IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

SENKO ADVANCED COMPONENTS, INC.,	)	
Plaintiff,	)	
vs.	)	Civil Action No. _____
US CONEC, LTD.,	)	
Defendant.	)	

COMPLAINT

Plaintiff Senko Advanced Components, Inc. ("Senko" or "Plaintiff") makes this Complaint, including a demand for a jury trial, against Defendant US Conec, Ltd. ("US Conec" or "Defendant") and alleges as follows:

NATURE OF THE ACTION

1. This action seeks past and ongoing money damages and permanent injunctive relief for the Defendant's acts of making, using, selling, offering for sale, and/or importing its accused MDC and MMC fiber optic connector and adapter products that infringe Senko's rights in seven issued U.S. patents.

THE PARTIES

2. Plaintiff Senko is incorporated under the laws of the State of Massachusetts, and its principal place of business is located at 2 Cabot Road, Suite 103, Hudson, Massachusetts 01749.

3. Upon information and belief, Defendant US Conec, Ltd. is a corporation organized and existing under the laws of the State of Delaware, and its principal place of business is located at 1138 25th St SE, Hickory, North Carolina 28602.

JURISDICTION AND VENUE

4. This action arises under the United States patent laws, 35 U.S.C. § 101, *et seq.*, including 35 U.S.C. § 271, *et seq*. This Court has subject matter jurisdiction under 28 U.S.C. § 1331 and § 1338(a).

5. This Court has personal jurisdiction over US Conec because, upon information and belief, US Conec is incorporated under the laws of the State of Delaware and therefore resides in Delaware. On information and belief, Defendant also regularly conducts business in this judicial district related to the products at issue in this action. On information and belief, Defendant uses, offers for sale and/or sells its products at issue in this action within this District or otherwise places such products within the stream of commerce with the expectation that they would be used in this District.

6. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1400(b) because US Conec is, upon information and belief, incorporated under the laws of the State of Delaware and is legally deemed to reside in Delaware.

INTRODUCTION

7. The parties are competitors in the markets for various types of passive fiber optic connection components. Traditional customers for the parties' competing products are vendors who provide fiber optic equipment and solutions to data centers, communication network providers, and other owners of fiber optic networks. Fiber optic communications require a high degree of accuracy at each connection point for robust, consistent, and high-speed transmission of data.

8. As demand for bandwidth has increased, networks increasingly use fiber optic systems instead of traditional copper-electrical systems because of fiber's capacity for higher speed and reduced maintenance. For example, networks rely on fiber optic components to connect the switches and servers that underlie high-speed computer and communication systems. In some fiber optic facilities, for example data centers, millions of connection components of the type sold by the parties are used to connect the optical fibers.

9. Fiber optic cables hold one or more fibers that run between two points in a data center or communication network. It is challenging to directly connect (*e.g.*, fuse) one optical fiber to another, so cables are terminated with standard connectors that are configured to plug into corresponding adapters to make optical connections.

10. Most optical connectors in use today retain the ends of fibers in high-precision ferrules. The ferrules, in turn, are mounted in a housing or plug frame that attaches to the cable. Optical connector housings include precise alignment and retention features that correspond to complementary features of the adapter. Since optical fibers are often less than the diameter of a human hair, these alignment and retention features have very strict tolerances to ensure the fibers line up in the adapter. For ease of use, fiber optic connectors can be equipped with extraction mechanisms that enable them to be disconnected from the adapter after initial mating.

11. Two types of ferrules are common: cylindrical single-fiber ferrules and rectangular multi-fiber ferrules. The industry frequently calls multi-fiber ferrules "MT" ferrules. Various fiber optic connectors have been developed around both types of ferrules.

12. For many years, fiber optic networks have employed "small form factor" ("SFF") single-fiber ferrule connectors and adapters. In the United States, the most common type of SFF single-fiber ferrule connector is an LC Connector, which comprises a 1.25 mm-diameter ferrule

in a square connector housing with an integrated upper latch hook for securing the connector to a mating adapter. Two individual LC connectors are frequently assembled together in a side-by-side configuration to make an LC duplex connector.

13. The most common multi-fiber ferrule connector in the United States is called an MPO connector. In an MPO connector, there is a single MT ferrule that carries a plurality of optical fibers. This MPO connector has a rectangular housing and a spring-loaded sleeve and latching mechanism.

14. Conventional LC and MPO connector and adapter components have met the industry's needs for many years. But within a fiber optic network installment, space can be at a premium. Optoelectronic transceivers have also advanced, creating a need for smaller fiber optic connection components that can accommodate more fiber connections in the same transceiver footprint.

15. To meet the industry's desire for density, Senko has spent years developing a new generation of connectors and adapters with smaller footprints than the conventional components described above. These efforts have yielded three all-new connection systems, which the industry now calls "VSFF," *i.e.*, very small form factor. Senko offers two "duplex" VSFF connector platforms that utilize two 1.25-mm single-fiber ferrules in each plug and one "multi-fiber" VSFF connector platform that utilizes an MT ferrule in a plug.

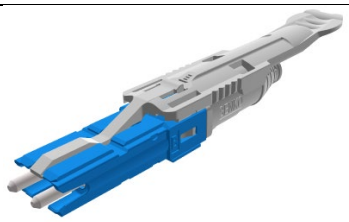
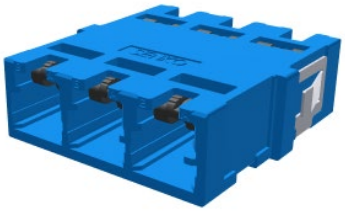
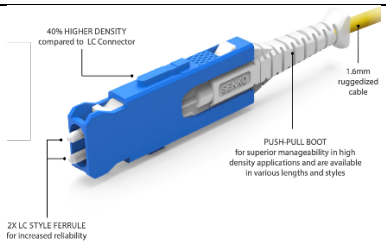
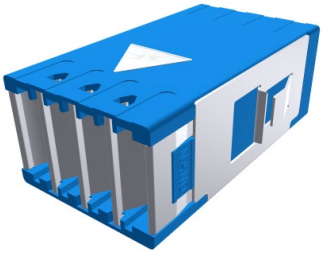
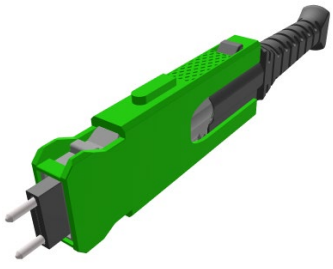
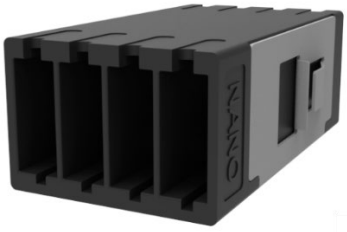
16. Senko's first VSFF product was a duplex connector platform called "CS". The CS platform includes duplex connectors and corresponding adapters. The CS connector has a 40% smaller size than the conventional duplex LC connector.

17. After the CS connector, Senko released another VSFF duplex connector platform, called "SN". The SN connectors and adapters allow for even greater density than CS. Compared

with conventional LC components, the SN components allow for about three-times the fiber connection density.

18. Most recently, Senko has begun marketing its SN-MT platform, which includes a connector and corresponding adapters. The SN-MT connector has a similar mating interface to the SN connector but uses a multi-fiber ferrule instead of two single-fiber ferrules. The SN-MT connector allows for about 2.7-times as many multi-fiber ferrules to be connected in a given footprint than the conventional MPO connector.

19. Shown below is a chart with representative samples of Senko's CS, SN, and SN-MT connectors and their corresponding adapters:

Product platform	Connector	Adapter
CS		
SN		
SN-MT		

20. To achieve these improvements in fiber optic connection density while still meeting industry expectations for accuracy, robustness, and ease of use, Senko made significant research and development investments. Its research and development led to important innovations that underlie Senko's three VSFF product platforms. For example, Senko developed new low-profile push-pull latch interfaces that enable simple, accessible insertion and extraction of a VSFF connector within a small footprint. Senko also developed new ways to integrate the high-precision alignment features of connectors and adapters to save space. Additionally, Senko innovated new ways of enabling connector polarity reversal within the limited size available for VSFF connectors. Recognizing the importance of these innovations to the next generation of fiber optic network equipment, Senko consistently sought patent protection for its VSFF inventions. Seven of the resulting patents are the subject of this lawsuit.

21. In addition to the VSFF products described above, Senko has numerous other products that relate to different fiber optic connectivity solutions. Senko understands and values intellectual property rights that are intended to protect its products and innovation. Senko has over 200 U.S. patents that cover various features and improvements in the field of fiber optic connectivity. Over 70 of Senko's patents pertain to VSFF interconnect systems.

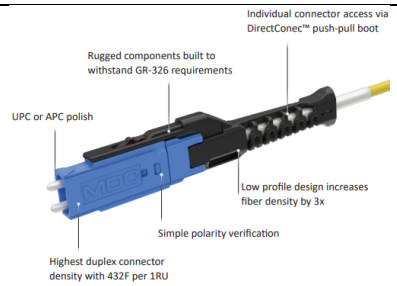
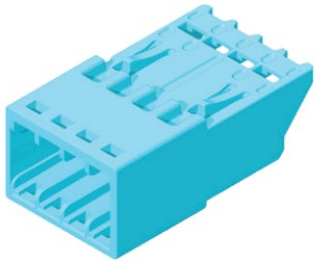
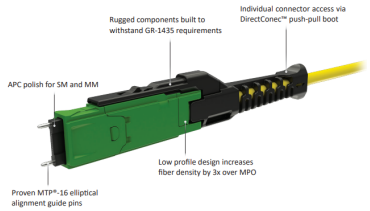
22. US Conec is also marketing two VSFF product lines in direct competition with Senko's patented VSFF products and in violation of the asserted patents. US Conec's products in these two product lines are referred to herein as the "Infringing Products."[1]

[1] A list of specific "Infringing Products" currently known to Senko is provided below. *See infra* ¶ 69. Senko reserves the right to revise, amend, or supplement the list of Infringing Products as the case progresses.

23. The first US Conec VSFF product line is called MDC, which, upon information and belief, includes a VSFF duplex connector and various mating adapters. The MDC connector marketed by US Conec has a similar size to Senko's SN connector.

24. The second US Conec VSFF product line is called MMC, which, upon information and belief, includes a multi-fiber connector and various mating adapters. The MMC connector marketed by US Conec has a similar size to Senko's SN-MT connector.

25. Below is a chart depicting representative Infringing Products that, based on information and belief, US Conec is selling or offering for sale, in direct competition with Senko's patented VSFF products:

Product Platform	Connector	Adapter
MDC		
MMC		

26. None of US Conec's VSFF products is cross-compatible with any of Senko's VSFF products. For example, it is not possible to make a direct optical connection between an SN connector and an MDC connector or an SN-MT connector and an MMC connector.

Likewise, it is not possible to properly mate an SN connector to an MDC adapter, or vice versa, or to properly mate an SN-MT connector to an MMC adapter, or vice versa.

27. The above-described Senko and US Conec fiber optic connectivity products are generally not sold at retail to consumers. They are instead sold most often in bulk quantities to suppliers that specify these components in bids to supply equipment to a fiber optic network installation. Together with a lack of cross-compatibility between the parties' respective connector and adapters, this often leads to the "single-winner" bidding aspect of the competition for sales between companies such as Senko and US Conec.

28. These market factors generally mean that for every bid in which a given network installation chooses to buy US Conec's infringing connectors and adapters, Senko is shut out completely from making that sale–and often future sales–to that end customer and its vendors.

29. On information and belief, US Conec has successfully offered its Infringing Products in direct competition with Senko as part of bidding on at least two recent large-scale fiber optic network projects. When US Conec's Infringing Products are chosen for such installations over Senko's patented products, Senko is effectively shut out from being a supplier.

30. If US Conec is allowed to continue marketing and promoting its infringing MDC and MMC connector and adapter products, then Senko will continue to suffer irreparable harm, including loss of sales, market share, profit, and goodwill. This impacts both Senko's sale of the CS, SN, and SN-MT product platforms and also its potential participation in more lucrative sales of entire data center installations and communication networks. In short, Senko's VSFF innovation, its current market success, and its accompanying patent rights are deeply threatened by US Conec's infringement.

31. To eliminate further infringement and to recover appropriate legal and equitable remedies for past and ongoing infringement, Senko brings this action for patent infringement.

THE SENKO ASSERTED PATENTS

32. Senko has over 200 issued U.S. patents and is actively seeking additional protection for its innovative products and product features relating to fiber optic connectivity solutions. While Senko put US Conec on notice of infringement of several additional patents and claims before bringing this suit, the claims in this Complaint are for infringement of U.S. Patent Nos. 11,307,369; 11,333,836; 11,340,413; 11,415,760; 10,191,230; 11,181,701; and 11,061,190 (collectively, the "Asserted Patents"). Senko does not waive, and expressly reserves, all rights and claims for relief against US Conec and others with regard to its patent rights beyond those set forth in this Complaint.

THE '369 PATENT

33. U.S. Patent No. 11,307,369 (the "'369 Patent") is entitled "ULTRA - SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING." The '369 Patent was duly and legally issued on April 19, 2022, by the United States Patent and Trademark Office. A copy of the '369 Patent is attached to this Complaint as Exhibit A and incorporated herein by reference.

34. Senko is the owner and assignee of the '369 Patent and possesses all rights of recovery under the '369 Patent.

35. The '369 Patent has not expired and is in full force and effect.

36. The '369 Patent claims are valid and enforceable.

37. The '369 Patent relates generally to certain claimed latching and unlatching features in a very small form fiber optic connector.

THE '836 PATENT

38. U.S. Patent No. 11,333,836 (the "'836 Patent") is entitled "ADAPTER FOR OPTICAL CONNECTORS." The '836 Patent was duly and legally issued on May 17, 2022, by the United States Patent and Trademark Office. A copy of the '836 Patent is attached to this Complaint as Exhibit B and incorporated herein by reference.

39. Senko is the owner and assignee of the '836 Patent and possesses all rights of recovery under the '836 Patent.

40. The '836 Patent has not expired and is in full force and effect.

41. The '836 Patent claims are valid and enforceable.

42. The '836 Patent relates generally to a partition-free adapter for aligning and latching with multiple VSFF connectors.

THE '413 PATENT

43. U.S. Patent No. 11,340,413 (the "'413 Patent") is entitled "ULTRA - SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING." The '413 Patent was duly and legally issued on May 24, 2022, by the United States Patent and Trademark Office. A copy of the '413 Patent is attached to this Complaint as Exhibit C and incorporated herein by reference.

44. Senko is the owner and assignee of the '413 Patent and possesses all rights of recovery under the '413 Patent.

45. The '413 Patent has not expired and is in full force and effect.

46. The '413 Patent claims are valid and enforceable.

47. The '413 Patent relates to a multi-fiber VSFF optical connector with a polarity key that is integrated with a pullback extraction mechanism.

THE '760 PATENT

48. U.S. Patent No. 11,415,760 (the "'760 Patent") is entitled "NARROW WIDTH ADAPTERS AND CONNECTORS WITH PULL TAB RELEASE." The '760 Patent was duly and legally issued on August 16, 2022, by the United States Patent and Trademark Office. A copy of the '760 Patent is attached to this Complaint as Exhibit D and incorporated herein by reference.

49. Senko is the owner and assignee of the '760 Patent and possesses all rights of recovery under the '760 Patent.

50. The '760 Patent has not expired and is in full force and effect.

51. The '760 Patent claims are valid and enforceable.

52. The '760 Patent relates generally to a multi-fiber VSFF connector with a low-profile sliding interface between the connector housing and pullback remote release mechanism.

THE '230 PATENT

53. U.S. Patent No. 10,191,230 (the "'230 Patent") is entitled "OPTICAL CONNECTORS WITH REVERSIBLE POLARITY." The '230 Patent was duly and legally issued on January 29, 2019, by the United States Patent and Trademark Office. A copy of the '230 Patent is attached to this Complaint as Exhibit E and incorporated herein by reference.

54. The '230 Patent was the subject of *Ex Parte* Reexamination Request No. 90/014,456, on February 19, 2020. The *Ex Parte* Reexamination resulted in issuance of *Ex Parte* Reexamination Certificate No. 10,191,230 C1 (the "'230 Reexamination Certificate") on November 16, 2020. The '230 Reexamination Certificate is attached to this Complaint as Exhibit F. The '230 Reexamination Certificate amends claims 1, 9, 15, 19, and 23 of the '230 Patent and adds new claims 26-34.

55. Senko is the owner and assignee of the '230 Patent and '230 Reexamination Certificate and possesses all rights of recovery under the '230 Patent and '230 Reexamination Certificate.

56. The '230 Patent, as amended by the '230 Reexamination Certificate, has not expired and is in full force and effect.

57. The '230 Patent claims, as amended by the '230 Reexamination Certificate, are valid and enforceable.

58. The '230 Patent and the '230 Reexamination Certificate generally relate to duplex VSFF connectors with upper and lower couplings that facilitate polarity reversal.

THE '701 PATENT

59. U.S. Patent No. 11,181,701 (the "'701 Patent") is entitled "OPTICAL CONNECTORS WITH REVERSIBLE POLARITY AND METHOD OF USE." The '701 Patent was duly and legally issued on November 23, 2021, by the United States Patent and Trademark Office. A copy of the '701 Patent is attached to this Complaint as Exhibit G and incorporated herein by reference.

60. Senko is the owner and assignee of the '701 Patent and possesses all rights of recovery under the '701 Patent.

61. The '701 Patent has not expired and is in full force and effect.

62. The '701 Patent claims are valid and enforceable.

63. The '701 Patent generally relates to duplex VSFF connectors with removable latch elements that facilitate polarity reversal.

THE '190 PATENT

64. U.S. Patent No. 11,061,190 (the "'190 Patent") is entitled "SMALL FORM FACTOR FIBER OPTIC CONNECTOR WITH MULTI – PURPOSE BOOT ASSEMBLY." The '190 Patent was duly and legally issued on July 13, 2021, by the United States Patent and Trademark Office. A copy of the '190 Patent is attached to this Complaint as Exhibit H.

65. Senko is the owner and assignee of the '190 Patent and possesses all rights of recovery under the '190 Patent.

66. The '190 Patent has not expired and is in full force and effect.

67. The '190 Patent claims are valid and enforceable.

68. The '190 Patent generally relates to a duplex VSFF connector with a rotatable boot that can both (i) rotate to reverse the polarity of the connector and (ii) be pulled back to release the connector from an adapter.

DEFENDANT'S ACCUSED PRODUCTS

69. US Conec's infringement of Senko's patent rights by making, using, offering for sale, selling and/or importing connector and adapter products in both the MDC and MMC platforms has been and is continuous and ongoing. The currently known US Conec connector and adapter Infringing Products include:

- MDC UPC Connector
- MDC APC Connector
- MMC Connector
- MMC Adapter
- MDC 2-Port Adapter Aligned Key MDC/MDC
- MDC 3-Port Adapter MDC/MDC Jr.

- MDC 4-Port Adapter MDC/MDC Jr.
- MDC 4-Port Adapter Aligned Key MDC/MDC
- MDC 4-Port Adapter Opposed Key – MDC/MDC

DEFENDANT'S KNOWLEDGE OF SENKO'S PATENT RIGHTS

70. Senko complies with the marking requirements of 35 U.S.C. § 287 at least through the websites and other materials related to its products under the Asserted Patents. Senko's marking includes a virtual patent marking page, located at https://www.senko.com/corporate/#patents, which associates its CS and SN product platforms with some of the Asserted Patents, among others.

71. At least as of January 26, 2022, US Conec has known that Senko is a competing manufacturer of fiber optic connectors and adapters, and at least as of that same date US Conec has known about Senko's products and its corresponding patents as well.

72. Beginning in early 2022, Senko sent multiple letters to US Conec to provide notice of Senko's Asserted Patents, among several other Senko patents. Senko sent the first notice letter on January 26, 2022, which notified US Conec of the '230 patent, the '836 patent (which at the time was an allowed patent application), and the '369 patent (which at the time was an allowed patent application), among others. Defendant thus had knowledge of certain of the Asserted Patents at least as of January 26, 2022, the date of Senko's first notice letter.

73. Throughout 2022, Senko gave further actual pre-suit notice of its claims of infringement to US Conec on all other Asserted Patents as well.

74. Despite having been made aware before this action was commenced of its infringing sales and marketing of MDC and MMC connectors and adapters, US Conec continues to sell and offer for sale the Infringing Products.

75. On information and belief, US Conec has not made any attempt to redesign, modify, or withdraw any of its Infringing Products in response to Senko's notices and demands.

76. Defendant knows and at all relevant times has known of its infringement of the Asserted Patents, or at the very least has been willfully blind to its infringement of the Asserted Patents.

77. Upon information and belief, such infringement has been, and will continue to be, willful, and upon further belief, Defendant lacks any reasonable invalidity or non-infringement defense making this case exceptional and entitling Senko to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

CLAIMS FOR RELIEF

78. Senko's averments of infringement against US Conec that follow in Counts One – Seven and as further illustrated in the corresponding infringement charts are exemplary of, and without prejudice to Senko's ultimate infringement contentions. The Claim Charts attached and incorporated by reference in this Complaint as Exhibits I-O have individual claim elements of a representative claim mapped to an Accused Product and shall be considered a separate averment within the meaning of the Federal Rules of Civil Procedure, for which an element-by-element response is expected in conformity with Rule 8(b) of the Federal Rules of Civil Procedure. In providing these averments, Senko does not convey or imply any particular claim constructions or purport to describe the precise scope of the claims. Senko's claim constructions, as necessary, regarding any particularized meaning of the claim terms for the Asserted Patents' claims will be provided in accordance with the Court's scheduling order and any applicable local rules or standards.

