Claims

1. A device (10) for cleaning pot-shaped hollow bodies (12), in particular transport containers (30) for semiconductor wafers or for EUV lithography masks, wherein the hollow body (12) comprises

a base wall (32) and one or more side walls (34) that form an inner hollow body surface (33); and

- an opening (36) that is disposed opposite the base wall (32) and that is by a marginal surface (38) of the side wall (34);

wherein the device (10) comprises

- a support wall (20) on which the marginal surface (38) of the hollow body (12) can be placed;
- a locking device (26) by which the hollow body (12) is sealingly connectable to the marginal surface (48) and releasably connectable to the support wall (20); and
- at least one passage opening (24) that is formed by the support wall (20) and that is arranged radially within the locking device (26);
- a cleaning device (40) by which a first cleaning fluid for cleaning the inner hollow body surface (33) can be dispensed when the hollow body (12) is connected to the support wall (20); and
- a first drainage channel (70) having a first end (72), wherein the first end (72) of the first drainage channel (74) is only in fluid communication with the passage opening (24) and by which the first cleaning fluid dispensed by the cleaning device (40) can be drained,

characterized in that

a first channel (41) is arranged in the support wall (20) by which a flushing fluid can be conducted to the marginal surface (38).

2. A device (10) in accordance with claim 1, characterized in that the first end of the first drainage channel (70) is connected to the support wall (20) and surrounds the passage opening (24).

3. A device (10) in accordance with one of the claims 1 or 2, characterized in that the first drainage channel (70) expands in the manner of a funnel toward the first end (72).

4. A device (10) in accordance with one of the preceding claims, characterized in that the first drainage channel (70) terminates flush with the passage opening (24) at the first end (72).

5. A device (10) in accordance with one of the preceding claims, characterized in that the cleaning device (40) has a first cleaning head (42) that projects over the passage opening (24).

6. A device (10) in accordance with claim 5, characterized in that the first cleaning head (42) is rotationally and/or translationally movable.

7. A device (10) in accordance with claim 6,

characterized in that the first cleaning head (42) has a number of first cleaning nozzles (78) via which the first cleaning fluid can be dispensed at a spray angle (α), with the first cleaning head (42) having a setting device (85) by which the spray angle (α) can be set.

8. A device in accordance with one of the preceding claims, characterized in that the device (10) has at least one coupling unit (87) for coupling sound waves into the first cleaning fluid.

9. A device in accordance with claim 8, characterized in that at least some of the coupling units (87) are integrated in at least some of the first cleaning nozzles (78) or interact therewith.

10. A device (10) in accordance with one of the preceding claims, characterized in that the cleaning device (40) has a supply channel (58) for supplying the first cleaning fluid to the first cleaning head (42), with the first drainage channel (70) and the supply channel (68) being combined at least sectionally to form a fluid conducting unit (66).

11. A device (10) in accordance with one of the preceding claims, characterized in that a particle measuring device (74) for determining the particles contained in the first cleaning fluid is arranged in the first drainage channel (70).

12. A device (10) in accordance with one of the preceding claims,
wherein the hollow body (12) has a cover (52) having an inner cover surface (54) and an outer cover surface (56) by which the opening (36) is closable,
characterized in that
- a cleaning opening (46) is arranged in the support wall (20) or in a further wall section (44) that is at least partially closable by a closure body (48), with the closure body (48) having a reception unit (50) for receiving the cover (52) of the hollow body (12); and
- the cleaning device (40) has a further first cleaning head (58) by which the first cleaning fluid can be applied to the inner cover surface for cleaning when the cleaning opening (46) is closed by the closure body (48) or by the cover (52).

13. A device (10) in accordance with claim 12,
characterized in that the closure body (48) is movably fastened to the support wall (20) or to the further wall section (44) between an open position in which the closure body (48) releases the cleaning opening (46) and a closure position in which the closure body (48) or the cover (52) closes the cleaning opening (46).

14. A device (10) in accordance with one of the claims 12 or 13,
characterized in that the device (10) has a second channel (57) by which a flushing fluid can be conducted to the cover (52).

15. A device (10) in accordance with one of the preceding claims,

wherein the base wall (32) and the side wall (34) for an outer hollow body surface (35),
characterized in that

- the cleaning device (40) has a second cleaning head (64) by which a second cleaning fluid for cleaning the outer hollow body surface (35) can be dispensed; and
- the device (10) has a second drainage channel (76) by which the second cleaning fluid dispensed from the second dispensing unit (64) can be drained.

16. A device (10) in accordance with claim 15, characterized in that the device (10) has a housing (14) that surrounds a process space (22) together with the support wall (20), with the process space (22) being accessible via a housing opening (16) closable by a covering (18).

17. A device (10) in accordance with claim 16, characterized in that the support wall (20) has a number of passage bores (28), with the passage bores (28) being arranged radially outside the locking device (26) and by which the second drainage channel (76) is fluidically connected to the process space (22).

18. A device (10) in accordance with one of the claims 15 to 17, characterized in that the second cleaning head (64) is of U shape and is rotationally and/or translationally movable in the process space (22).

19. A device (10) in accordance with claim 5, claim 12, or claim 15,

characterized in that the first cleaning head (42), the further first cleaning head (58), and/or the second cleaning head (64) have at least one drying nozzle (86, 88, 90) and/or an infrared diode (92).

20. A method of cleaning pot-shaped hollow bodies (12), in particular transport containers (30) for semiconductor wafers or for EUV lithography masks, using a device in accordance with one of the preceding claims, said method comprising the following steps:

- placing the marginal surface (38) of the hollow body (12) onto the support wall (20);
- sealingly and releasably connecting the hollow body (12) to the support wall (20) by means of the locking device (26), with the hollow body (12) being sealed at the marginal surface with respect to the support wall (20);
- dispensing a first cleaning fluid for cleaning the inner hollow body surface (33) by means of the first cleaning head (42) of the cleaning device (40); and/or;
- dispensing a second cleaning fluid for cleaning the outer hollow body surface (35) by means of the second cleaning head (64) and draining the second cleaning fluid by means of the second drainage channel (76).

21. A method in accordance with claim 20, said method comprising the following steps:

- moving the closure body (48) into the open position;
- placing the outer cover surface (56) of the cover (52) onto the reception unit (50) of the closure body (48) and releasably fastening the cover (52) to the closure body (48);

- moving the closure body (48) into the closure position; and
- dispensing the first cleaning fluid for cleaning the inner cover surface (54) by the further first cleaning head (58).

22. A method in accordance with one of the claims 20 or 21, said method comprising the following steps:
- completely flooding the space bounded by the inner hollow body surface (33) with the first cleaning fluid; and
- coupling sound waves into the first cleaning fluid by means of a coupling unit(87).

23. A method in accordance with one of the claims 21 or 22, said method comprising the following steps:
- coupling of sound waves into the first cleaning fluid dispensed by the first cleaning nozzle (78) by means of a coupling unit(87), with the coupling unit (87) being integrated in the first cleaning nozzle (78) or interacting therewith.