Claims

What is claimed is:

~~1.~~1. An element retainer for a wellbore comprising:

a continuous single structure ~~having~~ consisting of a single material and comprising:

a high-density region ~~and~~ of the single material; and

a low-density region of the single material having a density that is lower than the high-density region, the low-density region being deformable in retaining a position of another component downhole in ~~a~~the wellbore.

~~2.~~

2. The element retainer of ~~claim~~ ~~1,~~1, wherein the element retainer is useable in a packer element system to form a seal within an annulus in the wellbore, the packer element system comprising:

———a second element retainer positionable against the high-density region to apply force to the single structure; and

———a first elastomeric element positionable against the low-density region and compressible by the continuous single structure in response to the second element retainer applying force to the continuous single structure, the first elastomeric element having a first coefficient of elasticity.

~~3.~~

3. The element retainer of ~~claim~~ ~~2,~~2, wherein the packer element system further comprises:

a second elastomeric element compressible by the first elastomeric element in response to the continuous single structure applying force to the first elastomeric element, the second elastomeric element having a second coefficient of elasticity that is different than the first coefficient of elasticity.

~~4.~~

4. The element retainer of ~~claim~~ ~~1,~~1, wherein the high-density region comprises protrusions positionable circumferentially around an exterior of the high-density region to reduce circumferential force applicable to the element retainer overcome during setting.

~~5.~~

5. The element retainer of ~~claim~~ ~~1,~~1, wherein the low-density region comprises an inner rung portion having a hook shape for clamping against a mandrel to form a seal.

~~6.~~6. The element retainer of- claim ~~1,~~1, wherein the low-density region forms a mesh configuration.

~~7.~~

7. The element retainer of- claim ~~1,~~1, wherein the low-density region comprises:

loose powder; and

a solidified exterior encapsulating the loose powder.

~~8.~~

8. The element retainer of- claim ~~1,~~1, wherein the element retainer is an element shoe.

~~9.~~

9. A wellbore system comprising:

an element retainer comprising a continuous single structure of a single material, the continuous single structure further comprising having a high-density region of the single material and a low-density region of the single material having a density that is lower than the high-density region, the low-density region being deformable in retaining a position of a first elastomeric element downhole in a wellbore;

a second element retainer positionable against the high-density region to apply force to the single structure; and

———the first elastomeric element positionable against the low-density region and compressible by the single structure in response to the second element retainer applying force to the single structure, the first elastomeric element having a first coefficient of elasticity.

~~10.~~

10. The system of- claim ~~9,~~9, further comprising:

a second elastomeric element compressible by the first elastomeric element in response to the continuous single structure applying force to the first elastomeric element, the second elastomeric element having a second coefficient of elasticity that is different than the first coefficient of elasticity.

~~11.~~

11. The system of- claim ~~10,~~10, further comprising:

a third element retainer comprising a second continuous single structure consisting of a second single material and having a second high-density region of the second single material and a second low-density region of the second single material having a density that is lower than the second high-density region, the second low-density region being deformable in retaining a position of a third elastomeric element downhole in the wellbore; and

a fourth element retainer positionable against the second high-density region to apply force to the second continuous single structure,

———the third elastomeric element positionable against the second low-density region and compressible by the second continuous single structure in response to the fourth element retainer applying force to the second continuous single structure, the third elastomeric element having a third coefficient of elasticity,

———wherein the second elastomeric element is compressible by the third elastomeric element in response to the second continuous single structure applying force to the third elastomeric element, and wherein the second elastomeric element is positionable between the first elastomeric element and the third elastomeric element.

~~12.~~

12. The system of ~~claim 9,~~9, wherein the system is a packer useable to form a seal within an annulus in the wellbore, and wherein the element retainer is an element shoe.

~~13.~~

13. The system of ~~claim 9,~~9, wherein the high-density region comprises protrusions positionable circumferentially around an exterior of the high-density region to reduce circumferential force applicable to the element retainer overcome during setting.

~~14.~~

14. The system of ~~claim 9,~~9, wherein the low-density region comprises an inner rung portion having a hook shape for clamping against the first elastomeric element to form a seal, and wherein the low-density region is a mesh configuration.

~~15.~~

15. The system of ~~claim 9,~~9, wherein the low-density region comprises:

loose powder; and

a solidified exterior encapsulating the loose powder.

~~16. A method of manufacturing comprising:~~

~~deposing layers of powder onto a plate; and~~

~~applying heat to the layers of powder using a laser and in accordance with a pattern to define a first region of high density and a second region of low density that form a single structure usable to retain a component downhole in a wellbore.~~

17. The method of manufacturing of claim 16, wherein a layer of powder of some of the layers of powder applied with heat comprises the first region of high density and the second region of low density.

18. The method of manufacturing of claim 16, wherein applying heat to the layers of powder in accordance with a pattern includes applying heat to define the second region of low density in a mesh pattern.

19. The method of manufacturing of claim 18, further comprising:

removing loose powder that was not applied with heat from within the second region of low density in the mesh pattern.

20. The method of manufacturing of claim 16, wherein applying heat to the layers of powder in accordance with a pattern includes applying heat to define the second region of low density having a solidified exterior encapsulating loose powder.