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### PIPE COUPLING WITH INSTALLATION INDICATOR

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#### Abstract

A pipe coupling includes a coupling body comprising a first coupling segment and a second coupling segment, each of the first and second coupling segments defining a first end and a second end opposite the first end; a fastener mounted to the coupling body and configured to tighten the pipe coupling from an untightened configuration to a tightened configuration; and an installation indicator arranged between the first end of the first coupling segment and the first end of the second coupling segment, wherein the installation indicator is clamped between the first and second coupling segments in the tightened configuration.

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## Background/Summary

### TECHNICAL FIELD

[0001] This disclosure relates to disclosure relates to pipe couplings. More specifically, this disclosure relates to a pipe coupling having an installation indicator to provide a visual indication that the pipe coupling is suitably tightened.

### BACKGROUND

[0002] Pipe couplings are commonly used to connect two sections of pipes or other pipe fittings, such as valves, together to form a pipe connection, such as when installing a pipe system or a pipe infrastructure. Some pipe couplings require tightening one or more fasteners to secure the sections of pipes to the pipe couplings. The fasteners typically should be tightened to a desired torque to assure that the clamping force of the pipe coupling provides a reliable seal and/or the pipe section cannot inadvertently separate from the pipe coupling. Thus, improper tightening of the fasteners can result in a failed connection between the pipe sections. However, it can be difficult to know whether the fasteners have been properly tightened. Quality assurance reviews can be made to ensure proper tightening of the fasteners, but such quality assurance reviews can be time consuming and prone to human error.

### SUMMARY

[0003] It is to be understood that this summary is not an extensive overview of the disclosure. This summary is exemplary and not restrictive, and it is intended neither to identify key or critical elements of the disclosure nor delineate the scope thereof. The sole purpose of this summary is to explain and exemplify certain concepts of the disclosure as an introduction to the following complete and extensive detailed description.

[0004] Disclosed is pipe coupling comprising a coupling body comprising a first coupling segment and a second coupling segment, each of the first and second coupling segments defining a first end and a second end opposite the first end; a fastener mounted to the coupling body and configured to tighten the pipe coupling from an untightened configuration to a tightened configuration; and an installation indicator arranged between the first end of the first coupling segment and the first end of the second coupling segment, wherein the installation indicator is clamped between the first and second coupling segments in the tightened configuration.

[0005] Also disclosed is a pipe coupling comprising a coupling body comprising a first coupling segment and a second coupling segment, each of the first and second coupling segments defining a first end and a second end opposite the first end, wherein; a first indicator element is formed monolithically with the first coupling segment at the first end of the first coupling segment; and a second indicator element is formed monolithically with the second coupling segment at the first end of the second coupling segment; and a fastener mounted to the coupling body and configured to tighten the pipe coupling from an untightened configuration to a tightened configuration, wherein the first indicator element is pressed against the second indicator element in the tightened configuration.

[0006] Various implementations described in the present disclosure may include additional systems, methods, features, and advantages, which may not necessarily be expressly disclosed herein but will be apparent to one of ordinary skill in the art upon examination of the following detailed description and accompanying drawings. It is intended that all such systems, methods, features, and advantages be included within the present disclosure and protected by the accompanying claims.

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## Description

## BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The features and components of the following figures are illustrated to emphasize the general principles of the present disclosure. Corresponding features and components throughout the figures may be designated by matching reference characters for the sake of consistency and clarity.

[0008] FIG. 1 is a front view of a pipe coupling comprising an installation indicator, in accordance with one aspect of the present disclosure, wherein the pipe coupling is in an untightened configuration.

[0009] FIG. 2 is a cross-sectional view of the pipe coupling of FIG. 1 taken along line 2-2 in FIG. 1.

[0010] FIG. 3 is a perspective view of a gasket of the pipe coupling of FIG. 1 comprising the installation indicator.

[0011] FIG. 4 is a front view of a pipe coupling of FIG. 1 in a partially tightened configuration.

[0012] FIG. 5 is a cross-sectional view of the pipe coupling of FIG. 1 taken along line 5-5 in FIG. 4.

[0013] FIG. 6 is a perspective view of the pipe coupling comprising the installation indicator, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0014] FIG. 7 is a top perspective view of the installation indicator of FIG. 6.

[0015] FIG. 8 is a bottom perspective view of the installation indicator of FIG. 6.

[0016] FIG. 9 is a cross-sectional view of the pipe coupling of FIG. 6 taken along line 9-9 in FIG. 6, wherein the pipe coupling is in the partially tightened configuration.

[0017] FIG. 10 is a detail view of the pipe coupling of FIG. 6 in the partially tightened configuration.

[0018] FIG. 11 is a perspective view of the pipe coupling comprising the installation indicator, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0019] FIG. 12 is a perspective view of the installation indicator of FIG. 11 mounted to a fastener.

[0020] FIG. 13 is a detail view of the pipe coupling of FIG. 11 in the partially tightened configuration.

[0021] FIG. 14 is a perspective view of the pipe coupling comprising the installation indicator formed monolithically with a coupling body of the pipe coupling, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0022] FIG. 15 is a perspective view of a coupling segment of the coupling body of the pipe coupling of FIG. 14.

[0023] FIG. 16 is a front view of the pipe coupling of FIG. 14 in the partially tightened configuration.

[0024] FIG. 17 is a detail view of the pipe coupling of FIG. 14 with at least one side of the pipe coupling in the tightened configuration.

[0025] FIG. 18 is a perspective view of the pipe coupling comprising the installation indicator formed monolithically with a coupling body of the pipe coupling, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0026] FIG. 19 is a perspective view of the pipe coupling comprising the installation indicator, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0027] FIG. 20 is an end perspective view of the pipe coupling of FIG. 19 in the untightened configuration.

[0028] FIG. 21 is an end perspective view of the pipe coupling of FIG. 19 with at least one side of the pipe coupling in the tightened configuration.

[0029] FIG. 22 is a perspective view of the pipe coupling of FIG. 19 in a tightened configuration.

[0030] FIG. **23** is a perspective view of the pipe coupling comprising the installation indicator, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0031] FIG. **24** is a detail perspective view of the pipe coupling of FIG. **23** with at least one side of the pipe coupling in the tightened configuration.

[0032] FIG. **25** is a perspective view of the pipe coupling comprising the installation indicator, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0033] FIG. **26** is a top perspective view of the installation indicator of FIG. **25**.

[0034] FIG. **27** is a bottom perspective view of the installation indicator of FIG. **25**.

[0035] FIG. **28** is an end perspective view of the pipe coupling of FIG. **25** in the untightened configuration.

[0036] FIG. **29** is a perspective view of the pipe coupling comprising the installation indicator, in accordance with another aspect of the present disclosure, wherein the pipe coupling is in the untightened configuration.

[0037] FIG. **30** is a perspective view of a coupling segment of the coupling body of the pipe coupling of FIG. **29**.

[0038] FIG. **31** is a perspective view of the installation indicator of FIG. **29**.

[0039] FIG. **32** is a perspective view of the installation indicator, according to another example aspect of the present disclosure.

[0040] FIG. **33** is an end perspective view of the pipe coupling of FIG. **29** in the untightened configuration.

[0041] FIG. **34** is an exploded view of the pipe coupling of FIG. **29**.

#### DETAILED DESCRIPTION

[0042] The present disclosure can be understood more readily by reference to the following detailed description, examples, drawings, and claims, and the previous and following description. However, before the present devices, systems, and/or methods are disclosed and described, it is to be understood that this disclosure is not limited to the specific devices, systems, and/or methods disclosed unless otherwise specified, and, as such, can, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular aspects only and is not intended to be limiting.

[0043] The following description is provided as an enabling teaching of the present devices, systems, and/or methods in its best, currently known aspect. To this end, those skilled in the relevant art will recognize and appreciate that many changes can be made to the various aspects of the present devices, systems, and/or methods described herein, while still obtaining the beneficial results of the present disclosure. It will also be apparent that some of the desired benefits of the present disclosure can be obtained by selecting some of the features of the present disclosure without utilizing other features. Accordingly, those who work in the art will recognize that many modifications and adaptations to the present disclosure are possible and can even be desirable in certain circumstances and are a part of the present disclosure. Thus, the following description is provided as illustrative of the principles of the present disclosure and not in limitation thereof.

[0044] As used throughout, the singular forms “a,” “an” and “the” include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to “an element” can include two or more such elements unless the context indicates otherwise.

[0045] Ranges can be expressed herein as from “about” one particular value, and/or to “about” another particular value. When such a range is expressed, another aspect includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by use of the antecedent “about,” it will be understood that the particular value forms another aspect. It will be further understood that the endpoints of each of the ranges are significant both in relation to the other endpoint, and independently of the other endpoint.

[0046] For purposes of the current disclosure, a material property or dimension measuring about X or substantially X on a particular measurement scale measures within a range between X plus an industry-standard upper tolerance for the specified measurement and X minus an industry-standard lower tolerance for the specified measurement. Because tolerances can vary between different materials, processes and between different models, the tolerance for a particular measurement of a particular component can fall within a range of tolerances.

