WHAT IS CLAIMED IS:

1. A flow control device for installation in a subterranean wellbore, the flow control device comprising:

an interior surface that defines an interior chamber, the interior surface includes a side perimeter surface and opposing end surfaces, a greatest distance between the opposing end surfaces is smaller than a largest dimension of the opposing end surfaces;

a first port through one of the end surfaces;

a second port through the interior surface and apart from the first port, the side perimeter surface operable to direct flow from the second port to rotate about the first port; and

a flow path structure in the interior chamber.

2. The flow control device of claim 1, wherein the flow path structure is operable to direct the flow from the second port to rotate about the first port.

3. The flow control device of claim 2, wherein the flow path structure is operable to allow the flow from the second port to flow directly toward the first port.

4. The flow control device of claim 1, wherein the first port comprises an outlet from the interior chamber and the second port comprises an inlet to the interior chamber.

5. The flow control device of claim 1, wherein the flow path structure comprises an interior wall extending from at least one of the opposing end surfaces.

6. The flow control device of claim 5, wherein the interior wall extends from one of the opposing end surfaces to the other opposing end surface.

7. The flow control device of claim 5, wherein the interior wall extends from one of the opposing end surfaces and defines a gap between a top of the interior wall and the other opposing end surface.

8. The flow control device of claim 1, wherein the flow path structure comprises a first vane extending from one of the opposing end surfaces, and the flow path structure comprises a second vane extending from the other opposing end surface.

9. The flow control device of claim 1, wherein the flow path structure comprises at least one of whiskers, bristles, or wires extending from one of the opposing end surfaces.

10. The flow control device of claim 1, wherein the flow path structure comprises recesses defined in at least one of the opposing end surfaces.

11. The flow control device of claim 1, wherein the flow path structure comprises undulations defined in at least one of the opposing end surfaces.

12. The flow control device of claim 1, wherein the flow path structure comprises a vane.

13. A flow control device for installation in a subterranean wellbore, the flow control device comprising:

a cylindroidal chamber for receiving flow through a chamber inlet and directing the flow to a chamber outlet, a greatest axial dimension of the cylindroidal chamber is smaller than a greatest diametric dimension of the cylindroidal chamber, the cylindroidal chamber promotes a rotation of the flow about the chamber outlet and a degree of the rotation is based on a characteristic of an inflow through the chamber inlet; and

a flow path structure in the cylindroidal chamber.

14. The flow control device of claim 13, wherein the degree of the rotation is based on a density of the inflow.

15. The flow control device of claim 13, wherein the degree of the rotation is based on a viscosity of the inflow.

16. The flow control device of claim 13, wherein the degree of the rotation is based on a velocity of the inflow.

17. The flow control device of claim 13, wherein an increase in the degree of rotation increases a resistance to the flow between an interior and an exterior of the device, and a decrease in the degree of rotation decreases a resistance to the flow between the interior and the exterior.

18. The flow control device of claim 13, wherein the degree of the rotation is based on a spatial relationship between a position of the flow path structure in the cylindroidal chamber and a direction of the inflow through the chamber inlet.

19. The flow control device of claim 13, wherein the cylindroidal chamber is cylindrical.

20. The flow control device of claim 13, wherein the cylindroidal chamber includes a side perimeter surface and opposing end surfaces, and the side perimeter surface is perpendicular to both of the opposing end surfaces.

21. A method of controlling flow in a subterranean wellbore, comprising:

receiving flow in a cylindroidal chamber of a flow control device in a wellbore, the cylindroidal chamber comprising a chamber inlet, a greatest axial dimension of the cylindroidal chamber is smaller than a greatest diametric dimension of the cylindroidal chamber;

directing the flow by a flow path structure within the cylindroidal chamber; and

promoting a rotation of the flow through the cylindroidal chamber about a chamber outlet, where a degree of the rotation is based on a characteristic of inflow through the chamber inlet.

22. The method of claim 21, wherein promoting the rotation comprises increasing the degree of rotation based on a viscosity of the inflow.

23. The method of claim 21, wherein promoting the rotation comprises increasing the degree of rotation based on a velocity of the inflow.

24. The method of claim 21, wherein promoting the rotation comprises increasing the degree of rotation based on a density of the inflow.

25. The method of claim 21, wherein directing the flow by the flow path structure comprises increasing or

decreasing the degree of the rotation based on a characteristic of inflow throughthe chamber inlet.

26. The method of claim 21, wherein directing the flow by the flow path structure comprises allowing at least a portion of the flow to flow directly toward the chamber outlet fromthe chamber inlet.

27. The method of claim 21, wherein promoting the rotation comprises increasing the degree of rotation, and increasing the degree of rotation increases a resistance to the flow through the cylindroidal chamber.

