CLAIMS

1. An integration joint assembly for use in drilling operations, the integration joint assembly comprising;

an integration joint body comprising;

a through bore;

an upper end adapted for connection with an upper portion of a riser system;

and a lower end adapted for connection with a lower portion of a riser system;

the integration joint assembly being adapted to permit a tubular work string to pass there through such that there is an annulus created between the inner through bore of the integration joint body and the outer surface of the tubular work string;

wherein the integration joint assembly further comprises at least two sealing devices adapted in use to provide a seal within the said annulus;

wherein the said at least two sealing devices and the integration joint body are adapted such that the said at least two sealing devices are capable of being located within the through bore of the integration joint body;

wherein, each of the said at least two sealing devices are capable of being locked within the through bore by at least two locking devices and wherein each of the at least two sealing devices comprise their own respective locking device; ~~and~~

wherein each of the said at least two sealing devices can be separately locked and unlocked as required by actuation of their own respective locking device in such a manner to permit one of the sealing devices to be locked within the throughbore and at least one of the at least two sealing devices to be run into and/or retrieved from the through bore of the integration joint body; ~~.~~

wherein each of the said at least two sealing devices comprises its own respective housing and at least one seal mounted within said housing;

wherein each housing comprises a locking means into which a respective said locking device is engageable in order to lock said housing of said respective sealing device within the through bore of the integration joint body; and

wherein each said locking device is mounted on the integration joint body and each said locking device comprises one or more radially moveable dog members which can be moved radially inwardly to project inwardly from the inner diameter of the integration joint body and into the said locking means of the respective sealing device,

wherein each said locking device can be actuated between a radially inwardly projecting configuration and a retracted configuration such that they do not project into said locking means of the respective sealing device.

~~2. An integration joint assembly according to claim 1, wherein each of the said at least two sealing devices comprises its own respective housing and at least one seal mounted within said housing.~~

~~3~~2. An integration joint assembly according to ~~either of~~ claim~~s~~ 1 ~~or 2~~, wherein each of the said at least two sealing devices comprises a retrieval means to permit running in and/or retrieval of the respective each of the said at least two sealing devices.

3. An integration joint assembly according to either of claims 1 or 2, wherein each said locking device is remotely actuatable between the radially inwardly projecting or locked configuration and the retracted or unlocked configuration, allowing for remote activation of each of the locking devices by the operator.

4. An integration joint assembly according to either of claims 1 or 2, wherein each said locking device is remotely actuatable from the surface by an operator between the radially inwardly projecting or locked configuration and the retracted or unlocked configuration, allowing for remote activation of each of the locking devices by the operator.

~~4. An integration joint assembly according to claim 2 or to claim 3 when dependent upon claim 2, wherein each housing comprises a locking means into which a respective said locking device is engageable in order to lock said housing of said respective sealing device within the through bore of the integration joint body.~~

5. The integration joint assembly of any preceding claim, wherein the at least two sealing devices comprise:-

a rotation control device (RCD) comprising a housing and two longitudinally spaced apart seals rotateably mounted within said housing by a respective bearing mechanism; and

at least one annular seal device;

wherein at least one of the rotation control device and the annular seal device are adapted to be located within the through bore of the integration joint body.

6. The integration joint assembly of claim 5, wherein the integration joint body is adapted to house both a rotation control device (RCD) and two annular seal devices within its through bore, and the two annular seal devices are arranged in series/in line along the longitudinal length of the integration joint body.

7. The integration joint assembly of claim 5 or 6, wherein at least one of the rotation control device and the annular seal device can be run into the through bore of the integration joint body through an upper portion of the riser string which houses a telescopic joint, and locked to the integration joint body within the through bore of the integration joint body.

8. The integration joint assembly of any of claims 5 to 7, wherein the at least one of the rotation control device and the annular seal device is capable of being retrieved from the through bore by pulling the at least one of the rotational control device and the annular seal device upwards through the through bore of the integration joint body and further pulling the at least one of the rotational control device and the annular seal device upwards through the through bore of the upper portion of the riser system.

9. The integration joint assembly of any one of claims 5-8, wherein the integration joint assembly further comprises both of the rotation control device and the at least one annular seal device, wherein the rotation control device is arranged to be located above the at least one annular seal device within the through bore of the integration joint body.

10. The integration joint assembly of claim 9, wherein the at least one annular seal device comprises two annular seal devices, wherein the two annular seal devices are an upper annular seal device and a lower annular seal device.

11. The integration joint assembly of any one of claims 5-10, wherein the rotational control device can be retrieved and run into the through bore independently of an annular seal device.

12. The integration joint assembly of any one of claims 5-10, wherein the rotational control device can be retrieved and run into the through bore with at least one annular seal device.