[0047] As used herein, the terms “optional” or “optionally” mean that the subsequently described event or circumstance can or cannot occur, and that the description includes instances where said event or circumstance occurs and instances where it does not.

[0048] The word “or” as used herein means any one member of a particular list and also includes any combination of members of that list. Further, one should note that conditional language, such as, among others, “can,” “could,” “might,” or “may,” unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain aspects include, while other aspects do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way required for one or more particular aspects or that one or more particular aspects necessarily include logic for deciding, with or without user input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular aspect.

[0049] Disclosed are components that can be used to perform the disclosed methods and systems. These and other components are disclosed herein, and it is understood that when combinations, subsets, interactions, groups, etc. of these components are disclosed that while specific reference of each various individual and collective combinations and permutations of these may not be explicitly disclosed, each is specifically contemplated and described herein, for all methods and systems. This applies to all aspects of this application including, but not limited to, steps in disclosed methods. Thus, if there are a variety of additional steps that can be performed it is understood that each of these additional steps can be performed with any specific aspect or combination of aspects of the disclosed methods.

[0050] Disclosed is a pipe coupling and associated methods, systems, devices, and various apparatus. Example aspects of the pipe coupling can comprise an installation indicator for visually indicating that the pipe coupling is suitably tightened. It would be understood by one of skill in the art that the pipe coupling is described in but a few exemplary embodiments among many. No particular terminology or description should be considered limiting on the disclosure or the scope of any claims issuing therefrom.

[0051] FIG. 1 illustrates a front view and FIG. 2 illustrates a cross-sectional view of a coupling assembly **100** according to an example aspect of the present disclosure. Additional example aspects of such a coupling assembly are disclosed in U.S. Pat. No. 9,194,516, issued on Nov. 24, 2015, which is hereby specifically incorporated by reference herein in its entirety. The coupling assembly **100** is illustrated in an untightened configuration. The coupling assembly **100** can comprise a pipe coupling **103** and at least one installation indicator **170**. Example aspects of the pipe coupling **103** can be connected to one or more pipe sections **104** or other pipe fittings. In other aspects, the coupling assembly **100** can be any suitable fitting assembly, and the pipe coupling **103** can be any suitable pipe fitting. The pipe coupling **103** can be configured to connect a first pipe section **104a** to a second pipe section **104b** (shown in FIG. 19) or another pipe fitting. Example aspects of the pipe coupling **103** can comprise a coupling body **105**. The coupling body **105** can comprise a first coupling segment, such as an upper coupling segment **110**, and a second coupling segment, such as a lower coupling segment **112**.

[0052] In example aspects, the upper and lower coupling segments **110,112** can comprise a cast material, such as cast iron, including ductile iron in some aspects. In other example aspects, the upper and lower coupling segments **110,112** can be formed from another suitable material, or a combination of materials, that are known in the art, including but not limited to other metals,

plastics, composites, and the like. Moreover, the upper and lower coupling segments **110,112** can be identical in the present aspect. However, when assembled to form the coupling assembly **100**, the upper and lower coupling segments **110,112** are not mirror images across the horizontal, relative to the orientation shown. Rather, the lower coupling segment **112** can be flipped about the vertical with respect to the upper coupling segment **110**, as shown. In other aspects, the upper and lower coupling segments **110,112** can be mirror images across the horizontal, or the upper and lower coupling segments **110, 112** may not be identical at all.

[0053] Each of the upper and lower coupling segments **110,112** can be substantially C-shaped in the present aspect. In other aspects, the coupling body **105** can comprise more or fewer coupling segments. In example aspects, each of the upper and lower coupling segments **110,112** can define a first end **114**, an opposing second end **116**, and a central section **118** extending between the first end **114** and second end **116**. A coupling void **120** can be defined between the upper and lower coupling segments **110,112**, and more specifically, between the central section **118** of the upper coupling segment **110** and the central section **118** of the lower coupling segment **112**. A coupling axis **122** (going into the page in FIG. 1) can extend centrally through the coupling void **120**. The coupling void **120** can be configured to receive opposing pipe ends **106** of the pipe sections **104** (such as the first pipe section **104a** and the second pipe section **104b**) to couple the first pipe section **104a** to the second pipe section **104b**.

[0054] Additionally, each of the upper and lower coupling segments **110,112** can define an axially front end **124** and an axially rear end **224** (shown in FIG. 2) opposite the axially front end **124**. Each of the upper and lower coupling segments **110,112** can further define an outer surface **126** and an inner surface **128**. The inner surface **128** of the upper coupling segment **110** can face the inner surface **128** of the lower coupling segment **112**, and the inner surfaces **128** of the upper and lower coupling segments **110,112** can define the coupling void **120**. A coupling gasket **160** can be arranged within the coupling void **120**. In example aspects, the inner surfaces **128** of the upper and lower coupling segments **110,112** can define a gasket channel **228** (shown in FIG. 2) within which the coupling gasket **160** can be received. In an assembled and tightened configuration of the coupling assembly **100**, the coupling gasket **160** can be compressed or stretched between the inner surfaces **128** of the upper and lower coupling segments **110,112** and an outer pipe surface **108** of the pipe sections **104** to allow the coupling assembly **100** to seal with the pipe sections **104**.

[0055] In the present aspect, each of the coupling segments **110,112** can define an arcuate key **130** extending along the central section **118** at each of the axially front end **124** and the axially rear end **224**. The gasket channel **228** can be defined axially between the opposing arcuate keys **130** formed at the axially front end **124** and the axially rear end **224** of the upper and lower coupling segments **110,112**. In some aspects, the first pipe section **104a** and/or the second pipe section **104b** can define grooved or shouldered ends **2005** (shown in FIG. 20), and the arcuate keys **130** at the corresponding axially front end **124** and axially rear end **224** of the coupling segments **110,112** can engage the grooved or shouldered ends **2005** when the coupling segments **110,112** are drawn together by tightening one or more coupling fasteners **150**. The coupling fasteners **150** are described in further detail below.

[0056] In some aspects, the arcuate keys **130** can further define gripping features, such as teeth, to grip the pipe sections **104**. In other aspects, the first pipe section **104a** and/or second pipe section **104b** can define plain ends, and the first and second arcuate keys **130** can grip the outer pipe surface **108** of the plain ends of the pipe sections **104**. Plain ends can be ends that do not define a designated groove or shoulder to be engaged by the arcuate keys **130**. In some aspects, either or both of the upper and lower coupling segments **110,112** can be configured to deform around the pipe sections **104** to ensure that the coupling segments **110,112** have properly engaged the pipe sections **104** and to ensure that the coupling gasket **160** is properly sealed against the outer pipe surface **108** of each of the pipe sections **104**.

[0057] A first fastener pad **132** can be formed at the first end **114** of each of the upper and lower

coupling segments **110,112**, and a second fastener pad **134** can be formed at the second end **116** of each of the upper and lower coupling segments **110,112**. The central section **118** of each of the upper and lower coupling segments **110,112** can define a substantially arcuate shape and can extend between the corresponding first and second fastener pads **132,134**. The first fastener pad **132** of the upper coupling segment **110** can be substantially vertically aligned with the first fastener pad **132** of the lower coupling segment **112**, relative to the orientation shown. The second fastener pad **134** of the upper coupling segment **110** can be substantially vertically aligned with the second fastener pad **134** of the lower coupling segment **112**, relative to the orientation shown. Each of the first fastener pads **132** can define a first fastener opening **232** (shown in FIG. 2) formed therethrough, and a first fastener gap **136** can be defined between the aligned pair of first fastener openings **232**. Similarly, each of the second fastener pads **134** can define a second fastener opening **234** (shown in FIG. 2) formed therethrough, and a second fastener gap **138** can be defined between the aligned pair of second fastener openings **234**.

[0058] In example aspects, a first coupling tab **140** and a second coupling tab **240** (shown in FIG. 2) can extend from the inner surface **128** of the upper coupling segment **110** proximate to the first end **114** thereof. Specifically, the first and second coupling tabs **140,240** can extend downwards from a primary pad shoulder **142** of the upper coupling segment **110** towards the lower coupling segment **112**, relative to the orientation shown, and can be positioned between the corresponding first fastener opening **232** and the central section **118**/coupling void **120**. The first coupling tab **140** can be arranged proximate to the axially front end **124** of the upper coupling segment **110**, and the second coupling tab **240** can be arranged proximate to the axially rear end **224** of the upper coupling segment **110**. Each of the first and second coupling tabs **140,240** of the upper coupling segment **110** can engage a corresponding coupling groove **246** (shown in FIG. 2) formed in a secondary pad shoulder **144** of the lower coupling segment **112** when the coupling fasteners **150** are tightened. The coupling groove **246** can be formed in the inner surface **128** of the lower coupling segment **112** proximate to the first end **114** thereof, and in some aspects, the coupling groove **246** can be in communication with the coupling void **120**, as shown in FIG. 2. The engagement of the first and second coupling tabs **140,240** with the coupling groove **246** can properly align the upper coupling segment **110** with the lower coupling segment **112**, and in some aspects, can prevent the coupling gasket **160** from extruding out of the gasket channel **228** between the upper and lower coupling segments **110,112**.

