

What is claimed is:

1. A process chamber, comprising a reaction compartment, a gas introducing system and a wafer transfer device, wherein, the reaction compartment is provided in the process chamber and used for performing a process on a wafer therein; the gas introducing system is used for providing processing gas to the reaction compartment; and the wafer transfer device is used for transferring the wafer into the reaction compartment, wherein a lining ring assembly is provided in the reaction compartment, and is configured such that a flow uniformizing cavity is formed between the lining ring assembly itself and an inner side wall of the reaction compartment, so as to uniformly transport the processing gas, from the gas introducing system, into the reaction compartment through the flow uniformizing cavity;

the lining ring assembly includes an upper ring body and a lower ring body, the upper ring body is positioned at an inner side of the lower ring body; an upper ring-shaped horizontal part is provided on an outer side wall of the upper ring body, a lower ring-shaped horizontal part is provided on an outer side wall of the lower ring body, a ring-shaped vertical part is provided between the upper ring-shaped horizontal part and the lower ring-shaped horizontal part, and the flow uniformizing cavity is formed by the upper ring-shaped horizontal part, the lower ring-shaped horizontal part, the ring-shaped vertical part and the inner side wall of the reaction compartment.

2. The process chamber according to claim 1, wherein the upper ring body and the lower ring body are provided with a ring-shaped gap interposed therebetween, the ring-shaped gap is connected to the interior of the reaction compartment; and

a plurality of radial through holes are distributed uniformly in the ring-shaped vertical part, and are connected to the flow uniformizing cavity and the ring-shaped gap, respectively.

3. The process chamber according to claim 1 or 2, wherein the number of the reaction compartment is one.

4. The process chamber according to claim 1 or 2, wherein the process chamber includes at least two reaction compartments, which are distributed uniformly along a circumferential direction of the process chamber, and each reaction compartment forms an independent processing environment therein; and

the number of the gas introducing systems corresponds to that of the reaction compartments, and the gas introducing systems transport processing gases into the reaction compartments in one to one correspondence.

5. The process chamber according to claim 1 or 2, wherein a gas inlet channel is formed in a side wall of the reaction compartment, and has a gas inlet connected to the gas introducing system, and a gas outlet provided at the inner side wall of the reaction compartment and connected to the flow uniformizing cavity.

6. The process chamber according to claim 5, wherein the gas inlet of the gas inlet channel is positioned at top of the reaction compartment.

7. The process chamber according to claim 2, wherein the radial through hole has a diameter ranging from 0.5mm to 2mm.

8. The process chamber according to claim 2, wherein the upper ring body, the upper ring-shaped horizontal part and the ring-shaped vertical part are formed integrally, and the lower ring body and the lower ring-shaped horizontal part are formed integrally; or,

the upper ring body and the upper ring-shaped horizontal part are formed integrally, and the lower ring body, the lower ring-shaped horizontal part and the ring-shaped vertical part are formed integrally.