COUNT ONE
(INFRINGEMENT OF U.S. PATENT NO. 11,307,369)

79. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth herein.

80. Defendant US Conec, without license or authorization to do so, has directly infringed one or more claims of the '369 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '369 Patent by making, using, offering for sale and/or selling its MDC and MMC fiber optic connectivity products within this District and elsewhere in the United States, and/or importing into the United States its MDC and MMC fiber optic connectivity products, in violation of 35 U.S.C. § 271(a).

81. Defendant's accused fiber optic connectivity products directly infringe the '369 Patent. For example, US Conec's Accused Products infringe at least claims 1-20 and 22-39 of the '369 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 23 of the '369 patent. *See* Exhibit I (claim chart), attached and incorporated by reference.

82. Defendant's past and continuing infringement of the '369 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

83. Defendant's infringement of Senko's rights in the 369 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

COUNT TWO
(INFRINGEMENT OF U.S. PATENT NO. 11,333,836)

84. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth herein.

85. Defendant US Conec, without license or authorization to do so, has infringed one or more claims of the '836 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '836 Patent by making, using, offering for sale and/or selling its fiber optic adapter products within this District and elsewhere in the United States and/or importing into the United States its fiber optic adapter products, in violation of 35 U.S.C. § 271(a).

86. Defendant's accused fiber optic adapter products directly infringe the '836 Patent. For example, US Conec's Accused Products infringe at least claims 3-5 of the '836 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 3 of the '836 patent. *See* Exhibit J (claim chart), attached and incorporated by reference.

87. Defendant's past and continuing infringement of the '836 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

88. Defendant's infringement of Senko's rights in the '836 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

COUNT THREE
(INFRINGEMENT OF U.S. PATENT NO. 11,340,413)

89. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth herein.

90. Defendant US Conec, without license or authorization to do so, has infringed one or more claims of the '413 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '413 Patent by making, using, offering for sale and/or selling its fiber optic adapter and connector products within this District and elsewhere in the United States and/or importing into the United States its fiber optic adapter and connector products, in violation of 35 U.S.C. § 271(a).

91. Defendant's accused fiber optic connectivity products, both adapters and connectors, directly and indirectly infringe the '413 Patent. For example, US Conec's Accused Products infringe at least claims 1-8, 10, 13-18, and 20-28 of the '413 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 1 of the '413 patent. *See* Exhibit K (claim chart), attached and incorporated herein by reference.

92. Defendant's past and continuing infringement of the '413 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

93. Defendant's infringement of Senko's rights in the '413 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

COUNT FOUR
(INFRINGEMENT OF U.S. PATENT NO. 11,415,760)

94. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth herein.

95. Defendant US Conec, without license or authorization to do so, has infringed one or more claims of the '760 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '760 Patent by making, using, offering for sale and/or selling its fiber optic adapter and connector products within this District and elsewhere in the United States and/or importing into the United States its fiber optic adapter and connector products, in violation of 35 U.S.C. § 271(a).

96. Defendant's accused fiber optic connectivity products directly infringe the '760 Patent. For example, US Conec's Accused Products infringe at least claims 1-4, 12, 13, and 15-17 of the '760 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 1 of the '760 patent. *See* Exhibit L (claim chart), attached and incorporated herein by reference.

97. Defendant's past and continuing infringement of the '760 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

98. Defendant's infringement of Senko's rights in the '760 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

COUNT FIVE
(INFRINGEMENT OF U.S. PATENT NO. 10,191,230)

99. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth herein.

100. Defendant US Conec, without license or authorization to do so, has infringed one or more claims of the '230 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '230 Patent by making, using, offering for sale and/or selling its fiber optic connectivity products with polarity change features within this District and elsewhere in the United States and/or importing into the United States its fiber optic connectivity products with polarity change features, in violation of 35 U.S.C. § 271(a).

101. Defendant's accused fiber optic connectivity products with polarity change features directly infringe the '230 Patent. For example, US Conec's Accused Products infringe at least claims 1, 6, 9, 11, and 26-34 of the '230 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 1 of the '230 patent, as amended by the '230 Reexamination Certificate. *See* Exhibit M (claim chart), attached and incorporated herein by reference.

102. Defendant's past and continuing infringement of the '230 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

103. Defendant's infringement of Senko's rights in the '230 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

COUNT SIX
(INFRINGEMENT OF U.S. PATENT NO. 11,181,701)

104. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth here.

105. Defendant US Conec, without license or authorization to do so, has infringed one or more claims of the '701 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '701 Patent by making, using, offering for sale and/or selling its fiber optic connectivity products with polarity change features within this District and elsewhere in the United States and/or importing into the United States its fiber optic connectivity products with polarity change features, in violation of 35 U.S.C. § 271(a).

106. Defendant's accused fiber optic connectivity products with polarity change features directly infringe the '701 Patent. For example, US Conec's Accused Products infringe at least claims 1-53 of the '701 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 1 of the '701 patent. *See* Exhibit N (claim chart), attached and incorporated by reference.

107. Defendant's past and continuing infringement of the '701 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

108. Defendant's infringement of Senko's rights in the '701 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

COUNT SEVEN
(INFRINGEMENT OF U.S. PATENT NO. 11,061,190)

109. Senko repeats, re-alleges, and incorporates by reference the averments of paragraphs 1-78 of this Complaint as though fully set forth herein.

110. Defendant US Conec, without license or authorization to do so, has infringed one or more claims of the '190 Patent, currently infringes, and will continue to infringe, literally or under the doctrine of equivalents, one or more claims the '190 Patent by making, using, offering for sale and/or selling its fiber optic connectivity products with polarity change features within this District and elsewhere in the United States and/or importing into the United States its fiber optic connectivity products with polarity change features, in violation of 35 U.S.C. § 271(a).

111. Defendant's accused fiber optic connectivity products with polarity change features directly infringe the '190 Patent. For example, US Conec's Accused Products infringe at least claims 1-3 and 6-20 of the '190 Patent. By way of further illustrative infringement, Senko provides an exemplary claim chart for claim 1 of the '190 patent. *See* Exhibit O (claim chart), attached and incorporated by reference.

112. Defendant's past and continuing infringement of the '190 Patent by its sales and offers for sale of the Accused Products are causing economic harm to Senko, for which Senko is entitled to damages for past infringement up to and including the date of judgment in an amount to be determined by the Court but in no event less than a reasonable royalty.

113. Defendant's infringement of Senko's rights in the '190 Patent has caused, is causing, and will continue to cause irreparable harm to Senko for which there is no adequate remedy at law, and such irreparable harm will continue unless US Conec is enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, Senko respectfully requests that the Court find in its favor and against the Defendant US Conec, and that the Court grant Senko the following relief:

a. A judgment in favor of Senko that US Conec has infringed one or more claims of the following Asserted Patents of Senko: U.S. Patent Nos. 11,307,369; 11,333,836; 11,340,413; 11,415,760; 10,191,230; 11,181,701; and 11,061,190;

b. A permanent injunction pursuant to 35 U.S.C. § 283, enjoining US Conec and each of its officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert therewith from continued acts of infringement, including, but not limited to, directly infringing or inducing the infringement of, or contributing to the infringement of the Asserted Patents, or such other equitable relief the Court determines is warranted;

c. An accounting of and an award to Senko of damages adequate to compensate Senko for US Conec's acts of infringement, including lost profits and/or a reasonable royalty, and also including supplemental damages for any post-verdict infringement up until entry of final judgment with an accounting as needed, together with pre-judgment and post-judgment interest pursuant to 35 U.S.C. § 284;

d. Finding US Conec's infringement to be willful and an award to Senko of enhanced damages in an amount up to treble the amount of compensatory damages as justified under 35 U.S.C. § 284 for US Conec's willful infringement;

e. A declaration that this is an exceptional case, including, an award to Senko of its costs, expenses, and reasonable attorneys' fees under 35 U.S.C. § 285 and all other applicable statutes and rules in common law as may apply;

f. An award to Senko of its costs pursuant to 35 U.S.C. § 284 and/or Fed. R. Civ. P. 54(d); and

g. An award of any such further relief that the Court deems just and proper.

Dated: January 24, 2023

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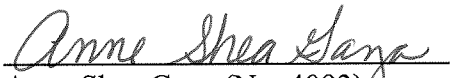

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Senko Advanced Components, Inc.

Index of Exhibits to Complaint

EXHIBIT NO.	DESCRIPTION
A	US PATENT NO. 11,307,369
B	US PATENT NO. 11,333,836
C	US PATENT NO. 11,340,413
D	US PATENT NO. 11,415,760
E	US PATENT NO. 10,191,230
F	US PATENT EX PARTE REEXAMINATION CERTIFICATE NO. 10,191,230 C1
G	US PATENT NO. 11,181,701
H	US PATENT NO. 11,061,190
I	CLAIM CHART FOR 369 PATENT
J	CLAIM CHART FOR 836 PATENT
K	CLAIM CHART FOR 413 PATENT
L	CLAIM CHART FOR 760 PATENT
M	CLAIM CHART FOR 230 PATENT
N	CLAIM CHART FOR 701 PATENT
O	CLAIM CHART FOR 190 PATENT

EXHIBIT A

US011307369B2

(12) **United States Patent**
Takano et al.

(10) **Patent No.: US 11,307,369 B2**
(45) **Date of Patent: Apr. 19, 2022**

(54) **ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING**

(71) Applicant: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(72) Inventors: **Kazuyoshi Takano**, Tokyo (JP); **Jimmy Jun-Fu Chang**, Worcester, MA (US)

(73) Assignee: **Senko Advanced Components, Inc.**, Marlborough (MA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/370,057**

(22) Filed: **Jul. 8, 2021**

(65) **Prior Publication Data**

US 2021/0373262 A1 Dec. 2, 2021

Related U.S. Application Data

(63) Continuation of application No. 17/327,197, filed on May 21, 2021, which is a continuation of application (Continued)

(51) **Int. Cl.**
G02B 6/42 (2006.01)
G02B 6/38 (2006.01)

(52) **U.S. Cl.**
CPC ..... ***G02B 6/4292*** (2013.01); ***G02B 6/387*** (2013.01); ***G02B 6/3825*** (2013.01); (Continued)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

681,132 A 8/1901 Norton
3,721,945 A 3/1973 Hults
(Continued)

FOREIGN PATENT DOCUMENTS

CA 2495693 A1 4/2004
CA 2495693 A1 4/2004
(Continued)

OTHER PUBLICATIONS

International Search Report and Written Opinion; Application No. PCT/US2018/042202, dated Dec. 7, 2018, pp. 17.
(Continued)

Primary Examiner — Tina M Wong

(57) **ABSTRACT**

An optical connector holding one or more optical ferrule assembly is provided. The optical connector includes an outer body, an inner front body accommodating the one or more optical ferrule assembly, ferrule springs for urging the optical ferrules towards a mating receptacle, and a back body for supporting the ferrule springs. The outer body and the inner front body are configured such that four optical ferrule assembly are accommodated in a small form-factor pluggable (SFP) transceiver footprint or eight optical ferrule assembly are accommodated in a quad small form-factor pluggable (QSFP) transceiver footprint. A receptacle can hold one or more connector inner bodies forming a single boot for all the optical fibers of the inner bodies.

40 Claims, 82 Drawing Sheets

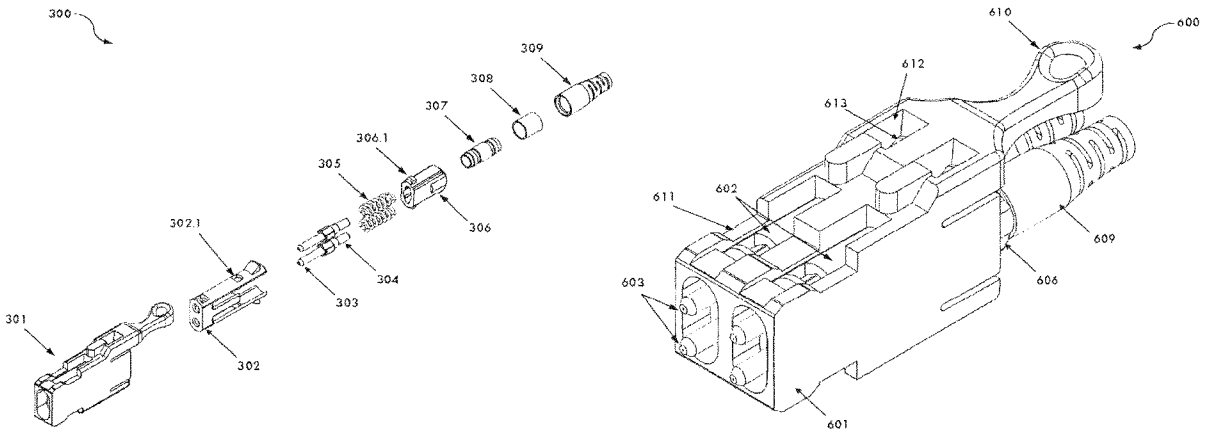

EXHIBIT B

US011333836B2

(12) **United States Patent**
Wong et al.

(10) **Patent No.: US 11,333,836 B2**
(45) **Date of Patent: May 17, 2022**

(54) **ADAPTER FOR OPTICAL CONNECTORS**

(71) Applicant: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(72) Inventors: **Kim Man Wong**, Kowloon (HK); **Jeffrey Gniadek**, Oxford, ME (US); **Kazuyoshi Takano**, Tokyo (JP); **Siu Kei Ma**, Kowloon (HK)

(73) Assignee: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/375,856**

(22) Filed: **Jul. 14, 2021**

(65) **Prior Publication Data**

US 2021/0382245 A1 Dec. 9, 2021

Related U.S. Application Data

(63) Continuation of application No. 17/200,134, filed on Mar. 12, 2021, now Pat. No. 11,181,701, which is a continuation of application No. 16/297,607, filed on Mar. 9, 2019, now Pat. No. 10,976,505, which is a continuation of application No. PCT/US2018/016049, filed on Jan. 30, 2018.

(60) Provisional application No. 62/581,961, filed on Nov. 6, 2017, provisional application No. 62/546,920, filed on Aug. 17, 2017, provisional application No. 62/485,042, filed on Apr. 13, 2017, provisional application No. 62/463,898, filed on Feb. 27, 2017, provisional application No. 62/457,150, filed on Feb. 9, 2017, provisional application No. 62/452,147, filed on Jan. 30, 2017.

(51) **Int. Cl.**
G02B 6/38 (2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/3893*** (2013.01); ***G02B 6/3821*** (2013.01); ***G02B 6/3879*** (2013.01)

(58) **Field of Classification Search**
CPC ... G02B 6/3893; G02B 6/3821; G02B 6/3879
USPC 385/78
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2005/0135752 A1* 6/2005 Kiani G02B 6/3895 385/55

* cited by examiner

Primary Examiner — Jerry M Blevins

(57) **ABSTRACT**

An optical fiber connector assembly comprises at least one connector having a latching arm for coupling to an adapter, and a remote release tab having a protrusion configured to cooperate with the adapter to depress said latching arm when the remote release tab is pulled relative to the adapter. The optical fiber connector assembly may further be configured to allow reversing its polarity.

13 Claims, 28 Drawing Sheets

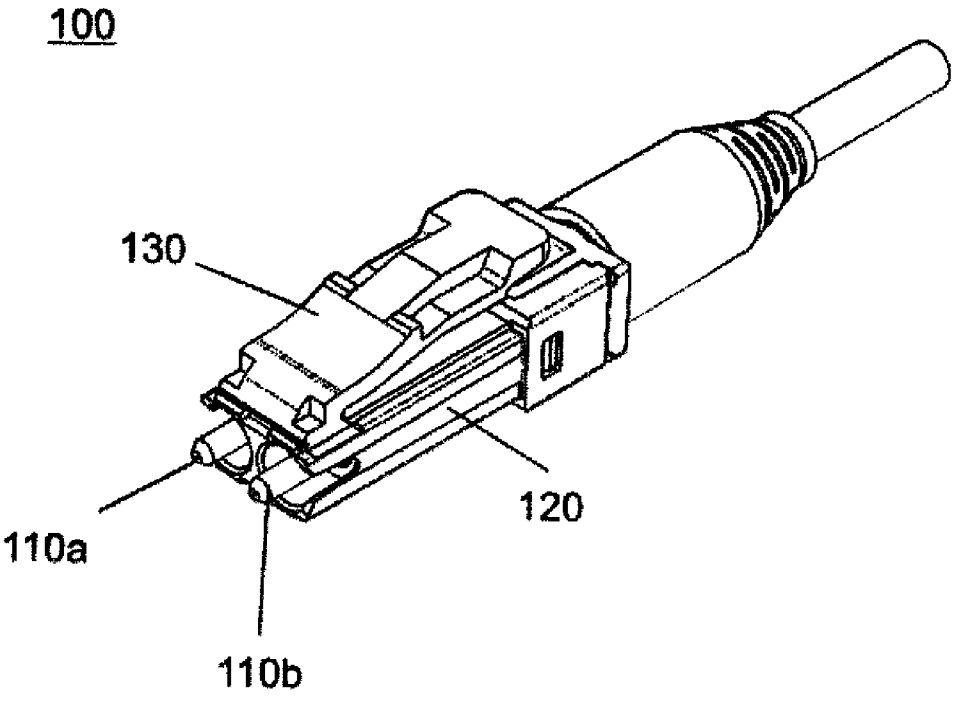

EXHIBIT C

US011340413B2

(12) **United States Patent**
Takano et al.

(10) **Patent No.: US 11,340,413 B2**
(45) **Date of Patent: May 24, 2022**

(54) **ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING**

(71) Applicant: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(72) Inventors: **Kazuyoshi Takano**, Tokyo (JP); **Jimmy Jun-Fu Chang**, Worcester, MA (US)

(73) Assignee: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/327,197**

(22) Filed: **May 21, 2021**

(65) **Prior Publication Data**

US 2021/0311272 A1 Oct. 7, 2021

Related U.S. Application Data

(63) Continuation of application No. 17/090,855, filed on Nov. 5, 2020, which is a continuation of application
(Continued)

(51) **Int. Cl.**
G02B 6/42 (2006.01)
G02B 6/38 (2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/4292*** (2013.01); ***G02B 6/387*** (2013.01); ***G02B 6/3825*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC G02B 6/42; G02B 6/38
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

681,132 A 8/1901 Norton
3,721,945 A 3/1973 Hults
(Continued)

FOREIGN PATENT DOCUMENTS

CA 2495693 A1 4/2004
CA 2495693 A1 4/2004
(Continued)

OTHER PUBLICATIONS

PCT/US2018/062406 International Search Report dated Mar. 18, 2019.
(Continued)

Primary Examiner — Tina M Wong

(57) **ABSTRACT**

An optical connector holding one or more optical ferrule assembly is provided. The optical connector includes an outer body, an inner front body accommodating the one or more optical ferrule assembly, ferrule springs for urging the optical ferrules towards a mating receptacle, and a back body for supporting the ferrule springs. The outer body and the inner front body are configured such that four optical ferrule assembly are accommodated in a small form-factor pluggable (SFP) transceiver footprint or eight optical ferrule assembly are accommodated in a quad small form-factor pluggable (QSFP) transceiver footprint. A receptacle can hold one or more connector inner bodies forming a single boot for all the optical fibers of the inner bodies.

28 Claims, 65 Drawing Sheets

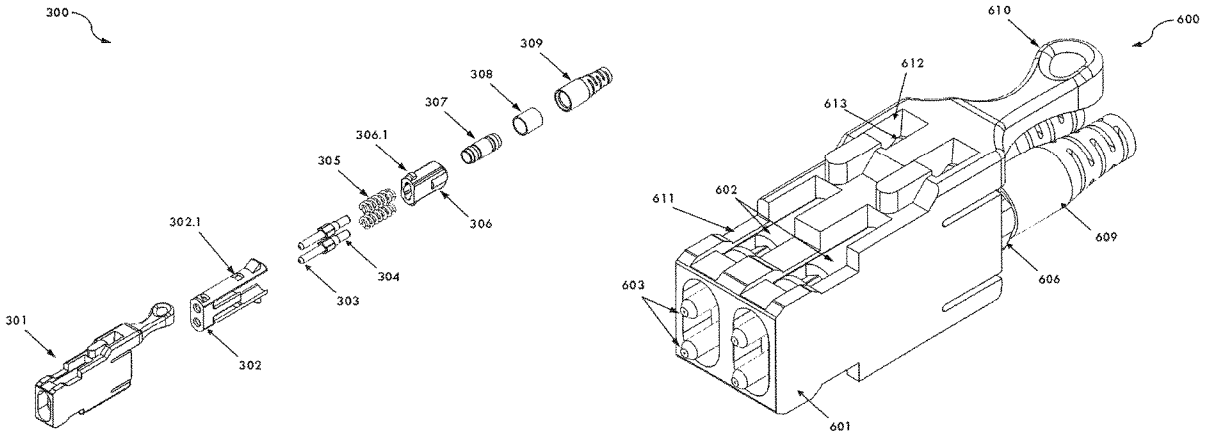

EXHIBIT D

US011415760B2

(12) **United States Patent**
Takano et al.

(10) **Patent No.: US 11,415,760 B2**
(45) **Date of Patent: *Aug. 16, 2022**

(54) **NARROW WIDTH ADAPTERS AND CONNECTORS WITH PULL TAB RELEASE**

(71) Applicant: **Senko Advanced Components Inc.**, Marlborough, MA (US)

(72) Inventors: **Kazuyoshi Takano**, Tokyo (JP); **Jeffrey Gniadek**, Oxford, ME (US)

(73) Assignee: **Senko Advanced Components, Inc.**, Hudson (MA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **17/494,291**

(22) Filed: **Oct. 5, 2021**

(65) **Prior Publication Data**

US 2022/0029356 A1 Jan. 27, 2022

Related U.S. Application Data

(63) Continuation of application No. 16/695,901, filed on Nov. 26, 2019, now Pat. No. 11,152,748, which is a continuation of application No. 16/213,244, filed on Dec. 7, 2018, now Pat. No. 10,520,690, which is a continuation of application No. 15/044,838, filed on Feb. 16, 2016, now Pat. No. 10,158,194, which is a continuation-in-part of application No. 14/996,865, filed on Jan. 15, 2016, now Pat. No. 9,595,786.

