WHAT IS CLAIMED IS:

1. A method for making a sealing element for a rotating control device used in rotary drilling systems, said sealing element having a bore, a base region, and a nose region, said method comprising:

providing a mold for the sealing element for the rotating control device;

adding fibers at a first concentration to a first liquid elastomer material containing polyurethane;

placing the first liquid elastomer material having a first concentration of fibers into the mold;

adding fibers at a second concentration to a second liquid elastomer material containing polyurethane;

placing the second liquid elastomer material having a second concentration of fibers into the mold;

heating the fibers and liquid elastomer in the mold;

forming a sealing element having a bore, a base region with a first concentration of fibers, and a nose region having a second concentration of fibers.

2. The method of claim 1, further comprising placing an elastomer material having a third concentration of fibers into the mold.

3. The method of claim 1, further comprising selecting fibers from the group consisting of polyvinyl alcohol (PVA), glass, cotton, or polyester.

4. The method of any of claims 1 to 3 further comprising selecting fibers of 1/8"-1/2" in length and 1200-1800 denier.

5. The method of any of claims 1 to 4 comprising orienting the fibers in a random, horizontal, vertical or radial orientation, or any combination of these orientations.

6. The method of any of claims 1 to 4 further comprising suspending the fibers longitudinally from the top of the mold parallel to the central axis of the sealing element and extending to the bottom of the mold prior to placing the elastomer material in the mold.

7. The method of any of claims 1 to 4 further comprising suspending the fibers radially from a central core of the mold to an inner surface of an outer wall of the prior to placing the elastomer material in the mold.

8. The method of any of claims 1 to 4 further comprising inserting the fibers into the liquid elastomer with an insertion tool.

9. A sealing element for a rotating control device used in a rotary drilling system, comprising:

said sealing element molded from a polyurethane base elastomer and fibers mixed into the polyurethane base elastomer;

said sealing element having an inner surface which forms a bore extending axially through the sealing element;

a base region;

a nose region opposite from the base region, wherein the nose region has an inner diameter smaller than the inner diameter of the attachment region;

at least one region comprising a first concentration of fibers; and

at least one region comprising a second concentration of fibers.

10. The element of claim 9, wherein the first concentration is higher than the second concentration.

11. The element of any of claims 9 or 10, wherein the region comprising the first concentration of fibers is located near the base region of the sealing element.

12. The element of any of claims 9 to 11, wherein the first concentration of fibers is in the range of 1%-20% measured by weight of the elastomer and fiber composite.

13. The element of any of claims 9 to 12, wherein the fibers are randomly oriented in the sealing element.

14. The element of any of claims 9 to 12, wherein the fibers are uniformly distributed in the sealing element.

15. The element of any of claims 9 to 14 wherein the fibers are 1/8"-1/2" in length and 1200-1800 denier.

16. The element of any of claims 9 to 15 wherein the fibers are formed from one of the members of the group consisting of polyvinyl alcohol (PVA), glass, cotton, and polyester.

17. A method for making a sealing element for a rotating control device used in rotary drilling systems, comprising:

providing a mold for the sealing element for the rotating control device;

adding fibers at a first concentration to a first liquid elastomer material containing polyurethane;

placing the first liquid elastomer material having a first concentration of fibers into the mold;

adding fibers at a second concentration to a second liquid elastomer material containing polyurethane;

placing the second liquid elastomer material having a second concentration of fibers into the mold;

heating the fibers and liquid elastomer in the mold;

forming a sealing element having a bore,

wherein the sealing element can stretch to receive a wellbore component in a longitudinal insertion through the bore,

wherein the fibers enhance a property of the sealing element for extending the service life of the sealing element, including at least one of increased resistance to outside pressure, increased resistance to wear, and increased strength,

wherein the fibers are randomly oriented and uniformly distributed in the sealing element.

18. The method of claim 17, further comprising selecting the fibers from the group consisting of polyvinyl alcohol (PVA), glass, cotton, and polyesther.

