deposition apparatus 2 can be used to grow a high-quality thin film rapidly on the surface of the wafer.

[0086] In the present disclosure, the top liner 206 may also be formed by rotating the second busbar around the central shaft of the gas injection apparatus 207. The second busbar is formed by rotating the first busbar ① by a predetermined angle in the vertical direction about its starting point O. Definition: when the first busbar ① rotates toward a direction close to the wafer supporting surface 2091 around its start point O, the angle is a negative value; and when the first busbar ① rotates toward a direction away from the wafer supporting surface 2091 around its start point O, the angle is a positive value. In the present disclosure, the angle is $[-2^{\circ},5^{\circ}]$, including -2°, $(-2^{\circ},0^{\circ})$, 0°, $(0^{\circ},5^{\circ})$, 5°, $(-2^{\circ},5^{\circ})$, and the like.

[0087] In another embodiment, as shown in FIG. 6, the second busbar ② is obtained by rotating the first busbar ① by -2°. In this embodiment, along the direction away from the gas injection apparatus 207, the area of the flow cross-section 208 gradually decreases (less than S), compared with the top liner 206 generated by the first busbar ①, the top liner 206 in this embodiment may deliver more process gas to the surface of the wafer, which can not only further reduce the input amount of the process gas, but also further improve the average growth rate of the thin film on the surface of the wafer.

[0088] As shown in FIG. 9, at every position in the radial direction of the wafer, the growth rate of the wafer corresponding to the second busbar ② is always higher than that corresponding to the first busbar ①. As shown in FIG. 8, the average growth rate of the thin film on the surface of the wafer corresponding to the second busbar ② is 3.1660 μm/h, and the variation in film thickness uniformity is 4.13%. It may be seen that compared with the variation (3.18%) in film thickness uniformity corresponding to the busbar ①, the variation in film thickness uniformity corresponding to the second busbar ② increases slightly within an acceptable range.

[0089] In another embodiment, as shown in FIG. 6, the second busbar ③ is obtained by rotating the first busbar ① by 5°. As shown in FIG. 9, at every position in the radial direction of the wafer, the growth rate of the wafer corresponding to the second busbar ③ is always higher than that corresponding to the first busbar ①. In this embodiment, although along the direction away from the gas injection apparatus 207, the area of the flow cross-section 208 still

liner 206, and avoiding deformation and damage to the top liner 206 due to an excessively large temperature gradient.

[0104] In another embodiment, components of the heat transfer gas are adjustable. For example, the heat transfer gas may include nitrogen and argon, and these two types of gas have different thermal conductivities. By adjusting the flow ratio of nitrogen to argon, the thermal conductivity of the heat transfer gas can be regulated, thereby adjusting the temperature of the top liner 206 in real time. In deposition processes of different materials, the top liner 206 can be adjusted to different temperatures, thereby reducing deposits on the top liner 206. In an embodiment, the flow ratio range of nitrogen and argon is 2:1 to 3:1 (this is merely an example, and does not limit the present disclosure).

[0105] It should be understood that sequence numbers of the steps do not mean an execution sequence in the foregoing embodiments. The execution sequence of the processes should be determined based on functions and internal logic of the processes, and should not constitute any limitation on the implementation processes of embodiments of the present application.

[0106] The foregoing descriptions are merely specific embodiments of the present disclosure, and the scope of protection of the present disclosure is not limited thereto. Any person skilled in the art may readily conceive various equivalent modifications or substitutions within the technical scope disclosed by the present disclosure, and such modifications or substitutions shall fall within the scope of protection of the present disclosure. Therefore, the scope of protection of the present disclosure shall be subject to the scope of protection of the claims.