[0059] Similarly, the lower coupling segment **112** can comprise one of the first coupling tabs **140** and one of the second coupling tabs **240** extending from the inner surface **128** thereof, proximate to the second end **116** of the lower coupling segment **112**. Specifically, the first and second coupling tabs **140,240** of the lower coupling segment **112** can extend upwards from the corresponding primary pad shoulder **142** towards the upper coupling segment **110**, relative to the orientation shown, and can be positioned between the corresponding second fastener opening **234** and the central section **118**/coupling void **120**. The first coupling tab **140** can be arranged proximate to the axially front end **124** of the lower coupling segment **112**, and the second coupling tab **240** can be arranged proximate to the axially rear end **224** of the lower coupling segment **112**. Each of the first and second coupling tabs **140,240** of the lower coupling segment **112** can engage a corresponding one of the coupling grooves **246** formed in the secondary pad shoulder **144** of the upper coupling segment **110** when the coupling fasteners **150** are tightened, as previously described. The coupling groove **246** can be formed in the inner surface **128** of the upper coupling segment **110** proximate to the second end **116** thereof.

[0060] According to example aspects, the upper and lower coupling segments **110,112** can be secured together and tightened around the pipe sections **104** by the one or more of the coupling fasteners **150**. In the present aspect, the coupling fasteners **150** can comprise a first fastener **150a** and a second fastener **150b**. As shown, the first fastener **150a** can extend through the each of the first fastener openings **232** to couple the upper and lower coupling segments **110,112** together at the

first ends **114** thereof, and the second fastener **150b** can extend through each of the second fastener openings **234** to couple the upper and lower coupling segments **110,112** together at the second ends **116** thereof. Each of the first and second fasteners **150a,b** can be selectively loosened and tightened, as described in further detail below. In the present aspect, each of the first and second fasteners **150a,b** can comprise a threaded bolt **152** and a threaded nut **158**. The threaded bolt **152** can define a bolt head **154** and a bolt shaft **156**. The bolt shaft **156** can define shaft threading **157** distal to the bolt head **154**, as shown, which can threadedly engaged the threaded nut **158**.

[0061] In example aspects, the bolt head **154** of each coupling fastener **150** can face the outer surface **126** of the upper coupling segment **110**, and the bolt head **154** can be sized to prohibit passage through the corresponding first fastener opening **232** or second fastener opening **234** of the upper coupling segment **110**. The bolt shaft **156** of the first fastener **150a** can extend through each of the first fastener openings **232** and can span the corresponding first fastener gap **136** defined between the first fastener pads **132**. The bolt shaft **156** of the second fastener **150b** can extend through each of the second fastener openings **234** and can span the corresponding second fastener gap **138** defined between the second fastener pads **134**. The threaded nut **158** of each coupling fastener **150** can be threaded onto the corresponding bolt shaft **156**, distal to the bolt head **154**, and can face the outer surface **126** of the lower coupling segment **112**. The threaded nut **158** can be sized to prohibit passage through the corresponding first fastener opening **232** or second fastener opening **234** of the lower coupling segment **112**. To configure the pipe coupling **103** in the tightened configuration, the threaded nut **158** of each coupling fastener **150** can be tightened on corresponding the bolt shaft **156** to draw the first ends **114** of the upper and lower coupling segments **110,112** closer together and the second ends **116** of the upper and lower coupling segments **110,112** closer together. In other aspects, the coupling fasteners **150** can be any other suitable fastener known in the art, including screws, set screws, rivets, and the like.

[0062] In some aspects, after the first and second pipe sections **104a,b** are inserted into the coupling gasket **160**, the coupling segments **110,112** can be assembled around a joint between the first pipe section **104a** and the second pipe section **104b**. In other aspects, the coupling segments **110,112** can be placed onto the pipe end **106** of the first pipe section **104a** in a pre-assembled configuration, wherein the coupling fasteners **150** can be loosened to connect the coupling segments **110,112** together in the untightened configuration. The coupling segments **110,112** can then receive the corresponding pipe end **106** of the second pipe section **104b** and the coupling fasteners **150** can be tightened to join the first pipe section **104a** to the second pipe section **104b**. In other aspects, pre-assembled coupling segments **110,112** can be placed onto and slid over the first pipe section **104a**, the second pipe section **104b** can then be aligned with the first pipe section **104a**, and the coupling segments **110,112** can be slid back to cover the joint, before tightening the coupling fasteners **150** to clamp the coupling segments **110,112** around the first and second pipe sections **104a,b**.

[0063] The coupling assembly **100** can further comprise one or more of the installation indicators **170** that can indicate when the coupling assembly **100** is suitably tightened in the tightened configuration. For example, in the present aspect, the installation indicators **170** can comprise a first indicator **170a** and a second indicator **170b**. In the present aspect, the installation indicators **170** can be formed monolithically with the coupling gasket **160** (i.e., formed a singular component that constitutes a single material without joints or seams). In other aspects, the installation indicators **170** can be formed separately from the coupling gasket **160**, as described in further detail below. Example aspects of the coupling gasket **160**, including the monolithically formed installation indicators **170**, can comprise a substantially resilient, flexible material. For example, in some aspects, the coupling gasket **160** can comprise a rubber material such as EPDM rubber. In other aspects, the coupling gasket **160** can comprise any suitable flexible and resilient material known in the art, including but not limited to, various types of rubbers, foams, plastics, and the like. Other aspects of the installation indicators **170** can comprise a less resilient material, such as a



metal material, for example and without limitation.

[0064] As shown, the coupling gasket **160** can comprise a substantially annular gasket body **162**, and each of the installation indicators **170** can extend radially outward from the gasket body **162**, relative to the coupling axis **122**. The first indicator **170a** can be disposed substantially opposite the second indicator **170b**. The gasket body **162** can be received within the coupling void **120**, while the first and second indicators **170a**, **170b** can extend outward beyond the coupling void **120** to be positioned between the first ends **114** and second ends **116**, respectively, of the upper and lower coupling segments **110,112**. More specifically, the first indicator **170a** can be arranged between the primary pad shoulder **142** of the upper coupling segment **110** and the secondary pad shoulder **144** of the lower coupling segment **112**, and the second indicator **170b** can be positioned between the secondary pad shoulder **144** of the upper coupling segment **110** and the primary pad shoulder **142** of lower coupling segment **112**, as shown. Each of the first and second indicators **170a,b** can extend in between the corresponding first and second coupling tabs **140,240** and can extend radially outward beyond the corresponding first and second coupling tabs **140,240** and the corresponding coupling groove **246**.

[0065] FIG. 3 illustrates an example aspect of the coupling gasket **160**. As shown, the coupling gasket **160** can comprise the substantially annular gasket body **162**. The first indicator **170a** can extend radially outward from the gasket body **162** at a first gasket side **362**, and the second indicator **170b** can extend radially outward from the gasket body **162** at a second gasket side **364**, opposite the first gasket side **362**. In example aspects, a top indicator side **372** of each installation indicator **170** can be substantially planar, and a bottom indicator side **474** (shown in FIG. 4) of each installation indicator **170** can be substantially planar. In other aspects, the top indicator side **372** and/or the bottom indicator side **474** may not be substantially planar.

[0066] In some example aspects, each of the installation indicators **170** can be substantially T-shaped, Y-shaped, or V-shaped. In the present aspect, the installation indicators **170** can be substantially Y-shaped. For example, each of the installation indicators **170** can define a stem **376** extending radially outward from the gasket body **162**, and pair of flukes **378** extending from the stem **376** opposite the gasket body **162**. As such, the installation indicators **170** of the present aspect can be said to generally define the shape of a “whale tail”. Other aspects of the installation indicator **170** may not comprise the stem **376** and can comprise the pair of flukes **378** only (e.g., can be substantially V-shaped). The pair of flukes **378** can comprise a first fluke **378a** extending towards an axially front gasket end **366** of the coupling gasket **160** at an angle  $\theta$  relative to the stem **376** and a second fluke **378b** extending towards an axially rear gasket end **368** of the coupling gasket **160** at the angle  $\theta$  relative to the stem **376**. The angle  $\theta$  can be obtuse in the present aspect to define the Y-shape of the installation indicator **170**. In other aspects, the angle  $\theta$  can be any other suitable angle. A fluke notch **380** can be defined between the first fluke **378a** and the second fluke **378b** at a distal indicator end **382** of the installation indicator **170**, opposite the stem **376**. The fluke notch **380** can be substantially arcuate in some aspects, and can be configured to provide suitable clearance between the installation indicator **170** and the adjacent coupling fastener **150** (shown in FIG. 1).

