Claims

1. A diaphragm assembly comprising:

a diaphragm member comprising:

a disk shaped portion having a first face and an opposed second face;

a first edge portion extending substantially transverse to the first face of the disk shaped portion;

a second edge portion extending substantially transverse to the second face of the disk shaped portion;

a frame configured to support and seal a periphery of the diaphragm member, the frame having first and second clamping faces engaging the first and second faces of the diaphragm member and defining a cavity configured to receive the first edge portion and the second edge portion;

a first sealing element engaging the first face of the disk shaped portion, a radially inner portion of the first edge portion and the frame;

a second sealing element engaging the second face of the disk shaped portion, a radially inner portion of the second edge portion and the frame.

2. A diaphragm assembly according to claim 1, wherein each of the first sealing element and the second sealing element comprises an O-ring.

3. A diaphragm assembly according to claim 1, wherein the diaphragm member comprises a monolithic fluoropolymer element.

4. A diaphragm assembly according to claim 1, wherein the diaphragm member comprises polytetrafluoroethylene.

5. A diaphragm assembly according to claim 1, wherein the diaphragm member comprises a monolithic element.

6. A diaphragm assembly according to claim 1, wherein the diaphragm member comprises a monolithic polytetrafluoroethylene element.

7. A diaphragm assembly according to claim 1, wherein the diaphragm member comprises a monolithic fluoropolymer element.

8. A diaphragm pump comprising:

a housing having a pumping chamber containing fluid to be pumped;

a cylinder;

a piston sliding in a reciprocating motion in the cylinder;

a diaphragm assembly coupled to the piston comprising:

a diaphragm member in fluid communication with the pumping chamber, the diaphragm member comprising:

a disk shaped portion having a first face and an opposed second face;

a first edge portion extending substantially transverse to the first face of the disk shaped portion;

a second edge portion extending substantially transverse to the second face of the disk shaped portion;

a first sealing element engaging the first face of the disk shaped portion and a radially inner portion of the first edge portion;

a second sealing element engaging the second face of the disk shaped portion and a radially inner portion of the second edge portion;

the housing being configured to support and seal a periphery of the diaphragm member, the housing having first and second clamping faces engaging the first and second faces of the diaphragm member and defining a cavity configured to receive the first edge portion and the first sealing element and the second edge portion and the second sealing element.

9. A diaphragm pump according to claim 8, wherein the diaphragm member comprises polytetrafluoroethylene.

10. A diaphragm pump according to claim 8, wherein the diaphragm member comprises a monolithic element.

11. A diaphragm pump according to claim 8, wherein the diaphragm member comprises a monolithic polytetrafluoroethylene element.

12. A diaphragm pump according to claim 8, wherein each of the first sealing element and the second sealing element comprises an O-ring.