WHAT IS CLAIMED IS:

1. A flow control device for installation in a subterranean wellbore, the flow control device comprising:

a chamber, an interior surface of the chamber including a side perimeter surface and first and second opposing end surfaces, a greatest distance between the opposing end surfaces being less than a largest diametral dimension of the first and second opposing end surfaces;

at least one inlet located in the side perimeter surface, wherein a well fluid enters the chamber via the at least one inlet;

an outlet located in one of the end surfaces, wherein all the well fluid that enters the chamber via the inlet also exits the chamber via the outlet; and

a flow path structure extending from at least one of the first and second opposing end surfaces, wherein the flow path structure permits the well fluid to flow radially toward the outlet.

2. The flow control device of claim 1, wherein the flow path structure induces the well fluid to flow circularly about the outlet.

3. The flow control device of claim 1, wherein the flow path structure comprises a wall extending from at least one of the first and second opposing end surfaces.

4. The flow control device of claim 3, wherein the wall extends from the first opposing end surface to the second opposing end surface.

5. The flow control device of claim 3, further comprising an opening, wherein the opening is formed at least one of a) in the wall and b) between the wall and at least one of the first and second opposing end surfaces.

6. The flow control device of claim 3, wherein the flow path structure comprises a first wall extending from the first opposing end surface, and the flow path structure comprises a second wall extending from the second opposing end surface.

7. The flow control device of claim 1, wherein the flow path structure comprises at least one of whiskers, bristles, or wires extending from at least one of the first and second

opposing end surfaces.

8. The flow control device of claim 1, wherein the flow path structure comprises recesses in at least one of the first and second opposing end surfaces.

9. The flow control device of claim 1, wherein the flow path structure comprises undulations in at least one of the first and second opposing end surfaces.

10. The flow control device of claim 1, wherein the flow path structure comprises a vane.

11. A flow control device for installation in a subterranean wellbore, the flow control device comprising:

a cylindroidal chamber including at least one inlet and only one outlet, a greatest axial dimension of the cylindroidal chamber being less than a greatest diametral dimension of the cylindroidal chamber, wherein a well fluid enters the cylindroidal chamber via the at least one inlet and exits the cylindroidal chamber via the outlet, and wherein a resistance to flow of the well fluid through the cylindroidal chamber varies in response to a change in a characteristic of the well fluid; and

a flow path structure positioned within the cylindroidal chamber, wherein the flow path structure resists a change in a direction by which the well fluid flows from the at least one inlet to the outlet.

12. The flow control device of claim 11, wherein the characteristic comprises a density of the well fluid.

13. The flow control device of claim 11, wherein the characteristic comprises a viscosity of the well fluid.

14. The flow control device of claim 11, wherein the characteristic comprises a velocity of the well fluid.

15. The flow control device of claim 11, wherein the resistance to flow of the well fluid through the cylindroidal chamber increases when the well fluid flows more circularly

about the outlet.

16. The flow control device of claim 11, wherein the resistance to flow of the well fluid through the cylindroidal chamber decreases when the well fluid flows more radially toward the outlet.

17. The flow control device of claim 11, wherein a major axis and a minor axis of the cylindroidal chamber have substantially a same dimension.

18. The flow control device of claim 11, wherein the cylindroidal chamber includes a side perimeter surface and opposing end surfaces, and the side perimeter surface is perpendicular to both of the opposing end surfaces.

19. A method of controlling flow in a subterranean wellbore, comprising:

receiving a well fluid into a cylindroidal chamber of a flow control device in a wellbore, the cylindroidal chamber including at least one inlet by which the well fluid enters the cylindroidal chamber, the cylindroidal chamber including only a single outlet by which the well fluid exits the cylindroidal chamber, a greatest axial dimension of the cylindroidal chamber being less than a greatest diametral dimension of the cylindroidal chamber;

the well fluid contacting a flow path structure, thereby resisting a change in a direction by which the well fluid flows from the at least one inlet to the outlet; and

a resistance to flow of the well fluid through the cylindroidal chamber varying in response to a change in a characteristic of the well fluid.

20. The method of claim 19, wherein the characteristic comprises a viscosity of the well fluid.

21. The method of claim 19, wherein the characteristic comprises a velocity of the well fluid.

22. The method of claim 19, wherein the characteristic comprises a density of the well fluid.

23. The method of claim 19, wherein the resistance to flow of the well fluid through

the cylindroidal chamber increases when the well fluid flows more circularly about the outlet.

24. The method of claim 19, wherein the resistance to flow of the well fluid through the cylindroidal chamber decreases when the well fluid flows more radially toward the outlet.

25. The method of claim 19, wherein the cylindroidal chamber includes a side perimeter surface and opposing end surfaces, and the side perimeter surface is perpendicular to both of the opposing end surfaces.