SURFACE COATING STRUCTURE OF COMPONENTS IN THE REACTION CHAMBER OF SPUTTERING EQUIPMENT

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates generally to a sputtering equipment, and more particularly, to a surface coating structure of components in a reaction chamber of the sputtering equipment.

2. The Prior Arts

[0002] A sputtering equipment is an equipment commonly used for thin film deposition. The main function of a sputtering equipment is to uniformly deposit materials on a substrate to form a thin film layer by means of physical vapor deposition.

[0003] In general, the surface coating structure of the components in the reaction chamber of the sputtering equipment is an aluminum spray layer. When the sputtering equipment sputters the surface of the wafer, the sputtering material will not only be sputtered on the surface of the wafer, but also on the surface coating structure of the components in the reaction chamber of the sputtering equipment, so that the thickness of the aluminum sprayed layer increases continuously. Since the adhesion effect between the aluminum spray layer and the sputtering material is limited, after a period of time, the sputtering material will fall off from the aluminum spray layer, and the sputtering material will fall onto the wafer, affecting the manufacturing yield of the wafer. In order to avoid the above problem, the industry usually cleans the surface of the components in the reaction chamber of the sputtering equipment before the sputtering material falls off from the aluminum spray layer, so as to remove the

aluminum spray layer and the attached target material and then reprocess to form a new aluminum spray layer.

[0004] However, the time that the sputtered material can withstand after adhering to the aluminum spray layer is relatively short, resulting in a short cleaning cycle. In addition, frequent cleaning operations will increase the cost of the cleaning operation.

SUMMARY OF THE INVENTION

[0005] A primary objective of the present invention is to provide a surface coating structure of components in a reaction chamber of sputtering equipment, wherein the nickel-aluminum spray layer can improve the adhesion effect with the sputtering material and prolong the adhesion time.

[0006] In order to achieve the aforementioned objective, the present invention provides a surface coating structure of components in the reaction chamber of sputtering equipment, applicable to a sputtering equipment using tantalum or tungsten as a sputtering target. The surface coating structure includes an aluminum spray layer and a nickel-aluminum spray layer; the aluminum spray layer is disposed on the outer surface of the components in the reaction chamber of the sputtering equipment, with a thickness between 200 and 350μm, and the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, with a thickness between 50 and 150μm.

[0007] In some embodiments, the components in the reaction chamber of the sputtering equipment include a sputtering disk, a sputtering ring, a sputtering scimitar, a sputtering anti-adhering ring, a sputtering outer anti-adhering ring, a sputtering inner anti-adhering ring, a sputtering stand pillar, a sputtering sleeve, and two sputtering support rods, and the aluminum melt-spray layer is disposed on the outer surfaces of the sputtering disk, the sputtering ring, the sputtering scimitar, the sputtering anti-

adhering ring, the sputtering outer anti-adhering ring, the sputtering inner anti-adhering ring, the sputtering stand pillar, the sputtering sleeve, and the sputtering support rods.

[0008] In some embodiments, the aluminum spray layer is disposed on the top surface of the sputtering disk, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

[0009] In some embodiments, the aluminum spray layer is disposed on the top surface of the sputtering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 40 to 60μm.

[0010] In some embodiments, the aluminum spray layer is disposed on the bottom surface and the outer side surface of the sputtering scimitar, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to150μm.

[0011] In some embodiments, the aluminum spray layer is disposed on the top surface, inner side surface, and outer side surface of the sputtering anti-adhering ring, the nickel-aluminum spray layer is disposed on the inner surface and outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 150 to 180μm.

[0012] In some embodiments, the aluminum spray layer is disposed on the outer surface of the sputtering outer anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to150μm.

[0013] In some embodiments, the aluminum spray layer is disposed on a portion of the top surface, a portion of the bottom surface, and the inner side surface of the

sputtering inner anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

[0014] In some embodiments, the aluminum spray layer is disposed on the top surface, a portion of the inner side surface, and a portion of the outer side surface of the sputtering stand pillar, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

[0015] In some embodiments, the aluminum spray layer is disposed on a portion of the top surface, a portion of the outer side surface, and a portion of the inner side surface of the sputtering sleeve, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

[0016] In some embodiments, the aluminum spray layer is disposed on a portion of the inner side and a portion of the outer side of the sputtering support rods, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

[0017] In some embodiments, the components in the reaction chamber of the sputtering equipment include a first upper anti-adhering plate, a second upper anti-adhering plate, a lower anti-adhering plate, a base anti-adhering ring, a flat anti-adhering ring, a lower air inlet ring, a deposition ring, and a virtual wafer, the aluminum spray layer is disposed on the outer surfaces of the first upper anti-adhering plate, the second upper anti-adhering plate, the lower anti-adhering plate, the base anti-adhering ring, the flat anti-adhering ring, the deposition ring, and the virtual wafer.

