Patent claims

1. A vacuum chamber arrangement (100), comprising:
   - a vacuum chamber (102), which comprises a first supply passage (102v);
   - a substrate holding arrangement (104) comprising a substrate holder (110) for holding and positioning at least one substrate, a vacuumtight supply housing (108) for supplying the substrate holder (110) with at least one supply medium, wherein the supply housing (108) comprises a second supply passage (108v);
   - a bearing arrangement (106), by means of which the substrate holding arrangement (104) is supported movably within the vacuum chamber (102); and
   - a supply hose (112), which links the first supply passage (102v) to the second supply passage (108v);
   - an electric drive arrangement, which is arranged at least partially in the vacuumtight supply housing, for driving the positioning of the at least one substrate;
   - wherein the supply housing is supplied with air or connected in a gas-transmitting manner to the environment around the vacuum chamber by the supply hose;
   - wherein the supply hose (112) is vacuumtight and is configured in such a way that the substrate holding arrangement (104) can be moved within the vacuum chamber (102) while, simultaneously, the supply hose (112) links the first supply passage (102v) and the second supply passage (108v) to one another.

2. The vacuum chamber arrangement (100) of claim 1, wherein the vacuum chamber (102) comprises a lock chamber (202a) and at least one process chamber (202b).

3. The vacuum chamber arrangement (100) of claim 2,

wherein the first supply passage (102v) is arranged in a chamber wall section (202w) of the lock chamber (202a), and wherein the substrate holding arrangement (104) is supported in such a way by means of the bearing arrangement (106) that at least the substrate holder (110) of the substrate holding arrangement (104) can be moved out of the lock chamber (202a) into the at least one process chamber (202b) and/or out of the at least one process chamber (202b) into the lock chamber (202a).

4. The vacuum chamber arrangement (100) of any one of claims 1 to 3,
wherein a supply structure (108s) is arranged in the supply housing (108) in order to at least one of
drive the positioning,
cool the substrate holder (110), and/or
cool the supply housing (108).

5. The vacuum chamber arrangement (100) of any one of claims 1 to 4,
wherein the substrate holder (104) comprises at least one joint (602s, 604r), which provides at least one degree of freedom of movement for the positioning of at least one substrate (606).

6. The vacuum chamber arrangement (100) of claim 2 or 3,
wherein the substrate holding arrangement (104) is supported in such a way by means of the bearing arrangement (106) that it can be moved (106b) between at least one first and one second position, and wherein the substrate holder (110) is arranged in the first position within the lock chamber (202a), and wherein the substrate holder (110) is arranged in the second position within the at least one process chamber (202b).

7. The vacuum chamber arrangement (100) of any one of claims 1 to 6,

wherein the substrate holder (110) comprises at least one pivotably supported support arm (602).

8. The vacuum chamber arrangement (100) of claim 7, wherein the at least one support arm (602) comprises at least one rotatably supported substrate receptacle (604) for receiving and positioning at least one substrate (606).

9. The vacuum chamber arrangement (100) of claim 6, wherein the supply hose is configured in such a way that the substrate holding arrangement can be moved between the first position and the second position while, simultaneously, the supply hose continuously links the first supply passage and the second supply passage to one another.

10. The vacuum chamber arrangement (100) of any one of claims 1 to 9, wherein the supply hose (112), the supply housing (108) as well as the first supply passage (102v) and the second supply passage (108v) are configured in such a way that the interior (812) of the supply hose (112) and the interior (808) of the supply housing (108) are separated in respect of the vacuum from the interior (802) of the vacuum chamber (102).

11. The vacuum chamber arrangement (100) of any one of claims 1 to 9, wherein at least one electric supply lead is arranged within the supply hose (112).

12. The vacuum chamber arrangement (100) of any one of claims 1 to 11, wherein at least one coolant supply line is arranged within the supply hose (112).

13. A method comprising:

coating a workpiece using a vacuum chamber arrangement, the vacuum chamber arrangement comprising:

- a vacuum chamber (102), which comprises a first supply passage (102v);
- a substrate holding arrangement (104) comprising a substrate holder (110) for holding and positioning at least one substrate, a vacuumtight supply housing (108) for supplying the substrate holder (110) with at least one supply medium, wherein the supply housing (108) comprises a second supply passage (108v);
- a bearing arrangement (106), by means of which the substrate holding arrangement (104) is supported movably within the vacuum chamber (102); and
- a supply hose (112), which links the first supply passage (102v) to the second supply passage (108v);
- an electric drive arrangement, which is arranged at least partially in the vacuumtight supply housing, for driving the positioning of the at least one substrate;
- wherein the supply housing is supplied with air or connected in a gas-transmitting manner to the environment around the vacuum chamber by the supply hose;
- wherein the supply hose (112) is vacuumtight and is configured in such a way that the substrate holding arrangement (104) can be moved within the vacuum chamber (102) while, simultaneously, the supply hose (112) links the first supply passage (102v) and the second supply passage (108v) to one another.

14. The method of claim 13,
wherein coating the workpiece comprises a simultaneous coating of a multiplicity of turbine blades with a thermal protection layer.

15. The method of claim 13,

wherein the vacuum chamber (102) comprises a lock chamber (202a) and at least one process chamber (202b); and

wherein the first supply passage (102v) is arranged in a chamber wall section (202w) of the lock chamber (202a), and wherein the substrate holding arrangement (104) is supported in such a way by means of the bearing arrangement (106) that at least the substrate holder (110) of the substrate holding arrangement (104) can be moved out of the lock chamber (202a) into the at least one process chamber (202b) and/or out of the at least one process chamber (202b) into the lock chamber (202a).

16. The method of claim 15,

wherein the substrate holding arrangement (104) is supported in such a way by means of the bearing arrangement (106) that it can be moved (106b) between at least one first and one second position, and wherein the substrate holder (110) is arranged in the first position within the lock chamber (202a), and wherein the substrate holder (110) is arranged in the second position within the at least one process chamber (202b).

17. The method of claim 13,

wherein the substrate holder (110) comprises at least one pivotably supported support arm (602); and

wherein the at least one support arm (602) comprises at least one rotatably supported substrate receptacle (604) for receiving and positioning at least one substrate (606).

18. The method of claim 16,

wherein the supply hose is configured in such a way that the substrate holding arrangement can be moved between the first position and the second position while, simultaneously, the supply hose continuously links the first supply passage and the second supply passage to one another.

19. The method of claim 13,
wherein the supply hose (112), the supply housing (108) as well as the first supply passage (102v) and the second supply passage (108v) are configured in such a way that the interior (812) of the supply hose (112) and the interior (808) of the supply housing (108) are separated in respect of the vacuum from the interior (802) of the vacuum chamber (102).

20. The method of claim 13,
wherein at least one electric supply lead is arranged within the supply hose (112); or
wherein at least one coolant supply line is arranged within the supply hose (112).