Similarly, the flange portion can be designed such that a rim is provided both in the interior and the exterior of the shielding, i.e. such that the end of the shielding is provided essentially in the center of the flange portion.

25

This flange portion constitutes a non-complex and robust means for contacting the shielding to a corresponding contact surface of the electrical device, such as an outer surface of a shielding casing of an electrical battery.

30

In a preferred embodiment, to this end, the flange portion forms a ring surface which is essentially in direct mechanical contact with the contact surface of the electrical device, when the connector housing is connected to the electrical device.

5 Thereby, as compared to the wall thickness of the essentially cylindrically formed shielding, the ring surface forms a widened contact area of essentially circular shape between the shielding and the contact surface of the electrical device. Preferably, the width of the contact area is at least 2 times, more preferably 4 times, even more preferably 6, and most preferably 8 times the thickness of the wall thickness of the essentially cylindrically formed shielding.

10 The ring surface is essentially in direct mechanical contact with the contact surface, i.e. up to fabrication imperfections or a specifically designed structure, fully contacts the contact surface of the electrical device.

15 Preferably, the flange portion has essentially the form of a circular collar which extends outwardly from an end of the shielding. Thus, due to the flange portion, a large contact area, which advantageously allows a very robust and stiff mechanical connection between the shielding and the contact surface of the electrical device, is provided
20 which, in particular, secures the connection against lateral forces, i.e. forces essentially perpendicular to the longitudinal axis of the shielding, acting on the shielding. Further, due to the flange portion, an advantageous electrical connection between the shielding and the contact surface is provided.

25 In a preferred embodiment, the flange portion comprises a plurality of contact points which are suitable to mechanically and electrically contact the contact surface of the electrical device, when the connector housing is connected to the electrical device.

30 In other words, for example the ring surface can be provided with a structure, such that a contact between the shielding and the contact

surface of the electrical device is provided only at defined portions such as defined points.

5 Thereby, the construction is less susceptible to a possibly non perfect contact caused by fabrication imperfections. Such contact points can for example be elongated bends formed in the ring surface.

10 Alternatively, the contact points can be defined essentially circular punches. Preferably, the contact points are embossed into the flange portion, thereby providing for example the ring surface with a suitable structure.

15 In contrast to prior art contact solutions, such as contact tongues, which precisely have to fit into corresponding apertures or precisely have to match with corresponding contact elements, due to the inventive flange portion, precision upon mating the electrical high power connectors with the electrical device is less critical.

20 For example, in the case of the prior art contact tongues described above in the introduction, an insertion precision required which allows for a tolerance of only up to 10 hundredth of a millimeter, preferably up to 5 hundredth of a millimeter .

25 In contrast, an exact placement of the inventive shielding with respect to the electrical device is not required, as long as the flange portion is in mechanical contact with the contact surface of the electrical device. In addition, an exact orientation of the shielding around its longitudinal axis is not required.

30 In a preferred embodiment, as opposed for example to prior art bending and stamping, the shielding is produced as an integral part via deep-drawing and preferably comprises no seam.

Such seams are inevitable, for example, in the case of components which are produced by bending and stamping using flat sheet metal blanks being the result from the necessary rolling step by means of which the edges of the originally flat sheet metal blank are connected.

5 Similar as apertures, such seams form undesirable discontinuities within the shielding surface of the shielding which deteriorate the shielding function.

10 Further, the deep-drawing process allows that necessary structures, such as locking elements, can be formed within surfaces of the shielding without the necessity of stamping corresponding apertures into the surface.

15 Thus, due to the use of such a deep-drawing process, it becomes possible that; in a preferred embodiment; the shielding forms a continuous shielding surface which is not interrupted by any apertures.

20 The advantageous shielding capability which becomes feasible with the inventive shielding, allows in a preferred embodiment a shielding function of at least 40 dB, preferably at least 55 dB, most preferably at least 70 dB in the range of 10 kHz-5 MHz and at least 40 dB, preferably at least 55 dB, most preferably at least 65db and more preferably at least 70 dB in the range of 5 MHz-500 MHz can be reached.