[0018] In some embodiments, the aluminum spray layer is disposed on the bottom surface and the inner side surface of the first upper anti-adhering plate, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0019] In some embodiments, the aluminum spray layer is disposed on the top surface, a portion of the bottom surface, and the inner side surface of the second upper anti-adhering plate, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0020] In some embodiments, the aluminum spray layer is disposed on the top surface, a portion of the bottom surface, a portion of the inner side surface, and a portion of the outer side surface of the lower anti-adhering plate, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0021] In some embodiments, the aluminum spray layer is disposed on the top surface, the bottom surface, the inner side surface and a portion of the outer side surface of the base anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0022] In some embodiments, the aluminum spray layer is disposed on the top surface and the outer side surface of the flat anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0023] In some embodiments, the aluminum spray layer is disposed on the top surface and a portion of the outer side surface of the deposition ring, the nickel-

aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0024] In some embodiments, the aluminum spray layer is disposed on the top surface of the virtual wafer, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

[0025] The effect of the present invention lies in that, because the surface coating structure of the present invention adds a nickel-aluminum spray layer on the outer surface of the aluminum spray layer, and the sputtering equipment uses tantalum or tungsten as the sputtering target, the nickel-aluminum spray layer can improve the adhesion effect with the sputtering target and prolong the adhesion time, thereby extending the cleaning cycle of the sputtering equipment, reducing the number of cleaning operations, and reducing the cost of cleaning operations.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] The present invention will be apparent to those skilled in the art by reading the following detailed description of a preferred embodiment thereof, with reference to the attached drawings, in which:

[0027] FIG1 is a cross-sectional view of the surface coating structure of the components distributed in a reaction chamber of a sputtering equipment according to the present invention, wherein the sputtering equipment is a sputtering equipment of model Anelva-W, manufactured by Canon Inc.

[0028] FIG. 2 is a cross-sectional view of the surface coating structure of the present invention distributed on a sputtering disk.

[0029] FIG. 3 is a cross-sectional view of the surface coating structure of the present invention distributed on a sputtering ring.

[0030] FIG. 4 is a cross-sectional view showing the surface coating structure of the present invention distributed on a sputtering scimitar.

[0031] FIG. 5 is a cross-sectional view showing the surface coating structure of the present invention distributed on a sputtering anti-adhering ring.

[0032] FIG. 6 is a cross-sectional view of the surface coating structure of the present invention distributed on the sputtering outer anti-adhering ring.

[0033] FIG. 7 is a cross-sectional view of the surface coating structure of the present invention distributed on the sputtering inner anti-adhering ring.

[0034] FIG. 8 is a cross-sectional view showing the surface coating structure of the present invention distributed on a sputtering stand pillar.

[0035] FIG. 9 is a cross-sectional view showing the surface coating structure of the present invention distributed on a sputtering sleeve.

[0036] FIG. 10 is a cross-sectional view of the surface coating structure of the present invention distributed on the sputtering support rods.

[0037] FIG. 11 is a cross-sectional view of the components distributed in a reaction chamber of a sputtering equipment according to the present invention, wherein the sputtering equipment is a sputtering equipment of model ULVAC-TA, manufactured by Ubek Technology Co., Ltd.

[0038] FIG. 12 is a cross-sectional view showing the surface coating structure of the present invention distributed on the first upper anti-adhering plate.

[0039] FIG. 13 is a cross-sectional view showing the surface coating structure of the present invention distributed on the second upper anti-adhering plate.

[0040] FIG. 14 is a cross-sectional view showing the surface coating structure of the present invention distributed on the lower anti-adhering plate.

[0041] FIG. 15 is a cross-sectional view of the surface coating structure of the present invention distributed on the base anti-adhering ring.

[0042] FIG. 16 is a cross-sectional view showing the surface coating structure of the present invention distributed on a flat anti-adhering ring.

[0043] FIG. 17 is a cross-sectional view of the surface coating structure of the present invention not distributed on the lower air inlet ring.

