Claims:

1. A valve, comprising:

a valve body comprising a fluid flow path between an inlet port and an outlet port;

a valve seat surrounding an axially extending portion of the flow path; and

a poppet assembled with the valve body, the poppet including an axially extending poppet stem, a poppet base assembled with the poppet stem, and a radially extending poppet sealing surface disposed between the poppet stem and the poppet base, the poppet being axially movable between a closed position in which the poppet sealing surface seals against a seating surface of the valve seat to prevent fluid flow through the longitudinally extending portion of the flow path, and an open position in which the poppet sealing surface axially separates from the valve seat to permit fluid flow through the axially extending portion of the flow path;

wherein the poppet sealing surface is defined by an annular poppet sealing member disposed around a neck portion of the poppet stem, the poppet sealing member including first and second opposed end faces, with the poppet sealing surface extending radially outward from the first end face;

wherein first and second ends of the poppet neck portion are defined by a first radial surface disposed on a radially outward extending rim portion of the poppet stem to face the first end face of the annular poppet sealing member, and a second radial surface disposed on the poppet base to face the second end face of the annular poppet sealing member, the first and second radial surfaces being spaced apart to define an axial gap between at least one of the first radial surface and the first end face, and the second radial surface and the second end face;

the poppet sealing member being laterally movable on the poppet stem, wherein when the poppet is moved from the open position to the closed position, the poppet sealing member is laterally moved to align the poppet sealing surface with the seating surface, and

further wherein one of the second radial surface and an adjacent radial surface of the poppet sealing member includes an annular groove, wherein a gasket seal is disposed in the annular groove for sealing against the other of the second radial surface and the adjacent radial surface of the poppet sealing member.

2. The valve of claim 1, wherein the annular poppet sealing member has an inner diameter that is sized to permit lateral movement of the sealing member with respect to the neck portion.

3. The valve of claim 2, wherein the annular poppet sealing member has an inner diameter sized to permit lateral movement of the poppet sealing member with respect to the neck portion between a centered position defining a concentric radial gap between the poppet stem neck portion and the poppet sealing member, and an off-center position defining an eccentric radial gap between the poppet stem neck portion and the poppet sealing member.

4. The valve of claim 3, wherein the concentric radial gap extends along an entire axial length of the annular poppet sealing member.

5. The valve of claim 2, wherein the annular poppet sealing member has a continuous circumferential profile along the inner diameter.

6. The valve of claim 2, wherein the annular poppet sealing member has a continuous circumferential profile along an outer radial surface.

7. The valve of claim 1, wherein the neck portion is sized to define an axial gap between the poppet sealing member and at least one of the first and second ends of the neck portion.

8. The valve of claim 7, wherein the axial gap permits the poppet sealing member to tilt on the poppet stem to overcome an angular misalignment between the poppet sealing surface and the seating surface.

9. The valve of claim 1, further comprising an actuator assembled with the valve body to control axial movement of the poppet between the closed position and the open position.

10. The valve of claim 9, wherein the actuator comprises a poppet driving mechanism assembled with the poppet stem and a biasing mechanism that applies a biasing force to an upper surface of the poppet driving mechanism to bias the poppet toward one of the open and closed positions.

11. The valve of claim 10, wherein the poppet biasing mechanism is configured to be biased toward the other of the open and closed positions by fluid pressure applied to a lower surface of the poppet driving mechanism.

12. The valve of claim 1, wherein the poppet sealing surface is angled such that when the poppet is moved from the open position to the closed position, an axial force applied by the valve seat against the poppet sealing surface laterally moves the poppet sealing member to align the poppet sealing surface with the seating surface.

13. The valve of claim 1, wherein the annular poppet sealing member has a minimum hardness of at least 90 SHORE D.

14. The valve of claim 1, wherein the annular groove is disposed in the second radial surface.

15. The valve of claim 1, wherein the poppet base is threadably assembled with the poppet stem, with a shoulder portion of the poppet stem abutting an upper end face of the poppet base to define a lower end of the neck portion.

16. The valve of claim 1, wherein the neck portion has an outer diameter that is uniform along an entire axial length of the neck portion, and the annular poppet sealing member has an inner diameter that is uniform along an entire axial length of the annular poppet sealing member, to allow for uniform lateral movement of the annular poppet sealing member.