

**Claims**

1. A scratch-resistant glass surface cleaning device, characterized in that it comprises a front-stage cleaning mechanism (1), a polishing mechanism (2) and a rear-stage cleaning mechanism (3) arranged in sequence; the front-stage cleaning mechanism (1) is used for pre-cleaning the scratch-resistant glass; the polishing mechanism (2) is used for polishing and grinding the scratch-resistant glass; the rear-stage cleaning mechanism (3) is used for cleaning the polished scratch-resistant glass; the polishing mechanism (2) includes a machine body (21), an adsorption distance adjustment component (22) arranged on the workbench surface of the machine body (21), a plurality of adsorption components (23) connected to the adsorption distance adjustment component (22) in sequence along the circumferential direction of the adsorption distance adjustment component (22), a polishing disc (24) located above the adsorption components (23), and a polishing translation drive component (25) connected to the polishing disc (24) and mounted on the machine body (21); the adsorption distance adjustment component (22) is configured to adjust the spacing between the adsorption components (23) according to the size information of the scratch-resistant glass, so as to adapt to scratch-resistant glass of different sizes; when the scratch-resistant glass is in adsorption fit with the adsorption components (23), the polishing translation drive component (25) drives the polishing disc (24) to polish the scratch-resistant glass.
2. The scratch-resistant glass surface cleaning device according to claim 1, characterized in that the adsorption distance adjustment component (22) includes a fixed seat fixed on the workbench surface of the machine body (21), a disc (221) located above the fixed seat and connected to the adsorption components (23), a push-pull rod (223) in sliding fit with the disc (221), a rotation assembly (224) located above the disc (221), and a guide rod (225) for connecting the push-pull rod (223) and the rotation assembly (224); when the rotation assembly (224) rotates, it drives the push-pull rod (223) to move along the radial direction of the disc (221) through the guide rod (225), thereby driving each adsorption component (23) to move toward or away from the disc (221) synchronously.
3. The scratch-resistant glass surface cleaning device according to claim 2, characterized in that the rotation assembly (224) includes a driving gear (2241) rotatably arranged on the disc (221), and a driven gear (2242) meshed with the driving gear (2241); the driven gear (2242) is rotationally matched with the disc (221) and coaxially arranged, so that the driven gear (2242) rotates with the rotation of the driving gear (2241).

4. The scratch-resistant glass surface cleaning device according to claim 3, characterized in that the driving gear (2241) is provided with a guide hole (2243) which is in plug-in fit with the guide rod (225);the guide hole (2243) is arc-shaped, and the arc shape is consistent with the path shape of the guide rod (225) when it moves with the rotation of the driven gear (2242).
5. The scratch-resistant glass surface cleaning device according to claim 4, characterized in that a limiter (222) is arranged at the end of the guide rod (225) away from the push-pull rod (223);the limiter (222) is detachably connected to the guide rod (225), and the diameter of the limiter (222) gradually decreases in the direction away from the driven gear (2242).
6. The scratch-resistant glass surface cleaning device according to claim 2, characterized in that the disc (221) is provided with a chute (226) in sliding fit with the push-pull rod (223);the groove surface of the chute (226) directly communicates with the outer peripheral side of the disc (221) along the radial direction of the disc (221), and the opening direction at the communication position with the outer peripheral side of the disc (221) is set corresponding to the adsorption component (23).
7. The scratch-resistant glass surface cleaning device according to claim 2, characterized in that the adsorption component (23) includes a connecting column (231) connected to the push-pull rod (223), and a suction cup (232) located above the connecting column (231).
8. The scratch-resistant glass surface cleaning device according to claim 1, characterized in that the polishing disc (24) is provided with a polishing paste spray pipe (26) for spraying glass polishing paste on the surface of the scratch-resistant glass; the polishing translation drive component (25) includes an up-down moving assembly (251) connected to the polishing disc (24) and used to drive the polishing disc (24) to lift, a front-back moving assembly (252) connected to the up-down moving assembly (251) and used to drive the up-down moving assembly (251) to move forward and backward, and a left-right moving assembly (253) connected to the front-back moving assembly (252) and used to drive the front-back moving assembly (252) to move left and right.

9. The scratch-resistant glass surface cleaning device according to claim 1, characterized in that the front-stage cleaning mechanism (1) includes a front-stage carrying platform (11), and a front-stage clean water brush assembly (12) and a front-stage drying assembly (13) sequentially arranged on the front-stage carrying platform (11);the rear-stage cleaning mechanism (3) includes a rear-stage carrying platform (31), and a rear-stage clean water brush assembly (32) and a rear-stage drying assembly (33) sequentially arranged on the rear-stage carrying platform (31).
10. A method for cleaning the surface of scratch-resistant glass, which adopts the scratch-resistant glass surface cleaning device as claimed in any one of claims 1-9, characterized in that it comprises the following steps: Step 1: Acquire the size information of the scratch-resistant glass, and control the adsorption distance adjustment component to adjust the corresponding spacing between each adsorption component according to the size information; Step 2: Perform pre-cleaning on the surface of the scratch-resistant glass through the front-stage cleaning mechanism, wherein the pre-cleaning includes at least a preset number of cleaning procedures and a drying procedure under preset drying conditions, and the cleaning procedure includes at least one clean water rinsing and one brush scrubbing; Step 3: Place the pre-cleaned scratch-resistant glass on the adsorption components to realize pneumatic adsorption fit between the adsorption components and the scratch-resistant glass; Step 4: Spray a preset proportion of glass polishing paste and clean water on the scratch-resistant glass that is in pneumatic adsorption fit with the adsorption components, and then polish the glass by the polishing mechanism; Step 5: Perform subsequent cleaning on the surface of the scratch-resistant glass through the rear-stage cleaning mechanism, wherein the subsequent cleaning includes at least a preset number of cleaning procedures and a drying procedure under preset drying conditions, and the cleaning procedure includes at least one clean water rinsing and one brush scrubbing.