13. The integration joint assembly of any one of claims 5-12, wherein one or both of the rotation control device and the at least one annular seal device can be located within the through bore of and locked to the integration joint body when the integration joint body is installed within the riser string.

14. The integration joint assembly of any one of claims 5-12, wherein one or both of the rotation control device and the at least one annular seal device can be run into the through bore of the integration joint body through the through bore of an upper portion of the riser string and can be locked to the integration joint body within the through bore of the integration joint body after the integration joint body has been installed within riser string.

15. The integration joint assembly of any one of claims 5-14, wherein the integration joint assembly further comprises seals positioned between an outer surface of the RCD and the inner through bore of the integration joint body, wherein the seals are provided on and/or around the outer circumferential surface of the RCD such that they act to seal the gap between the outer surface of the RCD and the inner through bore of the integration joint body.

16. The integration joint assembly of any one of claims 5-15, wherein the integration joint assembly further comprises seals positioned between an outer surface of the said at least one annular seal device and the inner through bore of the integration joint body wherein the seals are provided on and/or around the outer circumferential surface of the said at least one annular seal device such that they act to seal the gap between the outer surface of the said at least one annular seal and the inner through bore of the integration joint body.

17. The integration joint assembly of any one of claims 5-16, wherein the integration joint body further comprises a formation formed on the inner through bore of the integration joint body to prevent the rotation control device and the one or more annular seal devices from moving any lower through the integration joint body than the formation.

18. The integration joint assembly of any one of claims 5-17 when dependent upon claim 2, wherein each annular seal device comprises an in use de-energised or deflated inner diameter which is greater than the outer diameter of the drill string which passes there through such that when each of the said annular seal devices in use is de-energised it allows the free movement of a drill string there through and therefore does not impede the movement there through and therefore does not seal against the outer diameter of the drill string wherein each of the said annular seal devices further comprise an in use energised or inflated inner diameter which is smaller than the outer diameter of the drill string which passes there through such that when each of the said annular seal devices in use is energised it seals against the outer diameter of the drill string and therefore does not permit drilling fluid located in the annulus to pass through the through bore of the annular seal in the upwards direction from downhole to up-hole.

19. The integration joint assembly of claim 18, wherein each annular seal device can be selectively energised or de-energised by the respective introduction or removal of fluid from a cavity in fluid communication with a surface of the said annular seal device, wherein said cavity is in fluid communication with an outer surface of the said annular seal device such that when fluid is pumped into said cavity, the said annular seal device is forced inwards into contact with drill string passing through the integration joint body to thereby form a seal in the annulus between the outer surface of the drill string and the inner through bore of the integration joint body.

20. A method of drilling comprising the steps of:

installing an integration joint assembly according to any one of claims 1 to 19 in a riser string; and

running a tubular work string through the through bore thereof.

21. The method of claim 20 wherein

an annulus is created between the inner through bore of the integration joint body and the outer surface of the tubular work string; and further comprising the step of locating at least one sealing device within the through bore of the integration joint body, wherein the at least one sealing device is capable of sealing the said annulus.

22. The method of claim 21, further comprising the step of wholly locating the sealing device co-axially within the through bore.

23. The method of any one of claims 20-22, further comprising the steps of:

locating at least one of a rotating control device and an annular seal device into the through bore of the integration joint body; and

locking the rotating control device or annular seal device within the through bore of the integration joint body.

24. The method of claims 23, further comprising the steps of:

unlocking and retrieving the said rotating control device or annular seal device from the through bore of the integration joint body.

25. The method of claim 24, wherein the retrieving step further comprises the steps of:

pulling the rotating control device or annular seal device upwards through the through bore of the integration joint body; and

pulling the rotating control device or annular seal device upwards through the through bore of the upper portion of the riser system.

26. The method of any one of claims 23-25, further comprising the step of locating the rotating control device above the at least one annular seal device within the through bore of the integration joint body.

27. The method of any one of claims 23-26, further comprising the step of running in to and/or retrieving the rotation control device from the through bore independently of the annular seal device.

28. The method of any one of claims 23-26, further comprising the step of running in to and/or retrieving the rotation control device from the through bore with at least one annular seal device.

29. The method of any one of claims 23-28, further comprising the steps of:

running one or both of the rotating control device and the at least one annular seal device into the through bore of the integration joint body through an upper portion of the riser string; and

locking one or both of the rotating control device and the at least one annular seal device to the integration joint body.

30. The method of any one of claims 23-29, further comprising the steps of:

de-energising or deflating each annular seal device to not seal against the tubular work string; and

passing said tubular work string through each annular seal device.

31. The method of any one of claims 23-30, further comprising the steps of:

energising or inflating each annular seal device to seal against a tubular work string; and

passing said tubular work string through each annular seal device.