

1 CLAIMS:

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- 3 1. A subsea oil and gas production installation, the installation comprising:
4 a subsea production system comprising a first production pipeline and a second
5 production pipeline;
6 a first subsea manifold in fluid communication with the first production pipeline
7 comprising a fluid access interface and a flowline connector;
8 a removable module fluidly connected to the fluid access interface of the first subsea
9 manifold and configured to receive production fluid from one or more subsea wells;
10 and
11 a second subsea manifold in fluid communication with the second production
12 pipeline;
13 wherein the first subsea manifold defines a first flow path between the fluid access
14 interface and the first production pipeline and a second bypass flow path between
15 the fluid access interface and the flowline connector;
16 wherein the first and the second subsea manifolds are fluidly coupled to one another
17 by a connecting flowline connected at a first end to the flowline connector of the first
18 subsea manifold; and
19 wherein the removable module comprises a flow control means operable to
20 selectively route the production fluid from one or more subsea wells into the first
21 production pipeline via the first flow path defined by the manifold, and/or into the
22 second production pipeline via the second bypass flow path, the connecting flowline
23 and the second subsea manifold.
24
- 25 2. The installation according to claim 1, wherein the connecting flowline is a jumper
26 flowline.
27
- 28 3. The installation according to claim 1 or claim 2, wherein the connecting flowline is
29 connected at a second end to a flowline connector of the second subsea manifold.
30
- 31 4. The installation according to claim 1 or claim 2, wherein the connecting flowline is
32 connected at a second end to a second removable module fluidly connected to a
33 fluid access interface of the second subsea manifold.
34
- 35 5. The installation according to any preceding claim, further comprising a flow access
36 hub, the flow access hub comprising a first interface connected to the fluid access

- 1 interface of the first subsea manifold, and a second interface connected to an
2 interface of a functional module wherein at least the functional module is removable
3 from the first manifold.
4
- 5 6. The installation according to claim 5, wherein the interface of the functional module
6 is a multibore interface in a single connector.
7
- 8 7. The installation according to claim 6, wherein first interface of the flow access hub
9 may has a lesser number of bores than the second interface of the flow access hub.
10
- 11 8. The installation according to any of claims 5 to 7, wherein the flow access hub
12 defines a first flow path between a flowline inlet bore and the second interface to
13 fluidly connect a flowline configured to carry fluid from a subsea well to the functional
14 module, and defines a second flow path between the second interface and the first
15 interface to fluidly connect the functional module to the first subsea manifold.
16
- 17 9. The installation according to any preceding claim, wherein the second subsea
18 manifold comprises a flowline connector, and a second end of the connecting
19 flowline is connected to the flowline connector.
20
- 21 10. The installation according to any of claims 1 to 8, wherein the second subsea
22 manifold comprises a fluid access interface, and the installation comprises a
23 removable module fluidly connected to the fluid access interface of the second
24 subsea manifold.
25
- 26 11. The installation according to claim 10, further comprising a flow access hub
27 comprising a first interface connected to the fluid access interface of the second
28 subsea manifold, and a second interface connected to an interface of a functional
29 module wherein at least the functional module is removable from the second
30 manifold.
31
- 32 12. The installation according to any preceding claim, wherein the first production
33 pipeline and the second production pipeline operate at different working pressures,
34 and wherein the installation is configured to route production fluid into the first

- 1 production pipeline and/or the second production pipeline depending upon the
2 pressure of the production fluid.
3
- 4 13. A subsea manifold for a subsea oil and gas production installation, the manifold
5 comprising:
6 at least one fluid access point for a subsea well configured to be connected to one or
7 more removable modules and to be fluidly connected to a subsea well to receive
8 production fluid therefrom;
9 a main flow bore configured to be in fluid communication with a subsea production
10 pipeline; and
11 a flowline connector for a jumper flowline, configured to be fluidly connected to a
12 jumper flowline;
13 wherein the manifold defines a first flow path between the at least one fluid access
14 point and the main flow bore and a second bypass flow path between the at least
15 one fluid access point and the flowline connector for a jumper flowline, bypassing the
16 main flow bore;
17 and wherein the one or more removable modules is configured to selectively route
18 the production fluid into the first flow path and/or the second flow path of the subsea
19 manifold.
20
- 21 14. A method of controlling production flow from one or more subsea wells, the method
22 comprising:
23 providing a subsea production system comprising:
24 at least one subsea well, a first production pipeline in fluid communication with a
25 first subsea manifold and a second production pipeline in fluid communication with
26 a second subsea manifold;
27 wherein at least one subsea well is connected to the first subsea manifold;
28 wherein the first subsea manifold and the second subsea manifold are fluidly
29 coupled to one another by a connecting flowline; and
30 wherein the first subsea manifold is provided with a flow control means operable to
31 route the production fluid from the at least one subsea well into the first production
32 pipeline via the first subsea manifold and/or into the second production pipeline via
33 the second first manifold, the connecting flowline and the second subsea manifold.
34

- 1 15. The method according to claim 14, wherein the first production pipeline has a first
2 working pressure and the second production pipeline has a second working
3 pressure, and the method comprises directing production flow from the at least one
4 subsea well into the first and/or the second production pipeline depending on the
5 pressure of the fluid produced from the well.
6
- 7 16. The method according to claim 14 or claim 15, comprising operating valves to select
8 whether the production flow is directed into the first or the second production
9 pipeline.
10
- 11 17. The method according to any of claims 14 to 16, comprising directing fluid into the
12 first production pipeline via the first subsea manifold.
13
- 14 18. The method according to any of claims 14 to 17, comprising directing fluid into the
15 second production pipeline via the first subsea manifold, the connecting flowline, a
16 removable module to which the connecting flowline is coupled connected to the
17 second subsea manifold and the second subsea manifold.
18
- 19 19. A method of installing a distributed manifold system, the method comprising:
20 installing a first production pipeline and a first subsea manifold in fluid
21 communication with the first subsea pipeline and installing a second subsea pipeline
22 and a second subsea manifold in fluid communication with the second subsea
23 pipeline, wherein the first subsea manifold comprises a fluid access interface and a
24 flowline connector;
25 installing a connecting flowline between the first subsea manifold and the second
26 subsea manifold, wherein the connecting flowline is connected at a first end to the
27 flowline connector of the first subsea manifold;
28 fluidly connecting a removable module to the fluid access interface of the first subsea
29 manifold, wherein the removable module is fluidly connected to at least one subsea
30 well, such that production fluid from the at least one subsea well can be selectively
31 routed into the first production pipeline via the removable module and the first
32 subsea manifold or the second production pipeline via the removable module, the
33 first subsea manifold, the connecting flowline and the second subsea manifold.
34
- 35 20. The method according to claim 19, comprising:

- 1 installing a flow access hub onto the fluid access point of the first subsea manifold;
- 2 and installing the removable module to the flow access hub located on the fluid
- 3 access interface of the first subsea manifold.
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