SUMMARY

[0005] In at least one aspect, there is provided a wellsite connector for connecting components of a wellsite. The wellsite has a wellbore extending into a subsurface formation. The wellsite connector includes a connector body, a piston axially movable in the connector body and a floatable seal. The connector body has an end adapted for coupling to a first of the components, ~~a pocket along an inner surface thereof,~~ and a cavity adapted to receive a second of the components. The piston includes a pocket along an inner surface thereof. The floatable seal member includes a seal ring having a hole therethrough to sealingly receive the second of the components. The seal member is slidably movable in the pocket of the ~~connector body~~piston transversely to an axis of the ~~connector body~~piston whereby the second of the components is alignable to the first of the components for connection therebetween.

[0006] The floatable seal member has a lip extending from the seal ring. The lip has a seal ring face sealingly engageable with the second of the components. The floatable seal member has top and bottom seal ring surfaces supported by top and bottom walls of the pocket. The seal member comprises one of an elastomeric material, a metal material and combinations thereof. The wellsite connector may also include at least one seal element. The one seal element is positionable in a cavity of the seal member.

[0007] The may also include a piston axially movable in the connector body. The piston has a piston profile along an inner surface thereof. The pocket extends about an inner surface of the piston. The wellsite connector may also include a plurality of collets positionable about the connector body adjacent the piston and radially movable thereabout. The plurality of collets have a collet profile along an outer surface thereof corresponding to the piston profile of the piston and the plurality of collets have a grip profile along an inner surface thereof selectively engageable with the second of the components whereby the plurality of collets are selectively latchable about the second of the components.

[0008] The connector body may also include a cover operatively connectable to the first of the components and a sub having a hole therethrough to receive the second of the components. The cover has a cover location thereon engageable with the collet profile of the plurality of collets. The connector body may also include a body ring operatively coupled between the cover and the sub. The plurality of collets may have a body profile selectively engageable with the connector body. The connector

body defines a collet cavity to receive the plurality of collets. The plurality of collets are a movable distance from a receptacle of the connector body and define a gap therebetween. The connector body has an inner surface defining a cavity to slidingly receive the piston. The piston has a support ring on an inner surface thereof, the support ring defining a portion of the piston profile to support the plurality of collets thereon in a retracted position. The piston has a latch ring on an inner surface thereof. The latch ring defines a portion of the piston profile to support the plurality of collets in the engaged position.

[0009] The piston includes a primary piston and a secondary piston supporting the primary piston. The secondary piston is slidably movable in the connector body when the primary piston exceeds a maximum force. The piston separates a cavity in the connector body into a first variable volume chamber and a second variable volume. The first variable volume chamber and the second variable volume chamber are operatively connectable to a fluid source to selectively divert fluid therein whereby the piston is movable in the connector body between an upstroke position and a downstroke position. The components comprise at least two of a tubular, a casing, a riser, a wellhead, a blowout preventer, a low rise marine pump, a tubular and combinations thereof.

[0010] In another aspect, there is provided a method of connecting components of a wellsite. The wellsite has a wellbore extending into a subsurface formation. The method involves providing a wellsite connector comprising: a connector body having an end adapted for coupling to a first of the components~~, a pocket along an inner surface thereof,~~ and a cavity adapted to receive a second of the components; a piston axially movable in the connector body, the piston having a pocket along an inner surface thereof; and a floatable seal member comprising a flexible ring having a hole therethrough to sealingly receive the second of the components, the seal member slidably movable in the pocket of the ~~connector body~~piston transversely to an axis of the connector body; operatively connecting the end of the connector body to the first of the components, receiving the second of the components in the cavity of the connector body, and aligning the second of the components to the first of the components for connection therebetween by slidably moving the seal member in the connector body transversely to an axis thereof. The method may also involve sealingly engaging the seal member with the second of the components.

[0011] The method may also involve selectively latching the plurality of collets about the second of the components by selectively engaging the collet profile of the plurality of collets with the piston profile of the piston and the grip profile of the plurality of collets to the second of the components. The selectively latching may involve moving the piston by selectively pumping

fluid into the first and the second variable volume chambers, supporting the plurality of collets on a collet ring of the piston, pivotally

moving the plurality of collets by axially moving the piston in the connector body, engaging the piston profile of the piston with the collet profile of the collets, pressing the collets against the second of the components by engaging a latch ring of the piston with the collets, retracting the plurality of collets by aligning the piston profile of the piston with the collet profile of the plurality of collets, extending the plurality of collets by misaligning the piston profile of the piston with the collet profile of the plurality of collets, selectively engaging a body portion of the plurality of collets with the connector body, and/or operatively connecting the wellsite connector to at least two of a tubular, a casing, a riser, a wellhead, a blowout preventer, a low rise marine pump, a tubular and combinations thereof.