25 Similarly, in a preferred embodiment, the inventive electrical high power connector assembly is adapted to transmit an electrical power of at least 10 kW more preferably of at least 50 kW, even more preferably of at least 100 kW, and most preferably of at least 150 kW.

30 A further advantage of the shielding is that it allows for a beneficial sealing, e.g. of the interior of the connector housing against moisture or contamination by dust.

Preferably, a shielding seal, preferably an O-ring, is arranged around the shielding body, in between the flange portion and the contact surface of the connector housing, to at least seal the interior portion of the connector housing, such that even if the electrical high power connector assembly is not mated to an electrical device, said interior portion is sealed.

The present invention relates to an electrical high power connector assembly comprises at least one contact pin. Moreover, the electrical high power connector assembly according to the present invention may also comprise two contact pins or more.

Of course, different features, alternatives and/or embodiments of the present invention can be combined with each other in various arrangement to the extent that they are not incompatible or mutually exclusive of others.

The present invention will be better understood and other features and advantages will become apparent upon reading the following detailed description including embodiments for illustrative purposes with reference to the figures, presented as non-limitative examples, which can be used to complete the understanding of the present invention and the description and, where appropriate, contribute to its definition, in which:

- Fig. 1 shows an exploded view of an electrical high power connector assembly and a schematic illustration of an electrical device according to the present invention,
- Fig. 2 shows a perspective illustration of a shielding according to the present invention,
- Fig. 3A shows a perspective view of the electrical high power connector assembly mated with the electrical device according to the present invention,

- Fig. 3B shows a perspective schematic view of the shieldings and power contact terminals mounted to the electrical device according to the present invention,
- 5 – Fig. 4 shows a front view, along the mating direction as shown in Fig. 3B,
- Fig. 5 shows a partially cut view through the electrical high power connector assembly mated to the electrical device of Fig. 3A,
- 10 – Fig. 6A shows a cut view of the electrical high power connector assembly according to the present invention, and
- Fig. 6B shows the components of Fig. 3B with the shieldings partially cut .

15 It should be noted that, on figures, structural and/or functional elements which are common to different embodiments may have the same reference sign. Thus, unless otherwise stated, these elements have structural, dimensional and material properties which are identical.

20 Fig. 1 shows an electrical high power connector assembly 100 which comprises a connector housing 101, a housing seal 501, two shieldings 600, two terminal carriers 400 and two power contact terminals 300.

25 For mating the electrical high power connector assembly 100 to an electrical device 200, the connector housing 101 is screwed to the electrical device 200 by means of screws 113, which to this end are inserted into through holes 115 and screwed into screw holes 201 of the electrical device 200.

30 The connector housing 101 comprises a rectangular portion 109, which forms a mating surface for mating with the electrical device 200, and a tubular portion 103, which, for example, can be inserted into a

corresponding counter connector housing, which is not currently shown, in an assembly direction indicated by arrow 705.

5 To facilitate the insertion, the tubular portion 103 of the connector housing 101 is provided with guide rails 105 and a cam pin 107, which, for the insertion, can interact with a corresponding lever mechanism, as it is known in the art.

10 Upon assembly of the electrical high power connector assembly 100, each shielding 600, each terminal carrier 400 and each power contact terminal 300 are received in openings 111.

15 To this end, the shielding 600 is inserted into the opening 111, such that a cylindrical ring portion 607 of an enlarged diameter of the shielding 600 is arranged in contact with an inner surface 112 of the opening 111.

20 Thereby, a shielding seal 505, for example an O-ring, is placed around the cylindrical ring portion 607 adjacent to a flange portion 609, being pressed by said portion against a corresponding surface of the connector housing 111.

25 Such sealing means are provided as sealing against moisture , dust or dirt, and allow a sealing function for the interior of the connector housing 101, even if the electrical high power connector assembly 100 is not mated to the electrical device 200.

30 Further, upon assembly of the electrical high power connector assembly 101, the terminal carrier 400, which preferably is made of an insulating material such as for example a plastic material, is at least partially received in the shielding 600, thereby being at least partially arranged around the power contact terminal 300.

To this end, a terminal base portion 401 is inserted into the shielding 600, up to an intermediate portion 405 of the terminal carrier 400 is placed inside of the cylindrical ring portion 607 of the shielding 600.

