

GAS INLET ASSEMBLY OF PROCESS CHAMBER, GAS INLET DEVICE, AND SEMICONDUCTOR PROCESSING APPARATUS

ABSTRACT

A gas inlet assembly of a process chamber of a semiconductor process apparatus, a gas inlet device, and a semiconductor processing apparatus are provided. The gas inlet assembly is configured to transport the process gas to the gas inlet pipeline that communicates with the process chamber. The gas inlet assembly includes a plurality of mixing chambers arranged sequentially along the gas inlet direction. Any two neighboring mixing chambers communicate with each other. The gas inlet assembly includes a gas inlet connector. The gas inlet connector communicates with the mixing chamber at the most upstream in the gas inlet direction. The mixing chamber at the most downstream in the gas inlet direction communicates with the gas inlet pipeline. The gas outlet direction of the gas inlet assembly is the same as the gas inlet direction. The gas inlet assembly, the gas inlet device, and the semiconductor processing apparatus are configured to sufficiently mix and homogenize the process gas. Thus, the distribution uniformity of the components of the process gas can be improved, and the differences in the gas flow speeds between different areas of the gas inlet pipeline can be reduced. Thus, the process stability can be improved.

FIG. 3B