[0067] FIG. 4 illustrates a front view and FIG. 5 illustrates a cross-sectional view of the coupling assembly **100** in a partially tightened configuration, wherein the first fastener **150a** can be tightened and the second fastener **150b** can remain untightened. As shown, the first fastener **150a** can be tightened by threading the threaded nut **158** along the bolt shaft **156** to draw the first end **114** of the lower coupling segment **112** towards the first end **114** of the upper coupling segment **110**. The first fastener **150a** can be tightened until the first indicator **170a** is clamped between the upper and lower coupling segments **110,112**, and more specifically, between the primary pad shoulder **142** of the upper coupling segment **110** and the secondary pad shoulder **144** of the lower coupling segment **112**. Moreover, in example aspects, the first and second coupling tabs **140,240** (second coupling tab **240** shown in FIG. 5) of the upper coupling segment **110** can engage the coupling groove **246**

(shown in FIG. 5) of the lower coupling segment **112** when the first fastener **150a** is tightened. [0068] According to example aspects, the resistance felt manually by the installer when the first fastener **150a** has been appropriately tightened to clamp the first indicator **170a** between the upper and lower coupling segments **110,112** can indicate to the installer that the first fastener **150a** is tightened to a suitable torque. Additionally, the installer would be able to visually observe that the first indicator **170a** is clamped between the upper and lower coupling segments **110,112**. In some aspects, the first indicator **170a** may extrude out from between the corresponding primary pad shoulder **142** and secondary pad shoulder **144** to further visually indicate that the first fastener **150a** has been suitably tightened. Moreover, in example aspects, the arrangement of the first indicator **170a** between the primary pad shoulder **142** and the secondary pad shoulder **144** can maintain a desired pad spacing between the primary pad shoulder **142** and the secondary pad shoulder **144** when the first fastener **150a** is tightened. The second fastener **150b** can then be tightened in the same manner to configure the coupling assembly **100** in the fully tightened configuration.

[0069] FIG. 6 illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in the untightened configuration. Similar to the previously described coupling assembly **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110**, the lower coupling segment **112**, and the coupling gasket **160** disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0070] The first fastener **150a** can couple the first fastener pad **132** of the upper coupling segment **110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142** and the first and second coupling tabs **140,240** extending therefrom, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**. Conversely, the first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142** and the first and second coupling tabs **140,240** extending therefrom.

[0071] In the present aspect, the at least one installation indicator **170** can be formed separately from the coupling gasket **160**. Only one installation indicator **170** is shown in the present view, arranged between second fastener pads **134** of the upper and lower coupling segments **110,112**. More specifically, the installation indicator **170** can be arranged between the secondary pad shoulder **144** of the upper coupling segment **110** and the primary pad shoulder **142** of the lower coupling segment **112**. As previously described, the installation indicator **170** can extend between the first and second coupling tabs **140,240** of the lower coupling segment **112** and can extend radially outward beyond the first and second coupling tabs **140,240** and the corresponding coupling groove **246**. In other aspects, an additional one of the installation indicators **170** can be arranged between the first fastener pads **132** of the upper and lower coupling segments **110,112**.

[0072] FIGS. 7 and 8 illustrate top and bottom perspective views of the installation indicator **170**, respectively. Example aspects of the installation indicator **170** can again comprise a substantially resilient, flexible material, such as EPDM rubber, for example and without limitations. In other aspects, installation indicator **170** can comprise any other suitable flexible and resilient material known in the art, including but not limited to, various types of rubbers, foams, plastics, and the like, or alternatively may comprise a less resilient material, such as metal for example and without

limitation. According to example aspects, the installation indicator **170** can be similarly shaped to the previously described installation indicators **170**. For example, as shown, the installation indicator **170** of the present aspect can comprise the stem **376** and the pair of flukes **378** to generally define the “whale tail” shape. In the present aspect, each of the first fluke **378a** and the second fluke **378b** can be oriented substantially perpendicular to the stem **376**, such that the angle  $\theta$  can be about  $90^\circ$ . In other aspects, however, the angle  $\theta$  can be greater or lesser than  $90^\circ$ . The fluke notch **380** can be defined between the first fluke **378a** and the second fluke **378b** at the distal indicator end **382** to accommodate the corresponding coupling fastener **150** (shown in FIG. 6). [0073] The pair of flukes **378** can be substantially coplanar with the stem **376**, such that the top indicator side **372** and the bottom indicator side **474** (shown in FIG. 8) can again each be substantially planar. However, in the present aspect, the installation indicator **170** can further comprise a catch tab **710** extending substantially downward from the stem **376** at an angle  $\beta$ , opposite the pair of flukes **378**, relative to the orientation shown in FIGS. 7 and 8. The angle  $\beta$  can be about  $90^\circ$  in the present aspect; however, in other aspects, the angle  $\beta$  can define any other suitable angle. The catch tab **710** can be configured to hook onto either the upper coupling segment **110** or the lower coupling segment **112** (both shown in FIG. 9) to retain the installation indicator **170** in position.

[0074] FIG. 9 illustrates a cross-sectional view of the coupling assembly **100** in the partially tightened configuration, wherein the second fastener **150b** can be tightened and the first fastener **150a** can remain untightened. As shown, the catch tab **710** of the installation indicator **170** can hook onto an inner edge **910** of the primary pad shoulder **142** of the lower coupling segment **112** to retain the installation indicator **170** between the second fastener pads **134** of the upper and lower coupling segments **110,112**. As shown, the second fastener **150b** can be tightened by threading the threaded nut **158** along the bolt shaft **156** to draw the second end **116** of the lower coupling segment **112** towards the second end **116** of the upper coupling segment **110**. As previously described, the second fastener **150b** can be tightened until the installation indicator **170** is clamped between the upper and lower coupling segments **110,112**, and more specifically, between the secondary pad shoulder **144** of the upper coupling segment **110** and the primary pad shoulder **142** of the lower coupling segment **112**.

[0075] Resistance can be manually felt by the installer and can indicate when the second fastener **150b** has been tightened to a suitable torque. The installer can also visually observe that the installation indicator **170** is clamped between the upper and lower coupling segments **110,112**. In some aspects, the installation indicator **170** may extrude out from between the second fastener pads **134** to further visually indicate the second fastener **150b** is suitably tightened. The arrangement of the installation indicator **170** between the primary pad shoulder **142** of the lower coupling segment **112** and the secondary pad shoulder **144** of the upper coupling segment **110** can maintain a desired pad spacing between the primary pad shoulder **142** and the secondary pad shoulder **144** when the second fastener **150b** is tightened. As shown in FIG. 10, the first fastener **150a** can then be tightened in the same manner to configure the coupling assembly **100** in the fully tightened configuration.

[0076] FIG. 11 illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in the untightened configuration. Similar to the previously described coupling assemblies **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110**, the lower coupling segment **112**, and the coupling gasket **160** disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0077] The first fastener **150a** can couple the first fastener pad **132** of the upper coupling segment

**110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142**, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**. The first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142**. In the present aspect, instead of the first and second coupling tabs **140,240** (shown in FIGS. **1** and **2**) extending from each primary pad shoulder **142**, a singular coupling tongue **1110** can extend from the primary pad shoulder **142**, which can engage the corresponding coupling groove **246** in the tightened configuration.

[0078] In the present aspect, the at least one installation indicator **170** can be formed separately from the coupling gasket **160** and can be mounted to the corresponding coupling fastener **150**. Only one installation indicator **170** is shown in the present view, which can be mounted to the second fastener **150b** and arranged between second fastener pads **134** of the upper and lower coupling segments **110,112**. More specifically, the stem **376** of the installation indicator **170** can be mounted to the second fastener **150b**, and the pair of flukes **378** of the installation indicator **170** can be arranged between the secondary pad shoulder **144** of the upper coupling segment **110** and the primary pad shoulder **142** of the lower coupling segment **112**. In other aspects, an additional one of the installation indicators **170** can be mounted to the first fastener **150a** and arranged between the first fastener pads **132** of the upper and lower coupling segments **110,112**.

[0079] FIG. **12** illustrates the installation indicator **170** mounted to the coupling fastener **150**. Example aspects of the installation indicator **170** can again comprise a substantially resilient, flexible material, such as EPDM rubber, for example and without limitations. In other aspects, installation indicator **170** can comprise any other suitable flexible and resilient material known in the art, including but not limited to, various types of rubbers, foams, plastics, and the like, or alternatively can comprise a less resilient material, such as metal for example and without limitations. The installation indicator **170** can comprise the stem **376** and the pair of flukes **378** to generally define the “whale tail” shape.

[0080] In the present aspect, each of the first fluke **378a** and the second fluke **378b** can be substantially coplanar with and oriented substantially perpendicular to the stem **376**. The top indicator side **372** and the bottom indicator side **474** (shown in FIG. **13**) can each be substantially planar. In the present aspect, the stem **376** can be substantially annular in shape and can define a bolt opening **1210** therethrough for receiving the bolt shaft **156** of the coupling fastener **150**. The installation indicator **170** does not comprise the fluke notch **380** (shown in FIG. **3**) between the first fluke **378a** and the second fluke **378b** at the distal indicator end **382**, such that the pair of flukes **378** could be said to together define one continuous fluke **378** in the present aspect. The installation indicator **170** can be substantially T-shaped in the present aspect. When the coupling assembly **100** (shown in FIG. **11**) is assembled, the pair of flukes **378** can extend radially inward from the stem **376** towards the coupling void **120** (shown in FIG. **11**).