- 5 A terminal carrier seal 507 is provided around the intermediate portion 405 of the terminal carrier 400, such that, in an assembled condition, the interior of the shielding 600 is sealed.

- 10 Further, upon assembly, the power contact terminal 300 is inserted through an opening inside a conical portion 403 of the terminal carrier 400, thereby being at least partially arranged inside the shielding 600, such that, at least, a main body 303 of the power contact terminal 300 is electromagnetically shielded.

- 15 The power contact terminal 300 is further provided with a fixation recess 307 with a fixation stop 305, the function of which will be described below with reference to Fig. 6A.

- 20 The power contact terminal 300 is provided with a power terminal seal 509, which, in an assembled condition, is arranged between the power contact terminal 300 and an inner surface of the terminal carrier 400, to seal the interior of the terminal carrier 400 and, thereby, the interior of the shielding 600.

- 25 When the electrical high power connector assembly 100 is mated with the electrical device 200, contact pins 301 of the power contact terminals 300 protrude through terminal openings 203 of the electrical device 200, such that they can be electrically connected to corresponding female terminals, not currently shown, inside of the
30 electrical device 200.

The electrical device 200 is further provided with an interlock opening 205 for a corresponding interlock connection, not currently shown, of

the electrical high power connector assembly 100 which, inside of the electrical high power connector assembly 100, is provided with a corresponding interlock seal 503. Preferably, the interlock seal 503 is arranged in the connector housing 101.

5

When the electrical high power connector assembly 100 is mated to the electrical device 200, the housing seal 501 is placed within a sealing channel 121 provided within the rectangular portion 109 of the connector housing 101 and is pressed against a corresponding surface of the electrical device 200.

10

Fig. 2 shows a perspective view of the shielding 600 which comprises a shielding body 603, which is not interrupted by any apertures or seams. Due to the continuous surface of the shielding 600, particularly of the shielding body 603, an optimum shielding function is provided. The shielding body 603 comprises the cylindrical ring portion 607.

15

This is a particular advantage which can be achieved by a deep-drawing process which does not require, for example, closing of the cylindrical part of the shielding 600 via a welding seam, as it is usually the case when the shielding is produced via bending and stamping sheet metal blanks.

20

The deep-drawing process also allows for the production of more complex structures, such as a locking element 604, which is preferably formed within an outer surface of the shielding body 603, preferably via a combination of deep-drawing and punching, which is adapted to interact with a corresponding shield fixation latch 117, as shown on Fig. 5, of the connector housing 101 to lock the shielding 600 in the opening 111 of the connector housing 101.

25

30

Further, the deep-drawing process allows to produce complex structures, in particular when combined with punching, such as a locking stop 606 and locking tongues 605, which are formed within the surface of the shielding 600.

5

Preferably, the locking element 604 comprises locking tongues 605, which are formed by deforming a step 608 located between the shielding body 603 and the cylindrical ring portion 607, preferably via deep-drawing process, such locking tongue 605 protrudes outwardly from an outer surface of the shielding body 603. The locking tongues 605 advantageously support the interaction of the locking elements 604 with the corresponding shield fixation latch 117 such that the shielding 600 can be safely locked within the opening 111, in particular during transport and handling.

10

15

In a preferred embodiment, the cylindrical ring portion 607 is provided with an enlarged diameter as compared to the shielding body 603. In addition, the flange portion 609 extends outwardly from said cylindrical ring portion 607 as a circular collar.

20

As shown in Fig. 2, the flange portion 609 is provided with a plurality of contact points 611 which form a circular array around the circumference of the cylindrical ring portion 607. These contact points 611 are preferably embossed into the flange portion 609 and, in a mated condition of the electrical high power connector assembly 100 with the electrical device 200, a ring surface 602, which, due to the perspective of the Fig. 2 is not visible thereon, is in contact with a contact surface 207, shown on Fig. 3B, of the electrical device 200 via said contact points 611.

25

30

Preferably, at an end opposing the flange portion 609, the shielding 600 comprises a tapered area 601, which preferably is oriented

inwardly. Thereby, for example, insertion of the shielding body 603 into a further shielding sleeve, which is not currently shown, is eased.

