CLAIMS:

1. A system, comprising:
a pressure balancing system configured to protect a flow meter, wherein the pressure balancing system comprises a housing configured to surround a fluid conduit to define a fluid chamber around the fluid conduit, the fluid chamber is configured to house the flow meter, and the pressure balancing system is configured to at least substantially balance fluid pressure internal and external to the fluid conduit via the fluid chamber.

2. The system of claim 1, wherein the pressure balancing system is configured to at least substantially balance the fluid pressure internal and external to the fluid conduit up to a pressure of approximately 5,000 psi.

3. The system of claim 1, wherein the pressure balancing system is configured to at least substantially balance the fluid pressure internal and external to the fluid conduit up to a pressure of approximately 10,000 psi.

4. The system of claim 1, wherein the pressure balancing system is configured to enable fluid communication between the fluid chamber and the fluid conduit.

5. The system of claim 1, wherein the pressure balancing system is configured to block fluid communication between the fluid chamber and the fluid conduit.

6. The system of claim 5, wherein the pressure balancing system comprises a movable element configured to move between a first fluid in the fluid conduit and a second fluid in the fluid chamber.

7. The system of claim 6, wherein the movable element comprises a piston.

8. The system of claim 7, comprising a passage extending between the fluid conduit and the fluid chamber, wherein the piston is disposed along the passage.

9. The system of claim 6, wherein the movable element comprises a bellows.

10. The system of claim 9, wherein a wall of the fluid conduit comprises the bellows.

11. The system of claim 6, wherein the first and second fluids are different from one another.

12. The system of claim 1, wherein the fluid chamber is sealed relative to an external environment.

13. The system of claim 1, comprising an underwater system having the pressure balancing system.

14. The system of claim 1, comprising the flow meter.

15. A system, comprising:
a sensor protection system, comprising:
a pressure balancer configured to at least substantially balance a fluid pressure internal and external to a fluid conduit having a fluid flow path, wherein the pressure balancer is configured to reduce stress on the fluid conduit in a sensor region.

16. The system of claim 15, wherein the pressure balancer comprises a fluid chamber surrounding the fluid conduit, and the pressure balancer is configured to enable fluid communication between the fluid chamber and the fluid flow path in the fluid conduit.

17. The system of claim 15, wherein the pressure balancer comprises a fluid chamber surrounding the fluid conduit, the pressure balancer is configured to block fluid communication between the fluid chamber and fluid flow path in the fluid conduit, and the pressure balancer comprises a movable element configured to move between a first fluid in the fluid conduit and a second fluid in the fluid chamber.

18. The system of claim 15, comprising an underwater system having the sensor and the sensor protection system.

19. A method, comprising:

protecting a sensor coupled to an outer circumference of a fluid conduit by balancing a fluid pressure internal and external to the fluid conduit to reduce stress on the fluid conduit in a sensor region having the sensor.

20. The method of claim 19, comprising sensing a parameter of a fluid flow along a fluid flow path in the fluid conduit via the sensor in an underwater environment.

21. The system of claim 19, wherein the sensor comprises a flow meter.

22. The system of claim 1, wherein the housing is configured to surround an outer circumference of the fluid conduit to form the fluid chamber circumferentially around the fluid conduit, and the fluid conduit comprises a fluid flow path.

23. The system of claim 15, wherein the sensor protection system is configured to protect a flow meter in the sensor region external to the fluid conduit.

CLAIMS:

1. A system, comprising:

a pressure balancing system configured to protect a flow meter, wherein the pressure balancing system comprises a housing configured to surround a fluid conduit to define a fluid chamber around the fluid conduit, the fluid chamber is configured to house the flow meter, and the pressure balancing system is configured to at least substantially balance fluid pressure internal and external to the fluid conduit via the fluid chamber.

2. The system of claim 1, wherein the pressure balancing system is configured to at least substantially balance the fluid pressure internal and external to the fluid conduit up to a pressure of approximately 5,000 psi.

3. The system of claim 1, wherein the pressure balancing system is configured to at least substantially balance the fluid pressure internal and external to the fluid conduit up to a pressure of approximately 10,000 psi.

4. The system of claim 1, wherein the pressure balancing system is configured to enable fluid communication between the fluid chamber and the fluid conduit.

5. The system of claim 1, wherein the pressure balancing system is configured to block fluid communication between the fluid chamber and the fluid conduit.

6. The system of claim 5, wherein the pressure balancing system comprises a movable element configured to move between a first fluid in the fluid conduit and a second fluid in the fluid chamber.

7. The system of claim 6, wherein the movable element comprises a piston.

8. The system of claim 7, comprising a passage extending between the fluid conduit and the fluid chamber, wherein the piston is disposed along the passage.

9. The system of claim 6, wherein the movable element comprises a bellows.

10. The system of claim 9, wherein a wall of the fluid conduit comprises the bellows.

11. The system of claim 6, wherein the first and second fluids are different from one another.

12. The system of claim 1, wherein the fluid chamber is sealed relative to an external environment.

13. The system of claim 1, comprising an underwater system having the pressure balancing system.

14. The system of claim 1, comprising the flow meter.

15. A system, comprising:

a sensor protection system, comprising:

a pressure balancer configured to at least substantially balance a fluid pressure internal and external to a fluid conduit, wherein the pressure balancer is configured to reduce stress on the fluid conduit in a sensor region.

16. The system of claim 15, wherein the pressure balancer comprises a fluid chamber surrounding the fluid conduit, and the pressure balancer is configured to enable fluid communication between the fluid chamber and the fluid conduit.

17. The system of claim 15, wherein the pressure balancer comprises a fluid chamber surrounding the fluid conduit, the pressure balancer is configured to block fluid communication between the fluid chamber and the fluid conduit, and the pressure

balancer comprises a movable element configured to move between a first fluid in the fluid conduit and a second fluid in the fluid chamber .

18. The system of claim 15, comprising an underwater system having the sensor and the sensor protection system.

19. A method, comprising:

protecting a sensor coupled to a fluid conduit by balancing a fluid pressure internal and external to the fluid conduit to reduce stress on the fluid conduit in a sensor region having the sensor.

20. The method of claim 19, comprising sensing a parameter of a fluid flow in the fluid conduit via the sensor in an underwater environment.