(51) **Int. Cl.**
G02B 6/38 (2006.01)
H01R 13/633 (2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/3879*** (2013.01); *G02B 6/3893* (2013.01); *H01R 13/6335* (2013.01)

(58) **Field of Classification Search**
CPC .. G02B 6/3825; G02B 6/3879; G02B 6/3885; G02B 6/3893; H01R 13/627; H01R 13/6271; H01R 13/6272; H01R 13/6275; H01R 13/62933
USPC 385/76, 77, 88, 92; 439/133, 304, 345, 439/346, 350, 352, 353, 354, 357, 358, 439/370
See application file for complete search history.

(56) **References Cited**

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7,297,013 B2 * 11/2007 Caveney H01R 13/6272 439/352
8,556,645 B2 * 10/2013 Crain H01R 13/633 439/352
9,048,568 B2 * 6/2015 Chien H01R 13/633
9,063,303 B2 * 6/2015 Irwin G02B 6/3885
(Continued)

Primary Examiner — Robert Tavlykaev

(57) **ABSTRACT**

Narrow width fiber optic connectors having spring loaded remote release mechanisms to facilitate access and usage of the connectors in high density arrays. A narrow width fiber optic connector comprises a multi-fiber connector, wherein a width of said narrow width fiber optic connector is less than about 5.25 mm, a housing configured to hold the multi-fiber connector and further comprising a connector recess, and a pull tab having a ramp area configured to disengage a latch of one of an adapter and an SFP from said connector recess. The pull tab may include a spring configured to allow the latch of one of the adapter and the SFP to engage with the connector recess.

17 Claims, 19 Drawing Sheets

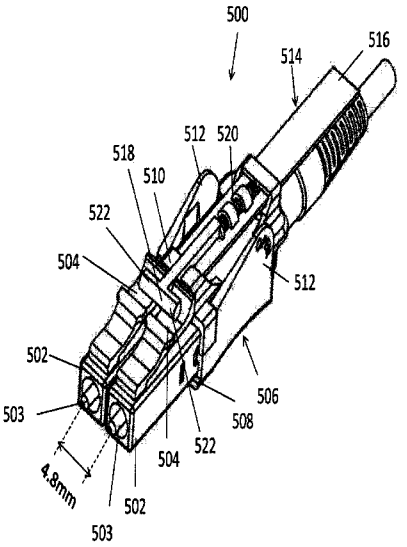

EXHIBIT E

US010191230B2

(12) **United States Patent**
Wong et al.

(10) **Patent No.: US 10,191,230 B2**
(45) **Date of Patent: Jan. 29, 2019**

(54) **OPTICAL CONNECTORS WITH REVERSIBLE POLARITY**

(71) Applicant: **SENKO Advanced Components, Inc.**, Marlborough, MA (US)

(72) Inventors: **Kimman Wong**, Hong Kong (HK); **Jeffrey Gniadek**, Northbridge, MA (US); **Kazuyoshi Takano**, Southborough, MA (US); **Siu Kei Ma**, Hong Kong (HK)

(73) Assignee: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/884,327**

(22) Filed: **Jan. 30, 2018**

(65) **Prior Publication Data**

US 2018/0217340 A1 Aug. 2, 2018

Related U.S. Application Data

(60) Provisional application No. 62/581,961, filed on Nov. 6, 2017, provisional application No. 62/546,920, filed on Aug. 17, 2017, provisional application No. 62/485,042, filed on Apr. 13, 2017, provisional application No. 62/463,901, filed on Feb. 27, 2017, provisional application No. 62/463,898, filed on Feb. 27, 2017, provisional application No. 62/457,150,
(Continued)

(51) **Int. Cl.**
G02B 6/38 (2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/3893*** (2013.01); ***G02B 6/3821*** (2013.01)

(58) **Field of Classification Search**
CPC G02B 6/38; G02B 6/3821; G02B 6/3893
See application file for complete search history.

(56) **References Cited**

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(Continued)

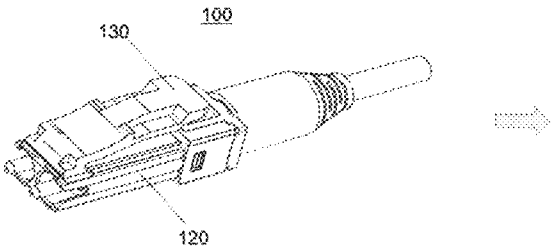
Primary Examiner — Andrew Jordan

(74) *Attorney, Agent, or Firm* — Edward S. Jarmolowicz, Esq.

(57) **ABSTRACT**

Reversible polarity fiber optic connectors are provided having housings at least partially surrounding first and second optical ferrules with walls above and beneath the ferrules. Positioning removable elements such as latches, removable arms, or push-pull tabs on the first wall above the ferrules yields fiber optic connectors with a first polarity type, and positioning the removable elements on the second wall beneath the ferrules yields fiber optic connectors with a second, opposite polarity type. Various engagement mechanisms are provided on either the connector housing walls or on the removable elements, or both, to assist in affixing the removable element to the connector housing.

25 Claims, 22 Drawing Sheets



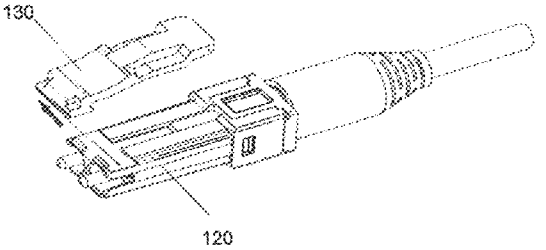


EXHIBIT F

US010191230C1

(12) EX PARTE REEXAMINATION CERTIFICATE (11755th)

United States Patent

Wong et al.

(10) Number: US 10,191,230 C1
(45) Certificate Issued: Nov. 16, 2020

(54) **OPTICAL CONNECTORS WITH REVERSIBLE POLARITY**

(71) Applicant: **SENKO Advanced Components, Inc.**, Marlborough, MA (US)

(72) Inventors: **Kimman Wong**, Hong Kong (HK); **Jeffrey Gniadek**, Northbridge, MA (US); **Kazuyoshi Takano**, Southborough, MA (US); **Siu Kei Ma**, Hong Kong (HK)

(73) Assignee: **SENKO ADVANCED COMPONENTS, INC**, Marlborough, MA (US)

Reexamination Request:
No. 90/014,456, Feb. 19, 2020

Reexamination Certificate for:

Patent No.:	**10,191,230**
Issued:	**Jan. 29, 2019**
Appl. No.:	**15/884,327**
Filed:	**Jan. 30, 2018**

Related U.S. Application Data

(60) Provisional application No. 62/581,961, filed on Nov. 6, 2017, provisional application No. 62/546,920, filed on Aug. 17, 2017, provisional application No. 62/485,042, filed on Apr. 13, 2017, provisional application No. 62/463,901, filed on Feb. 27, 2017, provisional application No. 62/463,898, filed on Feb. 27, 2017, provisional application No. 62/457,150, filed on Feb. 9, 2017, provisional application No. 62/452,147, filed on Jan. 30, 2017.

(51) **Int. Cl.**
G02B 6/38 (2006.01)
G02B 6/40 (2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/3893*** (2013.01); ***G02B 6/3821*** (2013.01); ***G02B 6/3879*** (2013.01); *G02B 6/406* (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/014,456, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — William C Doerrler

(57) **ABSTRACT**

Reversible polarity fiber optic connectors are provided having housings at least partially surrounding first and second optical ferrules with walls above and beneath the ferrules. Positioning removable elements such as latches, removable arms, or push-pull tabs on the first wall above the ferrules yields fiber optic connectors with a first polarity type, and positioning the removable elements on the second wall beneath the ferrules yields fiber optic connectors with a second, opposite polarity type. Various engagement mechanisms are provided on either the connector housing walls or on the removable elements, or both, to assist in affixing the removable element to the connector housing.

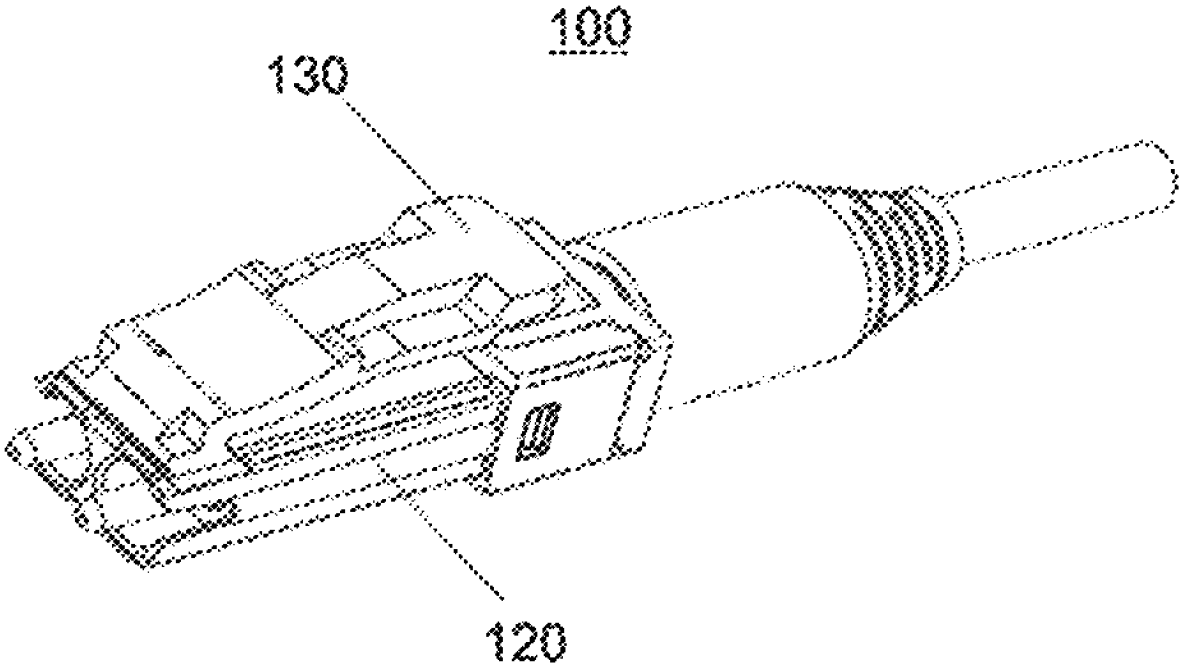


EXHIBIT G

US011181701B2

(12) **United States Patent**
Wong et al.

(10) **Patent No.: US 11,181,701 B2**
(45) **Date of Patent: Nov. 23, 2021**

(54) **OPTICAL CONNECTORS WITH REVERSIBLE POLARITY AND METHOD OF USE**

(71) Applicant: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(72) Inventors: **Kim Man Wong**, Kowloon (HK); **Jeffrey Gniadek**, Oxford, ME (US); **Kazuyoshi Takano**, Tokyo (JP); **Siu Kei Ma**, Kowloon (HK)

(73) Assignee: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/200,134**

(22) Filed: **Mar. 12, 2021**

(65) **Prior Publication Data**

US 2021/0199901 A1 Jul. 1, 2021

Related U.S. Application Data

(63) Continuation of application No. 16/297,607, filed on Mar. 9, 2019, now Pat. No. 10,976,505, which is a continuation of application No. PCT/US2018/016049, filed on Jan. 30, 2018.

(60) Provisional application No. 62/581,961, filed on Nov. 6, 2017, provisional application No. 62/546,920, filed on Aug. 17, 2017, provisional application No. 62/485,042, filed on Apr. 13, 2017, provisional application No. 62/463,901, filed on Feb. 27, 2017, provisional application No. 62/463,898, filed on Feb. 27, 2017, provisional application No. 62/457,150, filed on Feb. 9, 2017, provisional application No. 62/452,147, filed on Jan. 30, 2017.

(51) **Int. Cl.**
G02B 6/38 (2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/3893*** (2013.01); ***G02B 6/3821*** (2013.01); ***G02B 6/3879*** (2013.01)

(58) **Field of Classification Search**
CPC ... G02B 6/3893; G02B 6/3821; G02B 6/3879
USPC 385/78
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

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* cited by examiner

Primary Examiner — Jerry M Blevins

(57) **ABSTRACT**

Reversible polarity fiber optic connectors are provided having housings at least partially surrounding first and second optical ferrules with walls above and beneath the ferrules. Positioning removable elements such as latches, removable arms, or push-pull tabs on the first wall above the ferrules yields fiber optic connectors with a first polarity type, and positioning the removable elements on the second wall beneath the ferrules yields fiber optic connectors with a second, opposite polarity type. Various engagement mechanisms are provided on either the connector housing walls or on the removable elements, or both, to assist in affixing the removable element to the connector housing.

53 Claims, 22 Drawing Sheets

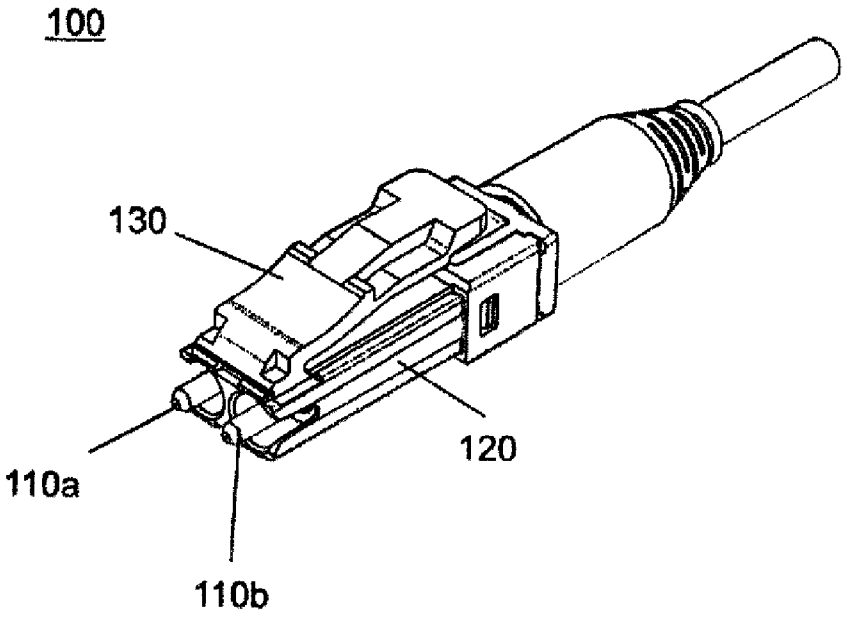

EXHIBIT H

US011061190B2

(12) **United States Patent**
Takano et al.

(10) **Patent No.: US 11,061,190 B2**
(45) **Date of Patent: *Jul. 13, 2021**

(54) **SMALL FORM FACTOR FIBER OPTIC CONNECTOR WITH MULTI-PURPOSE BOOT ASSEMBLY**

(71) Applicant: **Senko Advanced Components Inc**, Marlborough, MA (US)

(72) Inventors: **Kazuyoshi Takano**, Tokyo (JP); **Jimmy Jun-Fu Chang**, Worcester, MA (US)

(73) Assignee: **Senko Advanced Components, Inc.**, Marlborough, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **16/782,196**

(22) Filed: **Feb. 5, 2020**

(65) **Prior Publication Data**

US 2020/0209487 A1 Jul. 2, 2020

Related U.S. Application Data

(60) Division of application No. 16/368,828, filed on Mar. 28, 2019, now Pat. No. 10,705,300, and a (Continued)

(51) **Int. Cl.**

G02B 6/38	(2006.01)
G02B 6/42	(2006.01)
G02B 6/40	(2006.01)

(52) **U.S. Cl.**

CPC ..... ***G02B 6/387*** (2013.01); ***G02B 6/3825*** (2013.01); ***G02B 6/3879*** (2013.01); (Continued)

(58) **Field of Classification Search**

CPC G02B 6/378

See application file for complete search history.

(56) **References Cited**

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OTHER PUBLICATIONS

PCT/US2018/062406 International Search Report dated Mar. 18, 2019.
(Continued)

Primary Examiner — Eric Wong

(57) **ABSTRACT**

An optical connector holding two or more LC-type optical ferrules is provided. The optical connector includes an outer body, an inner front body accommodating the two or more LC-type optical ferrules, ferrule springs for urging the optical ferrules towards a mating connection, and a back body for supporting the ferrule springs. A removable inner front body for polarity change is disclosed. A multi-purpose rotatable boot assembly for polarity change is disclosed. The multi-purpose boot assembly can be pushed and pulled to insert and remove the micro connector from an adapter receptacle.

20 Claims, 32 Drawing Sheets

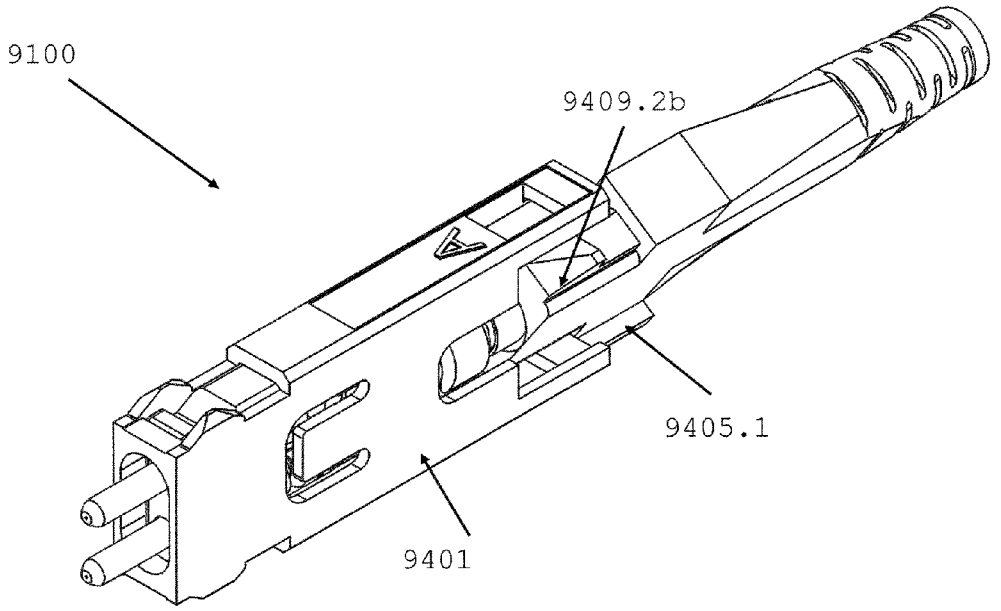
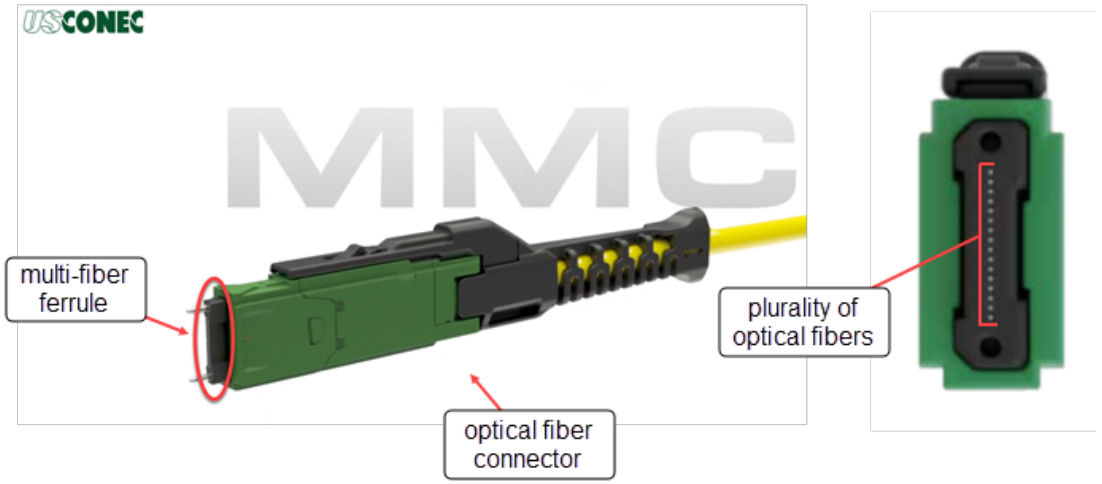
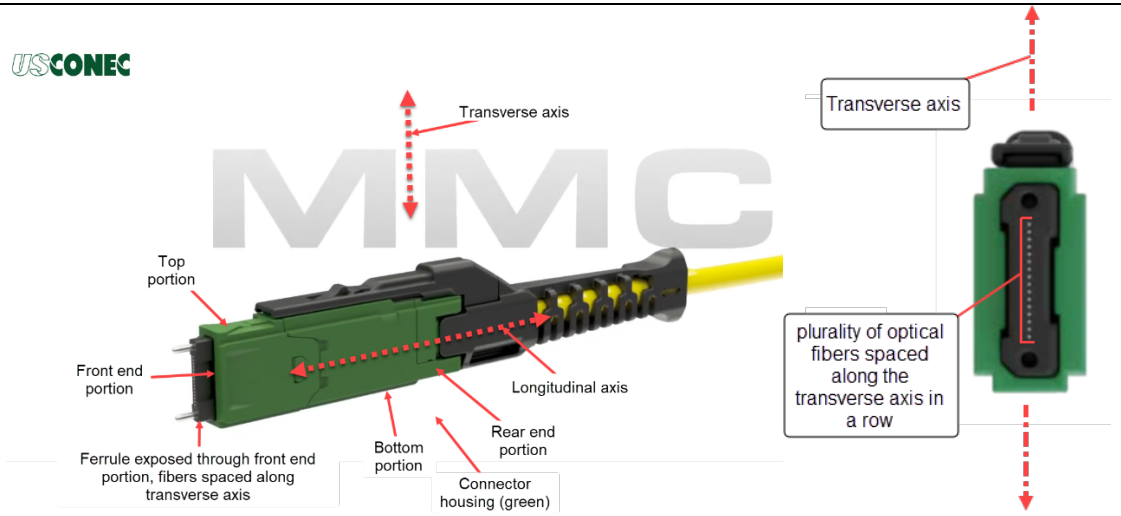
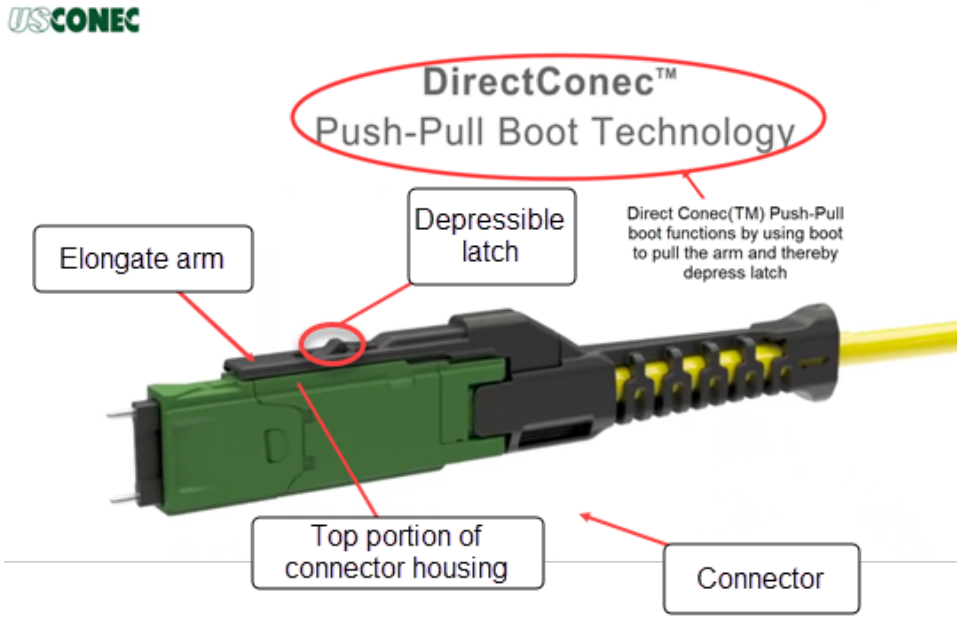


