Claims

1. A wellhead assembly having sidewalls and comprising:

a production tree;

a wellhead housing;

a main bore axially extending through the production tree and the wellhead housing;

an orientation adapter axially rotatable within the main bore and that is selectively landed in the main bore;

a key that protrudes radially outward from the orientation adapter;

a communication passage formed in a sidewall of the production tree;

a communication port in the orientation adapter in communication with a control line disposed within the main bore;

a profile on an inner surface of the main bore in interference with the key when the orientation adapter is landed in the main bore, and that is strategically formed to orient the orientation adapter in a designated azimuth so that the communication port registers with the communication passage; and

a tubing hanger that lands in the main bore, and wherein the orientation adapter rotationally couples with the tubing hanger, wherein a lower end of the tubing hanger comprises a groove on an outer surface that defines an upward facing shoulder, wherein the lower end of the tubing hanger inserts into a cavity on an upper surface of the orientation adapter, wherein a groove is formed in the cavity to define a downward facing shoulder, and wherein the downward facing shoulder lands on the upward facing shoulder so that the orientation adapter is supported by the tubing hanger.

2. The wellhead assembly of claim 1, wherein the profile projects radially inward and follows a helically shaped path along the inner surface of the main bore.

3. The wellhead assembly of claim 1, further comprising production tubing depending from the tubing hanger that projects through a bore in the orientation adapter, an annular adapter block mounted on the production tubing that is spaced

away from a lower end of the orientation adapter and that is connected to the control line.

4. The wellhead assembly of claim 1, wherein the control line comprises flexible tubing that depends from an end of the communication port and that selectively circumscribes production tubing in the main bore when the orientation adapter is in the designated azimuth.

5. The wellhead assembly of claim 1, wherein the control line carries a medium selected from the group consisting of a fluid, an electrical line, and combinations thereof.

6. A subsea wellhead assembly comprising:

a wellhead housing set over a wellbore;

a production tree set on the wellhead housing;

a main bore that extends axially through the wellhead housing and production tree;

a profile in the main bore that projects radially inward and follows a helical path along an inner surface of the main bore;

a communication passage formed through a sidewall of the production tree;

a tubing hanger assembly comprising a tubing hanger and an orientation adapter rotatably mounted on a lower end of the tubing hanger, wherein a lower end of the tubing hanger comprises a groove on an outer surface that defines an upward facing shoulder, wherein the lower end of the tubing hanger inserts into a cavity on an upper surface of the orientation adapter, wherein a groove is formed in the cavity to define a downward facing shoulder, and wherein the downward facing shoulder lands on the upward facing shoulder so that the orientation adapter is supported by the tubing hanger;

a communication path radially formed through the orientation adapter; and

a key on an outer surface of the orientation adapter that engages the profile, and that is strategically located so that when the tubing hanger assembly is landed in the main bore, interference between the key and the helical profile rotates the orientation adapter into a position to register the communication passage and communication path.

7. The wellhead assembly of claim 6, wherein the profile is set within the production tree.

8. The wellhead assembly of claim 6, further comprising a control line that has an end connected to a lower end of the orientation adapter and is in communication with a downhole component, so that when the communication passage and communication path are in communication, the downhole component is controllable from surface.

9. The wellhead assembly of claim 6, wherein the communication path and communication passage communicate a fluid, an electrical signal, or both a fluid and an electrical signal.

10. The wellhead assembly of claim 6, further comprising a control line in communication with the communication path, wherein the control line comprises flexible tubing that depends from the orientation adapter and that selectively circumscribes production tubing in the main bore when the orientation adapter is in the designated azimuth.

11. A wellhead assembly comprising:

an axially disposed main bore;

a sidewall extending from the main bore and radially outward to an outer surface;

a passage through the sidewall;

an orientation adapter that selectively lands within the main bore;

a communication path that intersects the orientation adapter;

a profile in the main bore that is in sliding interference with the orientation adapter when the orientation adapter is being landed in the main bore, and that is strategically formed so that the orientation adapter is azimuthally oriented to register the communication path with the passage;

a tubing hanger having a lower end that coaxially inserts into a cavity on the orientation adapter, and wherein the orientation adapter is rotatable with respect to the tubing hanger;

production tubing depending from the tubing hanger, an annular adapter block mounted around the production tubing, and a control line in communication with the communication path, that depends from the orientation adapter, and has a lower end connecting to the adapter block; and

a lower housing that depends from a lower end of the orientation adapter and circumscribes the adapter block.

12. The wellhead assembly of claim 11, wherein the tubing hanger is mounted in a production tree, and production fluid flows through a bore coaxially formed in the tubing hanger and exits the production tree through a production port.