

WHAT IS CLAIMED IS:

1. A system for coupling a platform to a subsea wellhead comprising:

a riser extending between the platform and the subsea wellhead, wherein the riser comprises an inner riser and an outer riser;

an inner drilling riser tie-back connector ("ITBC") having a main body, wherein the ITBC is coupled to the inner riser, wherein the ITBC further comprises a locking ring operable to engage a groove in an internal bore of the subsea wellhead;

a seal assembly disposed at an interface directly between the internal bore of the subsea wellhead and an external wall of the main body, wherein the seal assembly is disposed uphole relative to the locking ring; and

a ratch latch threaded ring disposed within the ITBC, wherein the ratch latch threaded ring is movable downhole along a no-go sleeve disposed against the internal bore of the subsea wellhead.

2. The system of claim 1, further comprising a low pressure housing, wherein the subsea wellhead is disposed within the low pressure housing.

3. The system of claim 1, further comprising one or more shear pins disposed at an interface of the main body and the subsea wellhead.

4. The system of claim 3, wherein the one or more shear pins are operable to verify accurate riser spacing.

5. The system of claim 1, wherein the ITBC further comprises one or more spring loaded pins and wherein the one or more spring loaded pins are operable to verify that the ITBC has reached a desired landing point within the subsea wellhead.

6. The system of claim 1, wherein the seal assembly is a metal-to-metal seal assembly.

7. The system of claim 1, wherein the ratch-latch threaded ring is connected to the main body such that the ratch-latch threaded ring covers a concave groove formed in the main body, wherein the ratch-latch threaded ring comprises stress relieving contours adjacent the concave groove to reduce a stress amplification factor of the ITBC.

8. A method of coupling a subsea wellhead to a platform comprising:

coupling a first terminal end of a riser to the platform and a second terminal end of the riser to the subsea wellhead, the riser comprising an inner riser and an outer riser;

coupling the second terminal end of the inner riser to an inner drilling riser tie-back connector ("ITBC") having a main body;

landing the main body on a landing shoulder disposed within the subsea wellhead;

applying a downward weight to the main body to lock and seal the ITBC against an internal bore of the subsea wellhead at approximately the same time without rotating the ITBC, wherein locking and sealing the ITBC against the internal bore of the subsea wellhead by application of a downward weight comprises:

engaging a groove in the internal bore of the subsea wellhead by a locking ring disposed on the main body;

activating a seal assembly disposed at an interface directly between the internal bore of the subsea wellhead and an external wall of the main body; and

directing a ratch latch threaded ring downhole along threads disposed on an interior surface of a no-go sleeve disposed against the internal bore of the subsea wellhead, wherein the movement of the ratch latch thread ring internally locks the ITBC without rotation of the ITBC.

9. The method of claim 8, further comprising disposing the seal assembly uphole relative to the locking ring.

10. The method of claim 8, wherein the seal assembly comprises a metal-to-metal

seal assembly.

11. The method of claim 8, further comprising disengaging the main body from the subsea wellhead, wherein disengaging the main body from the subsea well head comprises rotating the inner riser.

12. The method of claim 11, wherein rotating the inner riser disengages the ratch latch threaded ring.

13. The method of claim 8, wherein applying a downward weight to the main body comprises applying the weight of the inner riser to the main body.

14. The method of claim 8, further comprising disposing one or more shear pins at an interface of the main body and the subsea wellhead and verifying accurate riser spacing using the one or more shear pins.

15. The method of claim 8, further comprising using one or more spring loaded pins to verify that the ITBC has reached a desired landing point within the subsea wellhead.

16. The method of claim 15, wherein using the one or more spring loaded pins to verify that the ITBC has reached a desired landing point comprises:

snapping the one or more spring loaded pins into a corresponding groove in the subsea wellhead when the ITBC has landed; and

overpulling the inner riser to apply an upward force to the one or more spring loaded pins and ensure that the one or more spring loaded pins are disposed in the corresponding groove.

17. A method of coupling a riser having an inner riser and an outer riser to a subsea wellhead comprising:

coupling the inner riser to an inner drilling riser tie-back connector ("ITBC")

- having a main body;
directing the ITBC into the subsea wellhead;
landing the main body on a landing shoulder;
applying a downward weight to the main body,
5 wherein the application of the downward weight engages a groove in an internal
bore of the subsea wellhead by a locking ring disposed on the main body,
wherein the application of the downward weight activates a seal assembly
disposed uphole relative to the locking ring at an interface between the internal bore of
the subsea wellhead and an external wall of the main body, and
10 wherein the application of the downward weight directs a ratch latch threaded
ring downhole along threads disposed on an interior surface of a no-go sleeve disposed
against the internal bore of the subsea wellhead, wherein the movement of the ratch
latch thread ring internally locks the ITBC.
- 15 18. The method of claim 17, further comprising disengaging the main body from the
subsea wellhead, wherein disengaging the main body from the subsea well head
comprises rotating the inner riser and disengaging the ratch latch threaded ring.
- 20 19. The method of claim 17, further comprising disposing one or more shear pins at
an interface of the main body and the subsea wellhead and verifying accurate riser
spacing using the one or more shear pins.