EXHIBIT I

U.S. Patent No. 11,307,369	MMC
23. An optical fiber connector comprising:	
multi-fiber ferrule configured to terminate a plurality of optical fibers;	
a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,	

U.S. Patent No. 11,307,369	MMC
a depressible latch above the top portion of the connector housing; and	
an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;	

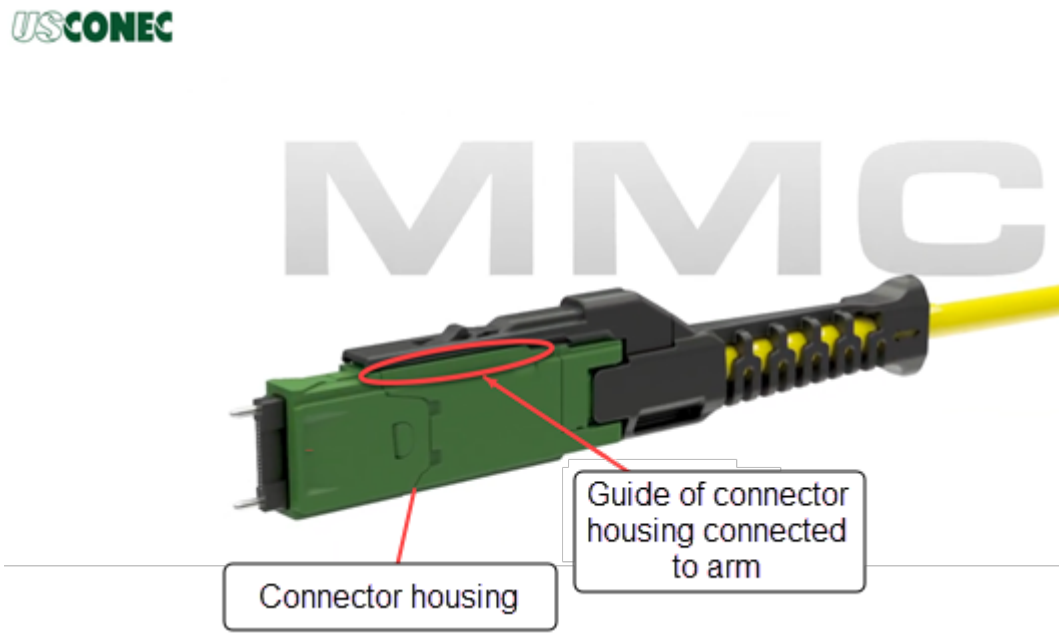
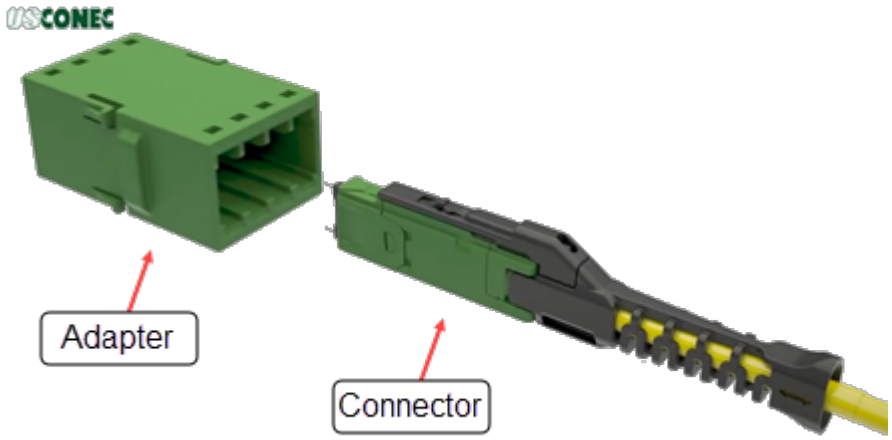
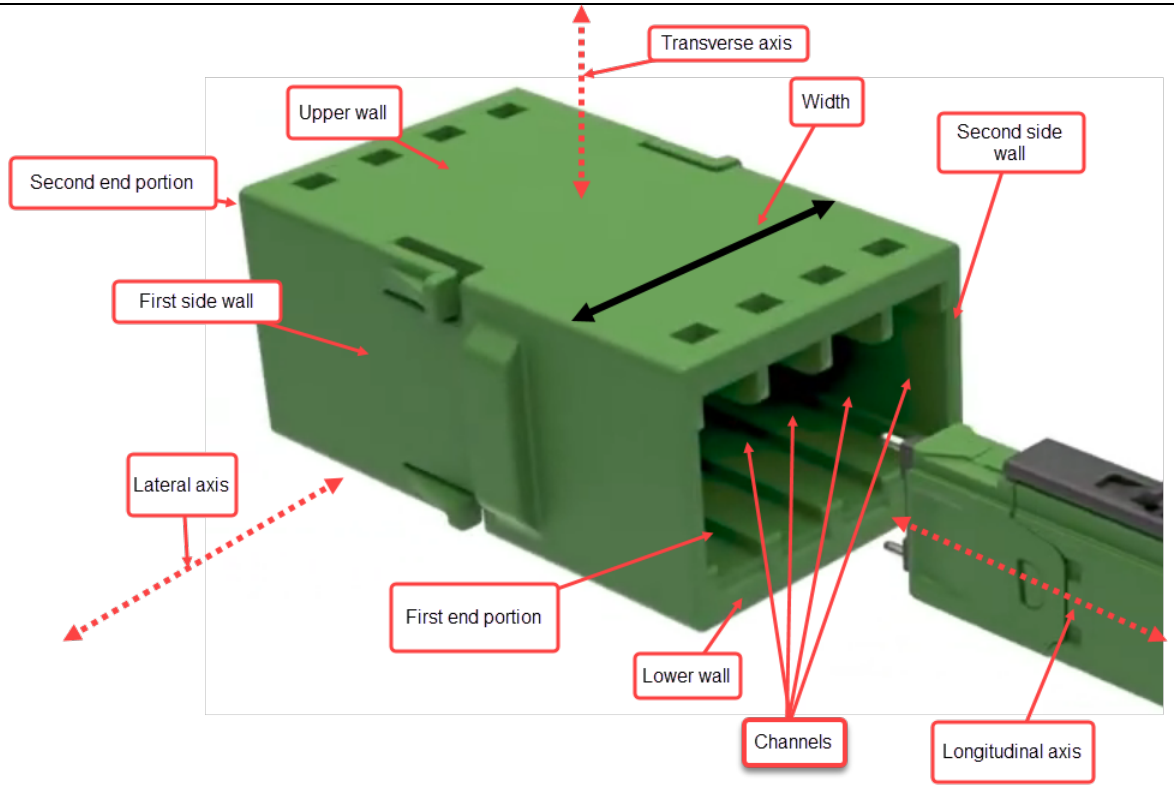
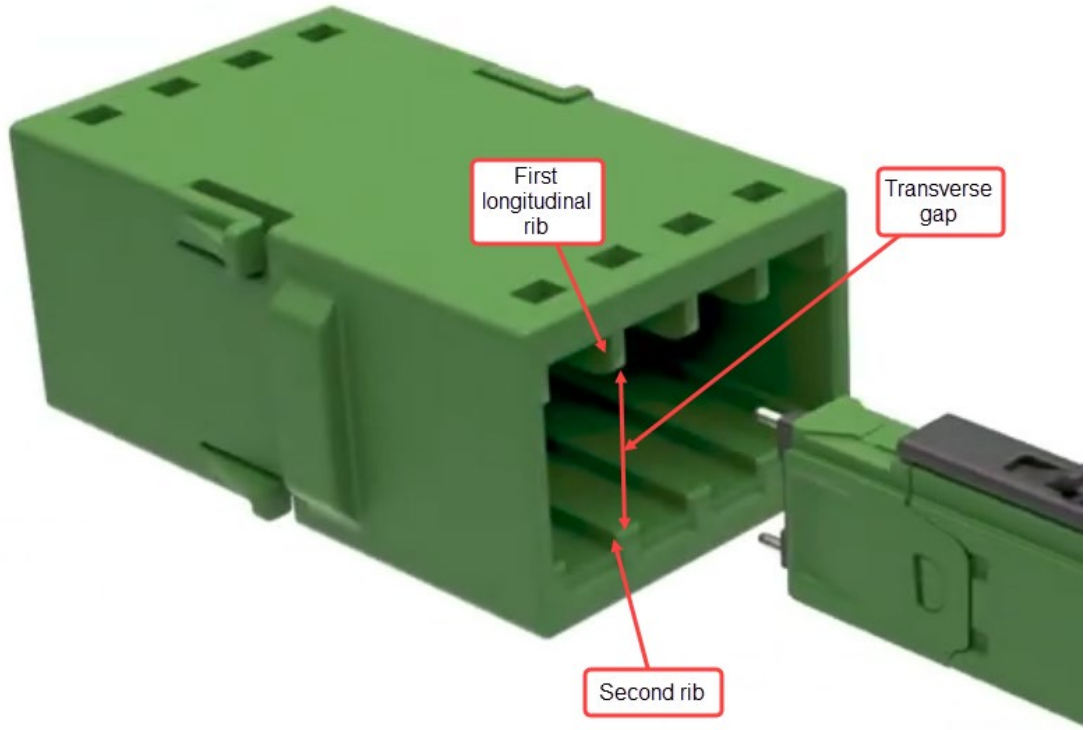
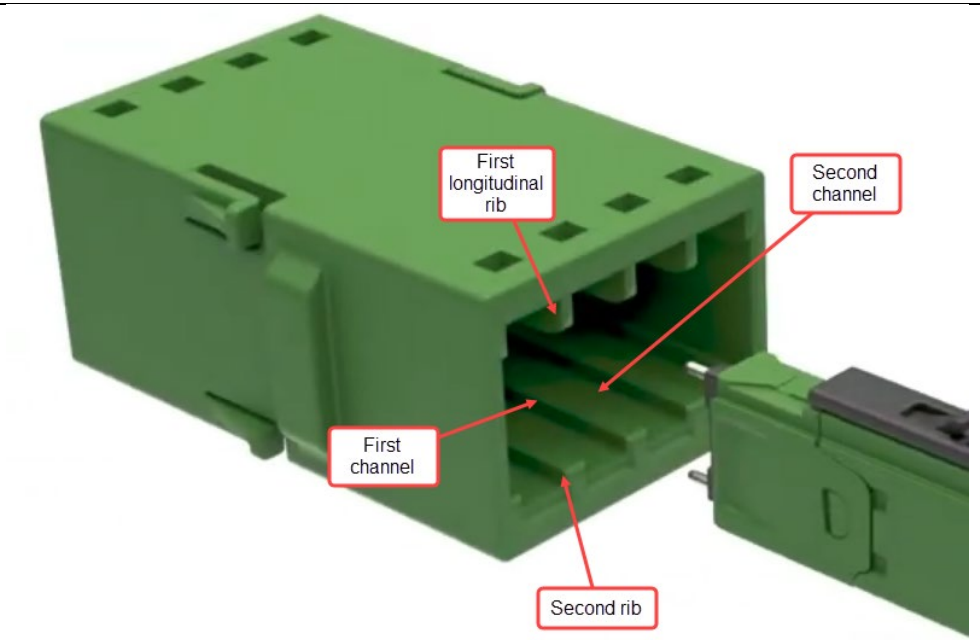
U.S. Patent No. 11,307,369	MMC
wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.	

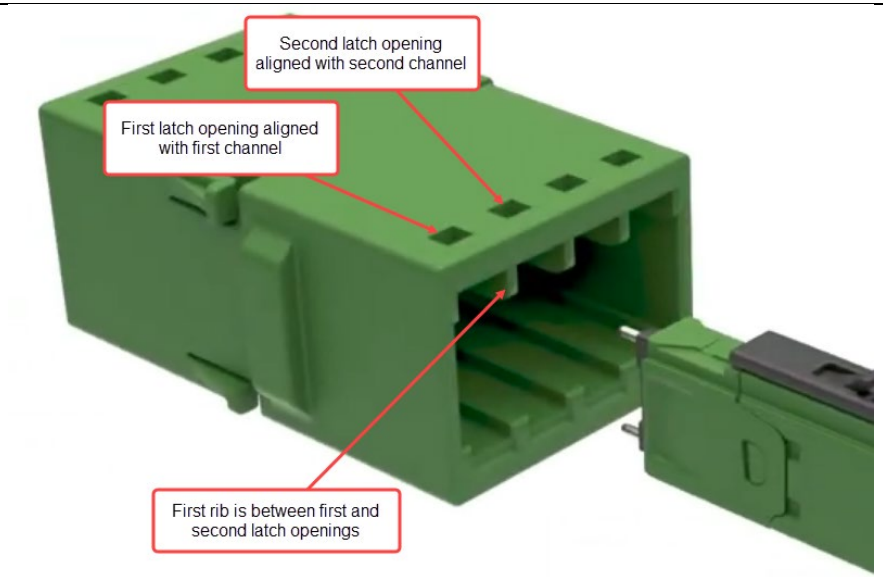
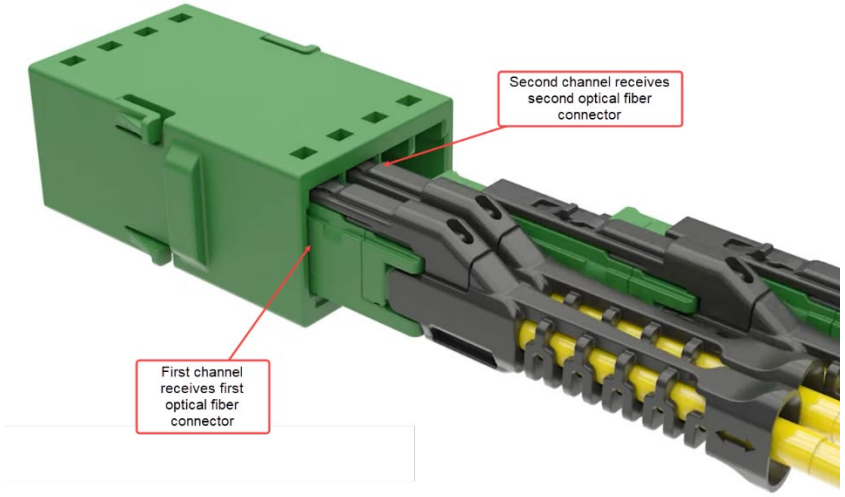
EXHIBIT J

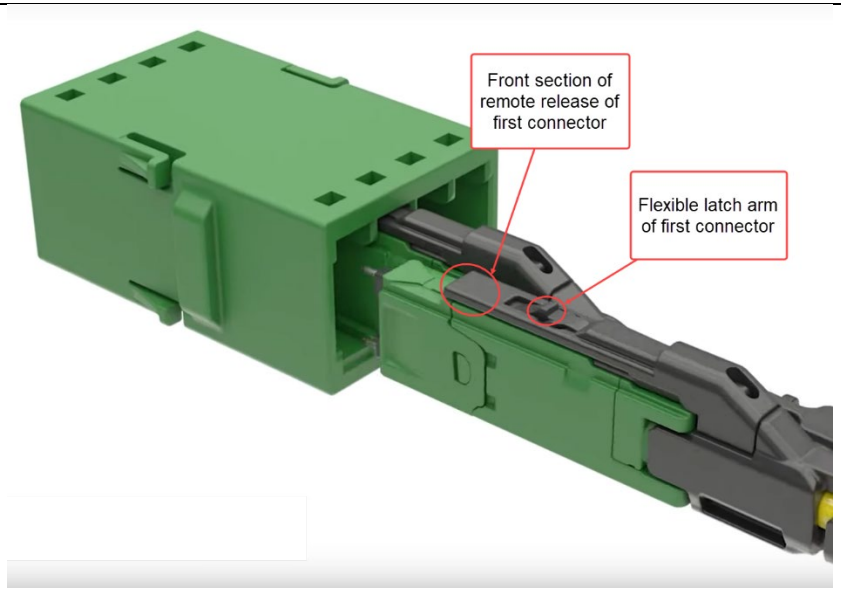
U.S. Pat. No. 11,333,836	MMC Adapters
1. An adapter for mating with optical fiber connectors, the adapter comprising:	

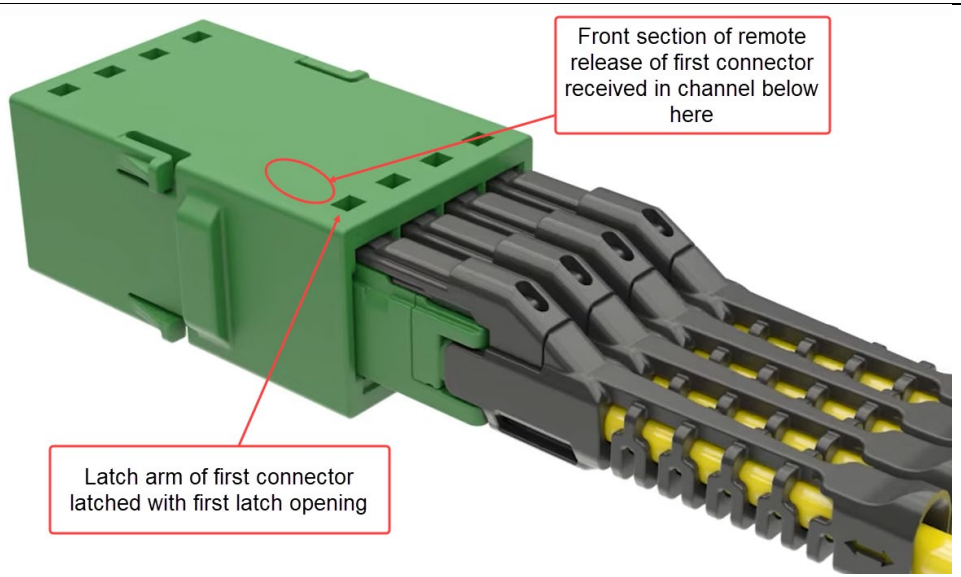
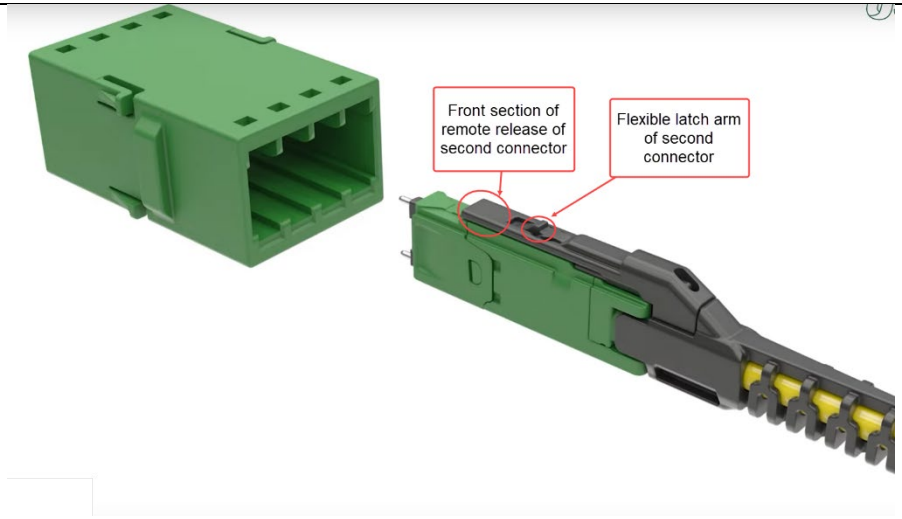
U.S. Pat. No. 11,333,836	MMC Adapters
an outer housing having a first end portion and a second end portion spaced apart along a longitudinal axis, the outer housing comprising a first side wall and a second side wall spaced apart along a lateral axis perpendicular to the longitudinal axis, the outer housing having a width extending along the lateral axis from the first side wall to the second side wall, the outer housing comprising a upper wall and a lower wall spaced apart along a transverse axis oriented perpendicular to the lateral axis and perpendicular to the longitudinal axis, each of the upper wall and the lower wall having an inner surface, the outer housing defining a plurality of channels spaced apart along the width, each of the channels being configured to receive an optical fiber connector, the plurality of channels including first and second channels; and	

U.S. Pat. No. 11,333,836	MMC Adapters
a first longitudinal rib formed on the inner surface of the upper wall at a location spaced apart along the width of the outer housing between the first side wall and the second side wall and a second rib formed on the inner surface of the lower wall at a location spaced apart along the width of the outer housing between the first side wall and the second side wall, the first and second ribs being aligned along the width of the outer housing, the first rib being spaced apart from the second rib along the transverse axis by a transverse gap,	

U.S. Pat. No. 11,333,836	MMC Adapters
wherein the first longitudinal rib and the second longitudinal rib are located between the first and second channels.	

