CLAIMS

What is claimed is:

1. A protector for an electric submersible pump, the protector comprising:

a shaft extending axially through the protector;

at least one positive-sealing chamber disposed about the shaft;

a shaft tube within the chamber, the shaft tube surrounding the shaft;

a body positioned axially at an end of the at least one positive-sealing chamber; and

the protector configured to fluidly isolate from each other a volume within the shaft tube, a volume inside the at least one positive-sealing chamber, and a volume outside the at least one positive-sealing chamber.

2. The protector of Claim 1, wherein the at least one positive-sealing chamber is coupled to a component, further comprising at least one seal between the component and the body.

3. The protector of Claim 1, wherein the chamber comprises an elastomer bag.

4. The protector of Claim 1, wherein the at least one positive-sealing chamber comprises at least two positive-sealing chambers and the body is positioned axially between two consecutive positive-sealing chambers, the body comprising a shaft seal about the shaft and the consecutive positive-sealing chambers configured in parallel.

5. The protector of Claim 1, further comprising a shaft seal disposed axially between the positive-sealing chamber and a thrust bearing chamber.

6. The protector of Claim 1, wherein the at least one positive-sealing chamber comprises at least two positive-sealing chambers and the body is positioned axially between two consecutive positive-sealing chambers, the consecutive positive-sealing chambers configured in series with no shaft seal.

7. The protector of Claim 1, the body comprising a compensator configured to compensate for thermal expansion and/or contraction of oil within the shaft tube.

8. The protector of Claim 7, wherein the compensator comprises an elastomer bag, an elastomer bellows, a metal bellows, a movable piston, a volume of compressible gas, or a column of fluid that is denser than well fluid.

9. The protector of Claim 1, further comprising a relief valve configured to relieve excess pressure in the shaft tube.

10. The protector of Claim 1, the protector comprising a plurality of fluid pathways configured to fluidly isolate the volume within the shaft tube from the fluids inside and outside of the chamber into two separate hydraulic circuits.

11. The protector of Claim 2, wherein the component is a bag frame and the at least one seal comprises at least one coaxial seal.