[0044] FIG. 18 is a cross-sectional view showing the surface coating structure of the present invention distributed on a deposition ring.

[0045] FIG. 19 is a cross-sectional view showing the surface coating structure of the present invention distributed on a virtual wafer.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0046] The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

[0047] FIG1 is a cross-sectional view of the surface coating structure 10 of the components 20 distributed in a reaction chamber of a sputtering equipment according to the present invention. As shown in FIG. 1, the present invention provides a surface coating structure 10 of components in the reaction chamber of sputtering equipment, applicable to a sputtering equipment using tantalum or tungsten as a sputtering target. The surface coating structure 10 includes an aluminum spray layer 11 and a nickel-aluminum spray layer 12; the aluminum spray layer 11 is disposed on the outer surface of the components 20 in the reaction chamber of the sputtering equipment, with a thickness between 200 and 350μm, and the nickel-aluminum spray layer 12 is disposed

on the outer surface of the aluminum spray layer 11, with a thickness between 50 and 150μm.

[0048] The processing method for the above structure includes: firstly, the corresponding surface of the component is subjected to sandblasting to form the required rough surface, then the aluminum spray layer 11 is formed by plasma coating, and then the nickel-aluminum sputtering layer 12 is formed by plasma coating again. As such, in the process of sputtering the target material of tantalum or tungsten, the special properties of the nickel-aluminum sputtering layer 12 are used to improve the adhering capability of the sputtering target material and the nickel-aluminum spray layer 12, and the bearing time after adhesion is extended, and finally the objective of extending the cleaning cycle is achieved.

[0049] As shown in FIG. 1, the components 20 in the reaction chamber of the sputtering equipment include a sputtering disk 2, a sputtering ring 22, a sputtering scimitar 23, a sputtering anti-adhering ring 24, a sputtering outer anti-adhering ring 25, a sputtering inner anti-adhering ring 26, a sputtering stand pillar 27, a sputtering sleeve 28, and two sputtering support rods 29. More specifically, the sputtering equipment is a sputtering equipment of model Anelva-W, manufactured by Canon Co., Ltd. The components 20 in the reaction chamber of the sputtering equipment of this model is as described above. The sputtering equipment is suitable for using tantalum as the sputtering target.

[0050] FIG. 2 is a cross-sectional view of the surface coating structure 10 of the present invention distributed on a sputtering disk 21. As shown in FIG. 2, the aluminum spray layer 11 is disposed on the top surface of the sputtering disk 21, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 120 to 150μm.

[0051] FIG. 3 is a cross-sectional view of the surface coating structure 10 of the present invention distributed on a sputtering ring 22. Ash shown in FIG. 3, the aluminum spray layer 11 is disposed on the top surface of the sputtering ring 22, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 40 to 60μm.

[0052] FIG. 4 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a sputtering scimitar 23. As shown in FIG. 4, the aluminum spray layer 11 is disposed on the bottom surface and the outer side surface of the sputtering scimitar 23, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 120 to150μm.

[0053] FIG. 5 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a sputtering anti-adhering ring 24. As shown in FIG. 5, the aluminum spray layer 11 is disposed on the top surface, inner side surface, and outer side surface of the sputtering anti-adhering ring 24, the nickel-aluminum spray layer 12 is disposed on the inner surface and outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 150 to 180μm.

[0054] FIG. 6 is a cross-sectional view of the surface coating structure 10 of the present invention distributed on the sputtering outer anti-adhering ring 25. As shown in FIG. 6, the aluminum spray layer 11 is disposed on the outer surface of the sputtering outer anti-adhering ring 25, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 120 to150μm.

[0055] FIG. 7 is a cross-sectional view of the surface coating structure 10 of the present invention distributed on the sputtering inner anti-adhering ring 26. As shown in

FIG. 7, the aluminum spray layer 11 is disposed on a portion of the top surface, a portion of the bottom surface, and the inner side surface of the sputtering inner anti-adhering ring 26, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 120 to 150μm.

[0056] FIG. 8 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a sputtering stand pillar 27. As shown in FIG. 8, the aluminum spray layer 11 is disposed on the top surface, a portion of the inner side surface, and a portion of the outer side surface of the sputtering stand pillar 27, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 120 to 150μm.