U.S. Pat. No. 11,333,836	MMC Adapters
2. The adapter as set forth in claim 1, wherein the upper wall comprises a first latch opening aligned with the first channel and a second latch opening aligned with the second channel, the first rib being spaced apart between the first latch opening and the second latch opening along the width.	
3. The adapter as set forth in claim 2, wherein the adapter is configured to receive a first one of the optical fiber connectors in the first channel and a second one of the optical fiber connectors in the second channel such that:	

U.S. Pat. No. 11,333,836	MMC Adapters
a flexible latch arm of the first optical fiber connector is latched with the first latch opening and a front section of a remote release of the first optical fiber connector is received in the first channel at a location spaced apart from the first latch opening along the longitudinal axis toward the second end portion of the outer housing; and	

U.S. Pat. No. 11,333,836	MMC Adapters
	
a flexible latch arm of the second optical fiber connector is latched with the second latch opening and a front section of a remote release of the second optical fiber connector is received in the first channel at a location spaced apart from the second latch opening along the longitudinal axis toward the second end portion of the outer housing.	

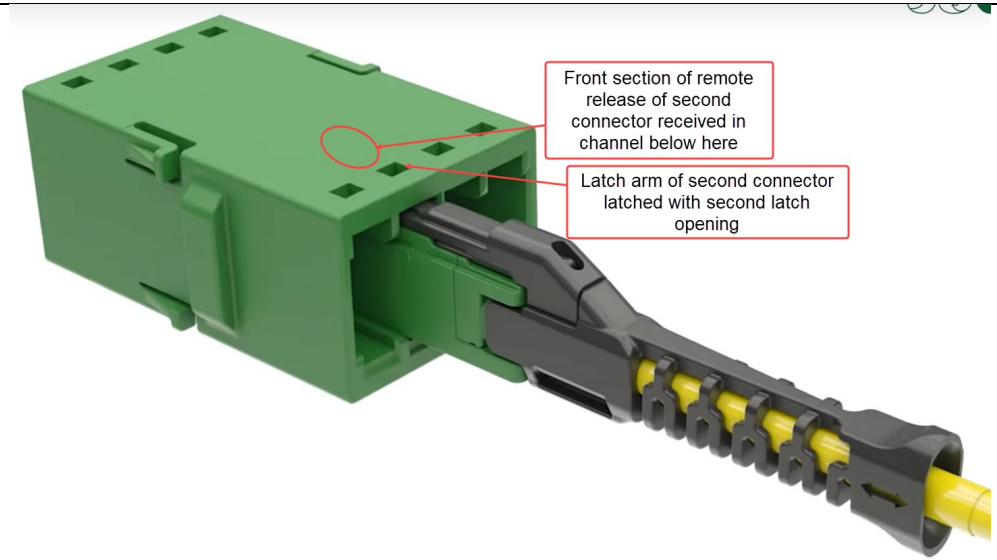
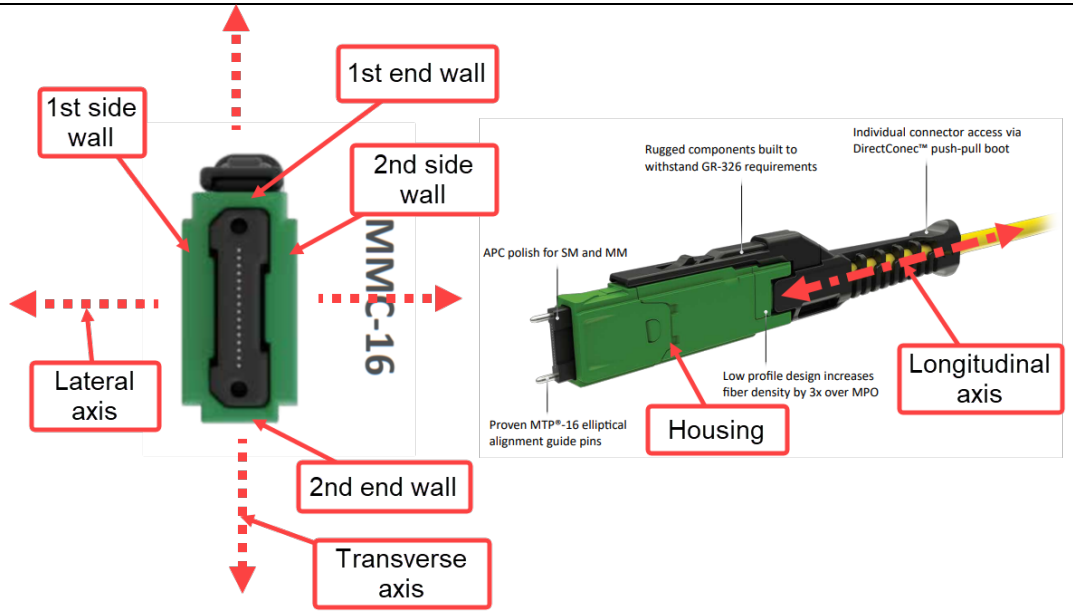
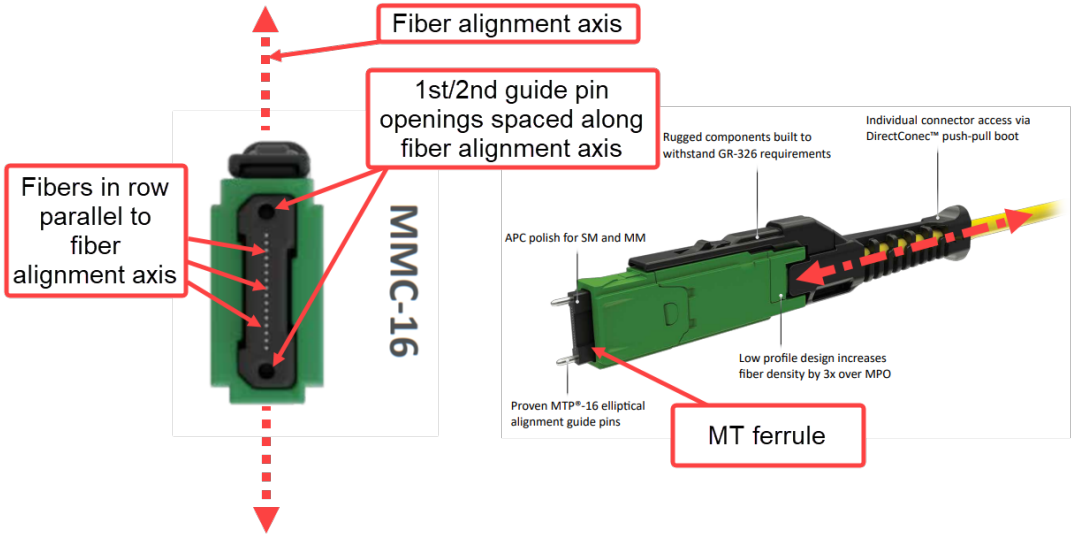
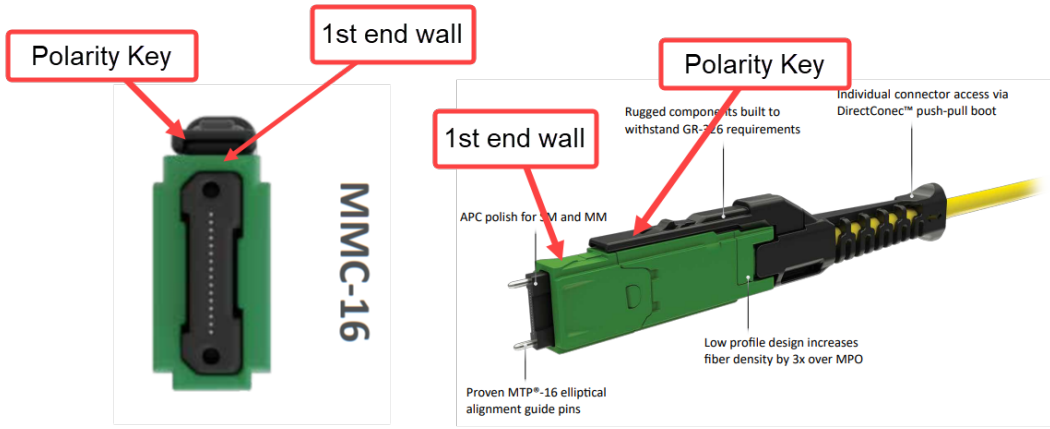
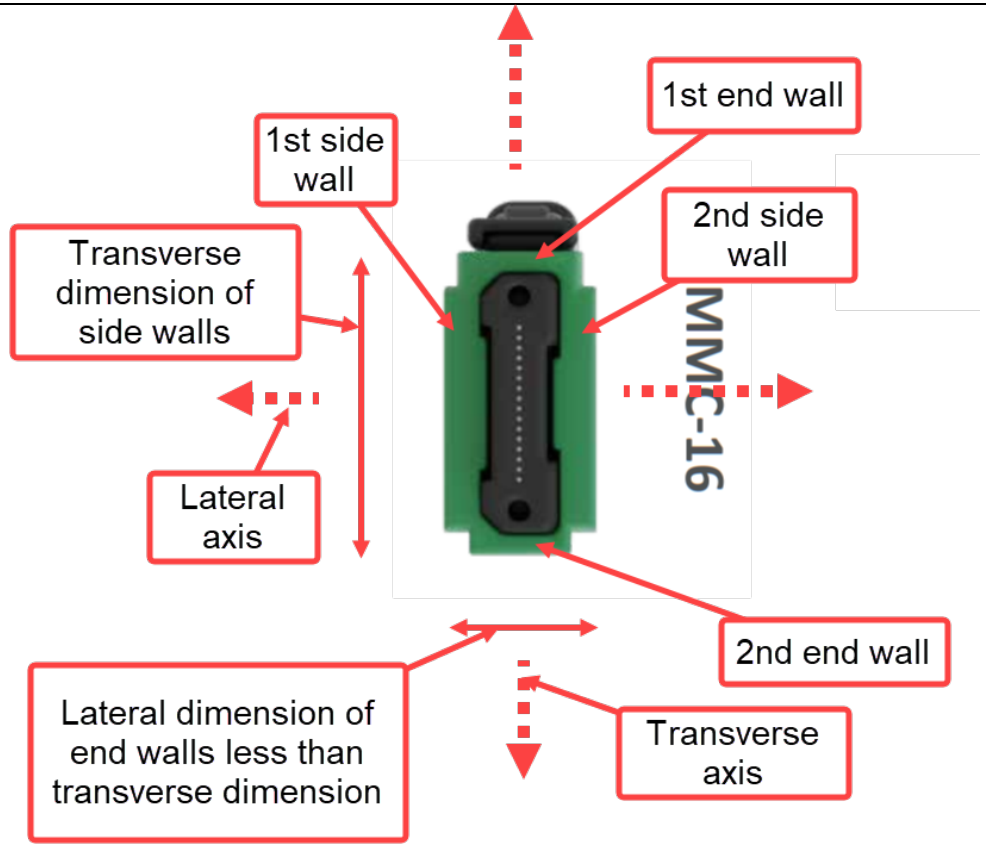
U.S. Pat. No. 11,333,836	MMC Adapters
	

EXHIBIT K

U.S. Patent No. 11,340,413	MMC Connector
1. An optical fiber connector comprising:	
a housing having a longitudinal axis and a front end portion and a rear end portion spaced apart along the longitudinal axis, the housing comprising opposite first and second end walls spaced apart along a transverse axis oriented perpendicular to the longitudinal axis, the housing comprising opposite first and second side walls spaced apart along a lateral axis oriented perpendicular to the longitudinal axis and the transverse axis;	

U.S. Patent No. 11,340,413	MMC Connector
an MT ferrule received in the housing and exposed through the front end portion of the housing for making an optical connection, the MT ferrule configured to receive plurality of fibers such that the fibers are spaced apart in a row that extends parallel to a fiber alignment axis, the MT ferrule further comprising first and second guide pin openings spaced apart along the fiber alignment axis; and	
a polarity key disposed on the first end wall;	

U.S. Patent No. 11,340,413	MMC Connector
wherein each of the first and second end walls has a lateral dimension along the lateral axis and each of the first and second side walls has a transverse dimension along the transverse axis, the lateral dimension being less than the transverse dimension;	

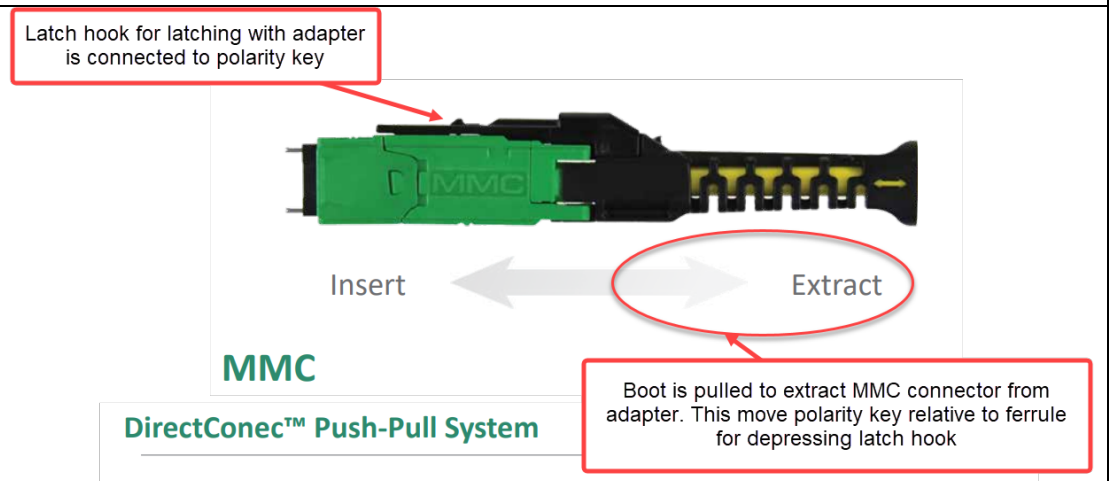
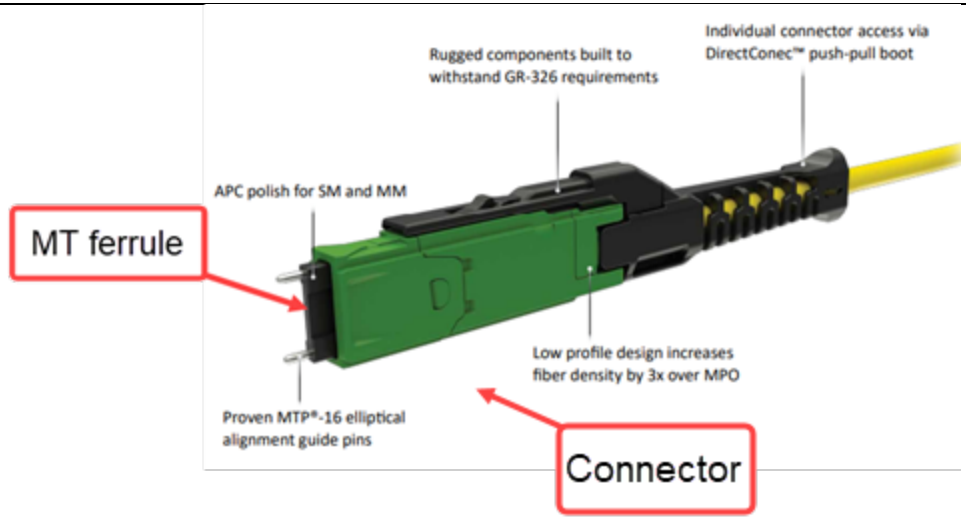
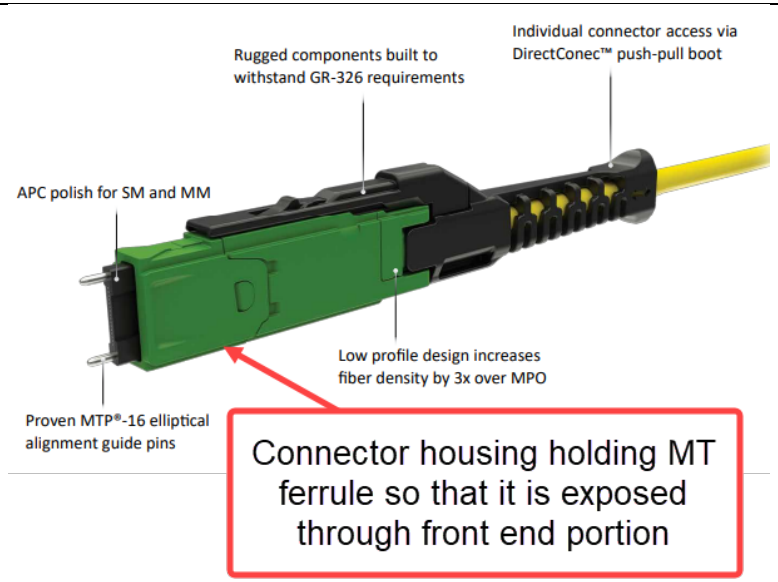
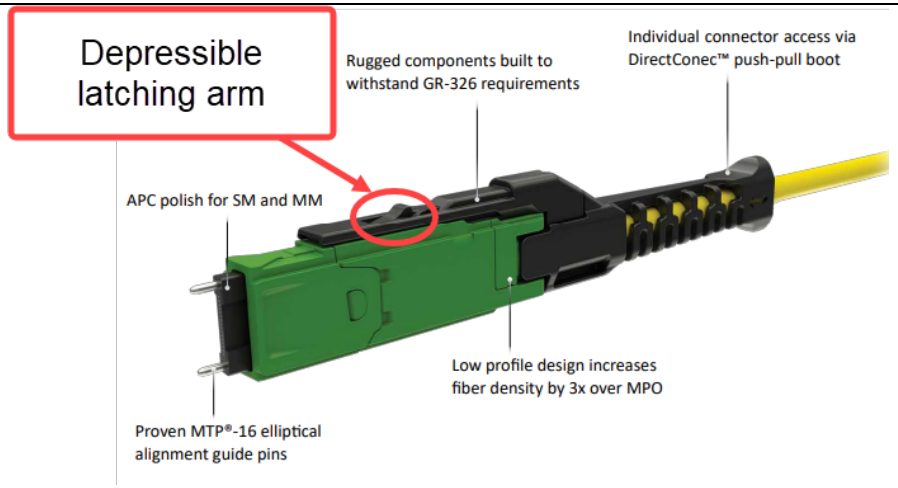
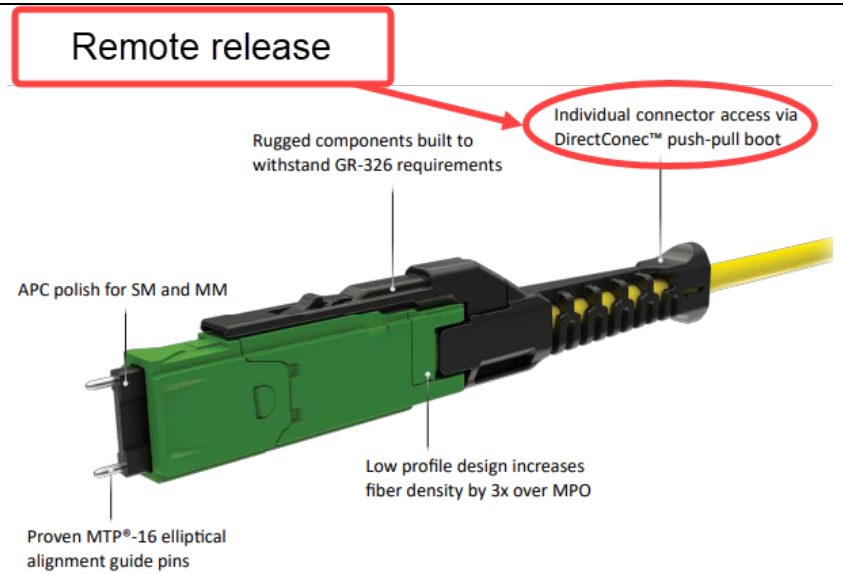
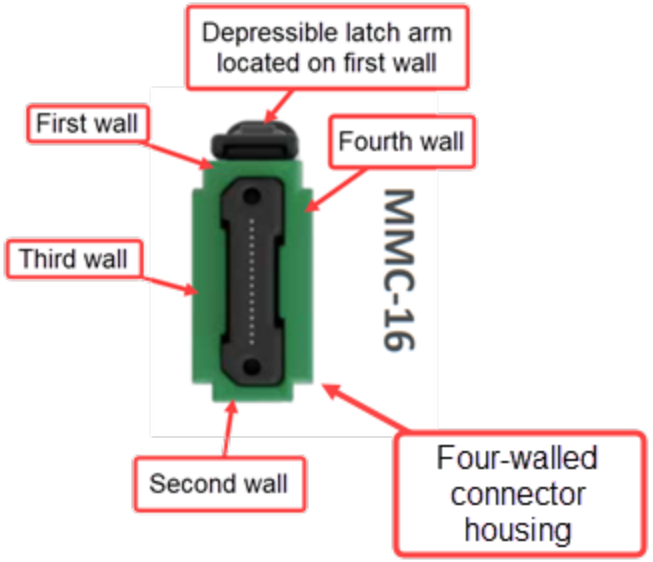
U.S. Patent No. 11,340,413	MMC Connector
wherein the optical fiber connector is configured to latch with a mating adapter and wherein the optical fiber connector is configured to be actuated to unlatch from the mating adapter by displacing a first portion of the optical fiber connector rearward relative to a second portion of the optical fiber connector, wherein said displacing the first portion of the optical fiber connector rearward relative to the second portion of the optical fiber connector displaces the polarity key rearward relative to the MT ferrule.	 DirectConec™ Push-Pull System DirectConec™ push-pull technology enables the highest functional density in fiber cabling environments without the need for pull tabs or field tools. US Conec has now incorporated this technology into multiple connector platforms including MTP® PRO, ELiMENT™ MDC and Duplex LC Uniboot, and the highest fiber density MMC connectors. Features: • Effortless insertion and extraction while accessing the strain relief boot