5 Fig. 3A shows the electrical high power connector assembly 100 being mated with the electrical device 200. Particularly, the rectangular portion 109 of the connector housing 101 is screwed to electrical device 200 via screws 113.

10 Fig. 3B shows the same view as Fig. 3A, whereby the connector housing 101 as well as the screws 113 are omitted. Therefore, in Fig. 3B, the shieldings 600 are visible, whereby the respective flange portions 609 are in mechanical and electrical contact with contact surface 207 of the electrical device 200.

15 Due to the contact area of the shielding 600 with the contact surface 207, which is widened as compared to the width of the cylindrical wall of the shielding 600, a connection is provided which is robust against lateral forces acting on the shielding 600 and which is beneficial in terms of electrical conduction.

20 As one can see further in Fig. 3B, when the electrical high power connector assembly 100 is mated to the electric device 200, the conical portion 403 of the terminal carrier 400 protrudes through the terminal openings 203 of the electrical device 200 surrounding contact pins 301 of the power contact terminal 300.

25

Fig. 4 shows a front view, along the mating direction of the components of Fig. 3B described above along the contact surface 207 of the electrical device 200. As shown, in the mated state here above described, the ring surface 602 of the shielding 600 is in contact with the contact surface 207 via contact points 611.

30

Due to this contact mechanism, upon assembly the exact position of shieldings 600 with respect to the terminal openings 203 is less critical, as for example compared to the above discussed prior art contact tongue mechanisms, since the electrical contact is independent of the exact position of the shieldings 600 with respect to the contact surface 207.

In other words, if the position of one of the shieldings 600 deviates from the shown ideal case, the electrical contact between shielding 600 and contact surface 207 will still be established.

A further advantage of the present design is that, due to the simple contact mechanism, the terminal openings 203 and the interlock opening 205 can be realized smaller as compared to the prior art examples, which allows that the terminal openings 203 and the interlock opening 205 can be produced as non-connected holes. This allows to produce the terminal openings 203 and the interlock opening 205 in a simply way, for example by drilling.

More complicated structures, as they are required when the terminal openings and the interlock opening overlap due to the required size, have to be fabricated by more complicated milling procedures.

Fig. 5 shows a partial cut view of the components of Fig. 3A. The Fig. 5, in particular, illustrates the sealing function of the sealing components.

As shown, the housing seal 501 is arranged between the rectangular portion 109 of the connector housing 101 and the contact surface 207 of the electrical device 200. Moreover, the shielding seal 505 is arranged between the flange portion 609 of the shielding 600 and a corresponding surface surrounding the opening 111 of the connector housing 101.

Similarly, the terminal carrier seal 507 is placed in a recess provided in the intermediate portion 405 of the terminal carrier 400 being pressed against an inner surface of the shielding 600.

5

Further, in Fig. 5, the above mentioned shielding fixation latches 117 are in engagement with the locking element 604 of the shielding 600. Preferably, to this end, the locking element 604 comprises the locking stop 606, which protrudes outwardly from an outer surface of the shielding body 603 and which is adapted to engage the shielding fixation latch 117 to lock the shielding 600 in the opening 111.

10

Fig. 6A shows a partial cut view of Fig. 5 in which the electrical device 200 has been removed, as it is the case, for example, during transport or storage of the electrical high power connector assembly 100.

15

As shown in Fig. 6A, due to the engagement of shielding fixation latch 117 with the locking stop 606 of the locking element 604 of the shielding 600, the shielding 600 is locked within the connector housing 111, such that the locking is secured, for example, against push out forces, which act essentially along the direction of arrow 701, as they can, for example, occur during transport.

20

Further, in its interior, the terminal carrier 400 is provided with terminal fixation latches 407 with locking projections 409, which interact with fixation stops 305 provided within the fixation recess 307 of the power contact terminal 300 to lock the power contact terminal 300 inside of the terminal carrier 400. The terminal carrier 400 is locked inside the shielding 600 by terminal carrier fixation elements 411, only one of which is visible in Fig. 6A.