[0057] FIG. 9 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a sputtering sleeve 28. As shown in FIG. 9, the aluminum spray layer 11 is disposed on a portion of the top surface, a portion of the outer side surface, and a portion of the inner side surface of the sputtering sleeve 28, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 120 to 150μm.

[0058] FIG. 10 is a cross-sectional view of the surface coating structure 10 of the present invention distributed on the two sputtering support rods 29. As shown in FIG. 10, the aluminum spray layer 11 is disposed on a portion of the inner side and a portion of the outer side of the sputtering support rods 29, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the surface coating roughness of the structure coating is 120 to 150μm.

[0059] FIG. 11 is a cross-sectional view of the surface coating structure 10 of the present invention on components 30 distributed in a reaction chamber of a sputtering

equipment according to the present invention. As shown in FIG. 11, the present invention provides a surface coating structure 10 of components 30 in the reaction chamber of sputtering equipment, applicable to a sputtering equipment using tantalum or tungsten as a sputtering target. The surface coating structure 10 includes an aluminum spray layer 11 and a nickel-aluminum spray layer 12; the aluminum spray layer 11 is disposed on the outer surface of the components 20 in the reaction chamber of the sputtering equipment, with a thickness between 200 and 350μm, and the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, with a thickness between 50 and 150μm.

[0060] As shown in FIG. 11, the components 30 in the reaction chamber of the sputtering equipment include a first upper anti-adhering plate 31, a second upper anti-adhering plate 32, a lower anti-adhering plate 33, a base anti-adhering ring 34, a flat anti-adhering ring 35, a lower air inlet ring 36, a deposition ring 37, and a virtual wafer 38, the aluminum spray layer 11 is disposed on the outer surfaces of the first upper anti-adhering plate 31, the second upper anti-adhering plate 32, the lower anti-adhering plate 33, the base anti-adhering ring 34, the flat anti-adhering ring 35, the deposition ring 37, and the virtual wafer 38. More specifically, the sputtering equipment is a sputtering equipment of model ULVAC-TA, manufactured by Ubeck Technology Co., Ltd. The components 30 in the reaction chamber of the sputtering device of this model is as described above. The sputtering equipment is suitable for using tungsten as the sputtering target.

[0061] FIG. 12 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on the first upper anti-adhering plate 31. As shown in FIG. 12, the aluminum spray layer 11 is disposed on the bottom surface and the inner side surface of the first upper anti-adhering plate 31, the nickel-aluminum spray layer

12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 80 to 120μm.

[0062] FIG. 13 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on the second upper anti-adhering plate 32. As shown in FIG. 13, the aluminum spray layer 10 is disposed on the top surface, a portion of the bottom surface, and the inner side surface of the second upper anti-adhering plate 32, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure is 80 to 120μm.

[0063] FIG. 14 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on the lower anti-adhering plate 33. As shown in FIG. 14, the aluminum spray layer 11 is disposed on the top surface, a portion of the bottom surface, a portion of the inner side surface, and a portion of the outer side surface of the lower anti-adhering plate 33, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 80 to 120μm.

[0064] FIG. 15 is a cross-sectional view of the surface coating structure 10 of the present invention distributed on the base anti-adhering ring 34. As shown in FIG. 15, the aluminum spray layer 11 is disposed on the top surface, the bottom surface, the inner side surface and a portion of the outer side surface of the base anti-adhering ring 34, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 80 to 120μm.

[0065] FIG. 16 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a flat anti-adhering ring 35. As shown in FIG. 16, the aluminum spray layer 11 is disposed on the top surface and the outer side surface of the flat anti-adhering ring 35, the nickel-aluminum spray layer 12 is disposed on the

outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 80 to 120μm.

[0066] FIG. 17 is a cross-sectional view of the surface coating structure 10 of the present invention not distributed on the lower air inlet ring 36. As shown in FIG. 17, the outer surface of the lower air inlet ring 36 has no surface coating struct 37ure 10.

[0067] FIG. 18 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a deposition ring. As shown in FIG. 18, the aluminum spray layer 11 is disposed on the top surface and a portion of the outer side surface of the deposition ring 37, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 80 to 120μm.

[0068] FIG. 19 is a cross-sectional view showing the surface coating structure 10 of the present invention distributed on a virtual wafer 38. As shown in FIG. 19, the aluminum spray layer 11 is disposed on the top surface of the virtual wafer 38, the nickel-aluminum spray layer 12 is disposed on the outer surface of the aluminum spray layer 11, and the roughness of the surface coating structure 10 is 80 to 120μm.