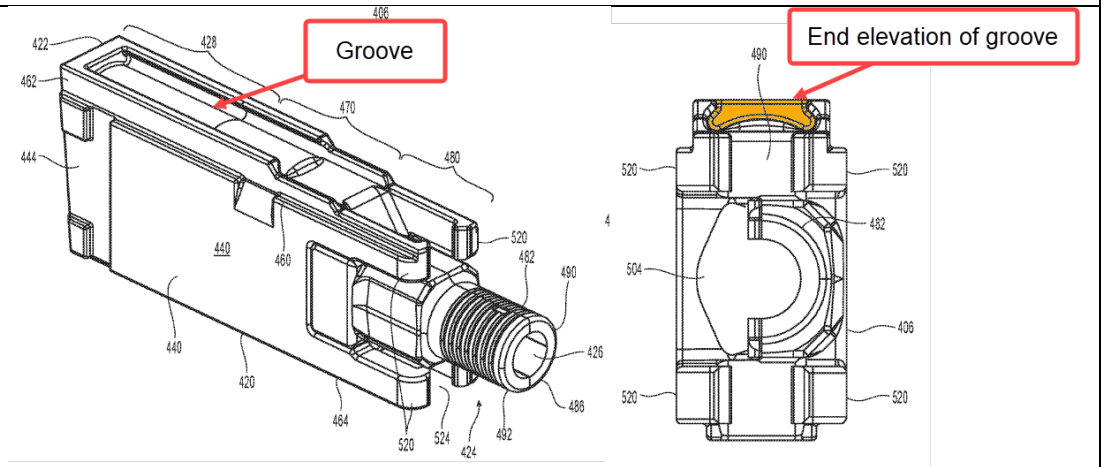
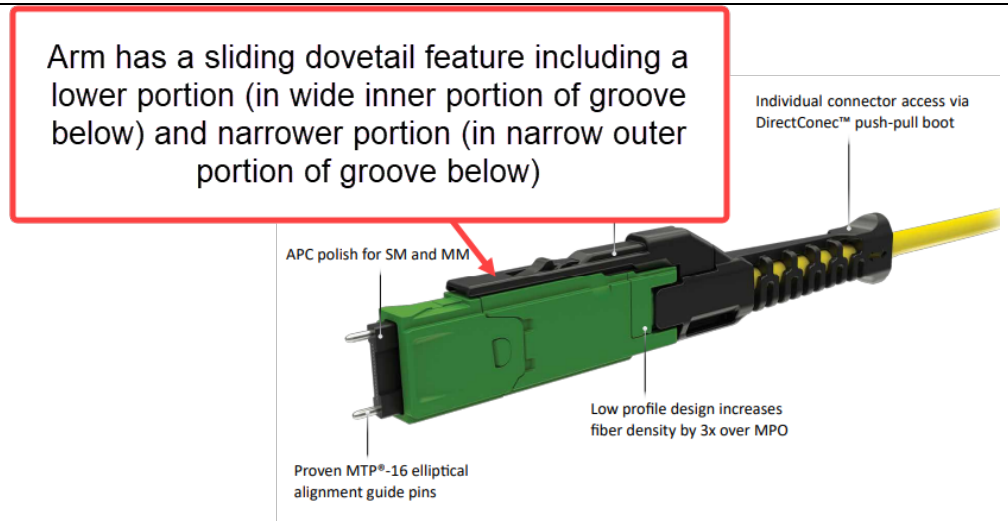
EXHIBIT L

U.S. Patent No. 11,415,760	MMC Connector
1. An optical fiber connector configured for mating with a receptacle, the optical fiber connector comprising:	
an MT ferrule configured to hold a plurality of optical fibers;	

U.S. Patent No. 11,415,760	MMC Connector
a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing configured to hold the MT ferrule such that the MT ferrule is exposed through the front end portion for making an optical connection;	
a depressible latching arm connected to the connector housing for latching with the receptacle when the optical fiber connector is mated with the receptacle to releasably retain the optical fiber connector in the receptacle; and	

U.S. Patent No. 11,415,760	MMC Connector
a remote release connected to the connector housing for movement relative to the connector housing along the longitudinal axis, the remote release being configured to be pulled rearward along the longitudinal axis to depress the depressible latching arm for releasing the optical fiber connector from the receptacle;	

U.S. Patent No. 11,415,760	MMC Connector
wherein the connector housing has a generally rectangular perimeter including opposite first and second walls and opposite third and fourth walls, the depressible latching arm being located on an exterior of the first wall;	

U.S. Patent No. 11,415,760	MMC Connector
wherein the first wall of the connector housing defines a groove, the remote release being slidably received in the groove;	 [1]
wherein the remote release comprises a lower portion and a narrower portion above the lower portion, the lower portion being wider than the narrower portion;	

[1] Senko refers to black and white line drawings taken from US Conec's own WO 2021/217054 patent application, which drawings are an appropriate proxy for showing how US Conec's MMC product reads on relevant features of the claim.

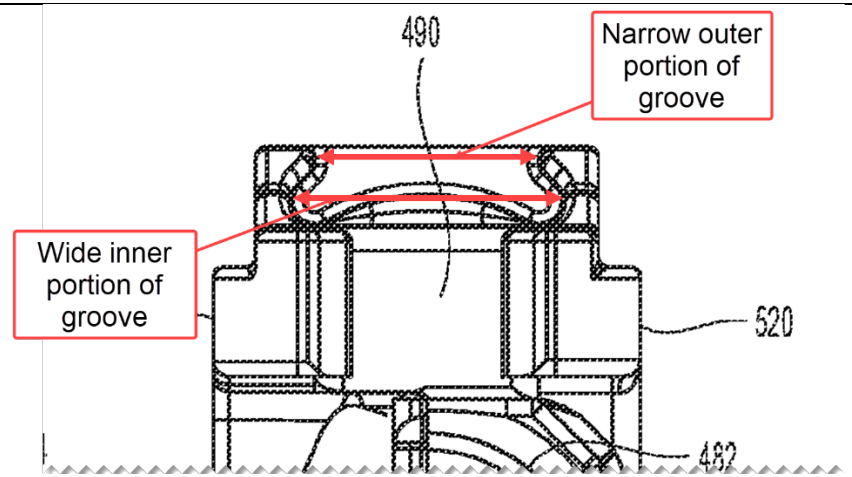
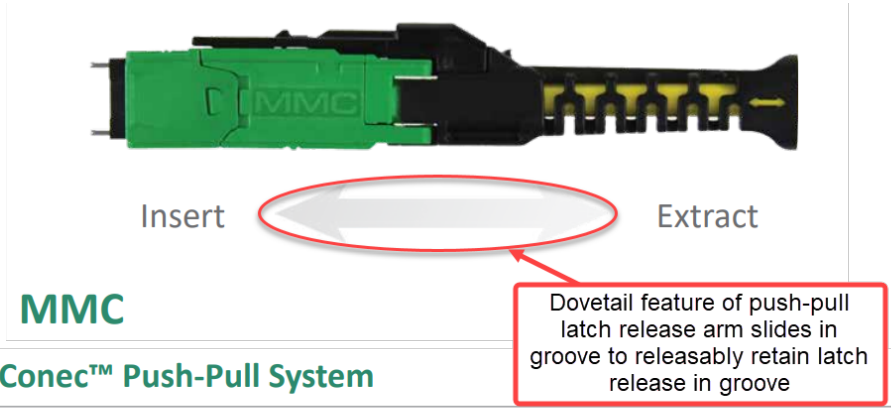
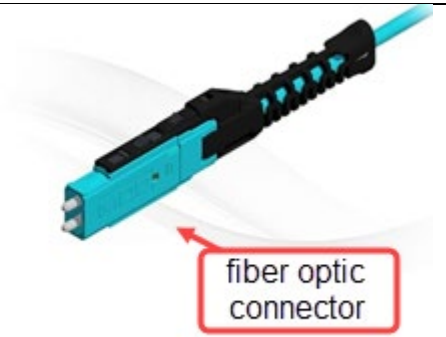
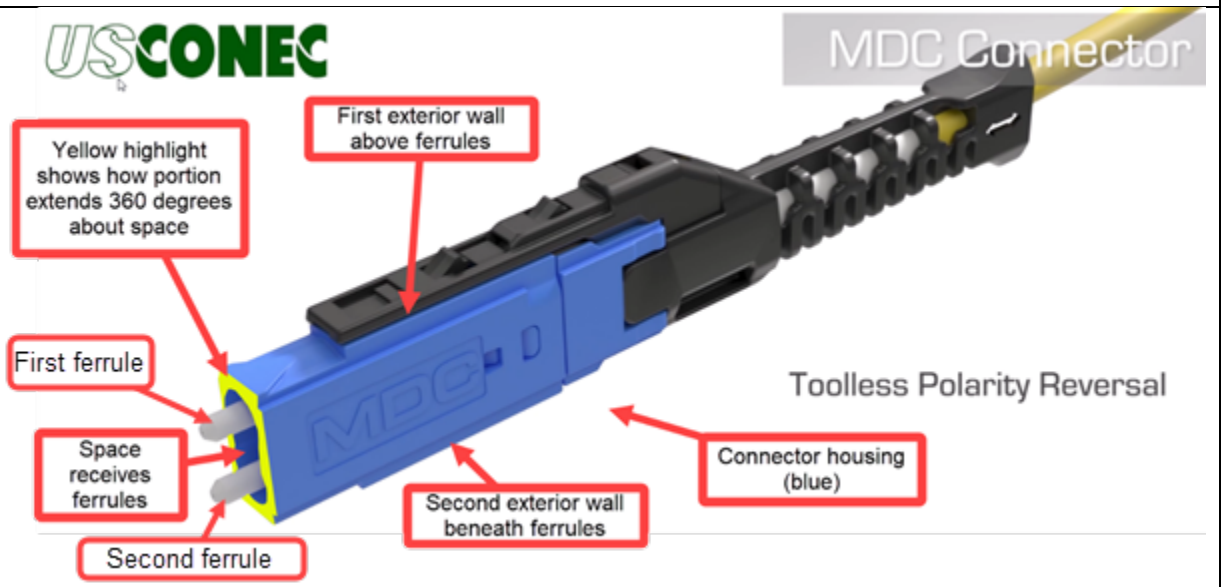
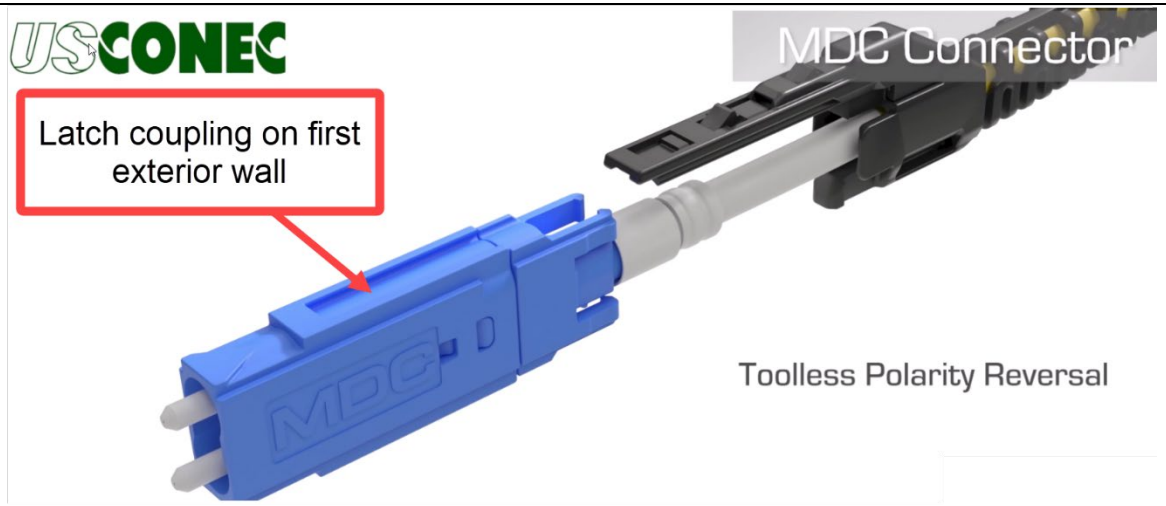
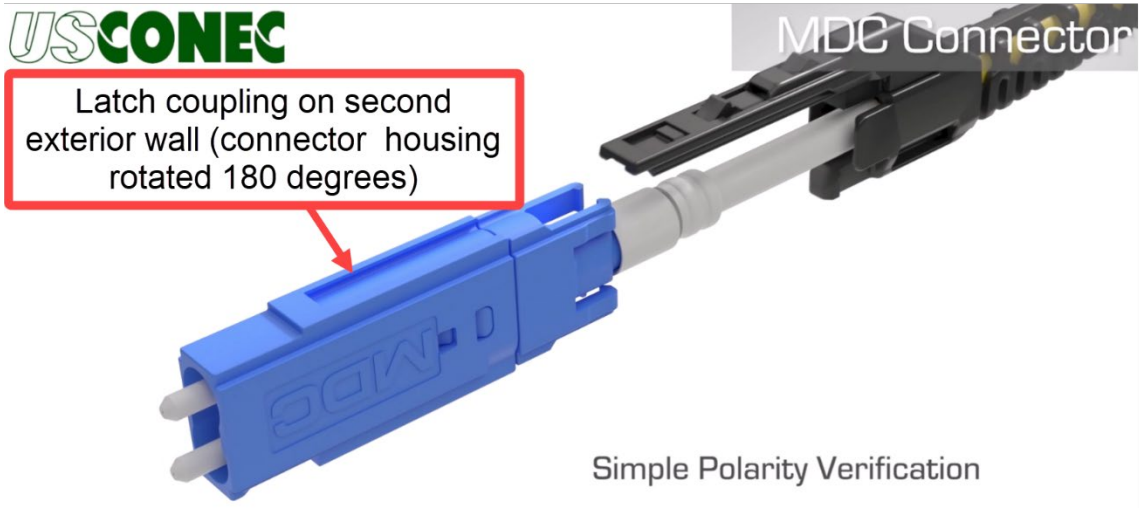
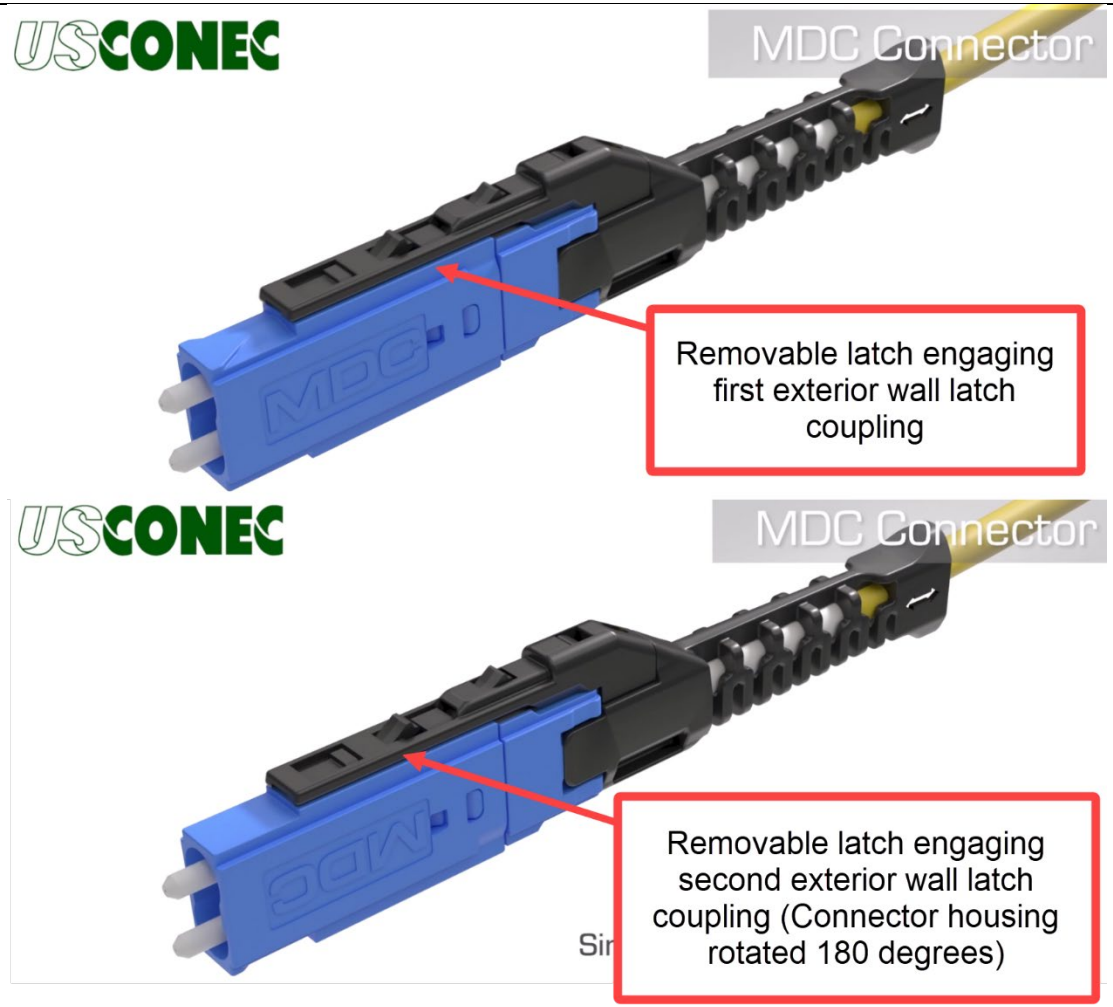
U.S. Patent No. 11,415,760	MMC Connector
wherein the groove includes an inner portion and an outer portion, the inner portion being wider than the outer portion, the inner portion of the groove being configured to slidably receive the lower portion of the latch release and the outer portion of the groove being configured to slidably receive the narrower portion of the latch release such that the first wall releasably retains the latch release in the groove.	  **DirectConec™ Push-Pull System** DirectConec™ push-pull technology enables the highest functional density in fiber cabling environments without the need for pull tabs or field tools. US Conec has now incorporated this technology into multiple connector platforms including MTP® PRO, ELiMENT™ MDC and Duplex LC Uniboot, and the highest fiber density MMC connectors. **Features:** • Effortless insertion and extraction while accessing the strain relief boot

EXHIBIT M

U.S. Pat. No. 10,191,230 C1	MDC
1. A reversible polarity fiber optic connector comprising:	Insertion and extraction of the MDC connector occurs with a simple push or pull on a flexible and robust strain relief boot providing functional density in very tight spaces. For faster error free installations, an optional aggregation component will allow for insertion and removal of multiple MDC connectors at once. Polarity of MDC connectors is effortlessly changed in the field or factory to support multiple cabling methodologies without the need for tools and without exposing or twisting delicate fibers. The MDC connector is designed for optimal stability exceeding the requirements of Telcordia GR-326 for carrier or data center applications. 
at least first and second optical ferrules;	

U.S. Pat. No. 10,191,230 C1	MDC
a connector housing having a longitudinal axis and comprising an exterior portion at least partially surrounding the first and second optical ferrules such that the exterior portion extends 360° circumferentially with respect to the longitudinal axis about a space in which each of the first and second optical ferrules are received, the exterior portion comprising a first exterior wall positioned above the first and second optical ferrules and a second exterior wall positioned beneath the first and second optical ferrules;	

U.S. Pat. No. 10,191,230 C1	MDC
a latch coupling positioned on each of the first and second exterior walls of the connector housing;	 

U.S. Pat. No. 10,191,230 C1	MDC
a removable latch for engaging either of the first and second exterior wall latch couplings on the connector housing;	