[0081] FIG. **13** illustrates the second fastener **150b** tightened to clamp the installation indicator **170** between the second ends **116** of the upper and lower coupling segments **110,112**. The second fastener **150b** can be tightened, with the installation indicator **170** mounted thereto, by threading the threaded nut **158** (shown in FIG. **12**) along the bolt shaft **156** to draw the second end **116** of the lower coupling segment **112** towards the second end **116** of the upper coupling segment **110**. The second fastener **150b** can be tightened until the installation indicator **170** is clamped between the upper and lower coupling segments **110,112**, and more specifically, until the pair of flukes **378** are clamped between the secondary pad shoulder **144** of the upper coupling segment **110** and the

primary pad shoulder **142** of the lower coupling segment **112**. In the ways previously described (e.g., visually and/or by manual resistance), the installation indicator **170** can indicate to an installer that the second fastener **150b** is suitably tightened. The installation indicator **170** can also maintain a desired pad spacing between the primary pad shoulder **142** and the secondary pad shoulder **144** when the second fastener **150b** is tightened. The first fastener **150a** (shown in FIG. **11**) can be tightened in the same manner to configure the coupling assembly **100** in the fully tightened configuration.

[0082] FIG. **14** illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in the untightened configuration. Similar to the previously described coupling assemblies **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110**, the lower coupling segment **112**, and the coupling gasket **160** disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0083] The first fastener **150a** can couple the first fastener pad **132** of the upper coupling segment **110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**. Conversely, the first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom.

[0084] In the present aspect, the at least one installation indicator **170** can comprise the first indicator **170a** and the second indicator **170b**. Each of the first indicator **170a** and the second indicator **170b** can be formed monolithically with the coupling body **105**. More specifically, the first indicator **170a** can be formed monolithically with the first fastener pads **132** of the upper and lower coupling segments **110,112**, and the second indicator **170b** can be formed monolithically with the second fastener pads **134** of the upper and lower coupling segments **110,112**. The first indicator **170a** can comprise a first upper tooth **1410** formed monolithically with the first fastener pad **132** of the upper coupling segment **110** at the first end **114** thereof and a first lower tooth **1412** formed monolithically with the first fastener pad **132** of the lower coupling segment **112** at the first end **114** thereof. Similarly, the second indicator **170b** can comprise a second upper tooth **1414** formed monolithically with the second fastener pad **134** of the upper coupling segment **110** at the second end **116** thereof and a second lower tooth **1416** formed monolithically with the second fastener pad **134** of the lower coupling segment **112** at the second end **116** thereof.

[0085] According to example aspects, each of the first upper tooth **1410**, the first lower tooth **1412**, the second upper tooth **1414**, and the second lower tooth **1416** can define a distal tooth edge **1420**. The first upper tooth **1410** can extend downward beyond the adjacent primary pad shoulder **142** of the upper coupling segment **110**, and the second upper tooth **1414** can extend downward beyond the adjacent secondary pad shoulder **144** of the upper coupling segment **110**, relative to the orientation shown. Similarly, the first lower tooth **1412** can extend upward beyond the adjacent secondary pad shoulder **144** of the lower coupling segment **112**, and the second lower tooth **1416** can extend upward beyond the adjacent primary pad shoulder **142** of the lower coupling segment **112**, relative to the orientation shown. In the untightened configuration, a tooth gap **1418** can be

defined between the first upper tooth **1410** and the first lower tooth **1412** and between the second upper tooth **1414** and the second lower tooth **1416**. In the tightened configuration, the distal tooth edge **1420** of the first upper tooth **1410** can be pressed against the distal tooth edge **1420** of the first lower tooth **1412**, and the distal tooth edge **1420** of the second upper tooth **1414** can be pressed against the distal tooth edge **1420** of the second lower tooth **1416**. FIG. 15 illustrates the lower coupling segment **112**, which can be identical to the upper coupling segment **110**.

[0086] FIG. 16 illustrates a front view of the coupling assembly **100** in the partially tightened configuration, wherein the first fastener **150a** can be tightened and the second fastener **150b** can remain untightened. As shown, the first fastener **150a** can be tightened by threading the threaded nut **158** along the bolt shaft **156** to draw the first end **114** of the lower coupling segment **112** towards the first end **114** of the upper coupling segment **110**. The first fastener **150a** can be tightened until the distal tooth edge **1420** of the first upper tooth **1410** of the first indicator **170a** is pressed against the distal tooth edge **1420** of the first lower tooth **1412** of the first indicator **170a**. Manual resistance felt by the installer when the first upper tooth **1410** is pressed against the first lower tooth **1412** can indicate to the installer that the first fastener **150a** has been tightened to a suitable torque. The installer can also visually observe that the first upper tooth **1410** is pressed against the first lower tooth **1412**, eliminating the tooth gap **1418** therebetween. Moreover, because the first upper tooth **1410** can extend downward beyond the adjacent primary pad shoulder **142** of the upper coupling segment **110** and the first lower tooth **1412** can extend upward beyond the adjacent secondary pad shoulder **144** of the lower coupling segment **112**, the desired pad spacing can be maintained between the primary pad shoulder **142** and the secondary pad shoulder **144** when the first fastener **150a** is tightened. The second fastener **150b** can then be tightened in the same manner to configure the coupling assembly **100** in the fully tightened configuration. FIG. 17 illustrates a detail view of the first fastener **150a** fully tightened to press the distal tooth edge **1420** of the first upper tooth **1410** against the distal tooth edge **1420** of the first lower tooth **1412**.

[0087] FIG. 18 illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in the untightened configuration. Similar to the previously described coupling assemblies **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110** and the lower coupling segment **112**. In some example aspects, the coupling gasket **160** (shown in FIG. 1) can be disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** extending therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0088] The first fastener **150a** (shown in FIG. 1) can couple the first fastener pad **132** of the upper coupling segment **110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** (shown in FIG. 1) can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**. Conversely, the first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom.

[0089] In the present aspect, the at least one installation indicator **170** can comprise the first indicator **170a** and the second indicator **170b**, each of which can be formed monolithically with the coupling body **105**. More specifically, the first indicator **170a** can be formed monolithically with

the first fastener pad **132** of the upper coupling segment **110**, and the second indicator **170b** can be formed monolithically with the second fastener pad **134** of the lower coupling segment **112**. The first indicator **170a** can comprise the first upper tooth **1410** formed monolithically with the first fastener pad **132** of the upper coupling segment **110** at the first end **114** thereof. The second indicator **170b** can comprise the first lower tooth **1412** formed monolithically with the second fastener pad **134** of the lower coupling segment **112** at the second end **116** thereof.

[0090] The first fastener pad **132** of the lower coupling segment **112** can define a lower notch **1810** and a lower shoulder **1812** formed monolithically therewith at the first end **114** thereof. In the tightened configuration, the first upper tooth **1410** can engage the lower notch **1810** and, in some aspects, the distal tooth edge **1420** of the first upper tooth **1410** can be pressed against the lower shoulder **1812**. Similarly, the second fastener pad **134** of the upper coupling segment **110** can define an upper notch **1814** and an upper shoulder **1816** formed monolithically therewith at the second end **116** thereof. In the tightened configuration, the first lower tooth **1412** can engage the upper notch **1814** and, in some aspects, the distal tooth edge **1420** of the first lower tooth **1412** can be pressed against the upper shoulder **1816**. In some example aspects, in the untightened configuration, the tooth gap **1418** can be defined between the first upper tooth **1410** and the lower shoulder **1812** and between the first lower tooth **1412** and the upper shoulder **1816**.

[0091] Manual resistance felt by the installer when the first upper tooth **1410** is pressed against the lower shoulder **1812** and when the first lower tooth **1412** is pressed against the lower shoulder **1812** can indicate to the installer that the first fastener **150a** and the second fastener **150b**, respectively, have been tightened to a suitable torque. The installer can also visually observe that the first upper tooth **1410** is pressed against the lower shoulder **1812**, eliminating the tooth gap **1418** therebetween, and that the first lower tooth **1412** is pressed against the upper shoulder **1816**, eliminating the tooth gap **1418** therebetween. Moreover, the first indicator **170a** and the second indicator **170b** can be configured to allow the desired pad spacing to be maintained between the first fastener pads **132** and between the second fastener pads **134** in the tightened configuration.

[0092] FIGS. **19** and **20** illustrate a front perspective view and an end perspective view, respectively, of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in the untightened configuration. Similar to the previously described coupling assemblies **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110**, the lower coupling segment **112**, and the coupling gasket **160** (shown in FIG. **1**) disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** extending therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0093] The first fastener **150a** can couple the first fastener pad **132** of the upper coupling segment **110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**. Conversely, the first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom.

[0094] The first upper tooth **1410** can be formed monolithically with the first fastener pad **132** of the upper coupling segment **110** at the first end **114** thereof. The first lower tooth **1412** can be

formed monolithically with the second fastener pad **134** of the lower coupling segment **112** at the second end **116** thereof. The first fastener pad **132** of the lower coupling segment **112** can define the lower notch **1810** (shown in FIG. **18**) and the lower shoulder **1812** (shown in FIG. **18**) formed monolithically therewith at the first end **114** thereof. The second fastener pad **134** of the upper coupling segment **110** can define the upper notch **1814** and the upper shoulder **1816** (best seen in FIG. **20**) formed monolithically therewith at the second end **116** thereof. In the untightened configuration, the tooth gap **1418** can be defined between the first upper tooth **1410** and the lower shoulder **1812** and between the first lower tooth **1412** and the upper shoulder **1816**. In example aspects, the first upper tooth **1410**, the first lower tooth **1412**, the upper notch **1814**, and the lower notch **1810** can be substantially squared off to define a rectangular shape. In other aspects, the first upper tooth **1410**, the first lower tooth **1412**, the upper notch **1814**, and the lower notch **1810** can define any other suitable shape.