[0069] In summary, because the surface coating structure 10 of the present invention adds a nickel-aluminum spray layer 12 on the outer surface of the aluminum spray layer 11, and the sputtering equipment uses tantalum or tungsten as the sputtering target, the nickel-aluminum spray layer 12 can improve the adhesion effect with the sputtering target and prolong the adhesion time, thereby extending the cleaning cycle of the sputtering equipment, reducing the number of cleaning operations, and reducing the cost of cleaning operations.

[0070] Although the present invention has been described with reference to the preferred embodiments thereof, it is apparent to those skilled in the art that a variety of

modifications and changes may be made without departing from the scope of the present invention which is intended to be defined by the appended claims.

WHAT IS CLAIMED IS:

1. A surface coating structure of components in the reaction chamber of sputtering equipment, applicable to a sputtering equipment using tantalum or tungsten as a sputtering target, the surface coating structure comprising:

   an aluminum spray layer, disposed on the outer surface of the components in the reaction chamber of the sputtering equipment, with a thickness between 200 and 350μm; and

   a nickel-aluminum spray layer, disposed on the outer surface of the aluminum spray layer, with a thickness between 50 and 150μm.

2. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 1, wherein the components in the reaction chamber of the sputtering equipment include a sputtering disk, a sputtering ring, a sputtering scimitar, a sputtering anti-adhering ring, a sputtering outer anti-adhering ring, a sputtering inner anti-adhering ring, a sputtering stand pillar, a sputtering sleeve, and two sputtering support rods, and the aluminum melt-spray layer is disposed on the outer surfaces of the sputtering disk, the sputtering ring, the sputtering scimitar, the sputtering anti-adhering ring, the sputtering outer anti-adhering ring, the sputtering inner anti-adhering ring, the sputtering stand pillar, the sputtering sleeve, and the sputtering support rods.

3. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on the top surface of the sputtering disk, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

4. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on the top surface of the sputtering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 40 to 60μm.
5. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on the bottom surface and the outer side surface of the sputtering scimitar, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to150μm.
6. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on the top surface, inner side surface, and outer side surface of the sputtering anti-adhering ring, the nickel-aluminum spray layer is disposed on the inner surface and outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 150 to 180μm.
7. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on the outer surface of the sputtering outer anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to150μm.
8. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on a portion of the top surface, a portion of the bottom surface, and the inner side surface of the sputtering inner anti-adhering ring, the nickel-aluminum spray layer

is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

9. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on the top surface, a portion of the inner side surface, and a portion of the outer side surface of the sputtering stand pillar, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

10. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein, the aluminum spray layer is disposed on a portion of the top surface, a portion of the outer side surface, and a portion of the inner side surface of the sputtering sleeve, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

11. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 2, wherein the aluminum spray layer is disposed on a portion of the inner side and a portion of the outer side of the sputtering support rods, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 120 to 150μm.

12. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 1, wherein the components in the reaction chamber of the sputtering equipment include a first upper anti-adhering plate, a second upper anti-adhering plate, a lower anti-adhering plate, a base anti-adhering ring, a flat anti-adhering ring, a lower air inlet ring, a deposition ring, and a virtual wafer,

the aluminum spray layer is disposed on the outer surfaces of the first upper anti-adhering plate, the second upper anti-adhering plate, the lower anti-adhering plate, the base anti-adhering ring, the flat anti-adhering ring, the deposition ring, and the virtual wafer.

13. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the bottom surface and the inner side surface of the first upper anti-adhering plate, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.
14. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the top surface, a portion of the bottom surface, and the inner side surface of the second upper anti-adhering plate, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.
15. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the top surface, a portion of the bottom surface, a portion of the inner side surface, and a portion of the outer side surface of the lower anti-adhering plate, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.
16. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the top surface, the bottom surface, the inner side surface and a portion of the

outer side surface of the base anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.

17. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the top surface and the outer side surface of the flat anti-adhering ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.
18. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the top surface and a portion of the outer side surface of the deposition ring, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.
19. The surface coating structure of components in the reaction chamber of sputtering equipment according to claim 12, wherein the aluminum spray layer is disposed on the top surface of the virtual wafer, the nickel-aluminum spray layer is disposed on the outer surface of the aluminum spray layer, and the roughness of the surface coating structure is 80 to 120μm.