25

30

Fig. 6B shows a cut through the components of Fig. 3B. As one may derive from Fig. 6B, due to the provision of the flange portion 609, a

particularly stable and stiff mechanical contact between shielding 600 and the contact surface 207 of the electrical device 200 is provided.

5 Due to this design, the contact between the shieldings 600 and the contact surface 207 is, in particular, less susceptible influences of lateral forces, as they can act in the direction of arrows 703 shown in Fig. 6B.

10 Obviously, the present invention is not limited to embodiments which are here above described and provided only as examples. It also includes different modifications, and alternatives that may be considered by the person skill in the art as part of the present invention, including all combinations of different embodiments here above described, taken alone or in combination.

15

Claims

1. Electrical high power connector assembly (100), suitable to be mated to an electrical device (200), comprising
- 5 – a connector housing (101), suitable to be mechanically connectable to the electrical device (200),
- a power contact terminal (300) received in an opening (111) of the connector housing (101), suitable to be electrically connectable to a corresponding counter terminal of the
- 10 electrical device (200), and
- a shielding (600) received by the opening (111) of the connector housing (101), comprising a shielding body (603) arranged around at least a portion of the power contact terminal (300) to provide an electromagnetic shielding for at
- 15 least said portion,
- characterized in that** the shielding body (603) comprises a flange portion (609) suitable to mechanically and electrically contact a contact surface (207) of the electrical device (200), when the connector housing (101) is connected to the electrical device (200).
- 20
2. Electrical high power connector assembly (100) according to claim 1, **characterized in that** the flange portion (609) forms a ring surface (602) essentially in direct mechanical contact with the contact surface (207) of the electrical device (200), when the connector
- 25 housing (101) is connected to the electrical device (200).
3. Electrical high power connector assembly (100) according to any one of claims 1 or 2, **characterized in that** the flange portion (609) has essentially the form of a circular collar which extends
- 30 outwardly from an end of the shielding (600).
4. Electrical high power connector assembly (100) according to any one of the preceding claims, **characterized in that** the flange

portion (609) comprises a plurality of contact points (611), suitable to mechanically and electrically contact the contact surface (207) of the electrical device (200), when the connector housing (101) is connected to the electrical device (200) and which preferably form a circular array.

5
10 5. Electrical high power connector assembly (100) according to claim 4, **characterized in that** the flange portion (609) comprises at least 8, preferably at least 16, more preferably at least 32 contact points (611).

15 6. Electrical high power connector assembly (100) according to any one of claims 4 or 5, **characterized in that** the contact points (611) are embossed into the flange portion (609).

20 7. Electrical high power connector assembly (100) according to any one of the preceding claims, **characterized in that** the shielding body (603) comprises a cylindrical ring portion (607) of enlarged diameter, and in that the flange portion (609) extends outwardly from said cylindrical ring portion (607).

25 8. Electrical high power connector assembly (100) according to any one of the preceding claims, **characterized in that** the shielding (600) comprises a locking element (604) formed within an outer surface of the shielding body (603), suitable to interact with a corresponding shield fixation latch (117) of the connector housing (101) to lock the shielding (600) in the opening (111) of the connector housing (101).

30 9. Electrical high power connector assembly (100) according to claim 8, **characterized in that** the locking element (604) comprises a locking stop (606), which protrudes outwardly from an outer surface of the shielding body (603), suitable to engage a shielding fixation latch

(117) of the connector housing (101) to lock the shielding (600) in the opening (111) of the connector housing (101).

5 10. Electrical high power connector assembly (100) according to claim 8, **characterized in that** the locking element (604) comprises at least one locking tongue (605) formed by deforming a step (608) arranged between the shielding body (603) and the cylindrical ring portion (607), such that the locking tongue (605) protrudes outwardly from the outer surface of the shielding body (603).

10

11. Electrical high power connector assembly (100) according to any one of the preceding claims, **characterized in that** the shielding (600) comprises a tapered area (601) at an end opposing the flange portion (609), preferably oriented inwardly.

15

12. Electrical high power connector assembly (100) according to any one of the preceding claims, **characterized in that** the shielding (600) is produced as an integral part, preferably whereby the shielding (600) comprises no seam.