[0095] In the present aspect, the first upper tooth **1410** and the first lower tooth **1412** may or may not be considered as part of the first indicator **170a** (shown in FIG. **22**) and the second indicator **170b**, respectively. Each of the first indicator **170a** and the second indicator **170b** can further comprise a bendable flag **1910** formed separately from the coupling gasket **160** and the coupling body **105**. For example, the first indicator **170a** can comprise a first bendable flag **1910a** (shown in FIG. **22**), and the second indicator **170b** can comprise a second bendable flag **1910b**. Referring to FIG. **20**, each bendable flag **1910** can be mounted to the corresponding coupling fastener **150**. The bendable flag **1910** can be substantially rectangular and can define a flag opening **2010** through which the bolt shaft **156** of the coupling fastener **150** can extend. The bendable flag **1910** can be substantially planar in the untightened configuration and can define a lower flag surface **2012** and an upper flag surface **2112** (shown in FIG. **21**) opposite the lower flag surface **2012**. Example aspects of the bendable flags **1910** can comprise a bendable metal material, for example and without limitation. In other aspects, the bendable flags **1910** can comprise any other suitable bendable material. In example aspects, the material and geometry of the bendable flags **1910** can be optimized such that the bendable flags **1910** can be “bistable,” i.e. can be substantially in a state of equilibrium in both the non-bent and bent configurations.

[0096] As shown, in the untightened configuration, the lower flag surface **2012** can be visible to an installer. In some example aspects, the color of the lower flag surface **2012**, or portions thereof, can be the same color or a similar color to the color of the upper and lower coupling segments **110,112**. In some aspects, the color of the lower flag surface **2012** can be a “warning” color, such as red, which is universally associated with caution and hazard. Thus, the visibility of the lower flag surface **2012** may indicate that the corresponding coupling fastener **150** has not been suitably tightened. In other aspects, the lower flag surface **2012** can be orange, yellow, black, or any other suitable color.

[0097] The second bendable flag **1910b** is illustrated in FIG. **20**, which can be substantially the same as the first bendable flag **1910a** (shown in FIG. **22**). As shown, the second bendable flag **1910b** can be mounted on the bolt shaft **156** of the second fastener **150b** between the second fastener pads **134** of the upper and lower coupling segments **110,112**. A notch portion **2014** of the second bendable flag **1910b** can be arranged between the first lower tooth **1412** and the upper notch **1814**. Side flap portions **2018** of the second bendable flag **1910b** can extend axially outward from opposing axial sides **2016** of the notch portion **2014**.

[0098] FIG. **21** illustrates the second fastener **150b** fully tightened to bend the second bendable flag **1910b** to an indicating orientation. The second fastener **150b** can be tightened, with the second bendable flag **1910b** mounted thereto, by threading the threaded nut **158** along the bolt shaft **156** to draw the second end **116** of the lower coupling segment **112** towards the second end **116** of the upper coupling segment **110**. As the second fastener **150b** is tightened, the notch portion **2014** of the second bendable flag **1910b** can be pushed into the upper notch **1814** by the first lower tooth **1412** and the side flap portions **2018** of the second bendable flag **1910b** can be folded over



opposing axial tooth sides **2120** of the first lower tooth **1412**, as shown. In the tightened configuration, the upper flag surface **2112** of the side flap portions **2018** of the second bendable flag **1910b** can be visible between the second fastener pads **134** of the upper coupling segment **110** and the lower coupling segment **112**.

[0099] In some example aspects, the color of the upper flag surface **2112**, or portions thereof, can differ from the color of the lower flag surface **2012** (shown in FIG. **20**). Moreover, in some aspects, the color of the upper flag surface **2112**, or portions thereof, can be a contrasting color to the color of the upper and lower coupling segments **110,112**. In some aspects, the color of the upper flag surface **2112** can be an “affirming” color, such as green, which is universally associated with correctness. Thus, the visibility of the upper flag surface **2112** of the side flap portions **2018** may indicate that the corresponding coupling fastener **150** has been suitably tightened. In other aspects, the upper flag surface **2112** can be white, blue, or any other suitable color.

[0100] In some aspects, the second fastener **150b** can be tightened until the notch portion **2014** of the second bendable flag **1910b** is clamped between the first lower tooth **1412** and the upper shoulder **1816** and/or until the side flap portions **2018** of the second bendable flag **1910b** are fully folded to lie against the axial tooth sides **2120** of the first lower tooth **1412**. As mentioned, in some aspects, the visibility of the upper flag surface **2112** of the side flap portions **2018** can indicate to an installer that second fastener **150b** is suitably tightened. Additionally, in some aspects, manual resistance felt by the installer when the notch portion **2014** of the second bendable flag **1910b** is clamped between the first lower tooth **1412** and the upper shoulder **1816** and/or when a distal flag edge **2114** of each side flap portion **2018** is pressed against the lower coupling segment **112** can indicate that the second fastener **150b** is suitably tightened. The first lower tooth **1412** and/or the second bendable flag **1910b** can also be configured to maintain a desired pad spacing between the primary pad shoulder **142** of the lower coupling segment **112** and the secondary pad shoulder **144** of the upper coupling segment **110** when the second fastener **150b** is tightened. As shown in FIG. **22**, which illustrates the coupling assembly **100** in the fully tightened configuration, the first fastener **150a** can be tightened in the same manner to expose the upper flag surface **2112** of the side flap portions **2018** of the first bendable flag **1910a**.

[0101] FIG. **23** illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in the untightened configuration. The coupling assembly **100** of the present aspect, including the pipe coupling **103** and the at least one installation indicator **170**, can be similar to the coupling assembly **100** of FIGS. **19-22** with a few changes. In particular, in the present aspect, the bendable flag(s) **1910** of the installation indicator(s) **170** can be substantially pill-shaped or stadium-shaped. In other aspects, however, the bendable flag **1910** can define any other suitable shape. Additionally, in the present aspect, the first upper tooth **1410** (shown in FIG. **18**), the first lower tooth **1412**, the upper notch **1814**, and the lower notch **1810** (shown in FIG. **18**) can be substantially triangular or pointed, as opposed to being squared off. In other aspects, the first upper tooth **1410**, the first lower tooth **1412**, the upper notch **1814**, and/or the lower notch **1810** can define any other suitable shape. In the present aspect, as previously described, the lower flag surface **2012** of the bendable flag **1910** can be similar in color to the color of the upper and lower coupling segments **110,112**, and the lower flag surface **2012** can be visible in the untightened configuration. In some aspects, the lower flag surface **2012** of the bendable flag **1910** can be a “warning” color, as previously described, or can be any other suitable color.

[0102] FIG. **24** illustrates the second fastener **150b** fully tightened to bend the second bendable flag **1910b** to the indicating orientation. The second fastener **150b** can be tightened, with the second bendable flag **1910b** mounted thereto, by threading the threaded nut **158** along the bolt shaft **156** to draw the second end **116** of the lower coupling segment **112** towards the second end **116** of the upper coupling segment **110**. As the second fastener **150b** is tightened, the notch portion **2014** of the second bendable flag **1910b** can be pushed into the upper notch **1814** by the first lower tooth

**1412**. Due to the pointed shape of the first lower tooth **1412** and the upper notch **1814**, the bendable flag **1910** can be folded at a midpoint **2410** of the notch portion **2014**, and the side flap portions **2018** of the bendable flag **1910** can be angled downward from the midpoint **2410** and can be exposed external to the lower notch **1810** in the indicating orientation. According to example aspects, the upper flag surface **2112** of the side flap portions **2018** can face outward and be visible to the installer in the indicating orientation, which can indicate to the installer that the second fastener **150b** is suitably tightened. As shown, the upper flag surface **2112** can be an “affirming” color as previously described, such as green, or can be any other suitable color.

[0103] FIG. 25 illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure. The coupling assembly **100** is illustrated in a semi-tightened or tightened configuration. Similar to the previously described coupling assemblies **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110** and the lower coupling segment **112**. Example aspects can also comprise the coupling gasket **160** (shown in FIG. 1) disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0104] The first fastener **150a** (shown in FIG. 1) can couple the first fastener pad **132** of the upper coupling segment **110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**. The first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom.