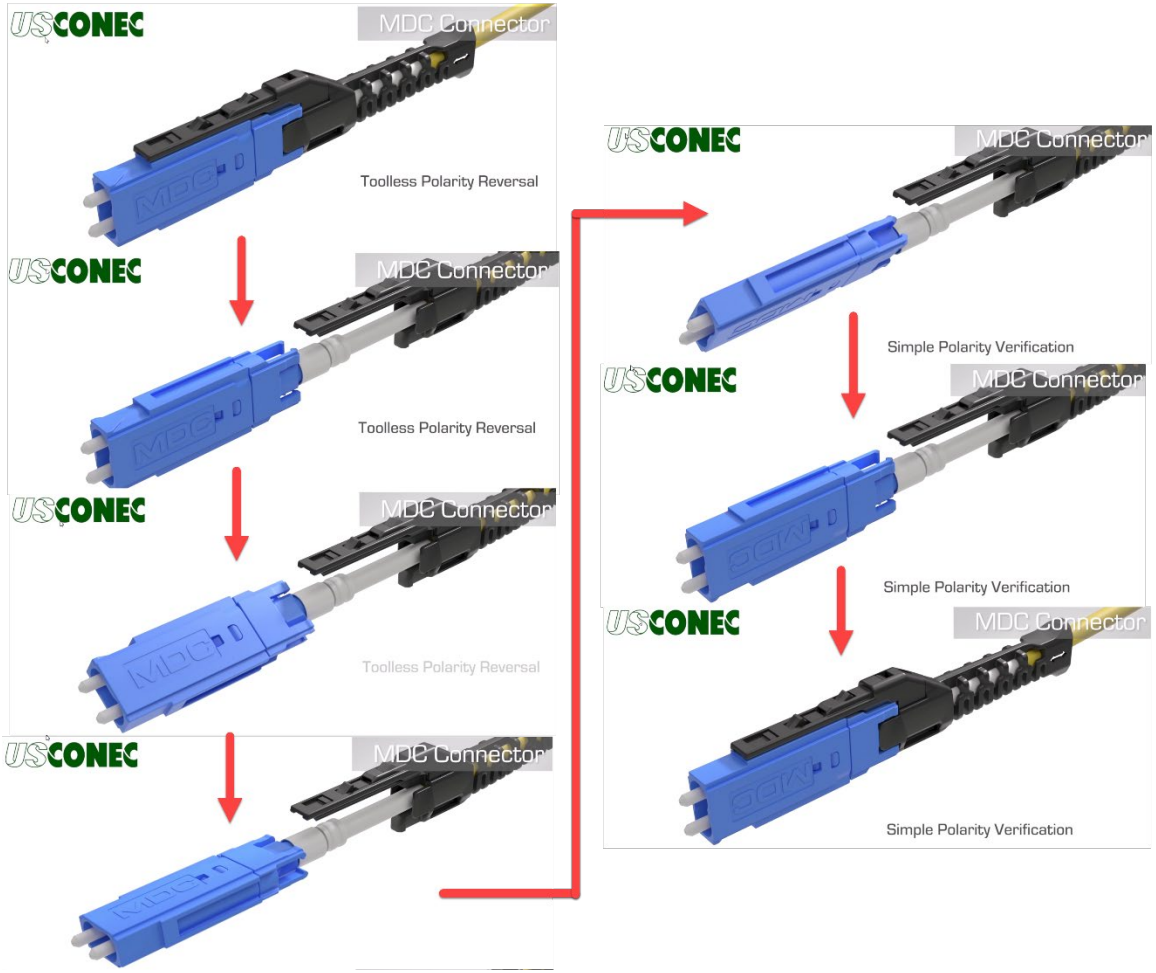
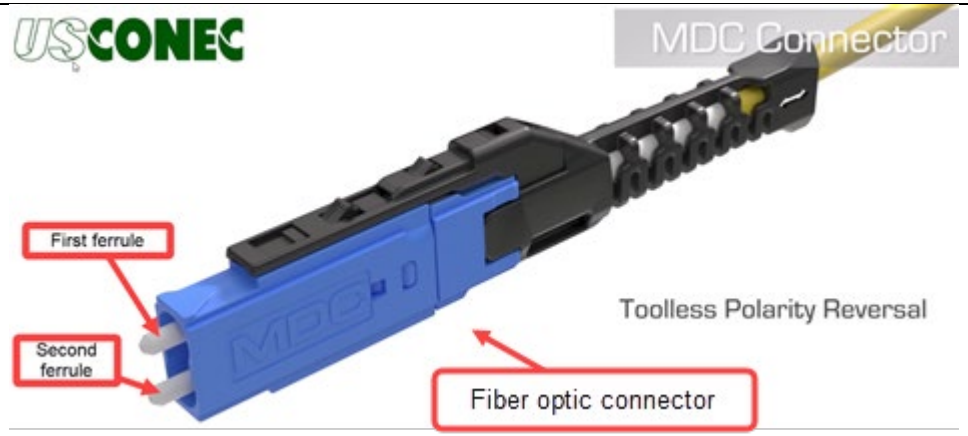
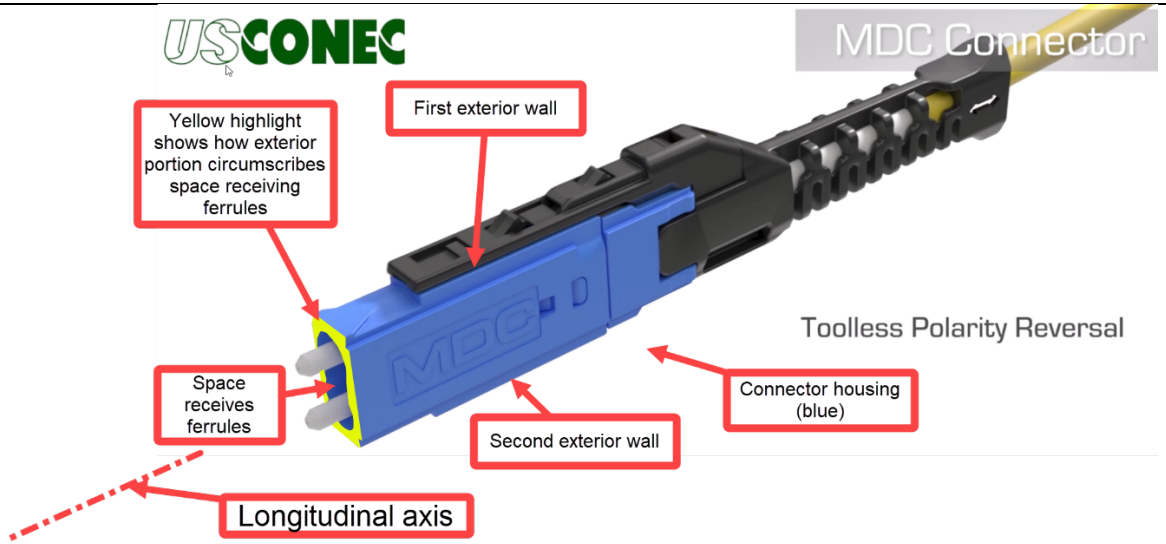
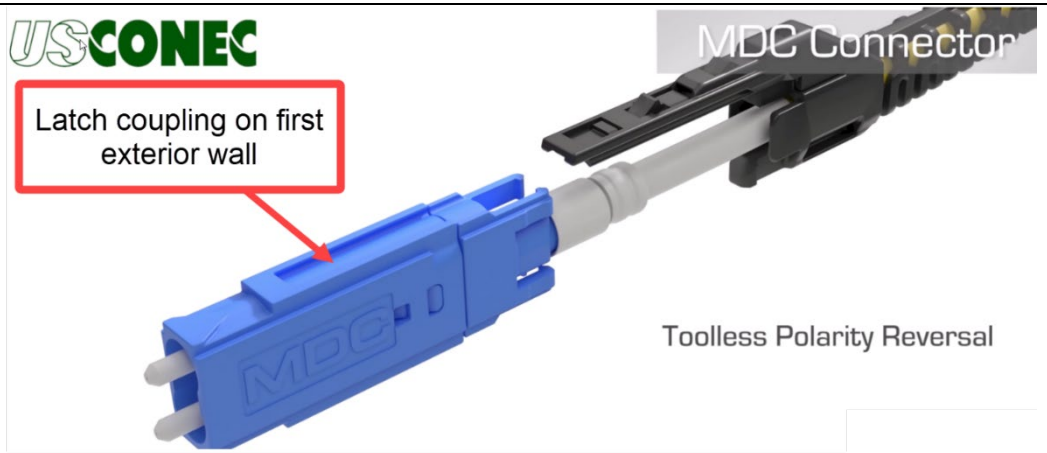
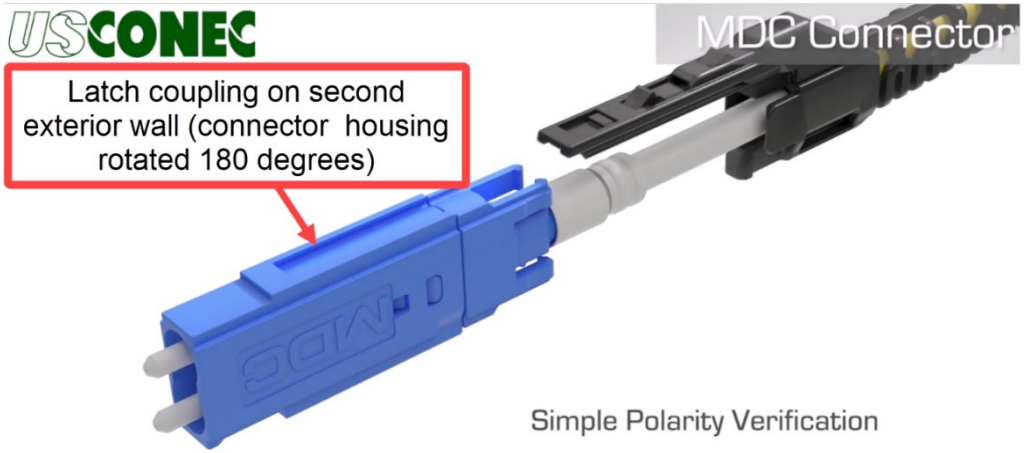
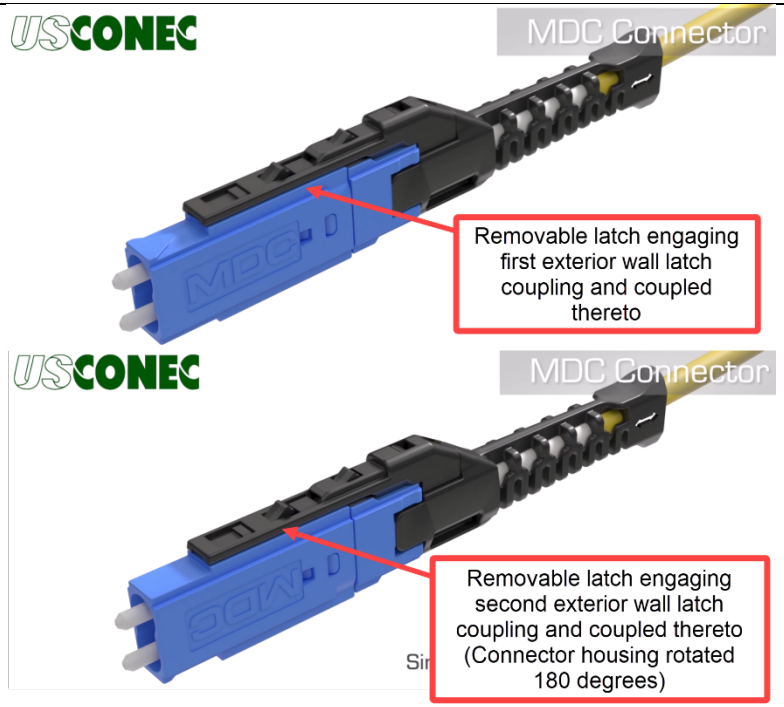
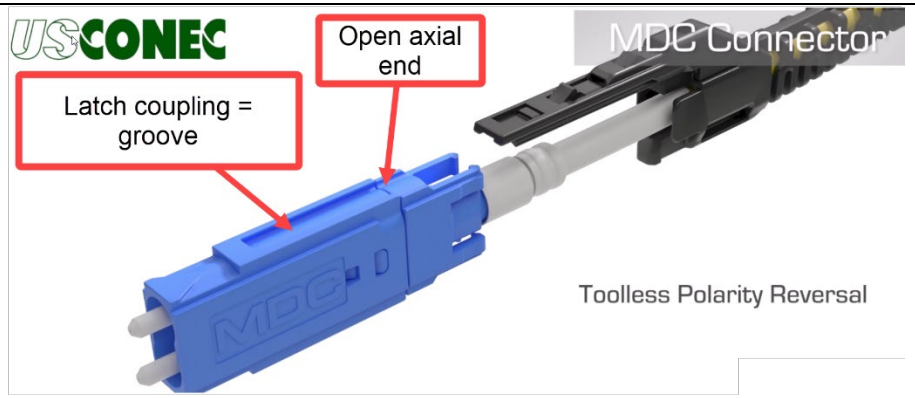
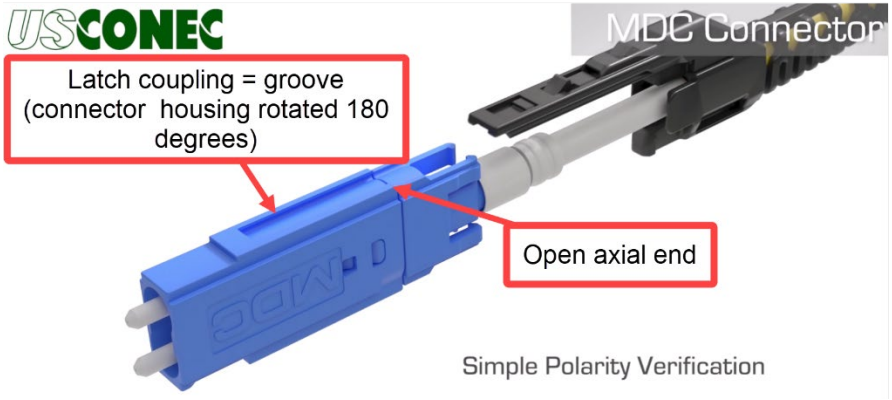
U.S. Pat. No. 10,191,230 C1	MDC
wherein positioning the removable latch on the first exterior wall of the connector housing yields a fiber optic connector with a first polarity and positioning the removable latch on the second exterior wall of the connector housing yields a fiber optic connector with a second polarity, the second polarity being opposite to the first polarity.	

EXHIBIT N

U.S. Pat. No. 11,181,701 B2	MDC
1. A fiber optic connector comprising:	
at least first and second optical ferrules;	
a connector housing having a longitudinal axis and comprising an exterior portion at least partially surrounding the first and second optical ferrules such that the exterior portion circumscribes a space in which each of the first and second optical ferrules are received, the exterior portion comprising a first exterior wall and a second exterior wall on an opposite side of the space from the first exterior wall;	

U.S. Pat. No. 11,181,701 B2	MDC
a latch coupling positioned on each of the first and second exterior walls of the connector housing;	 

U.S. Pat. No. 11,181,701 B2	MDC
a removable latch for engaging either of the first and second exterior wall latch couplings on the connector housing, whereby the removable latch couples to the respective latch coupling;	

U.S. Pat. No. 11,181,701 B2	MDC
wherein each latch coupling comprises a groove extending along the axis and having an open axial end; and	 