20

13. Electrical high power connector assembly (100) according to any one of the preceding claims, **characterized in that** the shielding body (603), preferably the shielding (600), forms a continuous, shielding surface which is not interrupted by any apertures.

25

14. Electrical high power connector assembly (100) according to any one of the preceding claims, further comprising a terminal carrier (400), preferably made of insulating material, **characterized in that** terminal carrier (400) is at least partially received by the shielding (600) and at least partially arranged around the power contact terminal (300).

30

15. Electrical high power connector assembly (100) according to any one of the preceding claims, further comprising a housing seal (501) and a shielding seal (505),

5 **characterized in that** the housing seal (501) is arranged in between a sealing surface (121) of the connector housing (101) and the contact surface of the electrical device (200), and in that the shielding seal (505) is arranged between the flange portion (609) of the shielding (600) and a corresponding surface surrounding the opening (111) of the connector housing (101).

10

16. Electrical high power connector assembly (100) according to any one of the preceding claims, further comprising an interlock seal (503),

15 **characterized in that** the interlock seal (503) is arranged in the connector housing (101).

1/3

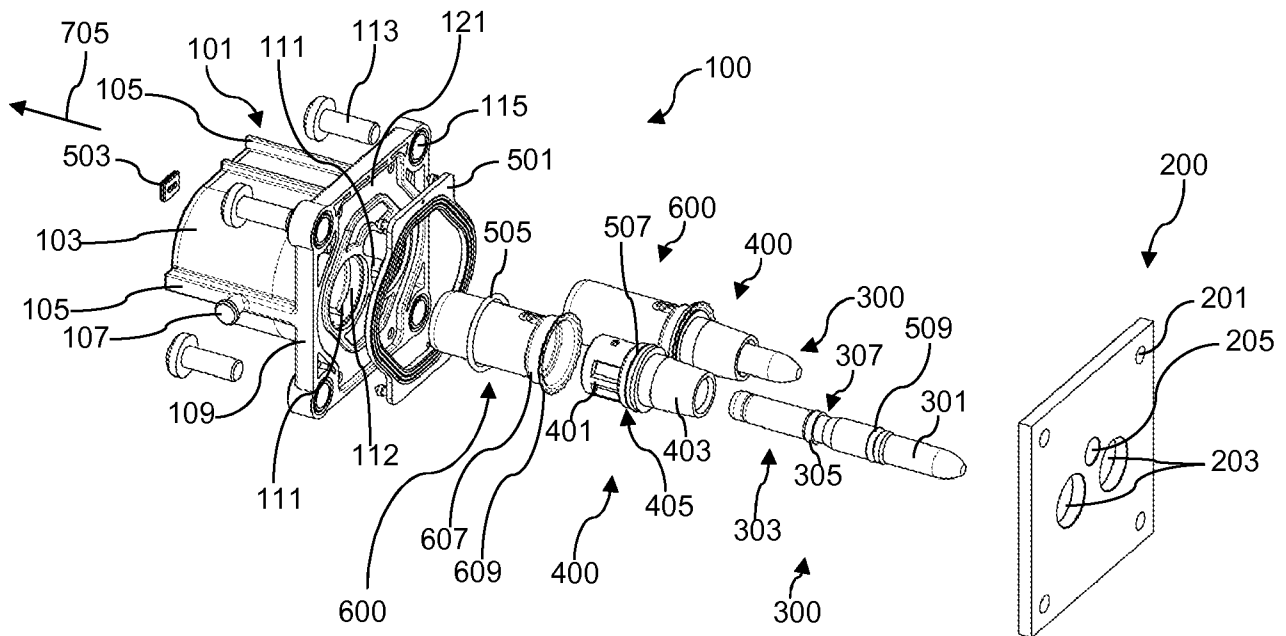


Fig. 1

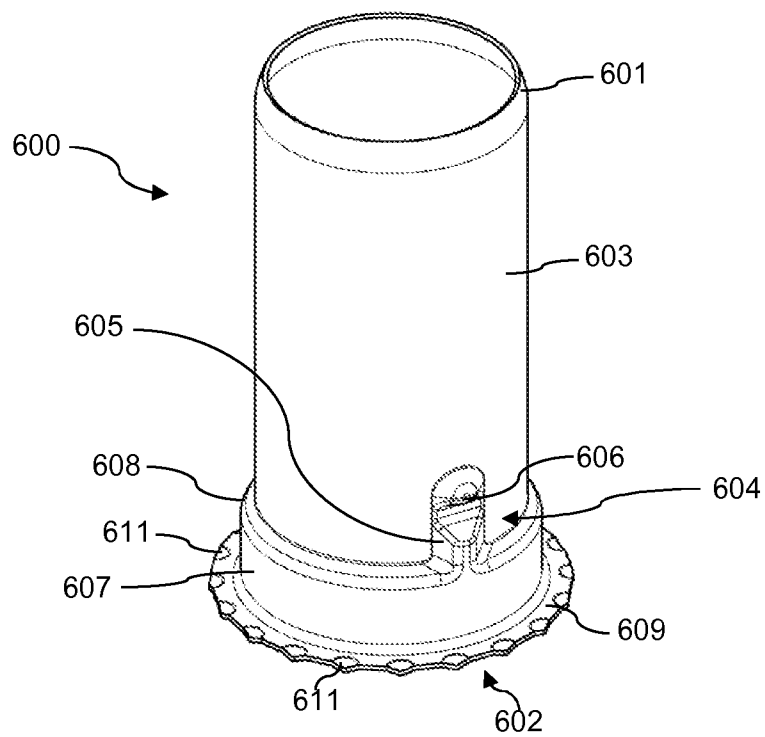


Fig. 2

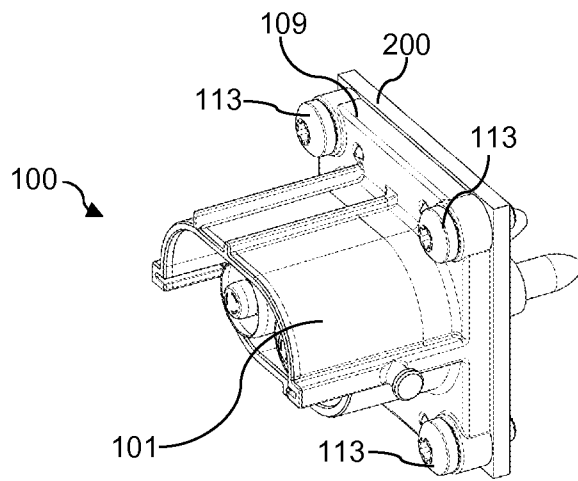


Fig. 3A

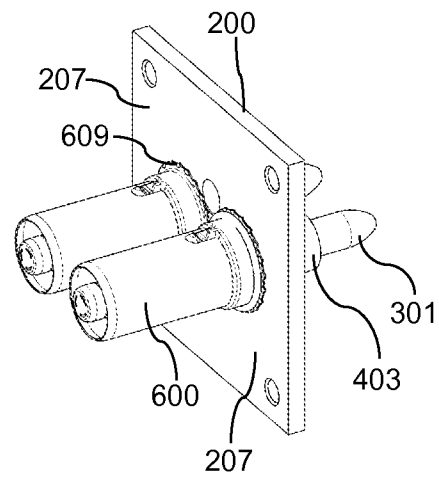


Fig. 3B

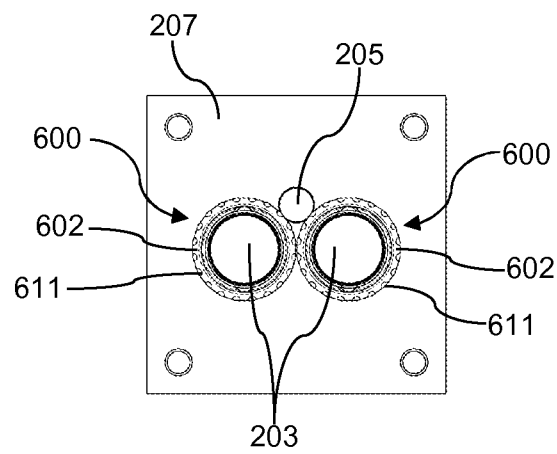


Fig. 4

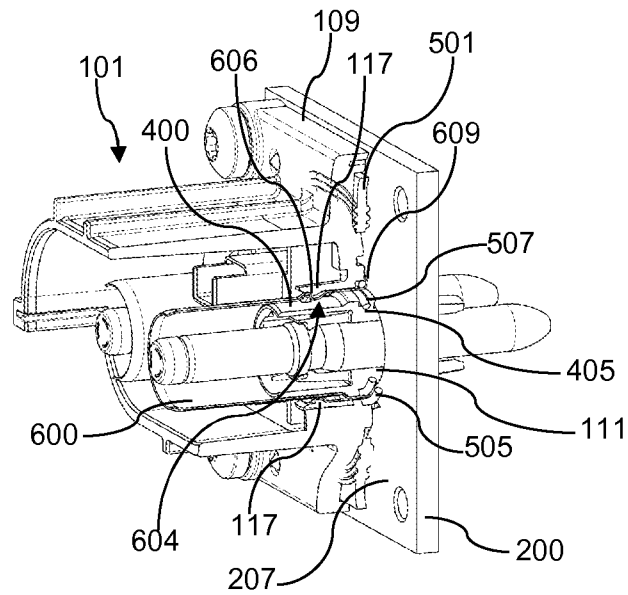


Fig. 5

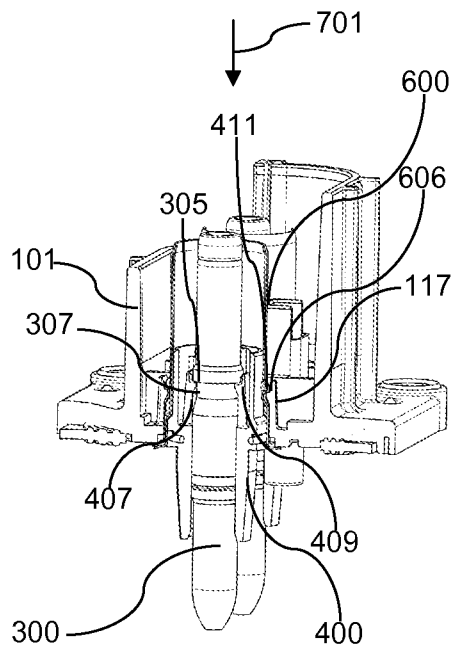


Fig. 6A

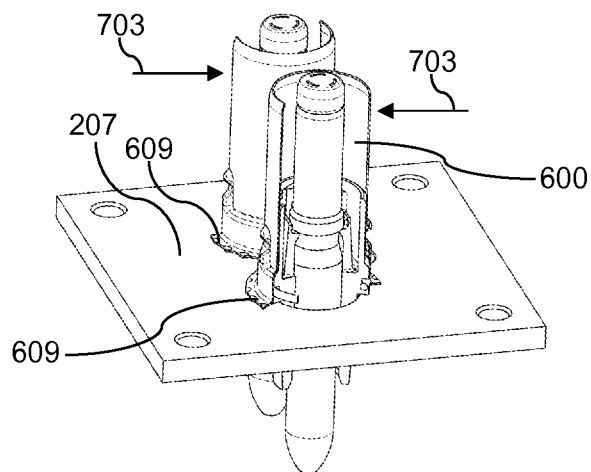


Fig. 6B

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2012/002834

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H01R13/6582
 ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 H01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/015889 A1 (FRAMATOME CONNECTORS INT [FR]; CASSES CLAUDE [FR]; CAPPE PATRICE [FR];) 11 February 2010 (2010-02-11) page 3, line 20 - page 5, line 12; figures 1,4	1-10, 14-16
X	----- DE 103 54 288 A1 (AUTONETWORKS TECHNOLOGIES LTD [JP]; SUMITOMO WIRING SYSTEMS [JP]; SUMI) 3 June 2004 (2004-06-03) paragraph [0017] - paragraph [0025]; figure 3	1,11-13
A	----- DE 10 2010 002681 A1 (TYCO ELECTRONICS AMP GMBH [DE]) 29 September 2011 (2011-09-29) cited in the application paragraph [0029] - paragraph [0030]; figure 1 -----	1



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

12 August 2013

Date of mailing of the international search report

21/08/2013

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/002834

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