WHAT IS CLAIMED IS:

1. A system for coupling a platform to a subsea wellhead comprising:
 - a riser extending between the platform and the subsea wellhead, wherein the riser comprises an inner riser and an outer riser;
 - an inner drilling riser tie-back connector ("ITBC") having a main body,
 - wherein the ITBC is coupled to the inner riser;
 - a seal assembly disposed at an interface of the subsea wellhead and the main body; and
 - a ratch latch threaded ring disposed within the ITBC, wherein the ratch latch threaded ring is movable downhole along the subsea wellhead.
2. The system of claim 1, further comprising a low pressure housing, wherein the subsea wellhead is disposed within the low pressure housing.
3. The system of claim 1, wherein the ITBC further comprises a locking ring operable to engage a groove in the subsea wellhead.
4. The system of claim 1, wherein the seal assembly is disposed uphole relative to a lock ring.
5. The system of claim 1, further comprising one or more shear pins disposed at an interface of the main body and the subsea wellhead.
6. The system of claim 5, wherein the one or more shear pins are operable to verify accurate riser spacing.
7. The system of claim 1, wherein the ITBC further comprises one or more spring loaded pins and wherein the one or more spring loaded pins are operable to verify that the ITBC has reached a desired landing point within the subsea wellhead.

8. The system of claim 1, wherein the seal assembly is a metal-to-metal seal assembly.
9. A method of coupling a subsea wellhead to a platform comprising:
- coupling a first terminal end of a riser to the platform and a second terminal end of the riser to the subsea wellhead, the riser comprising an inner riser and an outer riser;
 - coupling the second terminal end of the inner riser to an inner drilling riser tie-back connector ("ITBC") having a main body;
 - landing the main body on a landing shoulder disposed within the subsea wellhead;
 - applying a downward weight to the main body, wherein the application of the downward weight to the main body couples the ITBC and the subsea wellhead.
10. The method of claim 9, wherein coupling the ITBC to the wellhead by application of a downward weight comprises:
- engaging a groove in the subsea wellhead by a locking ring disposed on the main body;
 - activating a seal assembly disposed at an interface between the subsea wellhead and the main body; and
 - directing a ratch latch threaded ring downhole along threads disposed on an interior surface of the ITBC, wherein the movement of the ratch latch thread ring internally locks the ITBC.

11. The method of claim 10, further comprising disposing the seal assembly uphole relative to a load ring.
12. The method of claim 10, wherein the seal assembly comprises a metal-to-metal seal assembly.
13. The method of claim 9, further comprising disengaging the main body from the subsea wellhead, wherein disengaging the main body from the subsea well head comprises rotating the inner riser.
14. The method of claim 13, wherein rotating the inner riser disengages the ratch latch threaded ring.
15. The method of claim 9, wherein applying a downward weight to the main body comprises applying the weight of the inner riser to the main body.
16. The method of claim 9, further comprising disposing one or more shear pins at an interface of the main body and the subsea wellhead and verifying accurate riser spacing using the one or more shear pins.
17. The method of claim 9, further comprising using one or more spring loaded pins to verify that the ITBC has reached a desired landing point within the subsea wellhead.
18. A method of coupling a riser having an inner riser and an outer riser to a subsea wellhead comprising:
 - coupling the inner riser to an inner drilling riser tie-back connector ("ITBC") having a main body;
 - directing the ITBC into the subsea wellhead;
 - landing the main body on a landing shoulder;

applying a downward weight to the main body,

wherein the application of the downward weight engages a groove in the subsea wellhead by a locking ring disposed on the main body,

wherein the application of the downward weight activates a seal assembly disposed at an interface between the subsea wellhead and the main body, and

wherein the application of the downward weight directs a ratch latch threaded ring downhole along threads disposed on an interior surface of the ITBC, wherein the movement of the ratch latch thread ring internally locks the ITBC.

19. The method of claim 18, further comprising disengaging the main body from the subsea wellhead, wherein disengaging the main body from the subsea well head comprises rotating the inner riser and disengaging the ratch latch threaded ring.

20. The method of claim 18, further comprising disposing one or more shear pins at an interface of the main body and the subsea wellhead and verifying accurate riser spacing using the one or more shear pins.