[0012] Finally, in another aspect, there is provided a subsea connector for forming a connection between a first subsea device and a second subsea device. The connector includes a connector body having ~~an~~ a coupling end ~~adapted for coupling~~coupled to the first subsea device and a cavity end pivotally disposed about the coupling end and expandable thereabout to define a variable diameter cavity~~adapted~~ to receive a connecting member of the second subsea device. The connector also includes a seal member positioned about an inner surface of the cavity end~~arrangeable in the cavity~~ to provide the subsea connector with a hydrate seal when the connecting member extends through the seal member. The seal member is being floatable in a direction transverse to a longitudinal axis of the connector body in order to safely permit a predetermined range of angular misalignments between the connector body and connecting member.

[0013] The foregoing general description and the following detailed description are exemplary of the invention and are intended to provide an overview or framework for understanding the nature and character of the invention as claimed. The accompanying drawings are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification. The drawings illustrate various embodiments of the invention and together with the description serve to explain the principles and operation of the invention.

BRIEF DESCRIPTION DRAWINGS

[0014] So that the above recited features and advantages can be understood in detail, a more particular description, briefly summarized above, may be had by reference to the embodiments thereof that are illustrated in the appended drawings. It is to be noted, however, that the appended drawings illustrate only typical embodiments and are, therefore, not to be considered limiting of its scope. The figures are not necessarily to scale and certain features and certain

CLAIMS

What is claimed is:

1. A wellsite connector for connecting components of a wellsite, the wellsite having a wellbore extending into a subsurface formation, the wellsite connector comprising:

a connector body having an end adapted for coupling to a first of the components~~, a pocket along an inner surface thereof,~~ and a cavity adapted to receive a second of the components; ~~and~~

a piston axially movable in the connector body, the piston having a pocket along an inner surface thereof; and

a floatable seal member comprising a seal ring having a hole therethrough to sealingly receive the second of the components, the seal member slidably movable in the pocket of the ~~connector body~~piston transversely to an axis of the ~~connector body~~piston whereby the second of the components is alignable to the first of the components for connection therebetween.

2. The wellsite connector of Claim 1, wherein the floatable seal member has a lip extending from the seal ring.

3. The wellsite connector of Claim 2, wherein the lip has a seal ring face sealingly engageable with the second of the components.

4. The wellsite connector of Claim 1, wherein the seal member has top and bottom seal ring surfaces supported by top and bottom walls of the pocket.

5. The wellsite connector of Claim 1, wherein the seal member comprises one of an elastomeric material, a metal material and combinations thereof.

6. The wellsite connector of Claim 1, further comprising at least one seal element.

7. The wellsite connector of Claim 6, wherein the at least one seal element is positionable in a cavity of the seal member.

8. The wellsite connector of Claim 1, further comprising ~~a piston axially movable in the connector body,~~ the piston having a piston profile along ~~an~~ the inner surface thereof.

9. The wellsite connector of Claim 8, wherein the pocket extends about ~~an~~ the inner surface of the piston.

~~10. The wellsite connector of Claim 8, further comprising a plurality of collets positionable about the connector body adjacent the piston and radially movable thereabout, the plurality of~~

~~collets having a collet profile along an outer surface thereof corresponding to the piston profile of the piston and the plurality of collets having a grip profile along an inner surface thereof selectively engageable with the second of the components whereby the plurality of collets are selectively latchable about the second of the components.~~

~~11. The wellsite connector of Claim 10, wherein the connector body comprises a cover operatively connectable to the first of the components and a sub having a hole therethrough to receive the second of the components.~~

~~12. The wellsite connector of Claim 11, wherein the cover has a cover location thereon engageable with the collet profile of the plurality of collets.~~

~~13. The wellsite connector of Claim 11, wherein the connector body further comprises a body ring operatively coupled between the cover and the sub.~~

~~14. The wellsite connector of Claim 10, wherein the plurality of collets have a body profile selectively engageable with the connector body.~~

~~15. The wellsite connector of Claim 14, wherein the connector body defines a collet cavity to receive the plurality of collets.~~

~~16. The wellsite connector of Claim 15, wherein the plurality of collets are a movable distance from a receptacle of the connector body and define a gap therebetween.~~

~~17. The wellsite connector of Claim 10, wherein the piston has a support ring on the inner surface thereof, the support ring defining a portion of the piston profile to support the plurality of collets thereon in a retracted position.~~

~~18. The wellsite connector of Claim 10, wherein the piston has a latch ring on the inner surface thereof, the latch ring defining a portion of the piston profile to support the plurality of collets in the engaged position.~~

~~19~~10. The wellsite connector of Claim 8, wherein ~~the~~ an inner surface of the connector body defines a cavity to slidingly receive the piston.