[0105] At least one installation indicator **170** can be formed separately from the coupling gasket **160** and the coupling body **105**, and the at least one installation indicator **170** can be mounted to the corresponding coupling fastener **150**. Only one installation indicator **170** is shown in the present view, which can be mounted to the second fastener **150b** and arranged between second fastener pads **134** of the upper and lower coupling segments **110,112**. According to example aspects, the installation indicator **170** can again be one of the bendable flags **1910**. The bendable flag **1910** can comprise a bendable metal material or any other suitable bendable material. In the present aspect, the bendable flag **1910** can be the natural color of the metal material. The bendable flag **1910** can comprise the stem **376** and the pair of flukes **378** to generally define the “whale tail” shape. More specifically, the stem **376** of the installation indicator **170** can be mounted to the second fastener **150b**, and the pair of flukes **378** of the installation indicator **170** can be arranged between the secondary pad shoulder **144** of the upper coupling segment **110** and the primary pad shoulder **142** of the lower coupling segment **112**. In other aspects, an additional one of the installation indicators **170** can be mounted to the first fastener **150a** and arranged between the first fastener pads **132** of the upper and lower coupling segments **110,112**.

[0106] According to example aspects, the second fastener pad **134** of the upper coupling segment **110** can define a pair of flag tabs **2510**, and the second fastener pad **134** of the lower coupling segment **112** can define a pair of flag notches **2512**. For example, the pair of flag tabs **2510** can extend downward from the secondary pad shoulder **144** of the upper coupling segment **110** towards the lower coupling segment **112**, relative to the orientation shown. The pair of flag notches **2512**

can extend downwardly into the primary pad shoulder **142** of the lower coupling segment **112**, relative to the orientation shown. Each of the flag tabs **2510** can be aligned with a corresponding one of the flag notches **2512**, with one aligned pair of the flag tab **2510** and the flag notch **2512** arranged proximate to the axially front end **124** of the coupling assembly **100** and another aligned pair of the flag tab **2510** and the flag notch **2512** arranged proximate to the axially rear end **224**. A distal fluke end **2514** of each of the flukes **378** of the bendable flag **1910** can be arranged between a corresponding pair of the flag tabs **2510** and flag notches **2512**. Additionally, as shown, the first fastener pad **132** of the lower coupling segment **112** can define a pair of the flag tabs **2510**, and the first fastener pad **132** of the upper coupling segment **110** can define a pair of the flag notches **2512** [0107] FIGS. **26** and **27** illustrate top and bottom perspective view of the installation indicator **170**, which can be the “whale tail”-style bendable flag **1910**. The bendable flag **1910** can comprise the stem **376** and the pair of flukes **378**. Each of the first fluke **378a** and the second fluke **378b** can be oriented substantially perpendicular to the stem **376**. In some aspects, the distal fluke end **2514** of each of the flukes **378** may be pre-bent slightly relative to the stem **376** in the untightened configuration. In other aspects, the pair of flukes **378** can be substantially coplanar with the stem **376** in the untightened configuration. As shown, the stem **376** can be substantially annular in shape and can define the bolt opening **1210** therethrough for receiving the bolt shaft **156** (shown in FIG. **25**) of the corresponding coupling fastener **150** (shown in FIG. **25**). The bendable flag **1910** does not comprise the fluke notch **380** (shown in FIG. **3**) between the first fluke **378a** and the second fluke **378b** at the distal indicator end **382**, such that the pair of flukes **378** could be said to together define one continuous fluke **378** in the present aspect (e.g., the bendable flag **1910** can be substantially T-shaped).

[0108] FIG. **28** illustrates a detail end view of the coupling assembly **100**, wherein the second fastener **150b** is partially tightened to the semi-tightened or tightened configuration. The second fastener **150b** can be tightened, with the second bendable flag **1910b** mounted thereto, by threading the threaded nut **158** (shown in FIG. **1**) along the bolt shaft **156** to draw the second end **116** of the lower coupling segment **112** towards the second end **116** of the upper coupling segment **110**. As the second fastener **150b** is tightened, the distal fluke end **2514** of each of the flukes **378** can be pushed into the corresponding flag notch **2512** by the corresponding flag tab **2410**, thereby bending the distal fluke ends **2514** to the indicating orientation. In the indicating orientation, the distal fluke ends **2514** can be folded towards a ramped notch surface **2810** of the corresponding flag notch **2512**.

[0109] In some aspects, as shown, the increased visibility of the distal fluke end **2514** as it is folded into the corresponding flag notch **2512** can indicate to an installer that the coupling fastener **150** is suitably tightened. In some aspects, the coupling fastener **150** can be tightened until the distal fluke end **2514** is substantially clamped between the flag tab **2510** and the ramped notch surface **2810** of the flag notch **2512**, and the resistance felt by the installer can indicate to the installer that the coupling fastener **150** is suitably tightened. Additionally, in example aspects, the arrangement of the flukes **378** between the primary pad shoulder **142** of the lower coupling segment **112** and the secondary pad shoulder **144** of the upper coupling segment **110** can maintain a desired pad spacing between the primary pad shoulder **142** and the secondary pad shoulder **144** when the second fastener **150b** is tightened. The first fastener **150a** (shown in FIG. **1**) can be tightened in the same manner to configure the coupling assembly **100** in the fully tightened configuration.

[0110] FIG. **29** illustrates a perspective view of the coupling assembly **100** according to another example aspect of the disclosure, and FIG. **30** illustrates the upper coupling segment **110** of the coupling assembly **100**, which can be substantially the same as the lower coupling segment **112**. The coupling assembly **100** is illustrated in the untightened configuration in FIG. **29**. Similar to the previously described coupling assemblies **100**, the coupling assembly **100** of the present aspect can comprise the pipe coupling **103** and at least one installation indicator **170**. The pipe coupling **103** can comprise the upper coupling segment **110** and the lower coupling segment **112**. In example

aspects, the coupling gasket **160** (shown in FIG. **1**) can be disposed within the coupling void **120**. Each of the upper and lower coupling segments **110,112** can comprise the first fastener pad **132**, the second fastener pad **134**, and the substantially arcuate central section **118** extending therebetween. The opposing central sections **118** can define the coupling void **120** therebetween.

[0111] The first fastener **150a** can couple the first fastener pad **132** of the upper coupling segment **110** to the first fastener pad **132** of the lower coupling segment **112** at the first ends **114** thereof. The second fastener **150b** can couple the second fastener pad **134** of the upper coupling segment **110** to the second fastener pad **134** of the lower coupling segment **112** at the second ends **116** thereof. The first fastener pad **132** of the upper coupling segment **110** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom, and the second fastener pad **134** of the upper coupling segment **110** can define the secondary pad shoulder **144** and the coupling groove **246** (shown in FIG. **30**) extending into the secondary pad shoulder **144**. Conversely, the first fastener pad **132** of the lower coupling segment **112** can define the secondary pad shoulder **144** and the coupling groove **246** extending into the secondary pad shoulder **144**, and the second fastener pad **134** of the lower coupling segment **112** can define the primary pad shoulder **142** and the coupling tongue **1110** extending therefrom.

[0112] In the present aspect, a first cutting rib **2910** can be formed monolithically with the first fastener pad **132** of the upper coupling segment **110** at the first end **114** thereof, and a second cutting rib **2912** can be formed monolithically with the second fastener pad **134** of the lower coupling segment **112** at the second end **116** thereof. The first cutting rib **2910** can extend downward towards the lower coupling segment **112**, and the second cutting rib **2912** can extend upward towards the upper coupling segment **110**, relative to the orientation shown. Moreover, the first fastener pad **132** of the lower coupling segment **112** can define a first cutting platform **2914** at the first end **114** thereof, and the second fastener pad **134** of the upper coupling segment **110** can define a second cutting platform **2916** at the second end **116** thereof.

[0113] In example aspects, each of the first indicator **170a** and the second indicator **170b** can comprise one or more cuttable flags **2920** formed separately from the coupling gasket **160** and the coupling body **105**. Example aspects of the cuttable flags **2920** can comprise a cuttable material that can be cut by the first cutting rib **2910** and the second cutting rib **2912**, as described in further detail below. The cuttable material can be, for example and without limitations, a polymer, an elastomer, a metal material, or the like, or can be any suitable combination of materials. Moreover, in some aspects, the cuttable flags **2920** can be a bright color and/or can be a contrasting color to the color of the upper and lower coupling segments **110,112**, which can make the cuttable flags **2920** easily visible to an installer. For example and without limitation, in the present aspect, the cuttable flags **2920** can be green, while the upper and lower coupling segments **110,112** can be orange. In other aspects, the cuttable flags **2920** and/or the upper and lower coupling segments **110,112** can be any other suitable color or colors.

[0114] In the present aspect, the first indicator **170a** can comprise a first upper cuttable flag **2922** and a first lower cuttable flag **2924**, and the second indicator **170b** can comprise a second upper cuttable flag **2926** and a second lower cuttable flag **2928**. In some aspects, the first upper cuttable flag **2922** and the first lower cuttable flag **2924** can be monolithically formed to define a substantially E-shaped first cuttable flag **2930**, as shown. Similarly, in some aspects, the second upper cuttable flag **2926** and the second lower cuttable flag **2928** can be monolithically formed to define a substantially E-shaped second cuttable flag **2932**, as shown. In other aspects, each of the first upper, first lower, second upper, and second lower cuttable flags **2922,2924,2926,2928** can be independently formed as a substantially C-shaped cuttable flag **3210** (shown in FIG. **32**). In example aspects, the first indicator **170a** and/or second indicator **170b** can comprise two of the substantially C-shaped cuttable flags **3210** (e.g., both of the first upper cuttable flag **2922** and the first lower cuttable flag **2924** and/or both of the second upper cuttable flag **2926** and the second lower cuttable flag **2928**) or can comprise only one of the C-shaped cuttable flags **3210** (e.g., either

the first upper cuttable flag **2922** or the first lower cuttable flag **2924** and/or either the second upper cuttable flag **2926** or the second lower cuttable flag **2928**).

