CLAIMS

1. A shear seal, comprising:

a seal plate having a first seal surface; and

a sliding seal assembly having a second seal surface; wherein

at least one of the first and second seal surfaces comprise an insert connected to one of the seal plate and the sliding seal assembly, the insert when connected to the seal plate comprising a material different than that of the seal plate, and the insert when connected to the sliding seal assembly comprising a material different than that of the sliding seal assembly;

at least one compressed member, the compressed member, when the insert is connected to the seal plate, is disposed between the insert and an adjacent surface of seal plate and the compression of the compressed member provides sufficient force against adjacent surfaces of the insert and the compressed member to provide sufficient friction therebetween to prevent the insert from backing off or out of its connection location with the seal plate, and, when the insert is connected to the sliding seal assembly, the compressed member is disposed between the insert and an adjacent surface of the sliding seal assembly, and the compression of the compressed member provides sufficient force against adjacent surfaces of the insert and the compressed member to provide sufficient friction therebetween to prevent the insert from backing off or out of its connection location with the sliding seal assembly; and

a biasing member contacting a portion of the sliding seal assembly and biasing the sliding seal assembly against the seal plate.

2. The shear seal of claim 1, wherein the compressed member comprises an annular ring and the sliding seal assembly further comprises an annular recess having a first circumferential wall;

the compressed member is disposed between the insert and the annular wall; and

the insert includes a circumferential insert wall, the circumferential insert wall contacting the compressed member.

3. The shear seal of claim 2, wherein the compressed member comprises at least one of PEEK, carbon filled PEEK, or, Teflon or Delrin.

4. The shear seal of claim 1, wherein the insert comprises at least one of a single crystal material of a carbide.

5. The shear seal of claim 2, wherein the compressed member comprises a right annular ring.

6. The shear seal of claim 2, wherein the compressed member is an annular member having a non-uniform thickness in a radial direction thereof.

7. The shear seal of claim 2, wherein the insert is disposed in a recess of the seal plate; and

the compressed member contacts and extends circumferentially around the insert.

8. The shear seal of claim 1, wherein the insert is disposed over the sliding seal assembly and the sliding seal assembly further comprises an annular recess having a first circumferential wall and an annular ledge;

the compressed member is disposed between the insert and the first circumferential wall and between the annular ledge and the insert; and

the insert includes a circumferential inner insert wall, the circumferential inner insert wall contacting the compressed member.

9. The shear seal of claim 1, wherein the insert comprises at least one of a ruby or sapphire.

10. A fluid operated fluid circuit component comprising:

a shear seal, comprising:

a seal plate having a first seal surface; and

a sliding seal assembly having a second seal surface; wherein

at least one of the first and second seal surfaces comprise an insert connected to one of the seal plate and the sliding seal assembly, the insert when connected to the seal plate comprising a material different than that of the seal plate, and the insert when connected to the sliding seal assembly comprising a material different than that of the sliding seal assembly;

at least one compressed member, the compressed member, when the insert is connected to the seal plate, is disposed between the insert and an adjacent surface of seal plate and the compression of the compressed member provides sufficient force against adjacent surfaces of the insert and the compressed member to provide sufficient friction therebetween to prevent the insert from backing off or out of its connection location with the seal plate, and, when the insert is connected to the sliding seal assembly, the compressed member is disposed between the insert and an adjacent surface of the sliding seal assembly, and the compression of the compressed member provides sufficient force against adjacent surfaces of the insert and the compressed member to provide sufficient friction therebetween to prevent the insert from backing off or out of its connection location with the sliding seal assembly; and

a biasing member contacting a portion of the sliding seal assembly and biasing the sliding seal assembly against the seal plate.

11. The fluid operated fluid circuit component of claim 10, wherein the compressed member comprises an annular ring and the sliding seal assembly further comprises an annular recess having a first circumferential wall;

the compressed member is disposed between the insert and the annular wall; and

the insert includes a circumferential insert wall, the circumferential insert wall contacting the compressed member.

12. The fluid operated fluid circuit component of claim 11, wherein the compressed member comprises at least one of PEEK, carbon filled PEEK, or, Teflon or Delrin.

13. The fluid operated fluid circuit component of claim 10, wherein the insert comprises at least one of a single crystal material of a carbide.

14. The fluid operated fluid circuit component of claim 11, wherein the compressed member comprises a right annular ring.

15. The fluid operated fluid circuit component of claim 11, wherein the compressed member is an annular member having a non-uniform thickness in a radial direction thereof.

16. The fluid operated fluid circuit component of claim 11, wherein the insert is disposed in a recess of the seal plate; and

the compressed member contacts and extends circumferentially around the insert.

17. The fluid operated fluid circuit component of claim 10, wherein the insert is disposed over the sliding seal assembly and the sliding seal assembly further comprises an annular recess having a first circumferential wall and an annular ledge;

the compressed member is disposed between the insert and the first circumferential wall and between the annular ledge and the insert; and

the insert includes a circumferential inner insert wall, the circumferential inner insert wall contacting the compressed member.

18. The fluid operated fluid circuit component of claim 10, wherein the insert comprises at least one of a ruby or sapphire.

19. The fluid operated fluid circuit component of claim 10, wherein the component comprises one of a valve or a pressure regulator.

20. A shear seal assembly comprising:

a seal plate having a first sliding seal engagement surface;

a sliding seal assembly, comprising a body having a biasing element surface end and a second sliding seal engagement surface, the second sliding seal engagement surface on the opposite side of the body from the biasing element surface,

at least one of the seal plate and body including a recess therein, the recess including a circumferential recess wall;

a compressed member having a compressible member body, a first cylindrical surface and a second cylindrical surface, the first cylindrical surface on an opposite side of the compressible member body from the second cylindrical surface;

an insert having a circumferential insert wall, the insert located in the recess, wherein the circumferential insert wall of the insert contacts one of the first cylindrical surface and the second cylindrical surface and the other of the first cylindrical surface and the second cylindrical surface contacts the circumferential recess wall; and

the contact between the insert and the compressed member provides sufficient force against the adjacent surfaces of the insert and the compressed member to provide sufficient friction therebetween to prevent the insert from backing off or out the recess.