

Claims:

1. Device for processing wafer-shaped articles, comprising:

5 a spin chuck for holding and rotating a wafer-shaped article about a rotation axis;

at least one dispenser for dispensing a liquid onto at least one surface of a wafer-shaped article; and

a collector surrounding the spin chuck for collecting
10 process liquids , with at least two collector levels for separately collecting liquids in different collector levels;

wherein each of the at least two collector levels comprises an exhaust gas collecting chamber and an exhaust gas conduit;

15 wherein at least one of the exhaust gas conduits comprises a valve mechanism to selectively (i) fluidly connect a chamber side of the at least one of the exhaust gas conduits to an exhaust unit side of the at least one of the exhaust gas conduits, and (ii) restrict the chamber side
20 of the at least one of the exhaust gas conduits and fluidly connect to an ambient environment to the exhaust unit side of the at least one of the exhaust gas conduits; and

wherein one of the exhaust gas conduits comprises a bypass valve operable to route exhaust gas from the one of
25 the exhaust gas conduits to another one of the exhaust gas conduits.

2. The device according to claim 1, wherein the valve mechanism comprises a flap valve movable between a chamber position in which exhaust gas from the chamber side is permitted to pass while the at least one of the exhaust gas conduits is sealed to the ambient environment, and an ambient position in which the ambient environment is permitted to pass while the at least one of the exhaust gas conduits is sealed to the chamber side.

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3. The device according to claim 1, wherein the collector comprises at least three of the collector levels, and wherein the exhaust gas conduits of at least two of the collector levels each comprise a valve mechanism.

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4. The device according to claim 3, wherein one of the exhaust gas conduits comprises a first bypass valve operable to route exhaust gas from the one of the exhaust gas conduits to a second of the exhaust gas conduits, and a second bypass valve operable to route exhaust gas from the one of the exhaust gas conduits to a third of the exhaust gas conduits.

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5. The device according to claim 1, further comprising a controller to actuate the valve mechanism, and wherein the valve mechanism is actuated in response to the spin chuck being moved relative to the collector from one collector level to another collector level.

6. The device according to claim 1, wherein the collector levels are vertically superposed along an axis of rotation of the spin chuck.

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7. The device according to claim 6, wherein the collector comprises three collector levels, and wherein the exhaust gas conduit of an uppermost collector level comprises a first bypass valve that is operable to divert exhaust gas from the exhaust gas conduit of the uppermost collector level to the exhaust gas conduit of a lowermost collector level, a second bypass valve that is operable to divert exhaust gas from the exhaust gas conduit to the exhaust gas conduit of a middle collector level, and a valve mechanism disposed in the exhaust gas conduit of the uppermost collector level downstream of the first and second bypass valves.

8. The device according to claim 1, wherein the collector comprises three collector levels, and wherein each of the exhaust gas conduits of the three collector levels comprises a valve mechanism.

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9. The device according to claim 1, wherein the valve mechanism is operable such that actuation of the valve mechanism causes a pressure variation of less than 20 Pa in any others of the at least two collector levels.

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10. The device according to claim 1, wherein the at least one of the exhaust gas conduits further comprises a bypass valve disposed upstream of the valve mechanism, the bypass valve being operable to route exhaust gas from the at least one of the exhaust gas conduits to another one of the exhaust gas conduits.

11. The device according to claim 10, wherein the valve mechanism and the bypass valve are operated by a controller such that said the bypass valve is actuated to divert exhaust gas from the at least one of the exhaust gas conduits to the another one of the exhaust gas conduits in response to actuation of the valve mechanism to seal the at least one of the exhaust gas conduits against passage of chamber exhaust while opening the at least one of the exhaust gas conduits to the ambient environment at a location downstream of the bypass valve.

12. Device for processing wafer-shaped articles, comprising:

a spin chuck for holding and rotating a wafer-shaped article about a rotation axis;

at least one dispenser for dispensing a liquid onto at least one surface of a wafer-shaped article;

a collector surrounding the spin chuck for collecting process liquids, with three collector levels for separately collecting liquids in different collector levels;

wherein each of the three collector levels comprises an exhaust gas collecting chamber leading to a respective exhaust gas conduit;

wherein at least one of the exhaust gas conduits comprises a valve mechanism that reciprocally restricts exhaust gas flow from its associated exhaust gas conduit

while opening the exhaust gas conduit to an ambient environment outside the collector, and vice-versa;

wherein the three collector levels are vertically superposed along an axis of rotation of the spin chuck; and
5 wherein an exhaust gas conduit of an uppermost collector level comprises a first bypass valve that is operable to divert exhaust gas from the exhaust gas conduit to an exhaust gas conduit of a lowermost collector level, a second
10 bypass valve that is operable to divert exhaust gas from the exhaust gas conduit to an exhaust gas conduit of a middle collector level, and a the valve mechanism disposed in the exhaust gas conduit of the uppermost collector level downstream of the first and second bypass valves.

15 13. Device for processing wafer-shaped articles, comprising:

a spin chuck for holding and rotating a wafer-shaped article about a rotation axis;

at least one dispenser for dispensing a liquid onto at
20 least one surface of a wafer-shaped article; and

a collector surrounding the spin chuck for collecting process liquids, with at least two collector levels for separately collecting liquids in different collector levels,

wherein each of the at least two collector levels
25 comprises an exhaust gas collecting chamber and an exhaust gas conduit, and

wherein at least one of the exhaust gas conduits comprises a valve mechanism that reciprocally restricts exhaust gas flow from its associated exhaust gas conduit while opening the exhaust gas conduit to an ambient
5 environment outside the collector; and

wherein one of the exhaust gas conduits comprises a bypass valve operable to route exhaust gas from the one of the exhaust gas conduits to another one of the exhaust gas conduits.