CLAIMS

What is claimed is:

1. A packer, comprising:

a fluid bypass positioned along a longitudinal axis of the packer configured to provide a fluid flow path between a downhole location and an uphole location from the packer; and

a sealing element positioned around the fluid bypass that is elastically deformable to expand in a direction radially outward from the longitudinal axis when the sealing element experiences axial compression, the sealing element comprising:

at least one elastomeric seal reinforcer molded into the elastomeric seal.

2. The packer according to claim 1, wherein sealing element comprises:

a central section comprising a first elastomeric material with a first durometer; and

a first outer section and a second outer section positioned on either side of the central section, the first outer section and the second outer section each comprising a second elastomeric material with a second durometer greater than the first durometer.

3. The packer according to claim 2, wherein the central section, the first outer section, and the second outer section each comprise at least one of the at least one elastomeric seal reinforcers molded into the elastomeric seal.

4. The packer according to any of claims 1-3, wherein the at least one elastomeric seal reinforcer comprises a cable, a mesh, or a sheet metal ring.

5. The packer according to any of claims 1-4, wherein the at least one elastomeric seal reinforcer is made from a metal, an alloy, a continuous fiber, a thermoplastic, or a thermoset material.

6. The packer according to any of claims 1-5, wherein the at least one elastomeric seal reinforcer comprises a sheet metal ring comprising an engineered weak point.

7. The packer according to claim 6, wherein the engineered weak point is configured to break when the sealing element is activated into a sealing position.

8. The packer according to any of claims 1-7, comprising:
at least one slip positioned uphole or downhole from the sealing element; and
at least one slip retention device configured to retain the slip in a deactivated position until the packer reaches a desired downhole location.

9. The packer according to claim 8, wherein the at least one slip retention device comprises a band or a sleeve positioned around the at least one slip, and wherein the band or the sleeve are made from eutectic, reactive, or dissolvable materials.

10. The packer according to claim 8, wherein the at least one slip retention device comprises a shear screw configured to shear upon activation of the packer at the desired downhole location.

11. The packer according to any of claims 1-10, comprising:
at least one elastomeric seal support band positioned around the sealing element, wherein the at least one elastomeric seal support band allows expansion of the sealing element when the production packer system reaches a desired downhole location.

12. The packer according to claim 11, wherein the elastomeric seal support band comprises a eutectic, reactive, or dissolvable material that melts or dissolves upon the production packer reaching the desired downhole location.

13. The packer according to claim 11 or 12, wherein the sealing element comprises multiple sections, and the at least one elastomeric seal support is positioned in a location that spans two or more of the multiple sections.

14. The packer according to any of claims 1-13, comprising:
at least one slip positioned uphole, downhole, or uphole and downhole from the sealing element; and
at least one slip retention device configured to retain the slip in a deactivated position until the production packer system reaches the desired downhole location, wherein the at least one slip retention device comprises a band or a sleeve positioned around

the at least one slip, and wherein the band or the sleeve are made from eutectic, reactive, or dissolvable materials.

15. The packer according to claim 14, further comprising a wedge, wherein the at least one slip retention device comprises a shear screw extending through the slip and the wedge.