What is claimed is:

1. A submersible fluid system for operating submerged in a body of water at a specified depth, comprising:

a fluid-end comprising a fluid rotor disposed in a fluid-end housing;

an electric machine housing coupled to the fluid-end housing and comprising a hermetically sealed cavity containing a fluid at a pressure less than a hydrostatic pressure at the specified depth; and

an electric machine disposed in the cavity of the electric machine housing, the electric machine comprising an electric machine stator and an electric machine rotor coupled to the fluid rotor, wherein the electric machine housing is radially supported by, and in conductive heat transfer with, the electric machine stator.

2. The submersible fluid system of claim 1, wherein the fluid contained in the sealed cavity of the electric machine housing is about one atmosphere pressure when the submersible fluid system is residing at atmospheric conditions and also when submerged at a specified depth.

3. The submersible fluid system of claim 2, wherein the fluid in the cavity is substantially gas.

4. The submersible fluid system of claim 3, wherein the gas is chemically inert.

5. The submersible fluid system of claim 1, further comprising a plurality of seals sealing the cavity and wherein the seals are entirely static seals.

6. The submersible fluid system of claim 1, further comprising a magnetic coupling that couples the electric machine rotor to the fluid rotor.

7. The submersible fluid system of claim 6, wherein the electric machine further comprises a magnetic bearing supporting the electric machine rotor to rotate within the electric machine stator, and the bearing is wholly contained within the sealed cavity.

8. The submersible fluid system of claim 6, wherein the electric machine rotor and the fluid rotor are coupled to rotate at the same speed.

9. The submersible fluid system of claim 1, wherein the electric machine rotor comprises a permanent magnet that interacts with the stator to at least one of rotate the electric machine rotor relative to the stator or generate electricity when moved relative to the stator.

~~10. The submersible fluid system of claim 1, wherein the electric machine housing is radially supported by, and in conductive heat transfer with, the electric machine stator.~~

10~~1~~. The submersible fluid system of claim 1, wherein:

the stator further comprises a stator core and electric conductor windings carried by the stator core that cooperate in forming a magnetic field of the stator, the electric conductor windings having end turns that protrude from the stator core; and

the system further comprises a heat conductive potting compound filling spaces between the end turns, stator core, and the electric machine housing to facilitate conductive heat transfer there between.

11~~2~~. The submersible fluid system of claim 1, wherein electric machine comprises a motor and the fluid rotor comprises a pump rotor.

12~~3~~. A method, comprising:

operating, at a depth underwater, an electric machine with a rotor of the electric machine and a portion of a stator of the electric machine proximate the rotor residing in a gas environment, the gas being at a pressure less than a hydrostatic pressure at the depth; ~~and~~

operating a fluid-end coupled to the electric machine with a rotor of the fluid-end rotating in unison with the rotor of the electric machine; and

cooling the electric machine while operating via conductive heat transfer between the stator of the electric machine and an exterior housing of the electric machine.

134. The method of claim 123, wherein operating the electric machine comprises rotating the rotor of the electric machine in response to electrical power supplied to the electric machine and, in turn, rotating the rotor of the fluid-end to pump a fluid.

145. The method of claim 123 wherein the gas environment is at a pressure of about one atmosphere.

156. The method of claim 123, wherein the electric machine is wholly contained in a housing, the interior of which contains the gas environment; and

the method further comprises communicating rotation of the rotor of the electric machine to the rotor of the fluid-end using a magnetic coupling.

~~17. The method of claim 13, cooling the electric machine while operating via conductive heat transfer between the stator of the electric machine and an exterior housing of the electric machine.~~

168. A submersible fluid system for operating submerged in a body of water at a specified depth, comprising:

a fluid-end comprising a fluid rotor disposed in a fluid-end housing;

an electric machine housing coupled to the fluid-end housing and comprising a hermetically sealed cavity containing a gas at a pressure of about one atmosphere when the submersible fluid system is residing at atmospheric conditions and less than a hydrostatic pressure when the submersible fluid system is residing at the specified depth; and

an electric machine disposed in the cavity of the electric machine housing, the electric machine comprising an electric machine stator and an electric machine rotor coupled to the fluid rotor, wherein the electric machine housing is radially supported by, and in conductive heat transfer with, the electric machine stator.

179. The submersible fluid system of claim 168, wherein the electric machine housing is in direct contact with the stator.

~~20~~18. The submersible fluid system of claim 168, wherein the electric machine comprises a generator.