CLAIMS

1. A metal-to-metal seal for sealing between a pair of annular surfaces, the seal comprising:

an inner seal portion and an outer seal portion, each seal portion comprising a central seal portion the central seal portion having a concave shape in a de-energized state such that the central portion curves toward a centerline of the seal, the central portion capable of flexing radially outward toward the pair of annular surfaces upon energization of the seal; and

at least one outer ridge extending from the central portion of the seal radially outward away from the centerline of the seal so that when the seal is energized the at least one outer ridge sealingly engages an outer annular surface of the pair of annular surfaces.

2. The seal of claim 1, further comprising at least one inner ridge extending from the central portion of the inner portion of the seal radially outward away from the centerline of the seal so that when the seal is energized the at least one inner ridge sealingly engages an inner annular surface of the pair of annular surfaces.

3. The seal of claim 1, wherein the outer seal portion comprises an outer concave central seal surface and the inner seal portion comprises an inner concave central seal surface, the outer concave central seal surface and inner concave central seal surface separated from one another and defining a recess therebetween, the seal further comprising at least one intra-seal ridge extending from the outer concave central seal surface into the recess so that when the seal is energized by a plunger inserted into the recess, the at least one infra-seal ridge extending from the outer concave central seal portion sealingly engages the plunger.

4. The seal of claim 3, further comprising and at least one intra-seal ridge extending from the inner concave central seal surface into the recess so that when the seal is energized by the plunger, the at least one intra-seal ridge extending from the inner concave central seal surface sealingly engages a plunger.

5. The seal of claim 3, wherein the at least one outer ridge comprises a plurality of outer ridges.

6. The seal of claim 1 further comprising:

at least one seal positioned to seal between the outer seal portion and the inner seal portion.

7. The seal of claim 6, wherein the at least one seal is a plunger sealing surface, an infra-seal seal, or a tab seal.

8. The seal of claim 7 wherein insertion of a plunger into the recess energizes the plunger scaling surface or the tab seal.

9. The seal of claim 1 wherein the inner seal portion and the outer seal portion are made via an additive manufacturing process.

10. The seal of claim 1 wherein the at least one ridge comprises a different material of construction than the central portion of the metal-to-metal seal.

11. A method for sealing an annular space of a well comprising:

selecting an inner seal portion according to an inner diameter of the annular space;

selecting an outer seal portion according to an outer diameter of the annular space;

inserting the combined inner and outer portions as a metal-to-metal annular seal into the annular space, the inner portion having an at least one inner biased concave surface, the outer portion having at least one outer biased concave central seal surfaces, and the central portion having at least one outer ridge extending radially outward away from the centerline of the seal, so that when the seal is energized the at least one outer ridge sealingly engages an outer annular surface of the pair of annular surfaces;

inserting a plunger into a first end of the annular seal;

energizing the seal by pushing the at least one inner and outer biased concave central seal surfaces toward proximate annular surfaces in the annular space; and

sealingly engaging the at least one inner and outer biased concave central seal surfaces with annular surfaces in the annular space.

12. The method of claim 11 further comprising:

providing at least one intra-seal ridge and ridges on the inner and outer biased concave central seal surfaces; and

sealingly engaging the at least one intra-seal ridge with the plunger and the ridges with the annular surfaces in the annular space.

13. The method of claim 11 further comprising:

sealingly engaging at least one additional inner and outer biased concave central seal surfaces with annular surfaces in the annular space.

14. The method of claim 11 further comprising:

selecting a sealing system for sealing between the inner seal portion and the outer seal portion.

15. The method of claim 14 wherein the plunger sealingly engages the sealing system for 15 sealing between the inner seal portion and the outer seal portion.

16. A method of resealing an annular space comprising:

removing a plunger from a first end of a metal-to-metal annular seal to de-energize the metal-to-metal annular seal;

removing the metal-to-metal annular seal from the annular space;

replacing an inner seal portion and/or an outer seal portion;

reinserting the seal into the annular space; and

inserting the plunger into the metal-to-metal annular seal to re-energize the metal-to-metal annular seal.

17. The method of claim 16 wherein replacing the inner seal portion and/or the outer seal portion changes a location of a sealing ridge on the inner and outer seal portions.

18. The method of claim 16 further comprising:

changing a seal type between the inner seal portion and outer seal portion.

19. The method of claim 16 wherein the seal is in a substantially similar location in the annular space before removal and after re-insertion.

20. The method of claim 19 wherein the ridges engage the surfaces of the annular space in a substantially different locations before removal and after re-insertion.

21. The seal of claim 1, each seal portion further comprising a first end and a second end, wherein the at least one outer ridge is axially positioned on the seal nearer to the first end than the second end such that when the seal is reoriented between the pair of annular surfaces the at least one outer ridge is positioned to sealingly engage the outer surface at a different location that before reorientation.