CLAIMS

1. A system, comprising:

an annular seal configured to mount between tubular components of a mineral extraction system, wherein the annular seal comprises:

a top seal section ~~first layer~~;

a bottom seal section ~~second layer~~; and

a core seal section coupled to and disposed axially between the top and bottom seal sections ~~first and second layers~~, wherein the core seal section is made of a material softer than the top and bottom seal sections ~~first and second layers~~, the top and bottom seal sections pre-load the annular seal to axially expand and radially reduce a radial width of the core seal section, and the top and bottom seal sections ~~first and/or second layers~~ are configured to axially compress and radially expand under an axial load to cause radial expansion of the radial width of the core seal section.

2. The system of claim 1, wherein the top and bottom seal sections ~~first and/or second layers~~ comprise geometries which are angled and/or curved at least partially non-orthogonal to the axial load.

3. The system of claim 1, wherein the top and bottom seal sections ~~first and/or second layers~~ comprise convex and/or concave surfaces.

4. The system of claim 1, wherein the top and bottom seal sections ~~first and/or second layers~~ comprise angled surfaces having an angle at least greater than about 10 degrees relative to a radial direction of the radial expansion, and the angled surfaces extend along at least about 10 percent of ~~a radial~~ the radial width of the annular seal.

5. The system of claim 1, wherein the top and bottom seal sections ~~first and/or second layers~~ comprise zigzagging surfaces.

6. The system of claim 1, wherein the top and bottom seal sections ~~first and/or second layers~~ are configured to radially expand by at least about 5 percent of ~~a radial~~ the radial width of the annular seal in response to the axial compression caused by the axial load.

7. The system of claim 1, wherein the top seal section comprises a first top portion and the bottom seal section comprises a first bottom portion, the first top portion and the first bottom portion diverge away from one another in a radial direction, and the first top portion and the first bottom portion are coupled to the core seal section.

8. The system of claim 7, wherein the first top portion comprises a first angled top portion and the first bottom portion comprises a first angled bottom portion relative to the radial direction.

9. The system of claim 7, wherein the first top portion comprises a first curved top portion and the first bottom portion comprises a first curved bottom portion.

10. The system of claim 7, wherein the first top portion comprises an angled portion and the first bottom portion comprises a parallel portion relative to the radial direction.

11. The system of claim 7, wherein the top seal section comprises a second top portion and the bottom seal section comprises a second bottom portion, the second top portion and the second bottom portion converge toward one another in the radial direction, and the second top portion and the second bottom portion are coupled to the core seal section.

12. The system of claim 11, wherein the top seal section comprises a third top portion and the bottom seal section comprises a third bottom portion, the third top portion and the third bottom portion diverge away from one another in the radial direction, and the third top portion and the third bottom portion are coupled to the core seal section.

13. The system of claim 7, wherein the top seal section comprises a second top portion and the bottom seal section comprises a second bottom portion, the second top portion and the second bottom portion diverge away from one another in the radial direction, and the second top portion and the second bottom portion are coupled to the core seal section.

14. The system of claim 13, wherein the top seal section comprises a third top portion and the bottom seal section comprises a third bottom portion, the third top portion is disposed between the first and second top portions, the third bottom portion is disposed between the first and second bottom portions, and the third top portion and the third bottom portion are coupled to the core seal section.

15. The system of claim 1, wherein the top and bottom seal sections are made of a non-metallic material.

16. The system of claim 15, wherein the non-metallic material comprises a fabric material.

17. The system of claim 1, wherein the core seal section is made of an elastomer or rubber material.

18. The system of claim 1, wherein the top and bottom seal sections are coupled to the core seal section along an entirety of the radial width of the core seal section.

19. A method, comprising:

pre-loading an annular seal with top and bottom seal sections that axially expand and radially reduce a radial width of a core seal section, wherein the core seal section is coupled to and disposed axially between the top and bottom seal sections, the core seal section is made of a material softer than the top and bottom seal sections, and the top and bottom seal sections are configured to axially compress and radially expand under an axial load to cause radial expansion of the radial width of the core seal section.

20. The method of claim 19, comprising:

mounting the annular seal between tubular components of a mineral extraction system; and

applying the axial load to cause radial expansion of the radial width of the core seal section.