~~20~~11. The wellsite connector of Claim 8, wherein the piston comprises a primary piston and a secondary piston supporting the primary piston, the secondary piston slidably movable in the connector body when the primary piston exceeds a maximum force.

~~21~~12. The wellsite connector of Claim 8, wherein the piston separates ~~a~~ the cavity in the connector body into a first variable volume chamber and a second variable volume chamber.

~~22~~13. The wellsite connector of Claim ~~21~~12, wherein the first variable volume chamber and the

second variable volume chamber are operatively connectable to a fluid source to selectively divert fluid therein whereby the piston is movable in the connector body between an upstroke position and a downstroke position.

~~23~~14. The wellsite connector of Claim 8, wherein the components comprise at least two of a tubular, a casing, a riser, a wellhead, a blowout preventer, a low rise marine pump, a tubular and combinations thereof.

~~24~~15. A method of connecting components of a wellsite, the wellsite having a wellbore extending into a subsurface formation, the method comprising:

providing a wellsite connector comprising:

a connector body having an end adapted for coupling to a first of the components~~, a pocket along an inner surface thereof,~~ and a cavity adapted to receive a second of the components; ~~and~~

a piston axially movable in the connector body, the piston having a pocket along an inner surface thereof; and

a floatable seal member comprising a flexible ring having a hole therethrough to sealingly receive the second of the components, the seal member slidably movable in the pocket of the ~~connector body~~piston transversely to an axis of the connector body;

operatively connecting the end of the connector body to the first of the components;

receiving the second of the components in the cavity of the connector body; and

aligning the second of the components to the first of the components for connection therebetween by slidably moving the seal member in the connector body transversely to an axis thereof.

~~25~~16. The method of Claim ~~24~~15, further comprising sealingly engaging the seal member with the second of the components.

~~26~~17. The method of Claim ~~24~~15, wherein ~~the connector body has an end adapted for coupling to the first of the components,~~ the wellsite connector further ~~comprising~~comprises:

~~a piston axially movable in the connector body,~~ the piston having a piston profile along ~~an~~ the inner surface thereof; and

a plurality of collets positionable ~~about~~ inside the connector body adjacent the piston and radially movable thereabout, the plurality of collets having a collet profile along an outer surface thereof corresponding to the piston profile of the piston and the plurality of collets having a grip profile along an inner surface thereof selectively engageable with the second of the components.

~~27~~18. The method of Claim ~~26~~17, further comprising selectively latching the plurality of collets about the second of the components by selectively engaging the collet profile of the plurality of collets with the piston profile of the piston and the grip profile of the plurality of collets to the second of the components

~~28~~19. The method of Claim ~~26~~18, wherein the piston separates the cavity in the connector body into first and second variable volume chambers, wherein the selectively latching comprises moving the piston by selectively pumping fluid into the first and the second variable volume chambers.

~~29~~20. The method of Claim ~~26~~18, wherein the selectively latching comprises supporting the plurality of collets on a collet ring of the piston.

~~30~~21. The method of Claim ~~26~~18, wherein the selectively latching comprises pivotally moving the plurality of collets by axially moving the piston in the connector body.

~~31~~22. The method of Claim ~~26~~18, wherein the selectively latching comprises engaging the piston profile of the piston with the collet profile of the ~~collet~~plurality of collets.

~~32~~23. The method of Claim ~~26~~18, wherein the selectively latching comprises pressing the plurality of collets against the second of the components by engaging a latch ring of the piston with the plurality of collets.

~~33~~24. The method of Claim ~~26~~18, wherein the selectively latching comprises retracting the plurality of collets by aligning the piston profile of the piston with the collet profile of the plurality of collets.

~~34~~25. The method of Claim ~~26~~18, wherein the selectively latching comprises extending the plurality of collets by misaligning the piston profile of the piston with the collet profile of the

plurality of collets.

~~35~~26. The method of Claim ~~26~~18, wherein the selectively latching comprises selectively engaging a body portion of the plurality of collets with the connector body.

~~36~~27. The method of Claim ~~24~~18, wherein the selectively latching comprises operatively connecting the wellsite connector to at least two of a tubular, a casing, a riser, a wellhead, a blowout preventer, a low rise marine pump, a tubular and combinations thereof.

~~37~~28. A subsea connector for forming a connection between a first subsea device and a second subsea device, comprising:

a connector body having ~~an~~ a coupling end ~~adapted for coupling~~coupled to the first subsea device and a cavity end pivotally disposed about the coupling end and expandable thereabout to define a variable diameter cavity~~adapted~~ to receive a connecting member of the second subsea device; and

a seal member positioned about an inner surface of the cavity end~~arrangeable in the cavity~~ to provide the subsea connector with a hydrate seal when the connecting member extends through the seal member, the seal member being floatable in a direction transverse to a longitudinal axis of the connector body in order to safely permit a predetermined range of angular misalignments between the connector body and the connecting member.