[0115] Each of the first upper cuttable flag **2922** and the first lower cuttable flag **2924** can be mounted to the first fastener **150a** proximate to the first fastener pads **132** of the upper coupling segment **110** and the lower coupling segment **112**. The first upper cuttable flag **2922** can be configured to wrap around the first fastener pad **132** the upper coupling segment **110** at a first outer end **2940** thereof, and the first lower cuttable flag **2924** can be configured to wrap around the first fastener pad **132** of the lower coupling segment **112** at the corresponding first outer end **2940** thereof. Similarly, each of the second upper cuttable flag **2926** and the second lower cuttable flag **2928** can be mounted to the second fastener **150b** proximate to the second fastener pads **134** of the upper coupling segment **110** and the lower coupling segment **112**. The second upper cuttable flag **2926** can be configured to wrap around the second fastener pad **134** of the upper coupling segment **110** at a second outer end **2942** thereof, and the second lower cuttable flag **2928** can be configured to wrap around the second fastener pad **134** of the lower coupling segment **112** at the corresponding second outer end **2942** thereof.

[0116] FIG. **31** illustrates a perspective view of the substantially E-shaped first cuttable flag **2930**, which can be the same or about the same as the substantially E-shaped second cuttable flag **2932** (shown in FIG. **29**). As shown, the substantially E-shaped first cuttable flag **2930** can comprise the first upper cuttable flag **2922** monolithically formed with the first lower cuttable flag **2924**. The first upper cuttable flag **2922** can define an upper end wall **3110**, and the first lower cuttable flag **2924** can define a lower end wall **3112** opposite from and substantially parallel to the upper end wall **3110**. The first upper cuttable flag **2922** and the first lower cuttable flag **2924** can together define a middle wall **3114** disposed between and substantially parallel to the upper end wall **3110** and the lower end wall **3112**. As shown, an upper opening **3120** can be formed through the upper end wall **3110**, a middle opening **3124** can be formed through the middle wall **3114**, and a lower opening **3122** can be formed through the lower end wall **3112**. The bolt shaft **156** (shown in FIG. **29**) of the first fastener **150a** (shown in FIG. **29**) can be configured to extend through each of the upper opening **3120**, the middle opening **3124**, and the lower opening **3122**. The substantially E-shaped first cuttable flag **2930** can define a first side **3126** and an opposite second side **3128**. Example aspects of the first cuttable flag **2930** can further define an upper sidewall **3116** extending between the upper end wall **3110** and the middle wall **3114** at the first side **3126** and a lower sidewall **3118** extending between the middle wall **3114** and the lower end wall **3112** at the first side **3126**.

[0117] FIG. **32** illustrates an example aspect of one of the substantially C-shaped cuttable flags **3210** (such as, for example, the independently formed first upper, first lower, second upper, and second lower cuttable flags **2922, 2924, 2926, 2928**, each shown in FIG. **29**). As shown, the substantially C-shaped cuttable flag **3210** can comprise the upper end wall **3110** and the lower end wall **3112** parallel to the upper end wall **3110**, but does not comprise middle wall **3114** (shown in FIG. **31**). The upper opening **3120** can be formed through the upper end wall **3110**, and the lower opening **3122** can be formed through the lower end wall **3112**. The bolt shaft **156** (shown in FIG. **29**) of the corresponding coupling fastener **150** (shown in FIG. **29**) can extend through the upper opening **3120** and the lower opening **3122**. A flag sidewall **3212** can extend between the upper end wall **3110** and the lower end wall **3112**. In some aspects, only one of the C-shaped cuttable flags **3210** can be mounted to each corresponding coupling fastener **150**. In other aspects, a pair of the C-shaped cuttable flags **3210** can be mounted to each of the corresponding coupling fasteners **150**.

[0118] Referring now to the end perspective view of FIG. **33**, the substantially E-shaped first cuttable flag **2930** is shown mounted to the first fastener **150a**. As shown, the first cuttable flag **2930** can comprise the upper end wall **3110**, the lower end wall **3112**, and the middle wall **3114** therebetween. The upper sidewall **3116** can extend between the upper end wall **3110** and the middle wall **3114**, and the lower sidewall **3118** can extend between the middle wall **3114** and the lower end

wall **3112**. The upper sidewall **3116** of the first cuttable flag **2930** can extend along the first outer end **2940** of the upper coupling segment **110**, and the lower sidewall **3118** of the first cuttable flag **2930** can extend along the first outer end **2940** of the lower coupling segment **112** in the untightened configuration. Additionally, the middle wall **3114** can be disposed between the first fastener pad **132** of the upper coupling segment **110** and the first fastener pad **132** of the lower coupling segment **112**, as illustrated.

[0119] The first fastener **150a** can be tightened, with the substantially E-shaped first cuttable flag **2930** mounted thereto, by threading the threaded nut **158** along the bolt shaft **156** to draw the first end **114** of the lower coupling segment **112** towards the first end **114** of the upper coupling segment **110**. In some aspects, the first fastener pad **132** of the upper coupling segment **110** and the first fastener pad **132** of the lower coupling segment **112** can deform towards one another as the first fastener **150a** is tightened. As the first fastener **150a** is tightened and the first fastener pads **132** of the upper and lower coupling segments **110,112** deform towards one another, the first cutting platform **2914** of the lower coupling segment **112** can press the middle wall **3114** of the first cuttable flag **2930** upwards against the first cutting rib **2910** formed monolithically with the upper coupling segment **110**. The middle wall **3114** can be crushed between the first cutting platform **2914** and the first cutting rib **2910**, and the first cutting rib **2910** can sever the middle wall **3114**. In other aspects, the first cutting rib **2910** and the first cutting platform **2914** can define overlapping surfaces that can apply a shearing force to the middle wall **3114**, instead of a crushing force, to sever the middle wall **3114**.

[0120] Once the middle wall **3114** has been severed, the upper sidewall **3116** and the lower sidewall **3118** of the substantially E-shaped first cuttable flag **2930** can pop outwards from the first outer ends **2940** of the upper and lower coupling segments **110,112**. When the upper sidewall **3116** and the lower sidewall **3118** pop outwards from the upper and lower coupling segments **110,112**, the upper and lower sidewalls **3116,3118** can become significantly more visible to the installer, which can indicate to the installer that the first fastener **150a** has been suitably tightened. The second fastener **150b** (shown in FIG. **29**) can then be tightened in the same manner to configure the coupling assembly **100** in the fully tightened configuration.

[0121] FIG. **34** illustrates an exploded view of the coupling assembly **100** comprising the substantially E-shaped first cuttable flag **2930** and the substantially E-shaped second cuttable flag **2932**.

[0122] One should note that conditional language, such as, among others, “can,” “could,” “might,” or “may,” unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way required for one or more particular embodiments or that one or more particular embodiments necessarily include logic for deciding, with or without user input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment.

[0123] It should be emphasized that the above-described embodiments are merely possible examples of implementations, merely set forth for a clear understanding of the principles of the present disclosure. Any process descriptions or blocks in flow diagrams should be understood as representing modules, segments, or portions of code which include one or more executable instructions for implementing specific logical functions or steps in the process, and alternate implementations are included in which functions may not be included or executed at all, may be executed out of order from that shown or discussed, including substantially concurrently or in reverse order, depending on the functionality involved, as would be understood by those reasonably skilled in the art of the present disclosure. Many variations and modifications may be made to the above-described embodiment(s) without departing substantially from the spirit and principles of the present disclosure. Further, the scope of the present disclosure is intended to cover any and all

combinations and sub-combinations of all elements, features, and aspects discussed above. All such modifications and variations are intended to be included herein within the scope of the present disclosure, and all possible claims to individual aspects or combinations of elements or steps are intended to be supported by the present disclosure.

## Claims

1. A pipe coupling comprising: a coupling body comprising a first coupling segment and a second coupling segment, each of the first and second coupling segments defining a first end and a second end opposite the first end; a fastener mounted to the coupling body and configured to tighten the pipe coupling from an untightened configuration to a tightened configuration; and an installation indicator arranged between the first end of the first coupling segment and the first end of the second coupling segment, wherein the installation indicator is clamped between the first and second coupling segments in the tightened configuration.
  2. A pipe coupling comprising: a coupling body comprising a first coupling segment and a second coupling segment, each of the first and second coupling segments defining a first end and a second end opposite the first end, wherein; a first indicator element is formed monolithically with the first coupling segment at the first end of the first coupling segment; and a second indicator element is formed monolithically with the second coupling segment at the first end of the second coupling segment; and a fastener mounted to the coupling body and configured to tighten the pipe coupling from an untightened configuration to a tightened configuration, wherein the first indicator element is pressed against the second indicator element in the tightened configuration.
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