

CLAIMS

What is claimed is:

1. A system for accessing a bore of a subsea well using different types of intervention equipment, the system comprising:
 - a BOP stack including a throughbore and installable on the well such that the throughbore is in fluid communication with the well bore; and
 - a valve assembly coupled to the BOP stack, the valve assembly including:
 - a fluid flowpath in fluid communication with the BOP stack throughbore;
 - two valves connected in series and disposed along the fluid flowpath, the valves operable to control flow through the fluid flowpath;
 - a tubular spool attached to the two valves opposite the BOP stack so as to be in fluid communication with the fluid flowpath, the tubular spool comprising a universal intervention interface comprising a hub suitable for connection by the different types of intervention equipment; and
 - a ROV panel including ports accessible by a ROV for operation of the two valves.
2. The system of claim 1, further comprising a closure assembly disposed at the hub, the closure assembly preventing fluid flow from the fluid flowpath and being removable to enable fluid flow to or from the fluid flowpath.
3. The system of claim 2, wherein the closure assembly comprises a blind hub and a ROV operable clamp.
4. The system of claim 1, wherein the hub comprises a profile that conforms to API standards.
5. The system of claim 1, wherein the valve assembly is coupled to the BOP stack over a port in fluid communication with the BOP stack throughbore, the fluid flowpath of the valve assembly in fluid communication with the port.
6. The system of claim 1, wherein the valve assembly is connectable to a flowline such that

the flowline is in fluid communication with the BOP stack throughbore through the fluid flowpath of the valve assembly.

7. The system of claim 6, wherein the flowline is one of a group consisting of a choke line and a kill line.

8. The wellhead system of claim 1, the valve assembly further including:

a transverse flowbore including ends open to the outside of the valve assembly, wherein the transverse flowbore intersects the fluid flowpath to provide valveless fluid communication with the fluid flowpath other than through the tubular spool; and removable connectors to close the transverse flowbore ends.

9. A wellhead system for use with different types of intervention equipment, comprising:

a BOP stack installed on a well bore, the BOP stack having a throughbore in fluid communication with the well bore;

a kill line coupled to the BOP stack in fluid communication with the well bore;

a choke line coupled to the BOP stack in fluid communication with the well bore; and

a valve assembly coupled to the BOP stack, the valve assembly having:

a first throughbore in fluid communication with the BOP stack throughbore;

an actuatable valve disposed along the first throughbore, the valve operable to control fluid flow through the first throughbore;

a spool attached to the actuatable valve opposite the BOP stack so as to be in fluid communication with the first throughbore, the spool comprising a universal intervention interface comprising a hub suitable for connection by the different types of intervention equipment;

a second throughbore and including an end open to the outside of the valve assembly, wherein the second throughbore is in fluid communication with the first throughbore other than through the spool; and

a removable closure assembly connected to the hub, the closure assembly preventing fluid flow therethrough.

10. The wellhead system of claim 9, wherein the kill line is in fluid communication with the first throughbore through the second throughbore.

11. The wellhead system of claim 9, wherein the choke line is in fluid communication with the first throughbore through the second throughbore.
12. The wellhead system of claim 9, wherein the valve is a gate valve.
13. The wellhead system of claim 9, wherein the valve assembly further comprises a ROV panel having a close port accessible to a ROV to close the valve and an open port accessible to the ROV to open the valve.
14. A system for accessing a bore of a subsea well using at least one of different types of intervention equipment, comprising:
 - a wellhead assembly having a throughbore and installable on the subsea well, wherein the wellhead assembly throughbore is in fluid communication with the well bore;
 - a BOP stack coupled to the wellhead assembly and having a throughbore in fluid communication with the wellhead assembly throughbore; and
 - a valve assembly coupled to the BOP stack, the valve assembly including:
 - a fluid flowpath in fluid communication with the BOP stack throughbore;
 - two valves connected in series and disposed along the fluid flowpath, the valves operable to control flow through the fluid flowpath;
 - a tubular spool attached to the two valves opposite the BOP stack so as to be in fluid communication with the fluid flowpath, the tubular spool comprising a universal intervention interface comprising a hub suitable for connection by the different types of intervention equipment; and
 - a ROV panel including ports accessible by a ROV for operation of the two valves.
15. The system of claim 14, further comprising a closure assembly disposed at the hub, the closure assembly preventing fluid flow from the fluid flowpath and being removable to enable fluid flow to or from the fluid flowpath.
16. The system of claim 14, wherein the hub comprises a profile that conforms to API standards.
17. The system of claim 14, wherein the valve assembly is coupled to the BOP stack over a

port in fluid communication with the BOP stack throughbore, the fluid flowpath of the valve assembly in fluid communication with the port.

18. The system of claim 14, wherein the valve assembly is connectable to a flowline such that the flowline is in fluid communication with the BOP stack throughbore through the fluid flowpath of the valve assembly.

19. The system of claim 18, wherein the flowline is one of a group consisting of a choke line and a kill line.

20. The system of claim 14, the valve assembly further comprising:

a transverse flowbore including ends open to the outside of the valve assembly, wherein the transverse flowbore intersects the fluid flowpath to provide valveless fluid communication with the fluid flowpath other than through the tubular spool; and
removable connectors to close the transverse flowbore ends.

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WHAT IS CLAIMED IS:

1. A system for accessing a bore of a subsea well, the system comprising:
a BOP stack including a throughbore and installable on the well such that the throughbore is in fluid communication with the well bore; and
a valve assembly coupled to the BOP stack, the valve assembly including:
a fluid flowpath in fluid communication with the BOP stack throughbore;
two valves connected in series and disposed along the fluid flowpath, the valves operable to control flow through the fluid flowpath; and
a ROV panel including ports accessible by a ROV for operation of the two valves.
2. The system of claim 1, further comprising a closure assembly disposed at the second end of the fluid flowpath, the closure assembly preventing fluid flow from the fluid flowpath and being removable to enable fluid flow to or from the fluid flowpath.
3. The system of claim 2, wherein the closure assembly comprises a blind hub and a ROV operable clamp.
4. The system of claim 2, wherein the valve assembly further comprises a tubular spool with a hub to which the closure assembly is removably coupled.
5. The system of claim 4, wherein the hub has a profile that conforms to API standards.

6. The system of claim 1, wherein the valve assembly is coupled to the BOP stack over a port in fluid communication with the BOP stack throughbore, the fluid flowpath of the valve assembly in fluid communication with the port.
7. The system of claim 1, wherein the valve assembly may be coupled to a flowline such that the flowline is in fluid communication with the BOP stack throughbore through the fluid flowpath of the valve assembly.
8. The system of claim 7, wherein the flowline is one of a group consisting of a choke line and a kill line.
9. The system of claim 8, wherein the flowline is a kill line and wherein the valve assembly further comprises a second throughbore in fluid communication with the kill line and the first throughbore.
10. The wellhead system of claim 8, wherein the flowline is a choke line and wherein the valve assembly further comprises a second throughbore in fluid communication with the choke line and the first throughbore.
11. The system of claim 1, wherein at least one of the valves is a gate valve.
12. The system of claim 1, wherein one of the ports of the ROV panel is a close port and the other of the ports is an open port.
13. The system of claim 1, further comprising:
a wellhead assembly coupled to the BOP stack, the wellhead assembly installable on the subsea well and having a throughbore in fluid communication with the well bore.