

CLAIMS

1. A method for conditioning a polishing pad by which the polishing pad, which is configured to polish a wafer and attached to a rotatable discoid turntable, is conditioned by using a conditioning head, comprising:

moving the conditioning head in a radial direction of the turntable to perform the conditioning while rotating the polishing pad attached to the turntable by rotation of the turntable; and

controlling a rotational speed of the turntable and a moving speed of the conditioning head in the radial direction of the turntable in correspondence with a distance of the conditioning head from a center of the turntable,

wherein the rotational speed of the turntable and the moving speed of the conditioning head in the radial direction of the turntable are controlled in such a manner that the rotational speed of the turntable meets a following Expression (1) and a moving operation of the conditioning head in the radial direction of the turntable meets following Expressions (2) and (3),

$$T(r)=Tr_0 \times (r_0/r) \quad \dots (1)$$

$$V(r)=(r_0/r)V_0 \quad \dots (2)$$

$$D \div Q = n \quad \dots (3)$$

wherein, "T(r)" represents the rotational speed (rpm) of the turntable when a distance of the conditioning head from the center of the turntable is "r", "Tr₀" represents the rotational speed (rpm) of the turntable at the start of the conditioning, "r₀" represents a distance (m) of the conditioning head from the center of the turntable at the start of the conditioning, "r"

represents a distance (m) of the conditioning head from the center of the turntable, " $V(r)$ " represents a moving speed (m/sec) of the conditioning head in the radial direction of the turntable when a distance of the conditioning head from the center of the turntable is " r ", " V_0 " represents a moving speed (m/sec) of the conditioning head in the radial direction of the turntable at the start of the conditioning, " D " represents a size (m) of the conditioning head in the radial direction of the turntable, " Q " represents a distance (m) for which the conditioning head radially moves on the turntable when the turntable makes one rotation, and " n " represents a positive integer.

2. A polishing apparatus comprising a conditioning head for conditioning a polishing pad which is configured to polish a wafer and attached to a rotatable discoid turntable,

wherein the conditioning head is moved in a radial direction of the turntable to perform the conditioning while rotating the polishing pad attached to the turntable by rotation of the turntable, and

the polishing apparatus comprises a control mechanism which controls a rotational speed of the turntable and a moving speed of the conditioning head in the radial direction of the turntable in correspondence with a distance of the conditioning head from a center of the turntable,

wherein the control mechanism controls the rotational speed of the turntable and the moving speed of the conditioning head in the radial direction of the turntable in such a manner that the rotational speed of

the turntable meets a following Expression (1) and a moving operation of the conditioning head in the radial direction of the turntable meets following Expressions (2) and (3),

$$T(r)=Tr_0 \times (r_0/r) \quad \dots (1)$$

$$V(r)=(r_0/r)V_0 \quad \dots (2)$$

$$D \div Q = n \quad \dots (3)$$

wherein, "T(r)" represents the rotational speed (rpm) of the turntable when a distance of the conditioning head from the center of the turntable is "r", "Tr₀" represents the rotational speed (rpm) of the turntable at the start of the conditioning, "r₀" represents a distance (m) of the conditioning head from the center of the turntable at the start of the conditioning, "r" represents a distance (m) of the conditioning head from the center of the turntable, "V(r)" represents a moving speed (m/sec) of the conditioning head in the radial direction of the turntable when a distance of the conditioning head from the center of the turntable is "r", "V₀" represents a moving speed (m/sec) of the conditioning head in the radial direction of the turntable at the start of the conditioning, "D" represents a size (m) of the conditioning head in the radial direction of the turntable, "Q" represents a distance (m) for which the conditioning head radially moves on the turntable when the turntable makes one rotation, and "n" represents a positive integer.