

is 0.5 inch in diameter.

[0036]

With the present invention thus configured, a work object is one wafer for one device for single wafer processing. This allows simplifying the unit process apparatus, the sealed conveyance container, the wafer entry/exit front chamber, the conveyance means, and other units. This allows the manufacturing line to be established at a far lower price.

According to an aspect of the present invention, there is provided a device manufacturing system, comprising: a plurality of unit process apparatuses that are movable and have sealed-type processing sections assigned predetermined processes of a device manufacturing process; a conveyance container that is of a sealed type and stores a wafer; and wafer entry/exit front chambers that are of a sealed type and are mounted respectively to the same positions of the respective unit process apparatuses in order to pass the wafer between the processing section and the conveyance container, wherein: the unit process apparatuses are identical in outside shape to each other; and the wafer entry/exit front chambers are identical in wafer-passing mechanism and outside shape to each other.

According to another aspect of the present invention, there is provided a device manufacturing apparatus, comprising: a plurality of unit process apparatuses having sealed-type processing sections each in which a predetermined process of a device manufacturing process is performed; a sealed conveyance container storing a wafer as a work object; and a wafer entry/exit front chamber mounted to each of the unit process apparatuses to pass the wafer between the unit process apparatus and the sealed conveyance container, wherein: the wafer stored in the sealed conveyance container has a wafer size for manufacturing a device in a minimized unit, the plurality of unit process apparatuses being portable; and on the basis of a number of device-manufacturing units and a number of unit process apparatuses, when the number of device-manufacturing units is larger

than the number of unit process apparatuses, the plurality of the unit process apparatuses is arranged as a flow shop system for arrangement corresponding to an order of processes for the device, when the number of device-manufacturing units is equal to the number of unit process apparatuses, the plurality of the unit process apparatuses is arranged as a class shop system for classified arrangement from one large classification based on the order of the processes to another, and when the number of device-manufacturing units is less than the number of unit process apparatuses, the plurality of the unit process apparatuses is arranged as a multicell shop system in which approximately one of the unit process apparatuses is placed in a cell for each type of processing, the multicell shop system including a plurality of the cells.

ADVANTAGEOUS EFFECTS OF INVENTION

[0037]

The present invention can flexibly handle the varied number of the unit of manufacturing. That is, a layout can be changed extremely easily among the flow shop layout, the class shop layout, and the multicell shop layout. This enables each manufacturing apparatus not to be in a non-operational state, and a flexible device manufacturing apparatus and method, which is tolerant of economic change or economic upturn and downturn, can be achieved.

Furthermore, according to the present invention, the unit process apparatus and the inside of the conveyance system are sealed from the work space for operators. This eliminates the need for a clean room which houses the entire device manufacturing apparatus and improves the operation efficiency of operators. Since the wafer to be processed has a wafer size in a minimized unit and there is no need for a clean room, the energy efficiency for manufacturing is extremely better than a conventional megafab.