CLAIMS

1. An annular valve comprising:

a valve seat formed in a plate-like shape;

a plurality of passage flow channels, the passage flow channels each having an opening cross section formed in an arcuate shape and being arranged on a concentric circle with the center axis of the valve seat as the center;

a plurality of annular grooves, the annular grooves each extending over the passage flow channels located on the concentric circle;

a receiving plate formed in a plate-like shape, the receiving plate having a plurality of discharge flow channels and arranged to face the valve seat by way of an intermediate chamber;

a valve body formed in an annular shape corresponding to the arcuate shape of the opening cross section of the passage flow channel, the valve body being arranged in the intermediate chamber, the valve body being brought into contact with/separated from the valve seat so as to open/close the passage flow channels; and

a plurality of spring members supported by the receiving plate, the spring members each biasing elastically the valve body toward the valve seat, wherein

a sealing surface of the valve body is configured to face the flow channels, the sealing surface is formed in a torus shape, the sealing surface is brought into line contact with both brim portions of the annular groove, and

there is no stepped portion between the receiving plate and the valve body.

2. An annular valve comprising:

a valve seat formed in a plate-like shape;

a plurality of passage flow channels, the passage flow

channels each having an opening cross section formed in an arcuate shape and arranged on a concentric circle with the center axis of the valve seat as the center;

a plurality of annular grooves, the annular grooves each extending over the passage flow channels located on the same concentric circle;

a receiving plate formed in a plate-like shape, the receiving plate having a plurality of discharge flow channels and arranged to face the valve seat by way of an intermediate chamber;

a valve body formed in an annular shape corresponding to the arcuate shape of the opening cross section of the passage flow channel, the valve body being arranged in the intermediate chamber, the valve body being brought into contact with/separated from the valve seat so as to open/close the passage flow channels; and

a plurality of spring members supported by the receiving plate, the spring members each biasing elastically the valve body toward the valve seat, wherein

a sealing surface of the valve body facing the passage flow channel is formed in a torus shape where a pressure loss element with respect to gas flowing towards the valve body from the passage flow channel is eliminated, and

a surface of the valve seat facing the sealing surface is formed in a torus shape where a pressure loss element with respect to gas flowing towards the valve body from the passage flow channel is eliminated.

3.The annular valve according to claim 1 or 2, wherein the sealing surface of the valve body is configured to face the passage flow channel, the sealing surface has respective longitudinal sectional shapes located on an outer periphery and an inner-periphery of the valve body, and the

longitudinal sectional shapes are identical with each other.

4. The annular valve according to any one of claims 1 to 3, wherein the surface of the valve seat is configured to face the sealing surface, and formed in a shape where at least one of the pressure loss elements with respect to the gas flowing towards the valve body from the passage flow channel is eliminated.

5. The annular valve according to any one of claims 1 to 4, wherein a surface of the valve seat facing the sealing surface is formed in a convex torus shape being smooth to the periphery of the surface of the valve seat, and each of both brim portions of the annular groove is brought into line contact with the sealing surface.

6. An annular valve comprising:

a valve seat formed in a plate-like shape, the valve seat including a plurality of passage flow channels, the passage flow channels each having an opening cross section formed in an arcuate shape;

a receiving plate formed in a plate-like shape, the receiving plate having a plurality of discharge flow channels and being arranged to face the valve seat by way of an intermediate chamber;

a valve body formed in an annular shape corresponding to the arcuate shape of the opening cross section of the passage flow channel, the valve body being arranged in the intermediate chamber, the valve body being brought into contact with/separated from the valve seat so as to open/close the passage flow channels; and

a plurality of spring members supported by the receiving plate, the spring members biasing elastically the

valve body toward the valve seat, wherein

a sealing surface of the valve body is configured to face the passage flow channel, and formed in a shape where at least one of pressure loss elements with respect to gas flowing towards the valve body from the passage flow channel is eliminated, and

a surface of the valve seat facing the sealing surface is formed in a convex torus shape being smooth to the periphery of the surface of the valve seat, and each of both brim portions of the annular groove is brought into line contact with the sealing surface.