freely flexing portion bends quite easily and it is not able to withstand significant lateral loads without badly reducing the overall strength of the strand/termination. Maintaining the desired alignment for these large cables is a more complex problem – with processing and performance issues increasing with increasing scale. The present invention presents a solution to these problems.

The present invention seeks to improve both processing and performance issues. The main processing advantage of the invention is the fact that it allows the use of well-developed and repeatable "small cable" termination technologies to be used with larger cables. The main performance advantages of the invention result from the fact that "small cable" terminations produce good repeatability and good overall strength, along with the fact that non-uniform loads are decoupled and/or alignment between the strands and their respective terminations are improved. The invention "collects" multiple small cable terminations into a single collector, thereby allowing the advantages of a small cable termination to exist in a larger cable.

SUMMARY OF INVENTION

According to a first aspect of the present disclosure, there is provided a method for terminating a cable having a central axis, said cable including a plurality of strands made of synthetic filaments, with at least a portion of said strands being non-parallel with respect to said central axis, comprising:

a. straightening a portion of said cable to form a straight portion;

b. applying a binder to said cable proximate said straight portion;

c. cutting each of said plurality of strands of said cable within said straight portion so that each of said plurality of strands has a cut end;

d. splaying said strands apart in order to gain access to a cut end on each of said strands;

e. providing a plurality of anchors;

f. providing at least one alignment fixture;

g. attaching said anchors of said plurality of anchors to at least a portion of said strands while maintaining alignment between each of said anchors and said strand to which said anchor is being attached by placing each anchor and each strand into said alignment fixture during said attachment process;

h. removing said alignment fixture;

i. providing a collector;

j. attaching each of said anchors to said collector, with said attachment between each of said anchors and said collector maintaining said alignment between said anchor and said strand to which said anchor is attached; and

k. providing an attachment feature on said collector, wherein said attachment feature facilitates connection of said collector to an external component.

The collector acts as a unified termination for the cable as a whole. However, each strand or group of strands has been cut, positioned, and locked into a relatively small termination for which strand/anchor alignment is maintained. The relatively large cable is broken into smaller components so that consistent and repeatable termination technology known for use in small cables can be applied to create a termination for a much larger cable. The collector reassembles the smaller components in a manner that minimizes bending stresses in the transition from each anchor to its respective strand/strand-group/sub-strand.

plate. The angled holes would still be made for the anchors (using the same angles shown for the domed example). A shoulder for each nut 116 could then be created by counter-boring each of the holes to a small depth using a square-end mill. The nuts would then bear against these shoulders rather than the exterior surface of the collector itself.

Accordingly, the reader will understand that the proposed invention allows a relatively large cable made of synthetic filaments to be terminated using convention methods suitable for small cables. The inventive method and hardware involves: 1) dividing the cable into smaller components which are in the size range suitable for the prior art termination technology; (2) creating a termination on the end of each of the smaller components; (3) providing a collector which reassembles the individual terminations back into a single unit; and (4) maintaining alignment between the terminations and the smaller cable components while the terminations are “captured” within the collector.

The embodiments disclosed achieve these objectives. However, those skilled in the art will realize that many other forms of hardware could be used to carry out the invention. Although the preceding description contains significant detail, it should not be construed as limiting the scope of the invention but rather as providing illustrations of the preferred embodiments of the invention.

It will be understood that the term “comprise” or “include” and any of its derivatives (eg comprises, comprising, include, including) as used in this specification is to be taken to be inclusive of features to which it refers, and is not meant to exclude the presence of any additional features unless otherwise stated or implied.

The reference to any prior art in this specification is not, and should not be taken as, an acknowledgement of any form of suggestion that such prior art forms part of the common general knowledge.

CLAIMS

1. A method for terminating a cable having a central axis, said cable including a plurality of strands made of synthetic filaments, with at least a portion of said strands being non-parallel with respect to said central axis, comprising:
   a. straightening a portion of said cable to form a straight portion;
   b. applying a binder to said cable proximate said straight portion;
   c. cutting each of said plurality of strands of said cable within said straight portion so that each of said plurality of strands has a cut end;
   d. splaying said strands apart in order to gain access to a cut end on each of said strands;
   e. providing a plurality of anchors;
   f. providing at least one alignment fixture;
   g. attaching said anchors of said plurality of anchors to at least a portion of said strands while maintaining alignment between each of said anchors and said strand to which said anchor is being attached by placing each anchor and each strand into said alignment fixture during said attachment process;
   h. removing said alignment fixture;
   i. providing a collector;
   j. attaching each of said anchors to said collector, with said attachment between each of said anchors and said collector maintaining said alignment between said anchor and said strand to which said anchor is attached; and
   k. providing an attachment feature on said collector, wherein said attachment feature facilitates connection of said collector to an external component.

2. A method for terminating a cable as recited in claim 1, further comprising the steps of:
   a. providing a further alignment fixture, said further alignment fixture including at least one strand engagement feature after step i;
   b. attaching said further alignment fixture to said collector; and
   c. engaging at least one of said strands with said at least one strand engagement fixture in said further alignment fixture after step j.

3. A method for terminating a cable as recited in claim 1 or claim 2, wherein:
   a. at least a portion of said strands are helically wrapped around said central axis; and
   b. said attachment between each of said anchors and said collector maintains said alignment by including an angular offset which is equal to said helix angle.

4. A method for terminating a cable as recited in claim 1, claim 2 or claim 3, wherein said cable includes at least one core strand which is parallel to said central axis and a plurality of strands which are non-parallel to said central axis.

5. A method for terminating a cable as recited in claim 1, claim 2 or claim 3, wherein said attachment between each of said anchors and said collector is made by:
   a. providing an anchor receiver in said collector; and
   b. placing said anchor in said anchor receiver.

6. A method for terminating a cable as recited in claim 1, claim 2 or claim 3, wherein said attachment between each of said anchors and said collector is made using a ball and socket joint.

7. A method for terminating a cable as recited in claim 1, claim 2 or claim 3, wherein said attachment between each of said anchors and said collector is made by a first pivot joint, and a second pivot joint which is perpendicular to said first pivot joint.

8. A method for terminating a cable as recited in claim 1 or claim 2, wherein said attachment between at least a portion of said anchors and said collector includes a tension adjustment.

9. A method for terminating a cable as recited in claim 8, wherein said tension adjustment allows tension on at least two strands to be adjusted individually.

10. A method for terminating a cable as recited in claim 8, wherein said tension adjustment for each of said anchors includes a load sensing device.

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