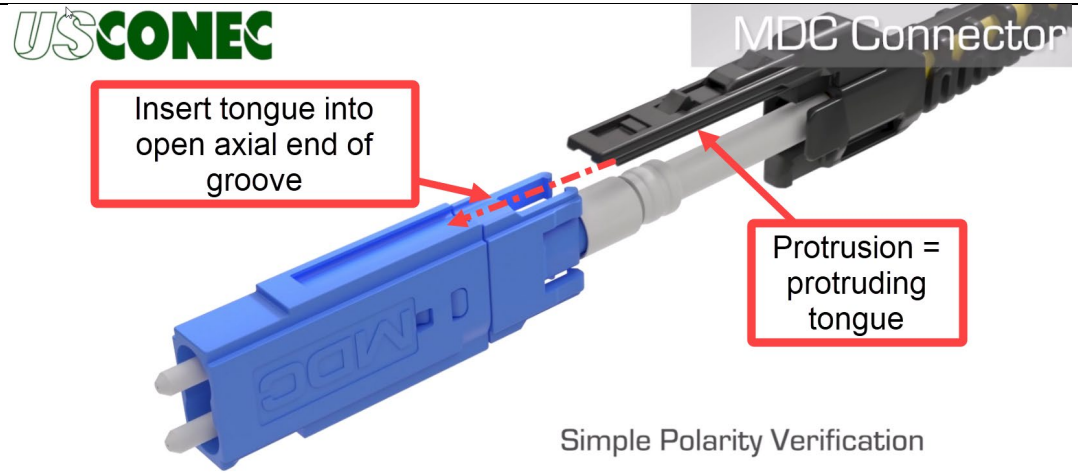
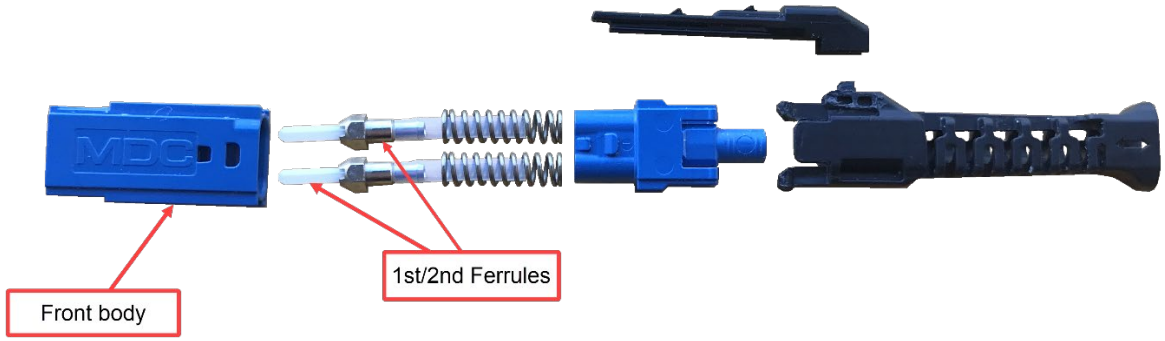
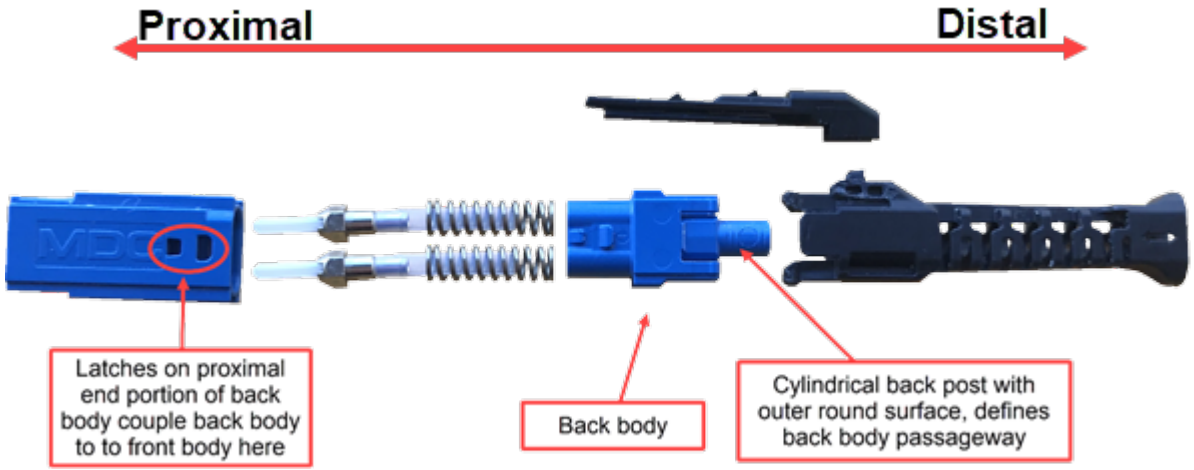
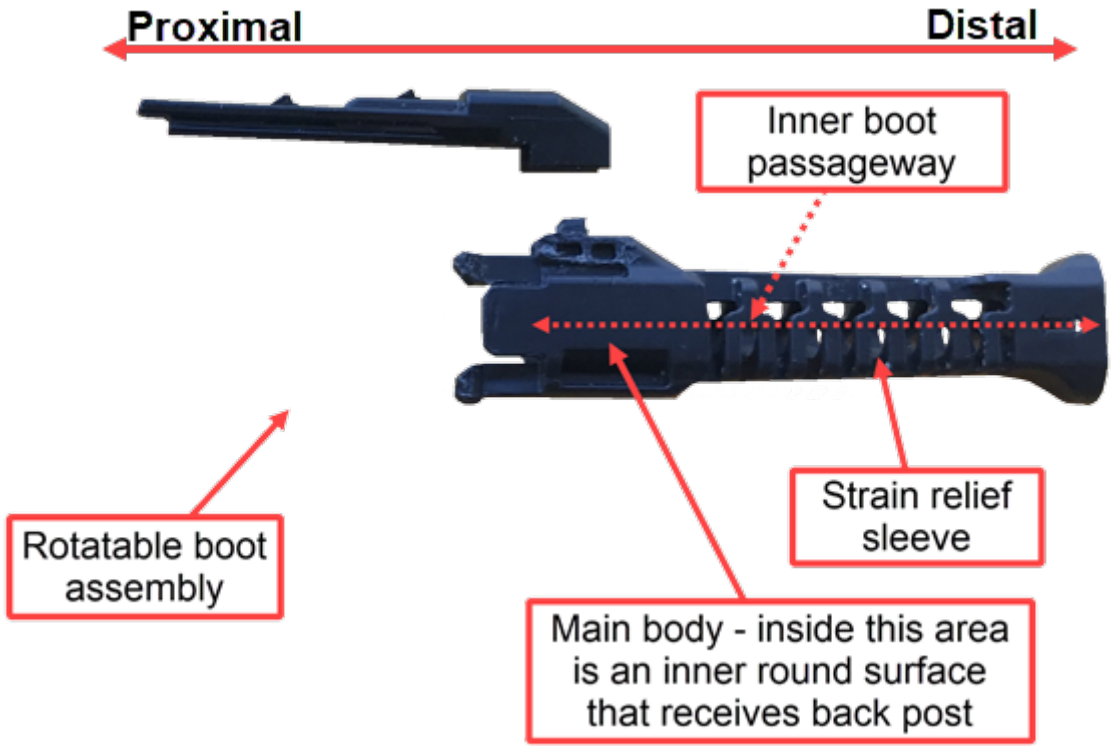
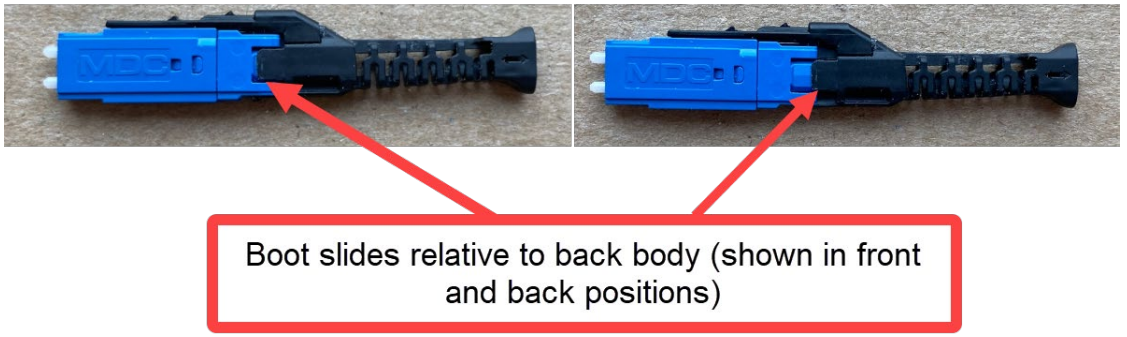
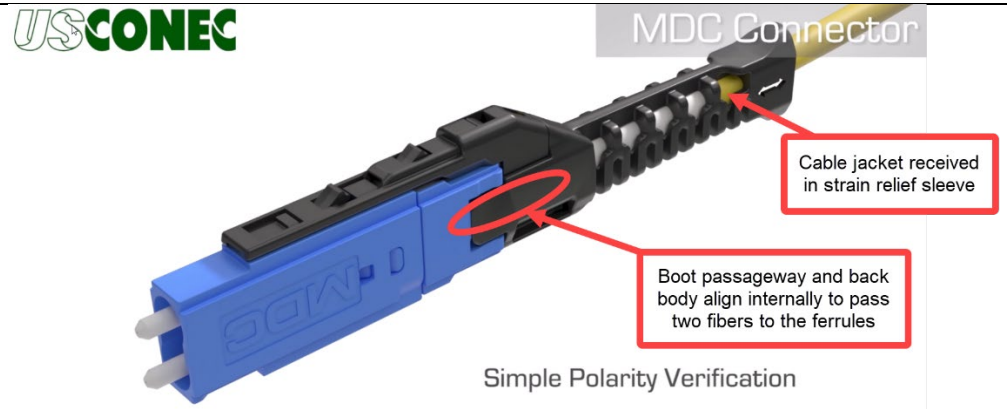
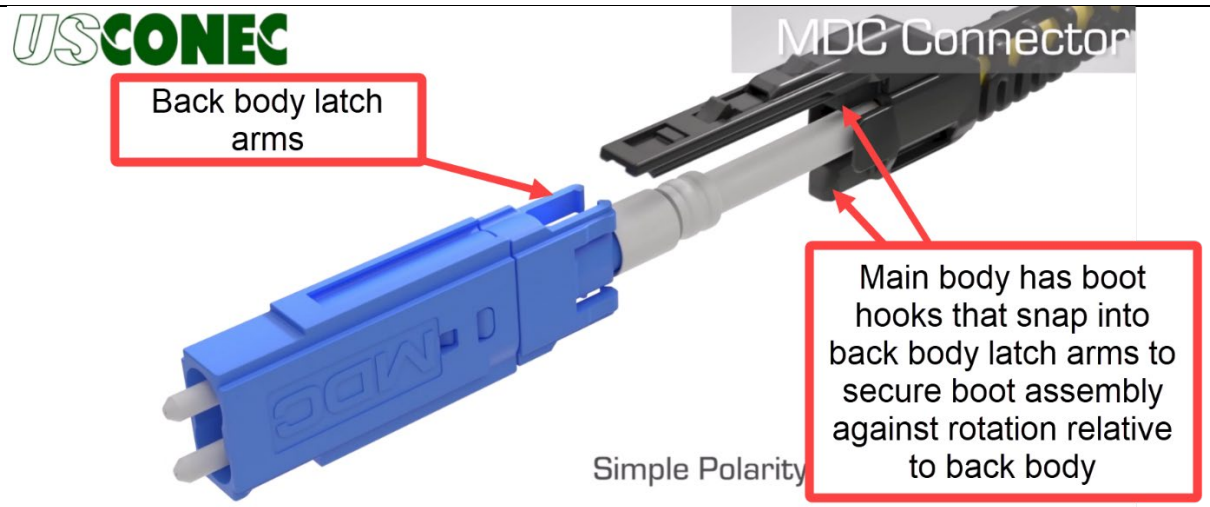
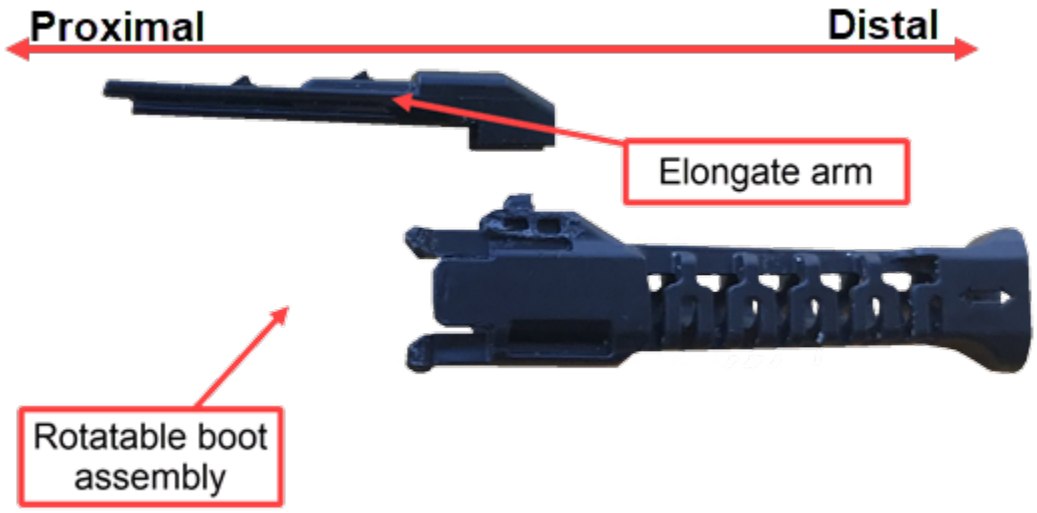
U.S. Pat. No. 11,181,701 B2	MDC
wherein the removable latch comprises a protrusion for being inserted into the open axial end of the groove by movement relative to the housing along the axis.	

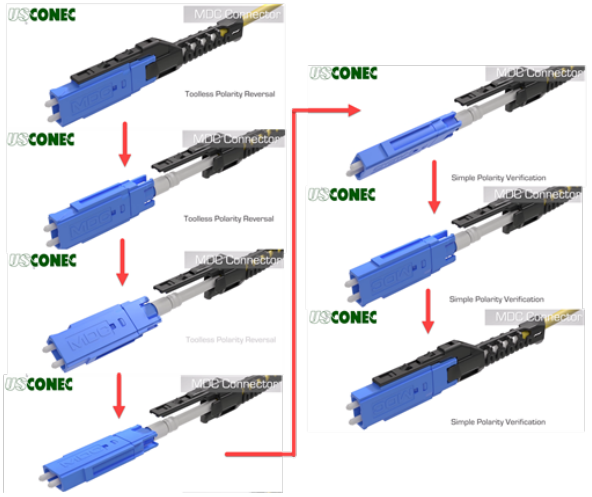
EXHIBIT O

U.S. Pat. No. 11,061,190	MDC Connector
1. An optical fiber connector comprising:	
a front body configured to hold first and second ferrules;	
a back body having a proximal end portion and a distal end portion spaced apart along a longitudinal axis, the proximal end portion of the back body configured to couple to the front body, the distal end portion of the back body comprising a cylindrical back post having an outer round surface extending along the longitudinal axis, the back body defining a back body passageway extending from the distal end portion through the proximal end portion; and	

U.S. Pat. No. 11,061,190	MDC Connector
a rotatable boot assembly having a proximal end portion and a distal end portion spaced apart along the longitudinal axis, the rotatable boot assembly comprising a main body and a strain relief sleeve extending longitudinally from the main body to the distal end portion of the rotatable boot assembly, the rotatable boot assembly comprising a boot passageway extending from the distal end portion through the main body, the main body comprising an inner round surface extending along the longitudinal axis, the inner round surface defining a proximal end portion of the boot passageway, the rotatable boot assembly configured to be disposed on the back body such that (i) the outer round surface of the back post is matingly received in the inner round surface of the main body and	

U.S. Pat. No. 11,061,190	MDC Connector
(ii) the cable boot member is slidable along the longitudinal axis relative to the back body for releasing the optical fiber connector from an adapter,	
the optical fiber connector being configured to terminate a fiber optic cable such that a jacket of the cable is received in the strain relief sleeve in the boot passageway, the boot passageway and the back body passageway configured to align for passing first and second fibers from the fiber optic cable to the front body to complete a signal path to the first and second ferrules within the front body;	

U.S. Pat. No. 11,061,190	MDC Connector
the main body further comprising at least one boot hook configured for releasably securing the multi-purpose rotatable boot assembly against rotation relative to the back body,	
and the rotatable boot assembly further comprising an elongate arm extending longitudinally from the main body in a proximal direction along the longitudinal axis,	

U.S. Pat. No. 11,061,190	MDC Connector
the elongate arm being configured for selectively setting the optical fiber connector to each of a first polarity and a second polarity.	Boot assembly is rotatable so that arm attaches to either top or bottom of housing, whereby elongate arm selectively configures connector for either first or second polarity 

JS 44 (Rev. 04/21)

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. *(SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)*

I. (a) PLAINTIFFS

SENKO ADVANCED COMPONENTS, INC.

(b) County of Residence of First Listed Plaintiff Middlesex
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys *(Firm Name, Address, and Telephone Number)*
Anne Shea Gaza, Young Conaway Stargatt & Taylor, LLP
Rodney Square, 1000 N. King St., Wilmington, DE 19801
(302) 571-6727

DEFENDANTS

US CONEC, LTD.

County of Residence of First Listed Defendant
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys *(If Known)*

II. BASIS OF JURISDICTION *(Place an "X" in One Box Only)*

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question *(U.S. Government Not a Party)*
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity *(Indicate Citizenship of Parties in Item III)*

III. CITIZENSHIP OF PRINCIPAL PARTIES *(Place an "X" in One Box for Plaintiff and One Box for Defendant)*
(For Diversity Cases Only)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated *or* Principal Place of Business In This State	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated *and* Principal Place of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT *(Place an "X" in One Box Only)*

Click here for: Nature of Suit Code Descriptions.

CONTRACT
- ☐ 110 Insurance
- ☐ 120 Marine
- ☐ 130 Miller Act
- ☐ 140 Negotiable Instrument
- ☐ 150 Recovery of Overpayment & Enforcement of Judgment
- ☐ 151 Medicare Act
- ☐ 152 Recovery of Defaulted Student Loans (Excludes Veterans)
- ☐ 153 Recovery of Overpayment of Veteran's Benefits
- ☐ 160 Stockholders' Suits
- ☐ 190 Other Contract
- ☐ 195 Contract Product Liability
- ☐ 196 Franchise

TORTS

PERSONAL INJURY
- ☐ 310 Airplane
- ☐ 315 Airplane Product Liability
- ☐ 320 Assault, Libel & Slander
- ☐ 330 Federal Employers' Liability
- ☐ 340 Marine
- ☐ 345 Marine Product Liability
- ☐ 350 Motor Vehicle
- ☐ 355 Motor Vehicle Product Liability
- ☐ 360 Other Personal Injury
- ☐ 362 Personal Injury - Medical Malpractice

PERSONAL INJURY
- ☐ 365 Personal Injury - Product Liability
- ☐ 367 Health Care/ Pharmaceutical Personal Injury Product Liability
- ☐ 368 Asbestos Personal Injury Product Liability

PERSONAL PROPERTY
- ☐ 370 Other Fraud
- ☐ 371 Truth in Lending
- ☐ 380 Other Personal Property Damage
- ☐ 385 Property Damage Product Liability

FORFEITURE/PENALTY
- ☐ 625 Drug Related Seizure of Property 21 USC 881
- ☐ 690 Other

LABOR
- ☐ 710 Fair Labor Standards Act
- ☐ 720 Labor/Management Relations
- ☐ 740 Railway Labor Act
- ☐ 751 Family and Medical Leave Act
- ☐ 790 Other Labor Litigation
- ☐ 791 Employee Retirement Income Security Act

IMMIGRATION
- ☐ 462 Naturalization Application
- ☐ 465 Other Immigration Actions

BANKRUPTCY
- ☐ 422 Appeal 28 USC 158
- ☐ 423 Withdrawal 28 USC 157

INTELLECTUAL PROPERTY RIGHTS
- ☐ 820 Copyrights
- ☒ 830 Patent
- ☐ 835 Patent - Abbreviated New Drug Application
- ☐ 840 Trademark
- ☐ 880 Defend Trade Secrets Act of 2016

SOCIAL SECURITY
- ☐ 861 HIA (1395ff)
- ☐ 862 Black Lung (923)
- ☐ 863 DIWC/DIWW (405(g))
- ☐ 864 SSID Title XVI
- ☐ 865 RSI (405(g))

FEDERAL TAX SUITS
- ☐ 870 Taxes (U.S. Plaintiff or Defendant)
- ☐ 871 IRS—Third Party 26 USC 7609

OTHER STATUTES
- ☐ 375 False Claims Act
- ☐ 376 Qui Tam (31 USC 3729(a))
- ☐ 400 State Reapportionment
- ☐ 410 Antitrust
- ☐ 430 Banks and Banking
- ☐ 450 Commerce
- ☐ 460 Deportation
- ☐ 470 Racketeer Influenced and Corrupt Organizations
- ☐ 480 Consumer Credit (15 USC 1681 or 1692)
- ☐ 485 Telephone Consumer Protection Act
- ☐ 490 Cable/Sat TV
- ☐ 850 Securities/Commodities/ Exchange
- ☐ 890 Other Statutory Actions
- ☐ 891 Agricultural Acts
- ☐ 893 Environmental Matters
- ☐ 895 Freedom of Information Act
- ☐ 896 Arbitration
- ☐ 899 Administrative Procedure Act/Review or Appeal of Agency Decision
- ☐ 950 Constitutionality of State Statutes

REAL PROPERTY
- ☐ 210 Land Condemnation
- ☐ 220 Foreclosure
- ☐ 230 Rent Lease & Ejectment
- ☐ 240 Torts to Land
- ☐ 245 Tort Product Liability
- ☐ 290 All Other Real Property

CIVIL RIGHTS
- ☐ 440 Other Civil Rights
- ☐ 441 Voting
- ☐ 442 Employment
- ☐ 443 Housing/ Accommodations
- ☐ 445 Amer. w/Disabilities - Employment
- ☐ 446 Amer. w/Disabilities - Other
- ☐ 448 Education

PRISONER PETITIONS

Habeas Corpus:
- ☐ 463 Alien Detainee
- ☐ 510 Motions to Vacate Sentence
- ☐ 530 General
- ☐ 535 Death Penalty

Other:
- ☐ 540 Mandamus & Other
- ☐ 550 Civil Rights
- ☐ 555 Prison Condition
- ☐ 560 Civil Detainee - Conditions of Confinement

V. ORIGIN *(Place an "X" in One Box Only)*

☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from Another District *(specify)* ☐ 6 Multidistrict Litigation - Transfer ☐ 8 Multidistrict Litigation - Direct File

VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing *(Do not cite jurisdictional statutes unless diversity)*:
35 U.S.C. § 271

Brief description of cause:
Patent Infringement

VII. REQUESTED IN COMPLAINT:

☐ CHECK IF THIS IS A **CLASS ACTION** UNDER RULE 23, F.R.Cv.P.

DEMAND $

CHECK YES only if demanded in complaint:
JURY DEMAND: ☐ Yes ☐ No

VIII. RELATED CASE(S) IF ANY *(See instructions)*:

JUDGE _____ DOCKET NUMBER _____

DATE
01-24-2023

SIGNATURE OF ATTORNEY OF RECORD
Anne Shea Gaza

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____

INSTRUCTIONS FOR ATTORNEYS COMPLETING CIVIL COVER SHEET FORM JS 44

Authority For Civil Cover Sheet

The JS 44 civil cover sheet and the information contained herein neither replaces nor supplements the filings and service of pleading or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. Consequently, a civil cover sheet is submitted to the Clerk of Court for each civil complaint filed. The attorney filing a case should complete the form as follows:

I.(a) Plaintiffs-Defendants. Enter names (last, first, middle initial) of plaintiff and defendant. If the plaintiff or defendant is a government agency, use only the full name or standard abbreviations. If the plaintiff or defendant is an official within a government agency, identify first the agency and then the official, giving both name and title.

(b) County of Residence. For each civil case filed, except U.S. plaintiff cases, enter the name of the county where the first listed plaintiff resides at the time of filing. In U.S. plaintiff cases, enter the name of the county in which the first listed defendant resides at the time of filing. (NOTE: In land condemnation cases, the county of residence of the "defendant" is the location of the tract of land involved.)

(c) Attorneys. Enter the firm name, address, telephone number, and attorney of record. If there are several attorneys, list them on an attachment, noting in this section "(see attachment)".

II. Jurisdiction. The basis of jurisdiction is set forth under Rule 8(a), F.R.Cv.P., which requires that jurisdictions be shown in pleadings. Place an "X" in one of the boxes. If there is more than one basis of jurisdiction, precedence is given in the order shown below.
United States plaintiff. (1) Jurisdiction based on 28 U.S.C. 1345 and 1348. Suits by agencies and officers of the United States are included here.
United States defendant. (2) When the plaintiff is suing the United States, its officers or agencies, place an "X" in this box.
Federal question. (3) This refers to suits under 28 U.S.C. 1331, where jurisdiction arises under the Constitution of the United States, an amendment to the Constitution, an act of Congress or a treaty of the United States. In cases where the U.S. is a party, the U.S. plaintiff or defendant code takes precedence, and box 1 or 2 should be marked.
Diversity of citizenship. (4) This refers to suits under 28 U.S.C. 1332, where parties are citizens of different states. When Box 4 is checked, the citizenship of the different parties must be checked. (See Section III below; **NOTE: federal question actions take precedence over diversity cases.)**

III. Residence (citizenship) of Principal Parties. This section of the JS 44 is to be completed if diversity of citizenship was indicated above. Mark this section for each principal party.

IV. Nature of Suit. Place an "X" in the appropriate box. If there are multiple nature of suit codes associated with the case, pick the nature of suit code that is most applicable. Click here for: Nature of Suit Code Descriptions.

V. Origin. Place an "X" in one of the seven boxes.
Original Proceedings. (1) Cases which originate in the United States district courts.
Removed from State Court. (2) Proceedings initiated in state courts may be removed to the district courts under Title 28 U.S.C., Section 1441.
Remanded from Appellate Court. (3) Check this box for cases remanded to the district court for further action. Use the date of remand as the filing date.
Reinstated or Reopened. (4) Check this box for cases reinstated or reopened in the district court. Use the reopening date as the filing date.
Transferred from Another District. (5) For cases transferred under Title 28 U.S.C. Section 1404(a). Do not use this for within district transfers or multidistrict litigation transfers.
Multidistrict Litigation – Transfer. (6) Check this box when a multidistrict case is transferred into the district under authority of Title 28 U.S.C. Section 1407.
Multidistrict Litigation – Direct File. (8) Check this box when a multidistrict case is filed in the same district as the Master MDL docket.
PLEASE NOTE THAT THERE IS NOT AN ORIGIN CODE 7. Origin Code 7 was used for historical records and is no longer relevant due to changes in statute.

VI. Cause of Action. Report the civil statute directly related to the cause of action and give a brief description of the cause. **Do not cite jurisdictional statutes unless diversity.** Example: U.S. Civil Statute: 47 USC 553 Brief Description: Unauthorized reception of cable service.

VII. Requested in Complaint. Class Action. Place an "X" in this box if you are filing a class action under Rule 23, F.R.Cv.P.
Demand. In this space enter the actual dollar amount being demanded or indicate other demand, such as a preliminary injunction.
Jury Demand. Check the appropriate box to indicate whether or not a jury is being demanded.

VIII. Related Cases. This section of the JS 44 is used to reference related pending cases, if any. If there are related pending cases, insert the docket numbers and the corresponding judge names for such cases.

Date and Attorney Signature. Date and sign the civil cover sheet.