19. The method of claim 17, further comprising selecting fibers of 1/8"-1/2" in length and 1200-1800 denier.

Claims

1. A method for making a sealing element for a rotating control device used in rotary drilling systems, said sealing element having a bore, a base region, and a nose region, said method comprising:

providing a mold for the sealing element for the rotating control device;

adding fibers at a first concentration to a first liquid elastomer material containing polyurethane;

placing the first liquid elastomer material having a first concentration of fibers into the mold;

adding fibers at a second concentration to a second liquid elastomer material containing polyurethane;

placing the second liquid elastomer material having a second concentration of fibers into the mold;

heating the fibers and liquid elastomer in the mold; and

forming a sealing element having a bore, a base region with a first concentration of fibers, and a nose region having a second concentration of fibers.

2. The method of claim 1, further comprising placing an elastomer material having a third concentration of fibers into the mold.

3. The method of claim 1, further comprising selecting fibers from the group consisting of polyvinyl alcohol (PVA), glass, cotton, or polyester.

4. The method of claim 1 further comprising selecting fibers of 1/8”-1/2” in length and 1200-1800 denier.

5. The method of claim 1 comprising orienting the fibers in a random, horizontal, vertical or radial orientation, or any combination of these orientations.

6. The method of claim 1 further comprising suspending the fibers longitudinally from the top of the mold parallel to a central axis of the sealing element and extending to a bottom of the mold prior to placing the first and second liquid elastomer material in the mold.

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7. The method of claim 1 further comprising suspending the fibers radially from a central core of the mold to an inner surface of an outer wall of the mold prior to placing the elastomer material in the mold.

8. The method of claim1 further comprising inserting the fibers into the first and second liquid elastomer material with an insertion tool.

9. A sealing element for a rotating control device used in a rotary drilling system, comprising:

said sealing element molded from a polyurethane base elastomer and fibers mixed into the polyurethane base elastomer;

said sealing element having an inner surface which forms a bore extending axially through the sealing element;

a base region;

a nose region opposite from the base region, wherein the nose region has an inner diameter smaller than the inner diameter of an attachment region;

at least one region comprising a first concentration of fibers; and

at least one region comprising a second concentration of fibers.

10. The element of claim 9, wherein the first concentration is higher than the second concentration.

11. The element of claim 9, wherein the region comprising the first concentration of fibers is located near the base region of the sealing element.

12. The element of claim 9, wherein the first concentration of fibers is in the range of 1%-20% measured by weight of the elastomer and fiber composite.

13. The element of claim 9, wherein the fibers are randomly oriented in the sealing element.

14. The element of claim 9, wherein the fibers are uniformly distributed in the sealing element.

15. The element of claim 9 wherein the fibers are 1/8”-1/2” in length and 1200-1800 denier.

16. The element of claim 9 wherein the fibers are formed from one of the group consisting of polyvinyl alcohol (PVA), glass, cotton, and polyester.

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17. A method for making a sealing element for a rotating control device used in rotary drilling systems, comprising:

providing a mold for the sealing element for the rotating control device;

adding fibers at a first concentration to a first liquid elastomer material containing polyurethane;

placing the first liquid elastomer material having a first concentration of fibers into the mold;

adding fibers at a second concentration to a second liquid elastomer material containing polyurethane;

placing the second liquid elastomer material having a second concentration of fibers into the mold;

heating the fibers and liquid elastomer in the mold;

forming a sealing element having a bore;

wherein the sealing element can stretch to receive a wellbore component in a longitudinal insertion through the bore;

wherein the fibers enhance a property of the sealing element for extending the service life of the sealing element, including at least one of increased resistance to outside pressure, increased resistance to wear, and increased strength; and

wherein the fibers are randomly oriented and uniformly distributed in the sealing element.

18. The method of claim 17, further comprising selecting the fibers from the group consisting of polyvinyl alcohol (PVA), glass, cotton, and polyester.

19. The method of claim 17, further comprising selecting fibers of 1/8”-1/2” in length and 1200-1800 denier.

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